

The background is a solid orange color with a faint, light-colored sketch of a landscape. The sketch includes several rectangular buildings of varying sizes, some with internal details like windows or doors. There are also stylized trees with dense, radiating lines for foliage. A winding path or road is visible on the left side. The overall style is that of a hand-drawn architectural or landscape sketch.

3.

Design Considerations

3.1

Design Considerations

SYDNEY 2030

The City has developed a long-term strategic plan that responds to a number of significant concerns including population growth, housing affordability, transport congestion and climate change. The outcome was a vision for a Green, Global and Connected city which now drives the Council's plans, actions and strategic thinking.

"THE CITY OF VILLAGES FRAMEWORK REMAINS CENTRAL TO OUR VISION FOR SYDNEY - PROTECTING AND STRENGTHENING WHAT OUR COMMUNITIES LOVE ABOUT THEIR NEIGHBOURHOODS, WHILE ENSURING THAT LOCAL SHOPS, SERVICES AND FACILITIES ARE JUST A SHORT WALK AWAY TO PROMOTE SUSTAINABLE LIVING.

IN LINE WITH THE CITY OF VILLAGES VISION, SUSTAINABLE SYDNEY 2030 IDENTIFIES IMPORTANT LOCAL ACTIVITY HUBS AND WILL STRENGTHEN THE BASIS FOR OUR LOCAL VILLAGE PLANNING"

LORD MAYOR CLOVER MOORE MP

Barangaroo has unprecedented context perched on the edge of the Sydney Harbour. When complete, Barangaroo will complete the missing link of the pedestrian connection along the harbour foreshore from Mrs Macquaries' chair in the east all the way to Pyrmont in the west.

Barangaroo is surrounded by a variety of precincts, places and spaces all of which will have some degree of influence on the character of Barangaroo and that contribute to the diverse character of the city as a whole. Perhaps the most significant of these are:

- Walsh Bay
- Millers Point
- Kent St Wharf
- Darling Quarter

The Gehl Report - Recommendations and future implementation

Connected Waterfront

- Contribute to developing an interesting Harbour Foreshore Walk from Glebe to Woolloomoolloo.
- Ensure interesting experiences along the waterfront.

Celebrate Water Squares

- Reinforce Sydney as the "Harbour City" through the integration of water features in the public realm.
- Establish links between the city and the water

Improve Links Between The City and the Water Physically and Visually.

- Create interesting end points at the water like bridges, artwork, cafes or recreational facilities.

BARANGAROO AND THE WIDER CITY

Barangaroo and Cockle Bay are neighboured by a number of unique and vibrant precincts. To the south lies Darling Harbour, Darling Quarter and the Chinatown precinct, which is a focal point for Sydney's Chinese community as well as a major city tourist destination. Darling Harbour is one of the world's great waterfront destinations, attracting over 26 million visitors each year and is the major celebration and event venue for Sydney. It has recently undergone significant development to a portion of its public realm which will soon be complemented with the new

proposals that are planned for its Destination Sydney development.

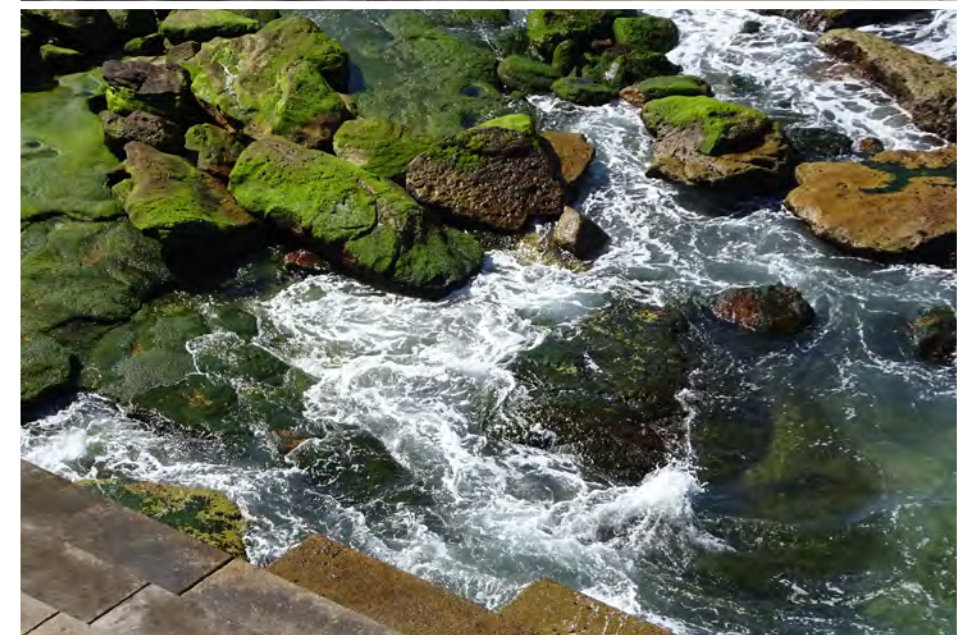
The education precinct of the University of Technology and Ultimo TAFE is situated to the south and west. This area is characterised by a bustling student population with an emphasis on creative industries including design, architecture and fashion.

To the west are the residential suburbs of Ultimo and Pyrmont. These areas have experienced rapid transformation in recent years with a growing residential population that is changing the focus of these suburbs.

To the north and east are the suburbs of Walsh bay, Millers Point and the historic Rocks precinct which form the interface between Barangaroo and the CBD and the connection to some of the cities' infamous icons including the Harbour Bridge and Opera House.

NEW USES TO ENHANCE THE CITY AND NEIGHBOURHOOD

This site provides an important piece in the jigsaw of public open space provision for the Sydney CBD. Its topography, location and context suggest a range of appropriate uses and facilities that will complement the remaining public realm and which will add to the special identity of this site. These potential uses are explained further in section 5 of this report.



3.2

Key Views

BORROWED LANDSCAPE

The character of views to and from the site is important. The topography and urban overlay of Sydney Harbour creates an extraordinarily rich diversity of views, micro climates and character that ranges from raw natural coastlines through villages melded into the landscape to the bustling high density heart of Sydney rising as a distinctive skyline. From Barangaroo South the views across the Harbour change in character from low rise urban backdrops to the south and west through to the tree and steeple profile of Balmain East and then to the more natural profiles of Goat Island, Balls Head Reserve, the Headland Park to the north west and north.

The east is dominated by the tall buildings of the CBD extending from sculpted sandstone cliffs. These backdrop views reflect the changing character within the Barangaroo Master Plan from high density city to the south through to the more natural environment created by the Headland Park. Barangaroo South Stage 1B sits at a transitional space in this urban/green context and the Park has the potential to create a distinctive bridge between the intensity of high rise development and the calmer, lower rise qualities of Barangaroo Central. At the same time, the backdrop views of the harbour offer a unique borrowed landscape that must be used to maximum effect in views from within the project.

CITY TO PARK

The significant and changing character of view, along with the mix of built-to-natural landscapes surrounding this part of the Harbour, re-enforce the need for a complementary solution for all public spaces to enable the capture and leverage of these unique characters.

The different spaces within Stage 1B provide the opportunity to develop interesting markers and interfaces between a variety of distinctly differing scales, uses and thresholds. In particular, these are important considerations when the public realm is striving to create an overarching identity and to also respect the dramatic changes in experience. This is perhaps most significant in the change from the streetscapes to the more expansive public areas provided by Watermans Cove and Hickson Park.



KEY VIEWS

The following images and key plan demonstrate the key views from within, and to, the site.



1. VIEW FROM KENT STREET, AT THE TOP OF THE ESCARPMENT, TOWARDS BALMAIN.



2. VIEW OF PYRMONT BAY FROM THE NEW WATERMANS COVE



3. VIEW FROM NAPOLEAN BRIDGE - STAGE 1A



4. VIEW OF PYRMONT BAY FROM MERCHANT WALK - STAGE 1A



5. VIEW OF HARBOUR FROM EXCHANGE PLACE - STAGE 1A



6. VIEW OF BARANGAROO STAGE 1B FROM PYRMONT BAY

3.1

Distinctive Place Making

A PLACE OF INTERNATIONAL SIGNIFICANCE

In the city-wide context it is also important to understand the wider pattern of open space use and character and how the new spaces and places in Barangaroo South can best contribute to the city. Are they quiet or active? Urban or ecological? What gives them their identity?

In simple terms, Watermans Cove would appear to be the definitive meeting point between the city and the sea in Barangaroo South. It is open to the world and invites the world in. By contrast, Hickson Park is defined by new development and sits in the middle ground between the city and the sea.

The harbourfront view back to Barangaroo emphasises this need to acknowledge and respond to the spatial choreography and punctuation of the city. In the elevation from across the Harbour and south from Darling Harbour, Watermans Cove has the potential to offer a particular landmark on the waterfront.

Watermans Quay is the third opportunity to make a real contribution to place making in Stage 1B. This has to be developed as the definitive street and will require a review of how the function and character of the street is organised. We have envisaged it as a rich green street with a distinctive rhythm to the placement of trees, street lights and other associated street furniture.

A NEW COVE

Watermans Cove has always been considered a fundamental part of the development. It is the place that brings together several junctions and strongly defines the connection of city to harbour. In its current composition however, it seems to have been a product of several iterations of the scheme and unresolved discussions about the intended use and character of the space rather than defining a strong new special place along the waterfront

as it was originally envisaged. Our objective is to review the entire context of the cove, to revisit it as an opportunity to become a place of international significance, and to seek a more coherent identity that registers as a unique place.

A CONNECTED PLACE IN THE CITY

Barangaroo allows the public city to meet the harbour in a way that has not been possible due to the many years of trade and industry on this site. Connecting routes to and from the city are varied and each has its own sequence of levels, experiences and qualities. Barangaroo South needs to complete these journeys and connections in a meaningful way that also reflects the individuality of each route. Watermans Quay is profiled as the most important street in Barangaroo South. It is the only true east west street and is the front door to the most important address in Sydney, 1 Sydney Harbour. This defines a clear brief for how this street in particular should be designed.

The current design for Watermans Quay delivered in Stage 1A is a temporary solution and has yet to achieve the identity and quality demanded by such an important street. It is envisaged as a green street full of trees but in reality can these be delivered in a meaningful way given the engineering constraints? It is also not yet really connected to Watermans Cove. This will be readdressed in the development of Stage 1B to make a more positive connection between these two places.

INCLUSIVE - HEATWARMING - HUMEROUS - COMFORTABLE

Barangaroo South is a distinctly urban environment. The scale and sharp materiality of the buildings and the main streetscape will create a very distinctive and powerful 3D world offering amazing architecture enriched by the very best retail and food and drinking opportunities. The challenge is to make it feel inclusive, welcoming and comfortable?

Will it feel like home or an intermediate place where you can relax and take a moment to enjoy the setting?

Will it make you smile or is it too serious? The Stage 1B Park, Harbour and Watermans Quay are three places in the public realm where there is the opportunity to counterbalance the overarching hardness with a more engaging, softer, human touch.

A NEW CITY PARK

In the wider Master Plan for Barangaroo, Hickson Park is envisaged as a simple, grassed open space for passive play, recreation and respite from the city. A particularly important overlay in this context is how the park engages with the adjacent city and how it will perform during peak demands at lunchtime and evenings. Regardless of the park's simplicity it must be developed such that it creates its own identity - there is the potential for it to be the host for a narrative for the history of Barangaroo South - and to command this important location at the heart of the site. It is the middle ground, part active hub and part calm centre ground.



A NEW CITY PARK



A CONNECTED PLACE FOR PEOPLE



INCLUSIVE + HEART WARMING



A PLACE OF INTERNATIONAL SIGNIFICANCE

3.4

Sydney Harbour Ecology

A GREEN DEVELOPMENT

Barangaroo South is promoted as a 'Green' Development that meets many technical objectives for sustainability. Stage 1B offers the potential for this by focussing on ecology and sustainability. By managing the site stormwater through treatment chains, the public realm will connect the buildings and streets to the park, the harbour and ultimately the sea.

SYDNEY HARBOUR

Sydney Harbour is Australian icon that is a part of everyday life for Sydneysiders. Much of the character, and indeed the beauty of Sydney can also be attributed to its tributaries. Four deeply-incised, flooded valleys dissect the raised coastal margin of the region producing one of the longest coastlines of any capital city in the world.

The Harbour is a drowned river valley which formed during the sea level rise approximately 10,000 years ago. The entrance is approximately 3km wide with a depth of up to 30m. From the entrance to Sydney Harbour, the estuary opens up to form Port Jackson, and then extends into three main branches; Middle Harbour to the north and the Parramatta and Lane Cove Rivers that extend to the west. The Parramatta River, Lane Cove River and Middle Harbour are major tributaries joining the main estuary channel. The estuary, which has a complex shoreline and topography, is approximately 30km long, with a surface area of about 50km² and a total catchment of 500km².

FISH

Of 575 species of fish recorded in Sydney Harbour over 60 % inhabit sub tidal reefs a fact that indicates the importance of rocky reefs to fish diversity in the Harbour. Horizontal or gently sloped rocky intertidal

habitats in Sydney Harbour also support important biogenic habitats such as oyster beds (Sydney rock oyster, *Saccostrea glomerata*), the turfing algae *Corallina officinalis* and the tube-forming polychaete *G.caespitosa*. The distribution of these habitat-forming organisms on intertidal shores in Sydney is naturally patchy, forming mosaics on rocky shores. Such habitats are extremely important and support a great diversity.

Designing structures to mimic natural habitats is in our interest. It will contribute to the conservation of local biodiversity and reduce the 'invasibility' of natural systems thereby increasing their resilience and stability. "Artificial structures affect biodiversity directly and indirectly by altering ecological interactions and processes. Understanding how these structures affect biodiversity is necessary to provide sound information for conservation and management," (Dr Ezequiel Marzinelli – UNSW)

The key opportunity is to strengthen intertidal habitats in this part of the harbour and improve the opportunities to study and learn from them at the fringes of the city and the starkly contrasting urban environment.

The strengthening of new and existing marine habitats at the edges of and below the water line is another key opportunity in this part of the Barangaroo development. Given the limited points where one can actually engage with the water in the southern part of the site there is an interesting potential for exploration of an idea where the two extremes of the urban and natural environment meet. Does this create opportunities for education, fun and a new way to marvel at unique qualities of this magnificent harbour?



A historical map of St. Philip's Parish, Barbados, rendered in a faded orange-brown color. The map shows the coastline of the parish, including Barbados Bay to the north and Hawes Point to the south. Key locations labeled include St. Philip's Church, the Royal Military Hospital, and various streets and squares. A large white number '4.' is overlaid on the left side of the map.

4.

Site Analysis

4.1 Site Analysis

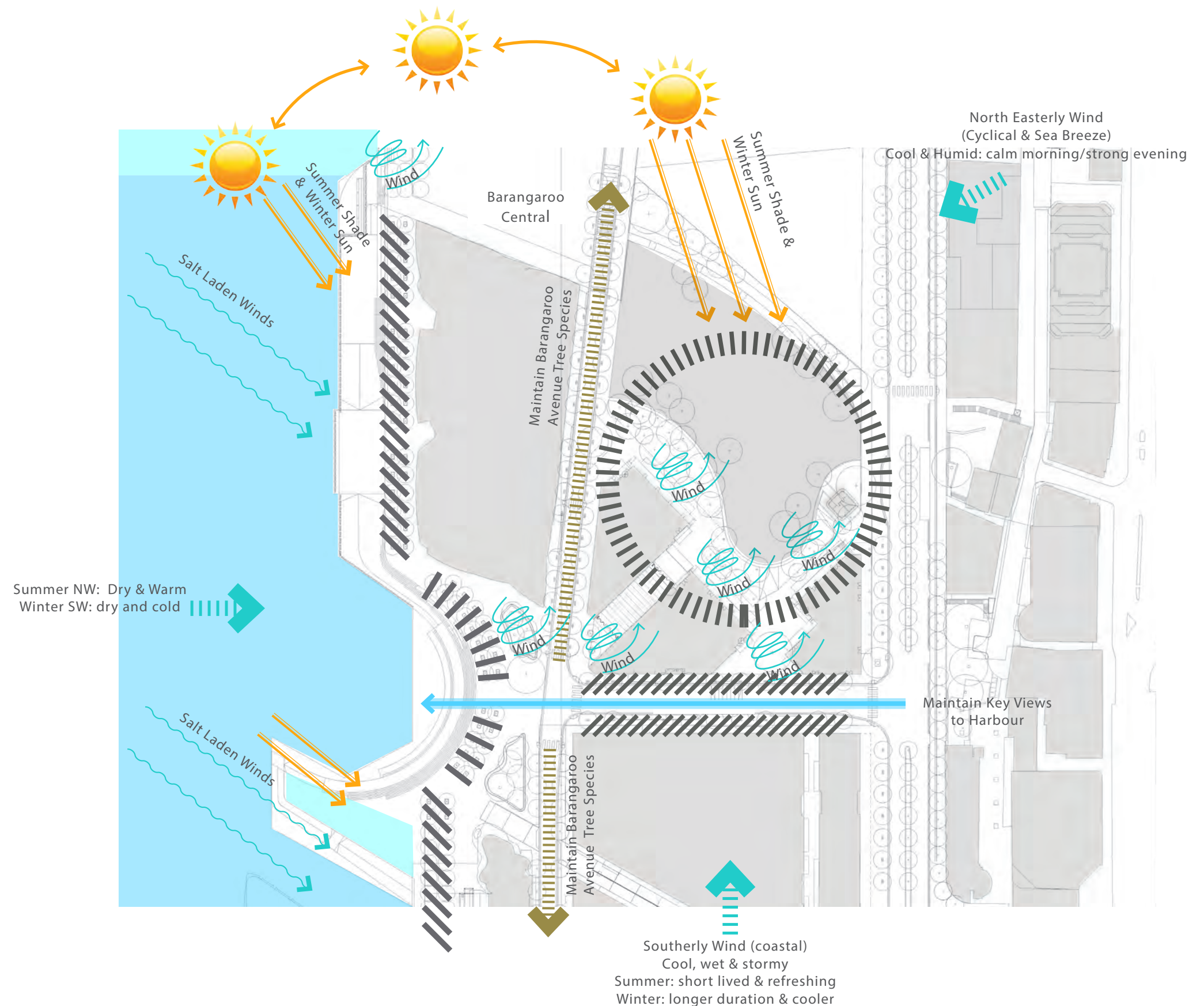
MICRO CLIMATE

Careful consideration of the site's microclimate is a critical factor in the selection of sustainable planting species. Exemplary tree establishment and growth is a fundamental requirement for the satisfactory resolution of competing challenges of sun penetration in the winter and shade for summer. Continuous tree canopies in certain locations have also been identified as particularly important for the mitigation of wind impacts.

The site must be a pleasant and usable environment during both good and adverse weather conditions. Hickson Park is exposed to the north west. It is protected from south westerly winds by the residential buildings framing it's southern edge. However, these tall buildings will create areas of wind turbulence at their base and this will need to be addressed within the park design. The configuration of the buildings around the park will also create a degree of wind funnelling between individual podium spaces. The gaps between R4B and R5 and between R4a and R4B will need to be designed to mitigate this effect. Similarly the Barangaroo Avenue edge to the park needs to be designed to protect the park from south- west quadrant winter winds and rain, intermittent hot summer westerlies and hot, late afternoon summer sun. In Sydney, these elements can be severe and pose a significant challenge to creating places that are comfortable throughout the year, and at various times of the day.

Modelling indicates that the park will be in sun for different parts of the day and different parts of the year. This should be accommodated into the design of the park to take advantage of this exposure in the creation of shaded areas in summer, sunny areas in winter. A key objective is "cool and shady in summer, warm and sunny in winter".

Watermans Cove is highly exposed to prevailing south-to-west quadrant winter winds and rain, intermittent hot summer westerlies and hot, late afternoon summer sun. In Sydney, these elements can be severe and therefore pose a significant challenge to creating places that are comfortable throughout the year, and at various times of the day. The provision of shade and shelter that offers the choice of location to sit and enjoy the space is an important part of the design.



WIND

There are three dominant wind patterns affecting Sydney Harbour, the strongest winds (occurring approx. 17% of the time) are from the south. The most frequently observed direction was from the northeast (approx. 22% of the time), although not as strong as the winds from the south. The third most common wind pattern was from the west, occurring primarily during winter (approx. 18% of the time).

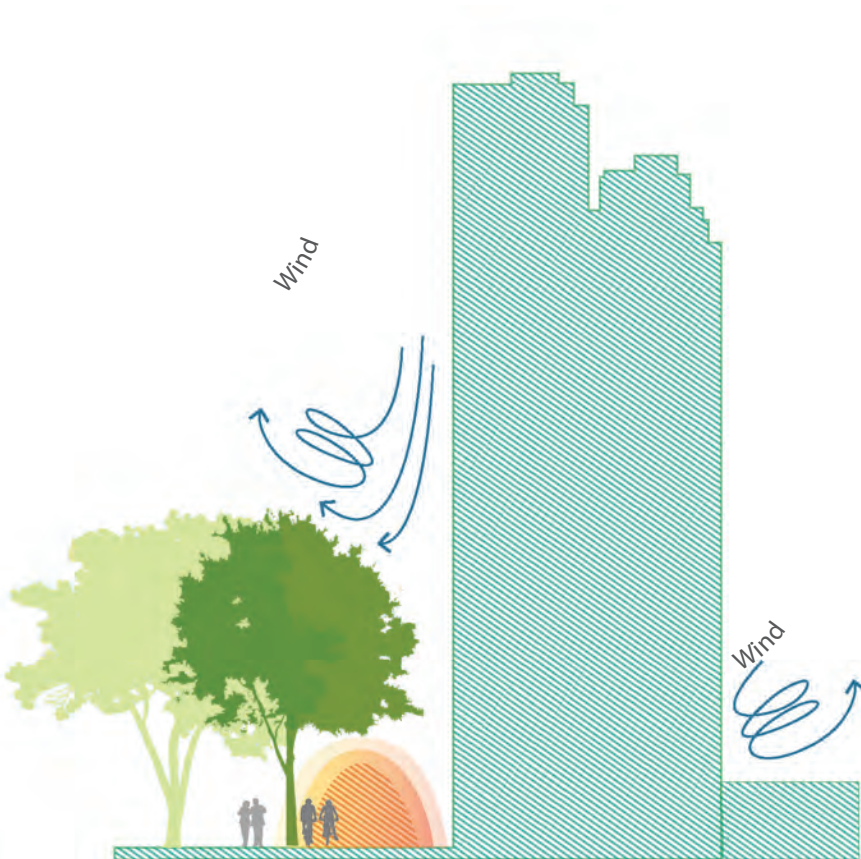
CPP have recently completed a detailed wind assessment for the recent MOD8 application for Stage 1B and this is supported with more detailed studies undertaken by Windtech for the stage 1B residential towers and Stage 1B public domain, and by RDWI for Crown Sydney.

There were a few locations in the public realm that were found to exceed the safety criteria for the public (at the eastern end of Watermans Quay and around the northern part of the Crown Hotel). One of the key challenges for the public realm will be the successful mitigation of these areas so that they are seamlessly incorporated into overall design solutions.

Significant down wash from the impact of southerly winds creates windy conditions at the corners of the towers and podiums and along Barangaroo Avenue. Proposed and existing streets channel winds north south and east west. Shelter and protection from wind has taken various forms, most commonly as canopies attached to podium levels.



TREE FUNCTION PROVIDE SHADE AND ACCESS TO WINTER
Evergreen trees with large, varied forms and high canopies provide opportunities for hot summer sun protection and access to sun during the winter.

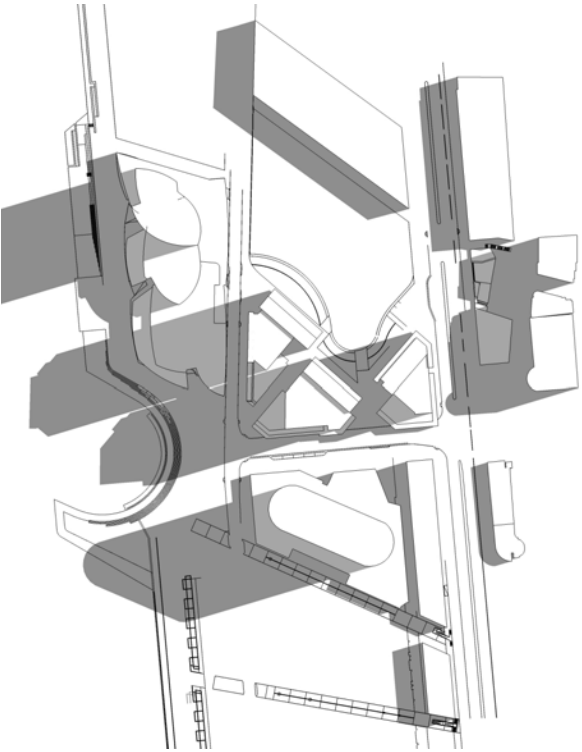


TREE FUNCTION PROTECT FROM WIND
Continuous trees canopies appropriately placed at the interfaces of the buildings are required to provide important mitigation of wind impacts.

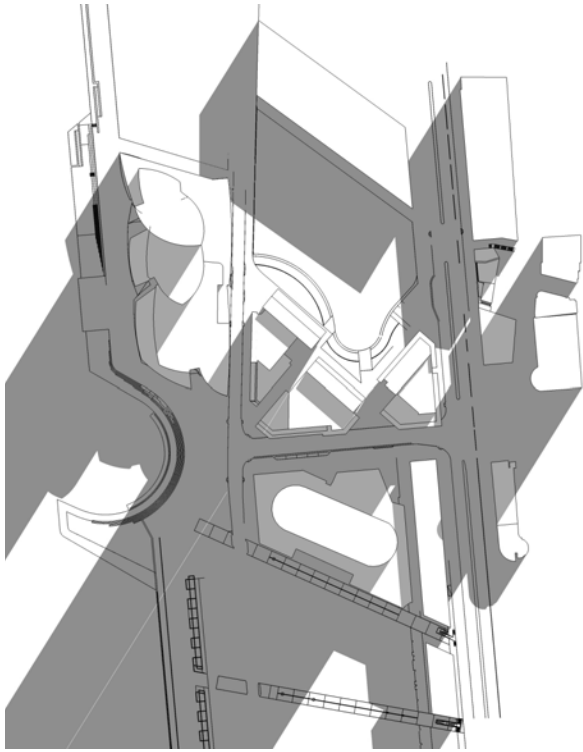


TREE FUNCTION CLEAR VIEWS
Trees are required to promote distant views under canopies and borrowed views across the park, harbour and the proposed future Barangaroo Central Parklands.

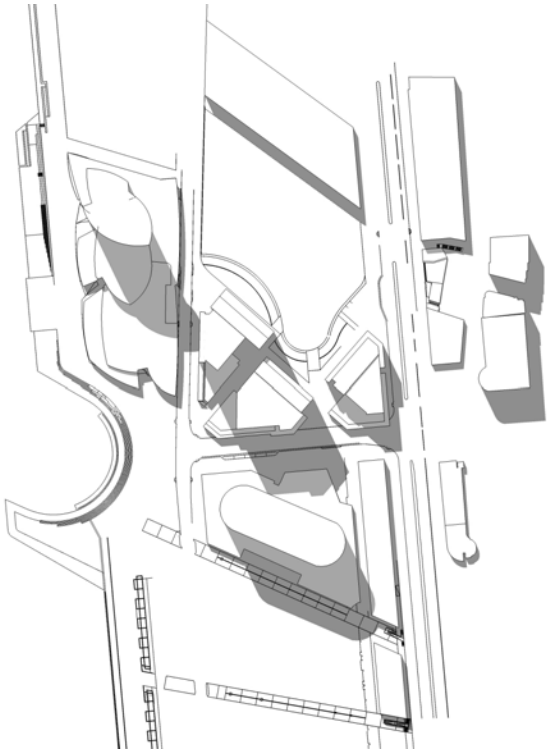
SHADE - SUMMER + WINTER



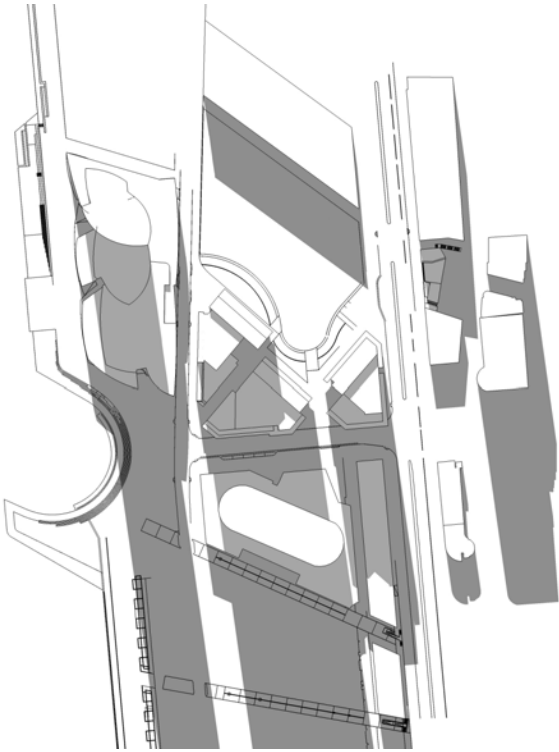
10.00 summer



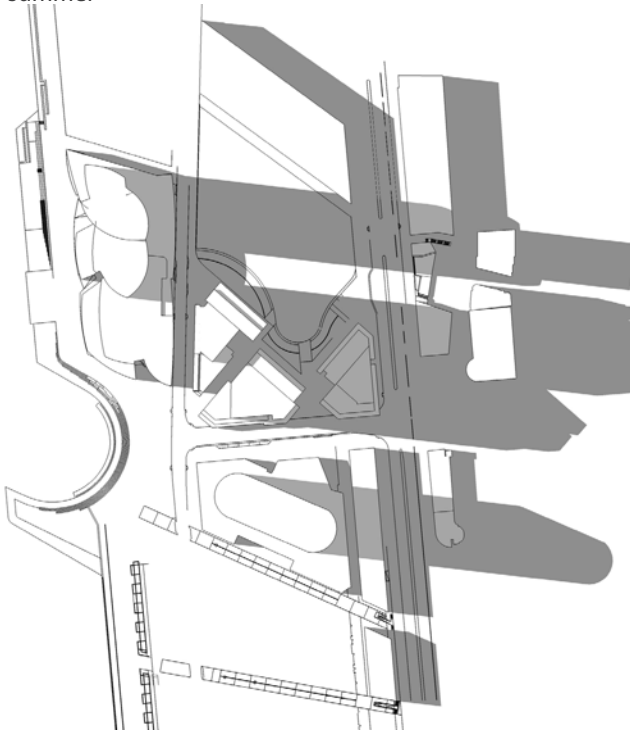
10.00 winter



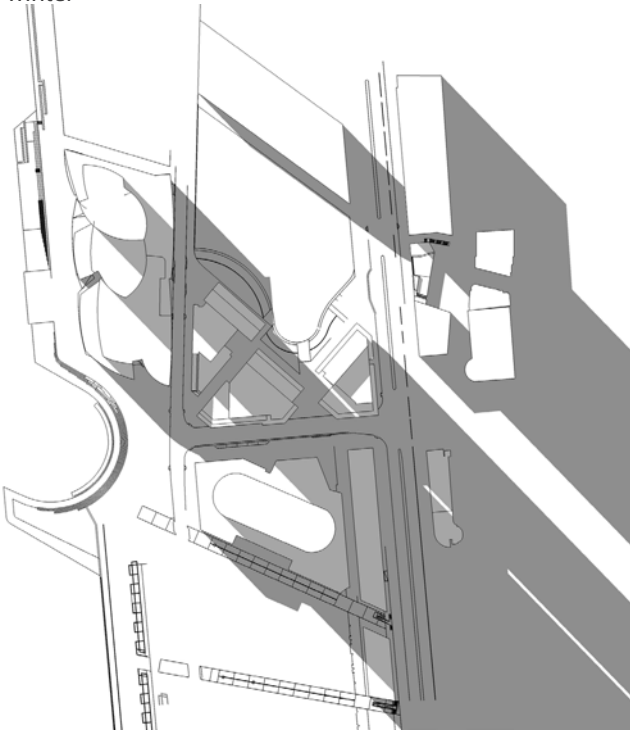
12.30 summer



12.30 winter



15.30 summer



15.30 winter

Note: Development For Blocks in Central Shown Indicatively.



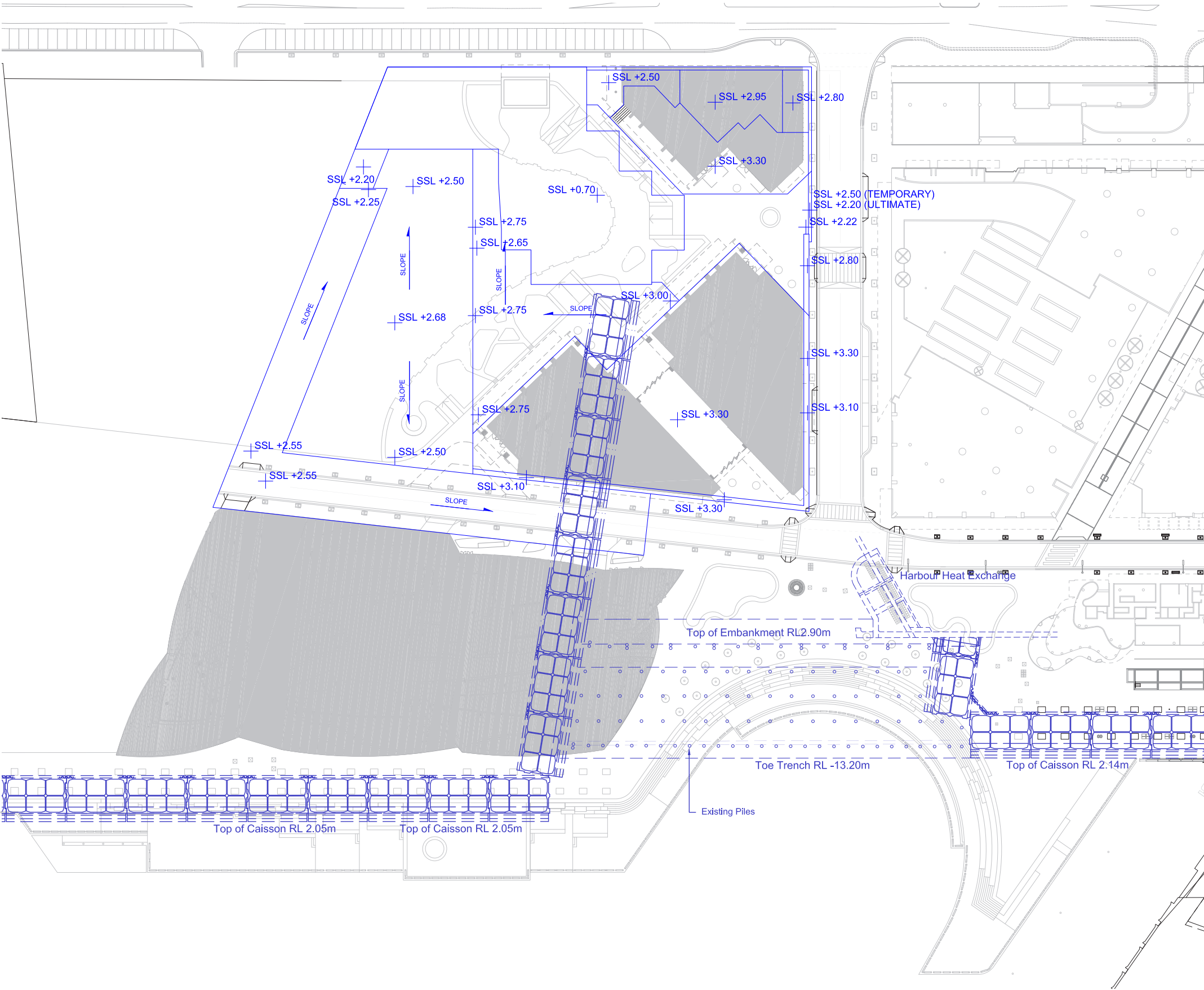
BELOW GROUND SLAB EXTENTS & LEVELS

A vast proportion of the public domain proposed for this stage of the development is over concrete slab. This has been co-ordinated to allow for sufficient soil depth for depths of soil for future planting and includes a deep soil zone in part of Hickson Park. Careful consideration and coordination will be required for the design of new drainage systems associated with the roadways, buildings and public domain surface run off.

In addition to the proposed Crown Sydney and Residential Building basement slabs the existing concrete apron that defines the entire edge of the waterfront - above and to the east of the existing cassion wall - will be required to be considered in the development of soil depths and drainage profiles. This has successfully been addressed in the development of Wulugul Walk in Barangaroo Central, we will adopt the same principles for the design of Stage 1B.

A large section of the existing apron has been constructed as a suspended piled structure (over the location of the deepwater berth between the former finger wharves). Some of the existing apron will be required to be removed in this area to accommodate the new design however the new Watermans Cove and Boardwalk will be developed to re-use as many of the existing piles as possible. The existing former Spirit of Tasmania loading dock structure will similarly be re-used and integrated into the new boardwalk in front of the Crown Sydney.

- LEGEND
- SSL + Slab Level
 - ➡ Indicative fall direction
 - Existing Caisson



4.2

International Benchmarking

BARANGAROO SOUTH STAGE 1B

The public realm for Barangaroo South Stage 1B occupies 29500m² (excluding adjacent separate building envelopes and roadways) of area between Stage 1A and the future development of Barangaroo Central. Its existing immediate context includes the new International Towers, Hickson Road, and the existing residential tower developments on Kent Street. Of particular note is the dramatic sandstone escarpment that defines the eastern side of Hickson Road and the edge of Millers Point.

There are no international examples that exactly match the spaces and composition that are proposed for Barangaroo South however there are some that do exhibit similar qualities that are useful for comparison, some are just a short trip across the Harbour.

- Development application boundary
- Barangaroo South 1B boundary



Barangaroo South Stage 1B

BRYANT PARK, NEW YORK

Bryant Park is located in the borough of Manhattan in New York. It has been a good general international example and source of comparison throughout the development of the initial ideas for Hickson Park.

Hickson Park has the same aspiration for very large scale trees that provide a range of areas to sit and embrace a large lawn area. Bryant Park successfully defines the edge between the more urban streetscape to a calmer pause within the city.

Bryant Park is an excellent example of a park that establishes mature trees over slab. The park has been built over a slab which stores book for the adjacent library.



Bryant Park



Bryant Park

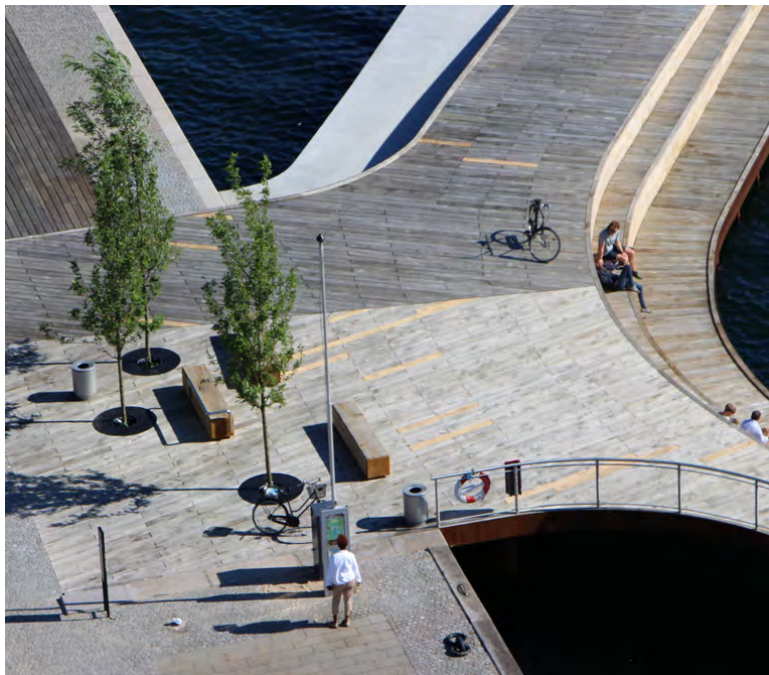


Bryant Park

KALVEBOD WAVES, COPENHAGEN DENMARK

The project consists of two main plazas that are perched on the edge of the foreshore and are used to anchor the extensive decks that extend out across the water. The pier allows for a series of flexible public spaces on the water with facilities to host a variety of events and celebrations. They are also heavily orientated towards play.

The pier and boardwalk include various enclaves for different water related activities such as canoe hire, diving and swimming. The various geometries and levels are similar to the timber pier that is proposed for Barangaroo South. It also has a series of lower terraces that allow users to get closer to the water if they desire. The structure tells an interesting ecological story as it is used to attached other underwater structures that encourage populations of oysters and Mussels.



Kalvebod Waves, Copenhagen Denmark

BERGES DU RHONE, FRANCE

The Berges Du Rhone is a linear promenade with a series of connected special places that provide opportunities for ad hoc play, rest and relaxation. Whilst not totally the same as the proposed Watermans Cove it does have many similar charaters which include a completely public feel that navigates a significant change in level with a series of sitting terraces.

In other similarities the promenade successfully defines a separation between “promenaders” and cyclists of all ages. It defines a strong linear edge to the riverbank and city interface.



Berges Du Rhone

