Central Barangaroo

Urban Design Report and Design Guidelines

Prepared for
INSW

Issued
28 November 2023

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OCULUS

COLA studio

SJB acknowledge the Traditional Custodians of the land on which we live, practice, and visit, and pay our respects to Elders past and present. We recognise the continuous engagement and caring of the lands, waters, and skies by First Nations peoples for time immemorial.

We support the Uluru Statement from the Heart and accept its invitation to walk with Aboriginal and Torres Strait Islander people in a movement of the Australian people toward a better future. The project is located on the lands of the Gadigal people of the Eora Nation.

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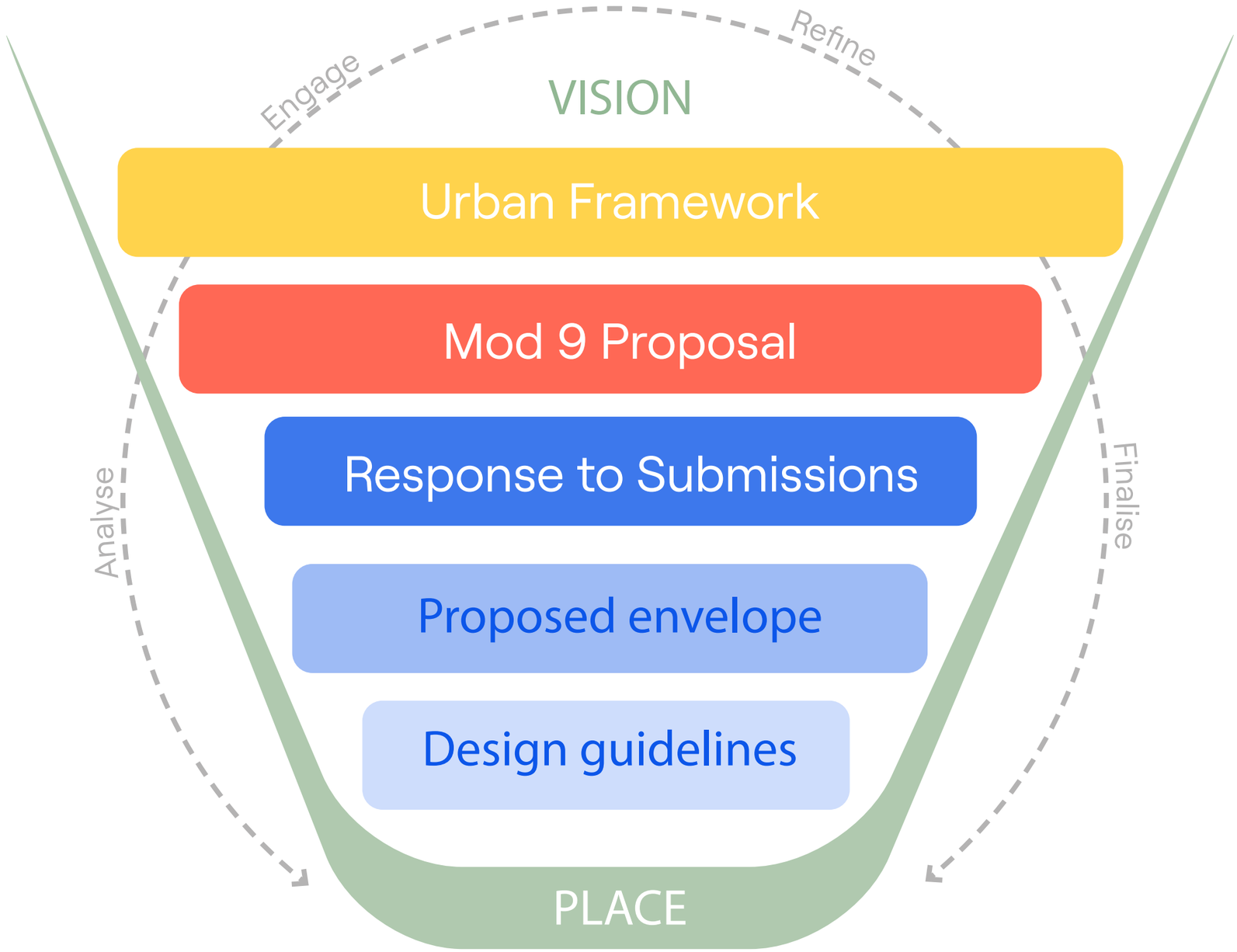
1 Executive Summary

Purpose of the report

The project objectives for Central Barangaroo are as below :

- Deliver an innovative, creative, and dynamic waterfront destination that is permeable and connected within the precinct and connected with the city;
- Ensure the delivery of design excellence in the planning and built form of the precinct, creating a diverse community of architectural expression within an overall coherent urban structure;
- Deliver diversity of products and uses integrating commercial, residential, retail, community, civic, cultural, hospitality and entertainment activities which contribute to a vibrant and active identity;
- Create and deliver a public domain that is distinct, unique, and innovative and allows for range of passive and active outdoor spaces and uses that together create a new iconic visitor attraction, consistent with the Infrastructure NSW's Activation Framework;
- Deliver a balance of financial return and public benefit and amenity across the precinct;
- Deliver a culturally distinctive, locally relevant, and internationally appealing canvas for appropriate facilities, experiences and public art;
- Ensure high levels of public attraction, operational serviceability, amenity, and security across the precinct and during staging; and
- Extend the principles and networks of the climate positive promise in line with current world's best practice to deliver a whole of Barangaroo outcome and create projects that respond visibly to the sustainable needs of people and the planet.



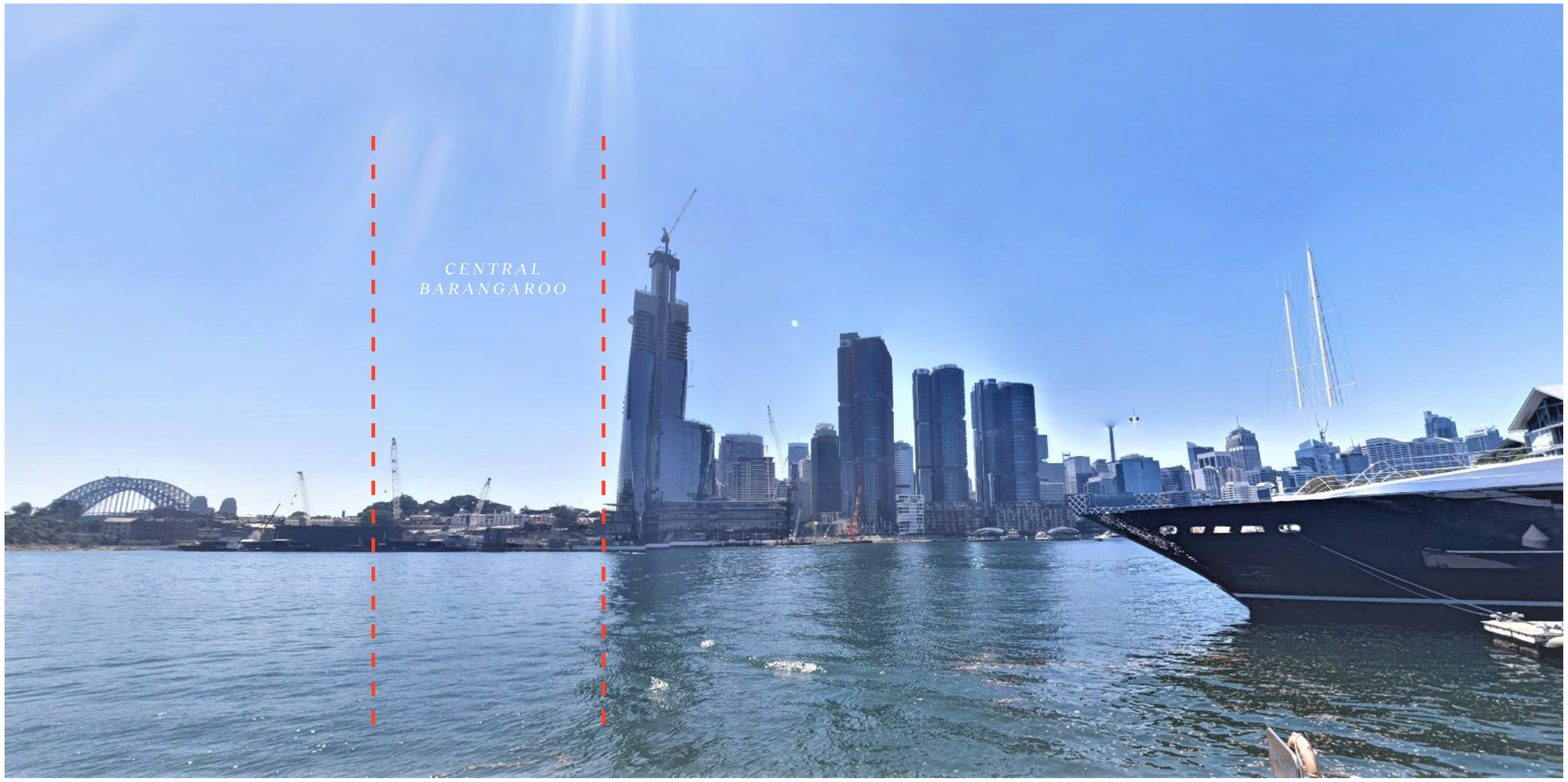
The diagram above illustrates the process of this report

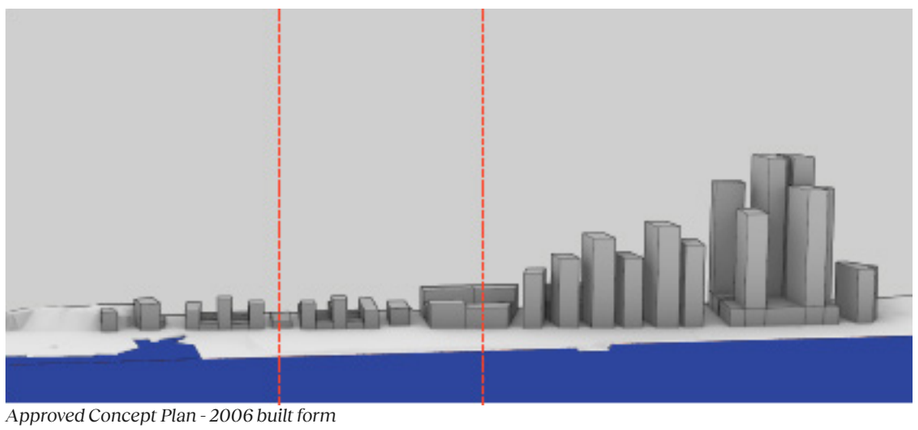
Site context

The realisation of Barangaroo has significantly transformed from its initial Concept Plan, but the vision of sustainable development, generous well-connected public spaces, and pedestrian-focused design remain. Central Barangaroo is the final puzzle piece in the Barangaroo development project and is vital in creating a vibrant precinct that connects the city to the harbour and Barangaroo Reserve to Barangaroo South.

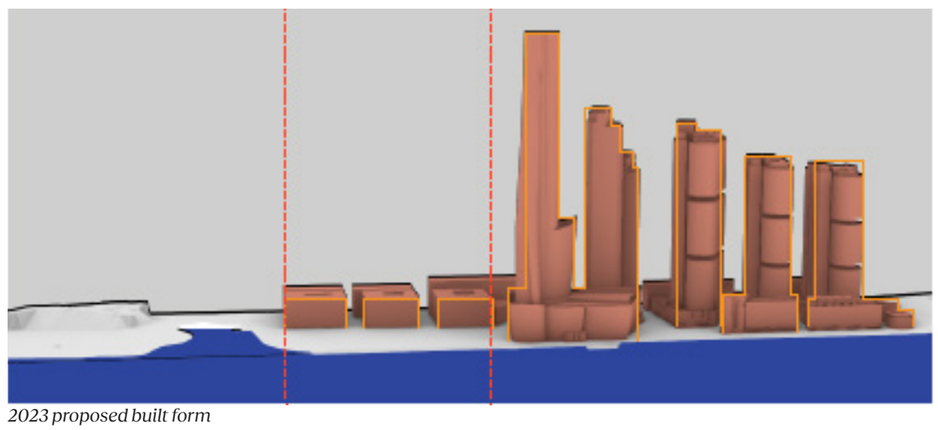
The Central Barangaroo precinct will form to complement the existing northern and southern areas of Barangaroo while adding a distinct character and role within the overall waterfront development. Future development will integrate commercial, residential, and recreational spaces, creating a dynamic urban environment that caters to the needs and aspirations of residents, workers, and visitors alike.

Unlike the Southern Barangaroo development that aimed to connect the city to the harbor by dragging the CBD closer to the waters edge, Central Barangaroo aims to connect more directly with Millers Point, by learning from the scale and architectural typology of the warehouse and wharf buildings of Walsh Bay and Hickson Road north.





Approved Concept Plan - 2006 built form



2023 proposed built form

Project history

Approved Concept Plan envelope

The Approved Concept Plan Envelope in the original Concept Plan Approval (Feb 2007) is a draped envelope across Block 5 (RL34), Block 6 (RL29) and Block 7 (RL35).

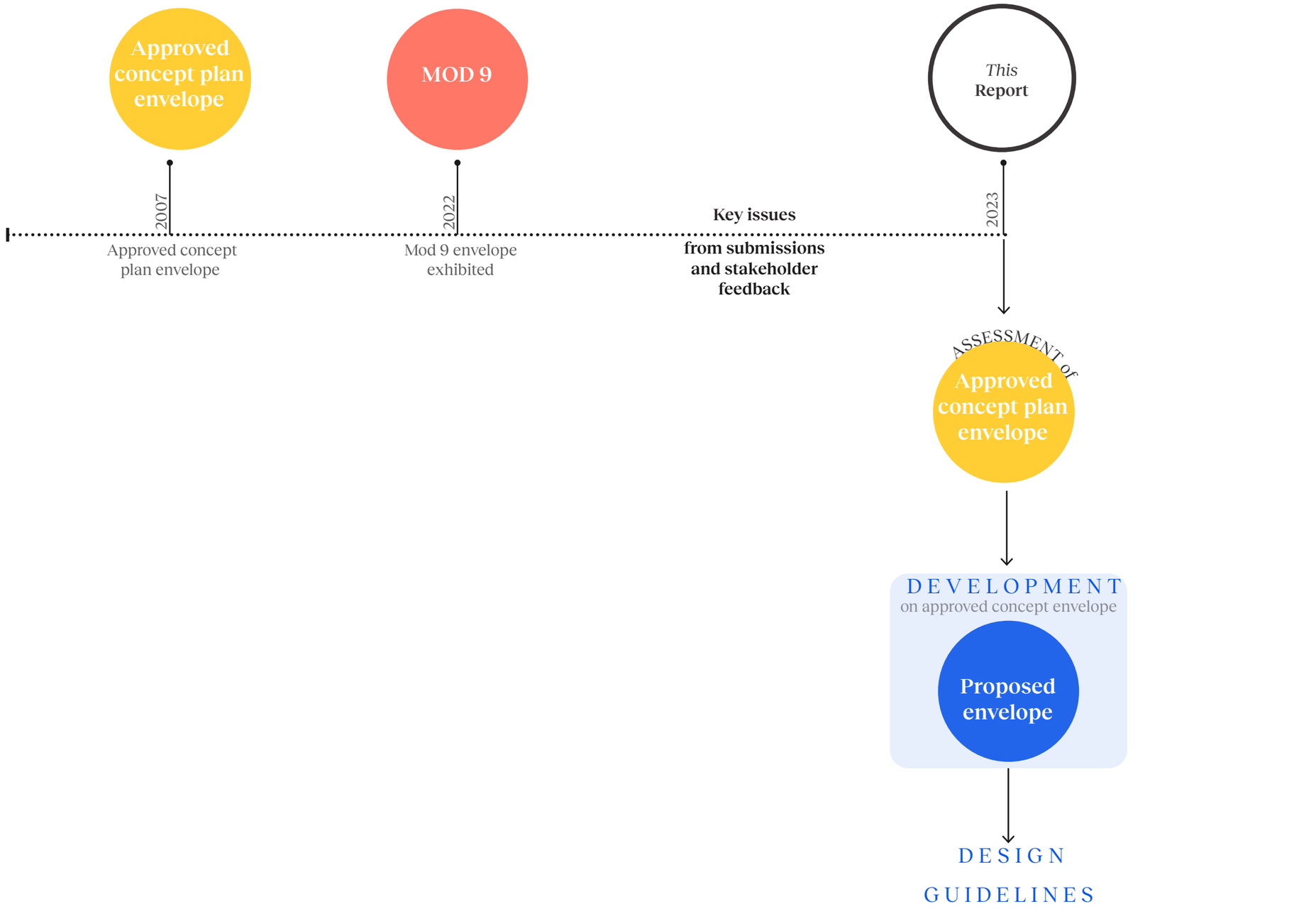
Mod 9 envelope background

The Modification 9 to Barangaroo Concept Plan for Central Barangaroo (MOD 9) commenced in March 2014, with Director General's Requirements (DGRs) issued in April 2014. MOD 9 and the SEPP amendment was formally lodged by INSW to DPE on 8 April 2022. Public exhibition commenced on 12 July 2022 and closed on 08 August.

Submissions were received from various government agencies and stakeholders that identified key issues for the Mod 9 application.

Proposed envelope

The proposed envelope is developed from the urban framework assessment of the original approved concept plan envelope and takes into consideration key issues identified during the Mod 9 exhibition from submissions and stakeholder feedback.



Envelope timelines

Approved Concept plan envelope

Approved Concept Plan building envelope

The approved Concept Plan envelope forms the basis of comparison with the design response to submissions.

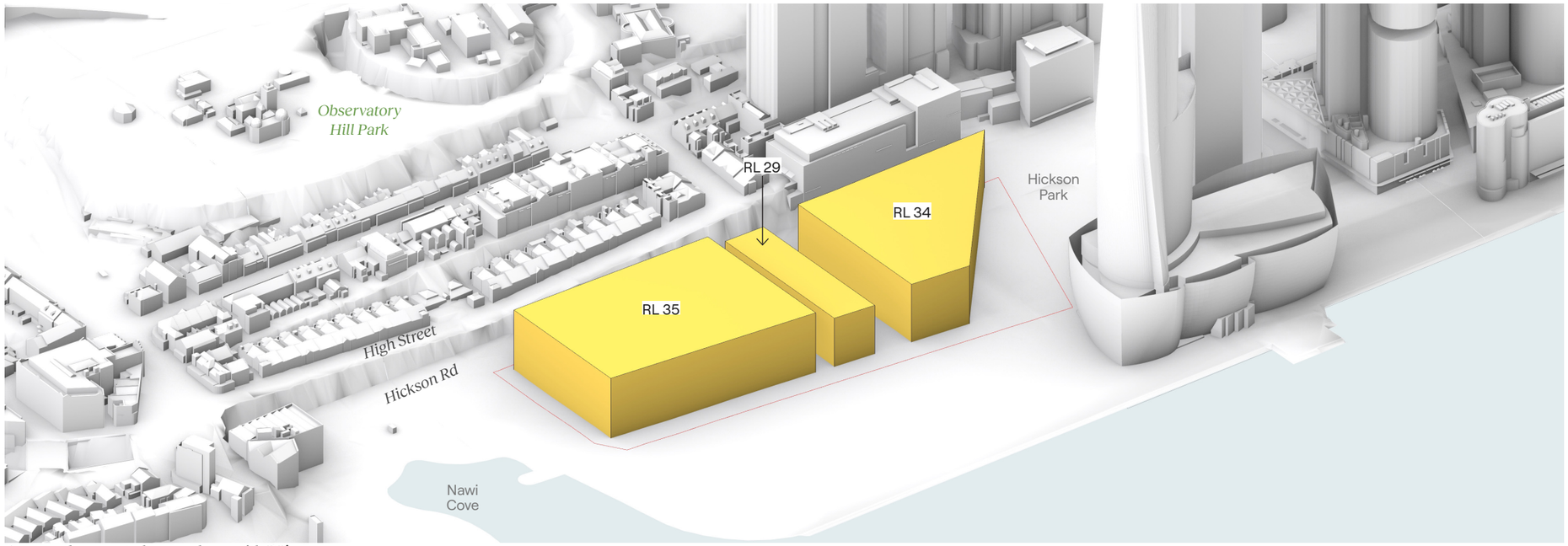
Envelope Parameters

- The approved concept plan envelope is for three blocks with two central east-west through-site links.
- The north and south blocks present significant length along Hickson Road at 110m and 111m.
- The building heights allowed are midrise with top RLs of 35, 34 and 29.

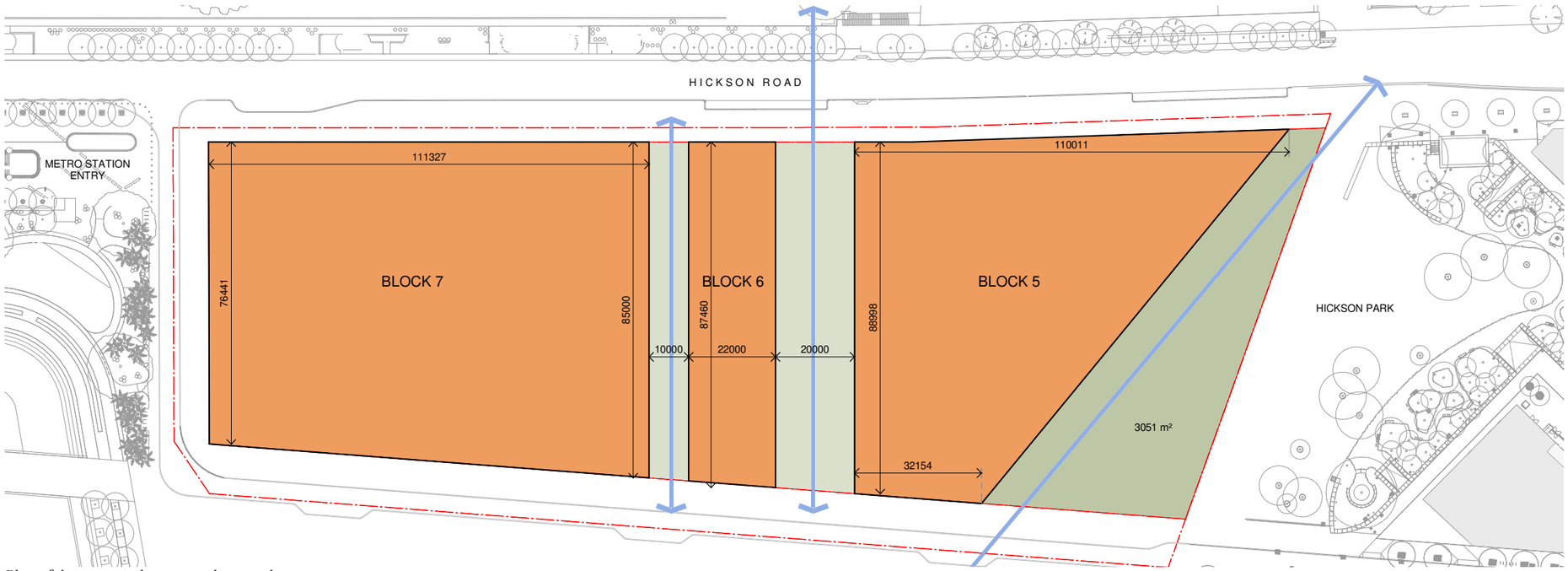
Allowable area

Maximum allowable GFA = 47, 688sqm

Total site area = 27,924 sqm



Approved concept plan envelope with RL's



MOD 8 APPROVED ENVELOPE 17390 m²

Plan of the approved concept plan envelope

Mod 9

Exhibited Modification 9 envelope

The Mod 9 proposed envelope is shown to the right, resulting in an envelope of many varying heights with the top RL proposed at 73.7.

The typology of buildings associated with this proposal was for large format retail with residential and commercial uses above.

Suggested design changes resulting from submissions

Stemming from public and stakeholder submissions, and via a dialect by the office of the Government Architect, the following designs changes are to be incorporated into a revised master plan:

1. Maximum height RL35 to Block 7, with no significant height increase south of High Street;

2. Mod 8 line re-instated, with maximum overshadowing of 2500 sqm to Hickson Park mid winter;

3. Removal of building cantilevers over building site boundaries;

4. No overall reduction in open space within the site;

5. East-west streets to be open to sky;

6. Provision of north-south pedestrian link between Hickson Park and Nawi Cove;

7. Removal of built form below RE1 zone (Hickson Park);

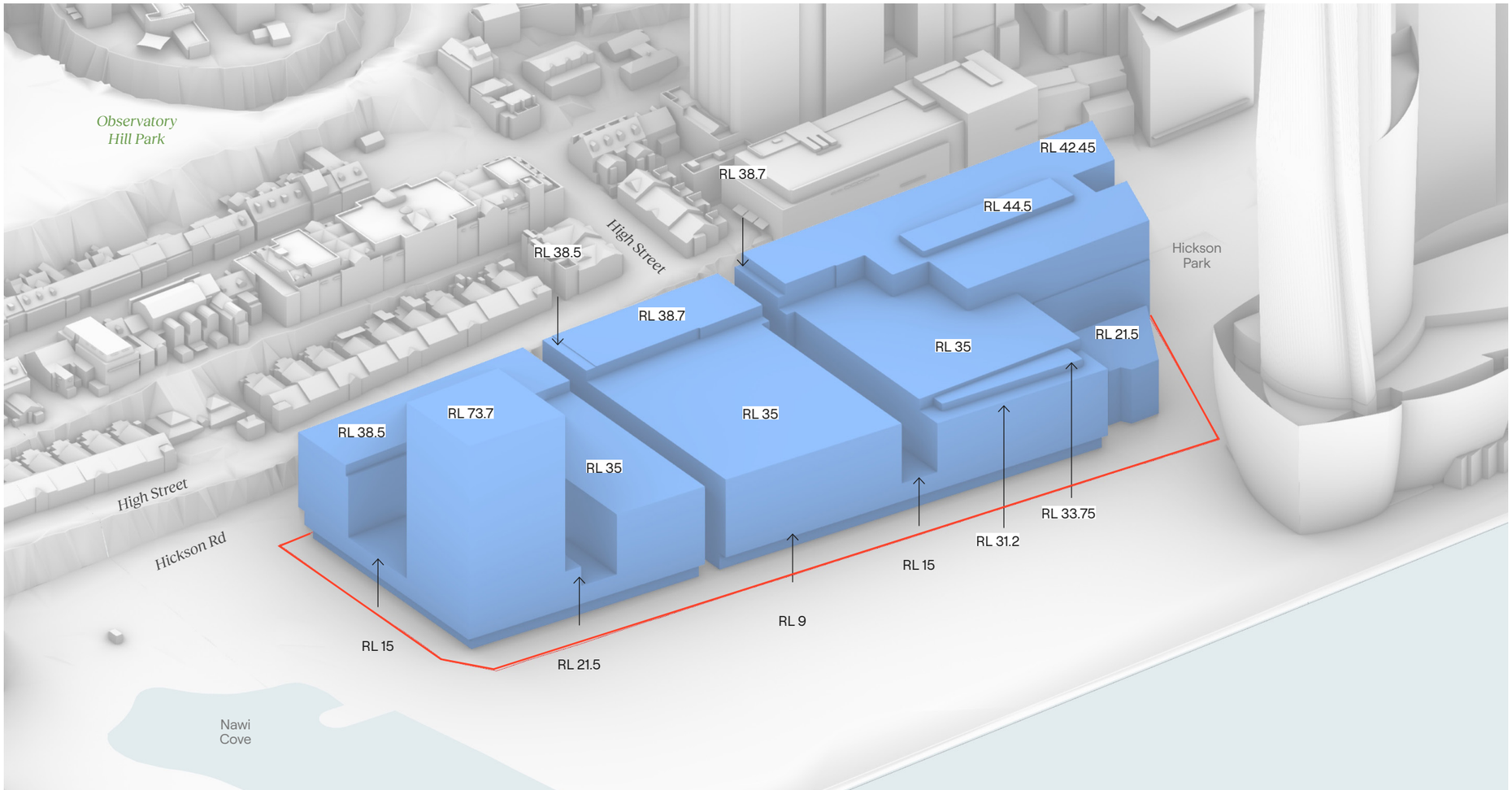
8. Barangaroo Avenue to be reinstated as a vehicular street, connecting to Street D and Hickson Road;

9. Reinstatement of High Street footbridge in it's historical location;

10. Appropriate building separation to maintain vistas from Millers Point; and

11. Appropriate envelope building articulation allowance to achieve design excellence

For a detailed stakeholder response schedule refer to the Planning Report prepared by Mecone.



Mod 9 envelope with RLs

Modification 9 Envelope

Proposed Envelope

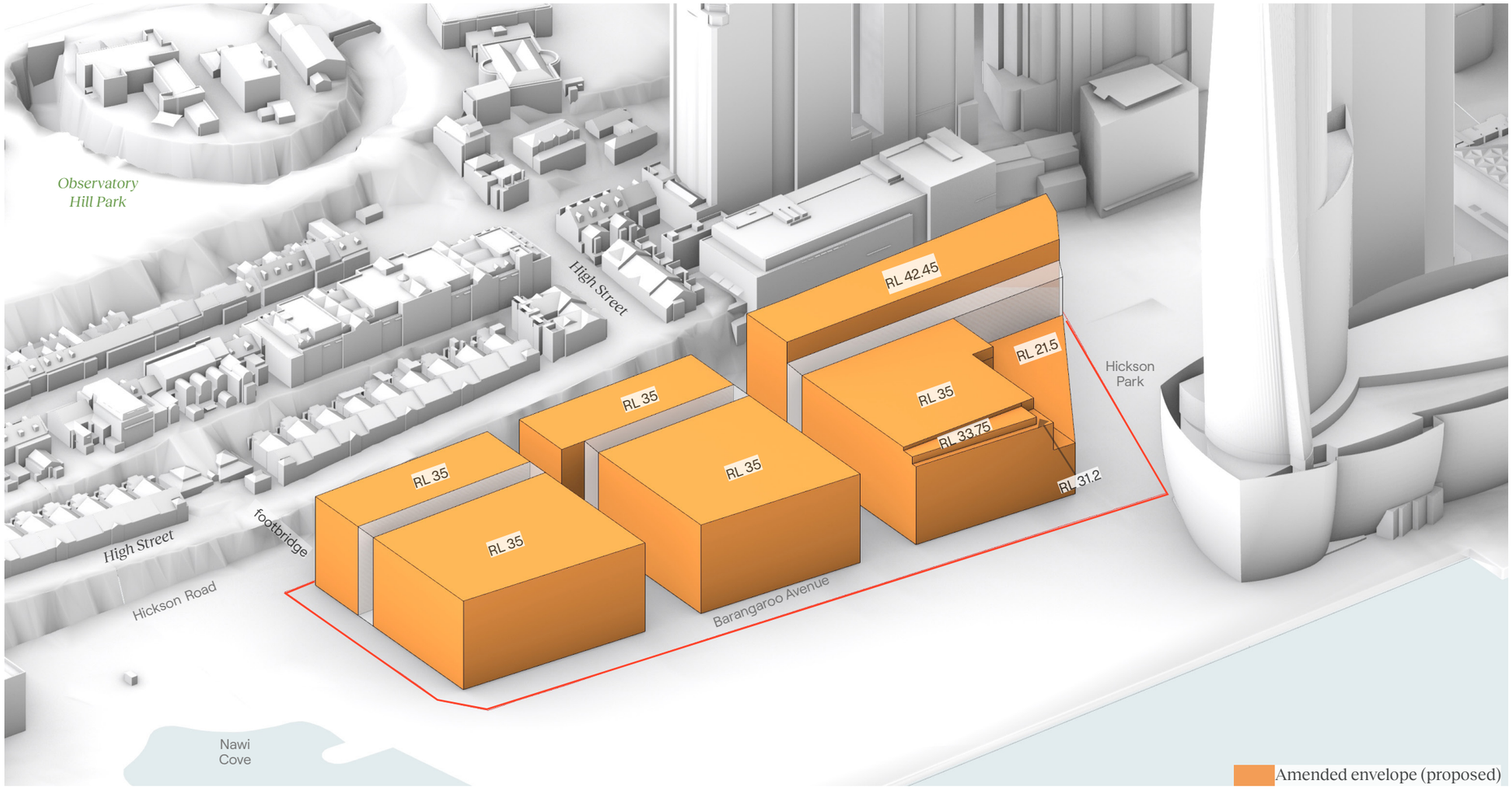
Proposed envelope

The proposed envelope shown on the right takes into consideration urban principles underlining the approved concept plan envelope from 2007. It also responds to the key issues highlighted during the Mod 9 exhibition implementing the following key amendments :

Key changes

- Removal of the tower element at Block 7 at RL 73.7;
- Reduced building height with the tallest element located on Block 5 at RL 42.45;
- Increased provision of publicly accessible open space when compared to the approved Concept Plan;
- New north-south pedestrian link with a width of 8m and open to the sky to facilitate visual links from Hickson Park to Nawi Cove;
- Retain Barangaroo Avenue as a one-way shared street;
- Expanded east-west pedestrian connections, known as Plaza North and Plaza South up to 20m wide and open to the sky;
- New east-west arcade within Blocks 5 and 6 with a minimum width of 6m;
- Removal of proposed SEPP amendment to allow building facades to extend by an additional 3m above ground and the 650mm façade articulation zone;
- Amended Urban Design Guidelines to reflect amended building envelope outcomes; and
- Removal of SEPP amendments for underground uses within the RE1 zone.

The envelope massing shown in the adjoining image constitutes the maximum proposed build form outcome. While not an architectural proposal, it is our opinion that these built form envelopes represent a considered response to submission while providing fertile environments for the development of highly specific architectural responses for each building block - to be lodged for future Development Approval.



Proposed envelope with RLs

2 Connecting with Country

Gomora

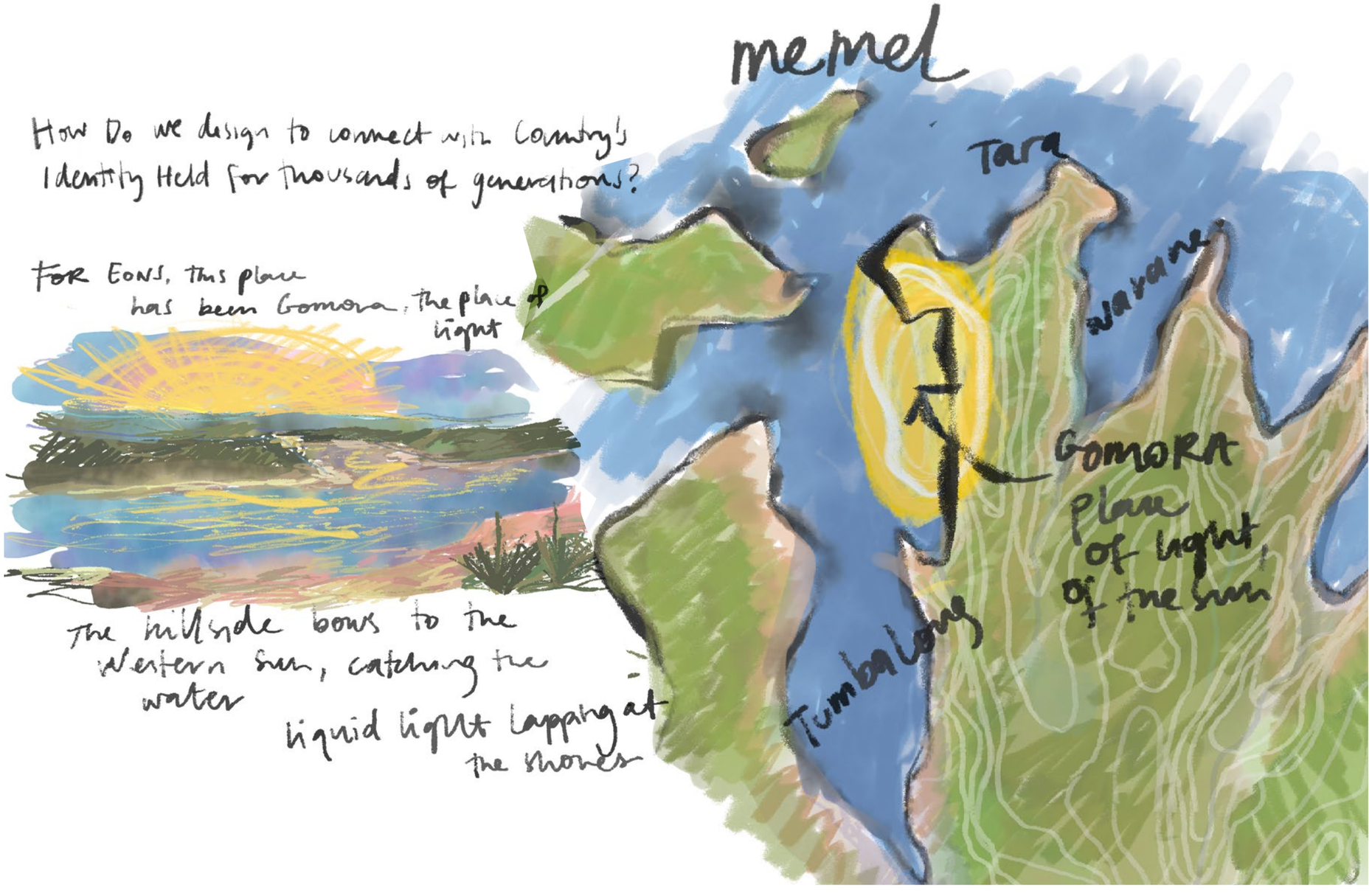
Before this place was named Barangaroo, before it became the Hungry Mile, this place represented warmth and plenty. Gadigal Nura, this place was known by the Yura - the Sydney basin clans - as Gomora and Tumbalong - the place of day, and the place of seafood.

A headland bathed in light with views stretching as far west as the Mountains beyond, bowing to the shore of the harbour, our site sits upon a stolen shore - where saltwater lapped at stone and sand, where nawis launched and landed for thousands of generations.

Baranagaroo is the name of a prominent First Nations woman who had a significant role in educating and dealing with colonists, particularly scolding them for not practicing sustainable fishing. Aboriginal place naming was most often descriptive of the landscape and its natural characteristics or function.

It is understood that the traditional naming of this place by Gadi people was Gomora - ‘place of sun and light’

Sited on reclaimed land and known as a place of plenty, Tumbolong was known for its quantum of seafood, an important food source for local people.



What do we know about Country? (Source: COLA)

Heritage Interpretation Plan

An entire heritage framework has been established for Baranagroo. This document *Barangaroo Heritage Interpretation Plan (BHIP)* prepared for INSW should form the basis of all future connecting with Country strategies.

The purpose of the plan is for the development to present key themes and story lines in location which highlight their significance, and though mediums that build upon the existing Baranagraoo precinct.

The framework recognises that representation is possible with minimal presence of heritage structures - meaning the stories are, for the most part, not bound to the structures or features. Moreover, the design can be uncovered through the depiction of the following themes:

- saltwater
- sandstone
- womens responsibility
- shoreline reclamation
- movement of animals
- ceremony places
- ecological communities
- colonial history

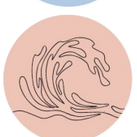
Themes identified to enable the meaning of the precinct historically and culturally

Badu (water) is the life force of Barangaroo

Barangaroo is the home of timeless spirit and culture

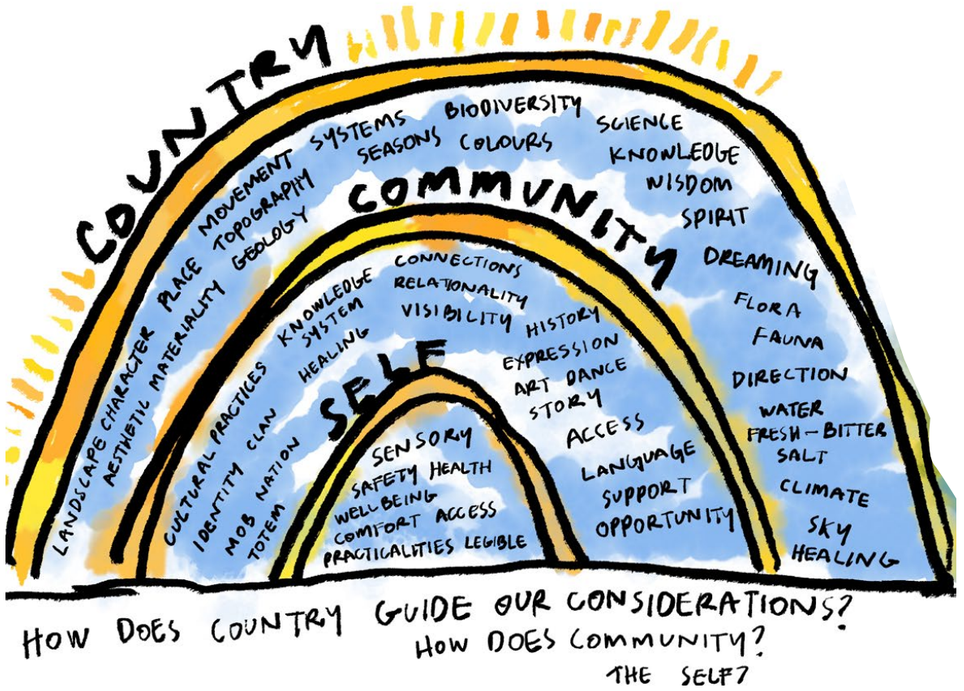
Barangaroo is the home of timeless spirit and culture

A tradition of sustainable practice and innovation has endured through the many evolution of the site

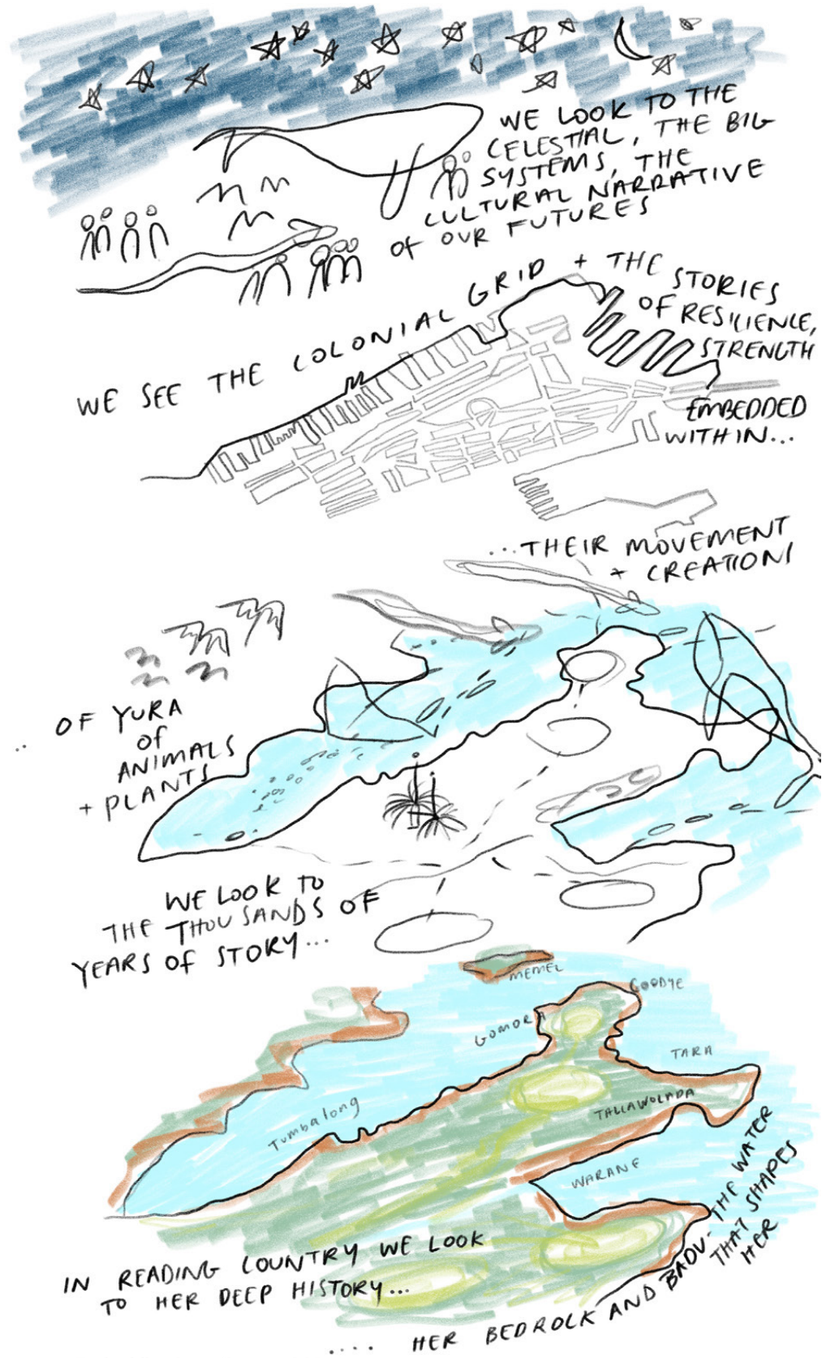


Testimonies, triumphs and challenges of Barangaroo

Source : Barangaroo Heritage Interpretation Plan



What do we know about Country? (Source: COLA)



Embedding Story (Source: COLA)

3

Place Vision

‘A distinctly Sydney destination where residents, workers and visitors can experience an authentic piece of the Harbour City’

Nestled between the heritage grain of Millers Point and the extensive public open spaces along the harbour foreshore, Central Barangaroo will stitch into its complex and varied urban setting through a network of new streets, spaces and places.

The subtle and nuanced approach to the urban structure of Central Barangaroo bellies the boldness and ambition of the vision for the place. The combination of land uses, quality of built and spatial outcomes, and amenity of the streets and spaces will combine to create an anchor at the western edge of the city that is truly and uniquely Sydney.

Central Barangaroo will be an exceptional lifestyle destination for all Sydneysiders and visitors, with generous and lively public spaces punctuated by restaurants, cafes, and bars. Central Barangaroo will be the lively, beating heart of the precinct.

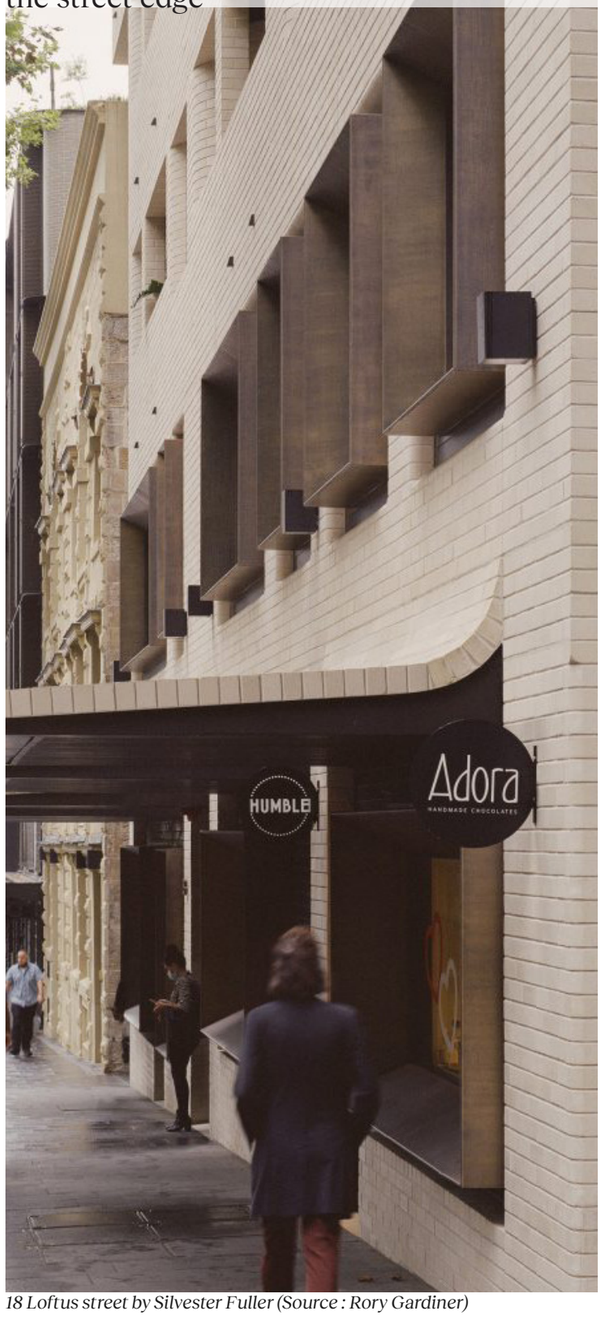
Artist’s impression - View north along Barangaroo Avenue (Source : SJB)

Objectives

The project objectives for Central Barangaroo, are;

- Deliver an innovative, creative, and dynamic waterfront destination that is permeable and connected within the precinct and connected with the city;
- Ensure the delivery of design excellence in the planning and built form of the precinct, creating a diverse community of architectural expression within an overall coherent urban structure;
- Deliver diversity of products and uses integrating commercial, residential, retail, community, civic, cultural, hospitality and entertainment activities which contribute to a vibrant and active city;
- Create and deliver a public domain that is distinct, unique, and innovative and allows for range of passive and active outdoor spaces and uses that together create a new iconic visitor attraction, consistent with the Infrastructure NSW's Activation Framework;
- Deliver a balance of financial return and public benefit and amenity across the precinct;
- Deliver a culturally distinctive, locally relevant, and internationally appealing canvas for appropriate facilities, experiences and public art;
- Ensure high levels of public attraction, operational serviceability, amenity, and security across the precinct and during staging; and
- Extend the principles and networks of the climate-positive promise in line with the current world's best practice to deliver a whole of Barangaroo outcome and create projects that respond visibly to the sustainable needs of people and the planet.

Buildings that touch the ground and hold the street edge



18 Loftus street by Silvester Fuller (Source : Rory Gardiner)

Active public open spaces

Vistula Boulevarde by RS Architektura Krajobrazu (Source: Landzine)

A diversity of built form expression

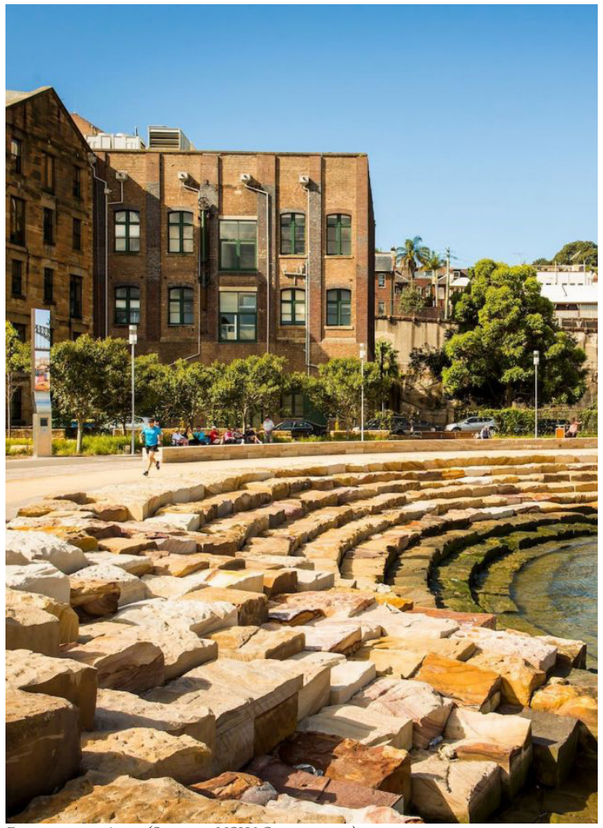
Quay Quarter Lanes by, SJB, Silvester Fuller, Studio Bright, Carter Williamson , Lippmann Partnership and ASPECT Studios (Landzine)

Place Principles

The Place Principles build on the extensive body of work already completed for Central Barangaroo. The scope and potential of the place is clearly understood and appreciated by the city and its community.

The desire to harness the site's potential requires bravery in the approach to design, development and place-making. We must extend our ambitions beyond the built outcome in order to achieve the 'alchemy' (i.e. world's best) of design and city-making. This requires subtle and nuanced approaches to the every-day understanding of the site and the city.

Outlined on the following pages are the place principles that sit at the heart of the master plan for Central Barangaroo.



Barangaroo Area (Source: NSW Goverment)

Barangaroo Reserve/ Millers Point (Source : Tripadvisor)

'bara' by Judy Watson (Source : City of Sydney)

Distinctly Sydney

- Embodying the beauty of the city and its harbour setting, without the need or desire to over-power and dominate;
- Creating a sense of 'the local', that's familiar and comfortable - avoiding a sense of exclusivity and elitism;
- Forming a new neighbourhood that mediates to the grain and texture of Millers Point, with the global reach of Barangaroo South and the Harbour City.

Connecting communities

- Seamlessly integrated streets and spaces that open views and vistas to the harbour;
- Bringing nodes and modes together into cityscape that caters to everyone, but frames the experience around the pedestrian;
- Opening-up the western edge of the city from The Rocks and Millers Point to the Harbour and Headland Parks.

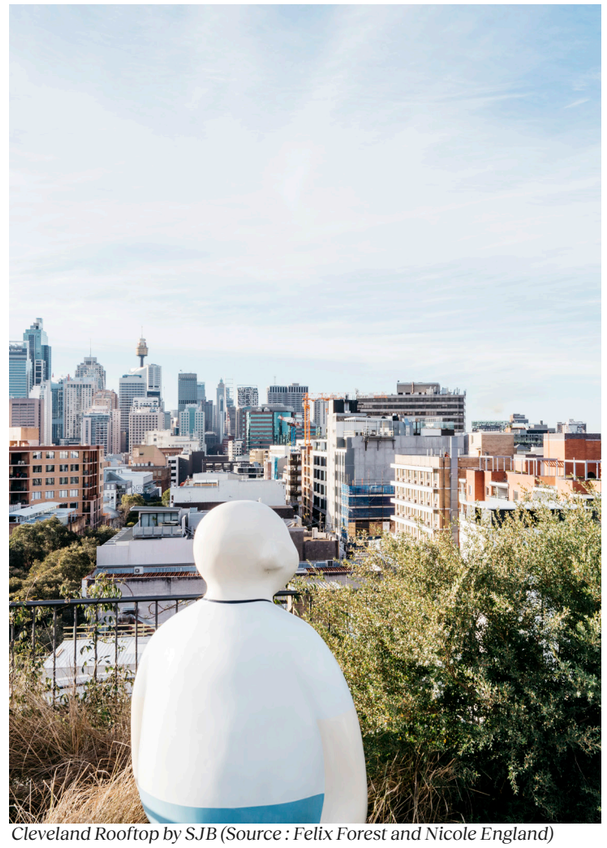
Embedding Country

- Design seeking place within Gadigal and Dharawal knowledge systems that considers ongoing engagement and cultural research;
- Maximizing landscaping opportunities to support high amenity on site by integrating micro climate and considering all ecologies at different scales
- Storytelling that honors the site's past and connects with the water story, sky story and the eons held name Gomora - place of light

Oculus by SJB (Source : Felix Forest, Martin Siegner)

Glebe Harbour by SJB (Source : Brett Boardman)

Quay Quarter Lanes by, SJB, Silvester Fuller, Studio Bright, Carter Williamson and Lippmann Partnership (Source : Tom Ferguson)



Cleveland Rooftop by SJB (Source : Felix Forest and Nicole England)

Engage with nature

- Dynamic spaces and streets catering to the diurnal rhythm of the city, shifting seasons and phases of the harbour's life;
- Deep soil at the edges, providing cool canopies that protect pedestrians and manage privacy;
- Seamless integration to the Harbour Park, drawing nature into the heart of the precinct through intimate landscaping;
- Bringing nature in and up buildings, utilising edges, balconies and roof planes;
- Sun and air into the open streets, using the proportions of these spaces to manage weather, shade and comfort levels.

Holding the edges

- Provide strong edges to Harbour Park, Hickson Park, Hickson Road and Nawi Cove, which are public, active and dynamic. These are the 'front door' of the place;
- The interface at ground will determine the relationship with the place. The public-ness of this experience will influence its role in the city;
- Consider where people wish to move, dwell, sit and enjoy the spaces in and around the site. Slow and fast spaces, controlled through changes in street and space aperture, placement of seating, landscaping and way finding;
- Provide clear thresholds between the edges and the internal experience - consciously designed, but experienced in the subconcious.

Beauty and delight

- Beauty is in the 'eye of the beholder', and should be sought through individual moments, rather than a monumental gesture;
- Each building can offer unlimited and varied outcomes, but should sit comfortably within the fabric of the city - there's no need to yell or shout from every facade;
- The beauty of the site and its setting provide the ideal backdrop for framed and reflected views of the park, harbour and city setting;
- Honest and tactile materials, embraced and crafted with care into a place that offers variation and texture, but reads in a coherent way for those that visit;
- Being playful is always a good thing, but everyone needs to be in on the game. Be inclusive and engaging throughout.

Future focused

- The sustainability of the precinct should be the legacy of Barangaroo, and surpass the ambitions of the City;
- Targets should be set within the context of global best practice, this is the expectation;
- Locally, the focus will be on livability, community well-being, health and amenity - this is the same, whether you're a resident, tenant or visitor;
- Record, Report and Refine over time - progress requires movement in a positive direction, and not a static response.

4

Approved Concept Plan Envelope

This section illustrates the assessment of the approved concept plan envelope to understand it’s urban principles and framework.

Approved Concept plan envelope

Assumptions

The original Concept Plan does not contain a set of approved plans, which illustrates the envelope for Block 5, 6 and 7 for Central Barangaroo. This is to enable flexibility due to the complexity of the project.

The key conditions relating to the Concept Plan envelope are governed by the following:

Condition B4 Future Built Form

- The condition sets out the maximum GFA and heights of Blocks 5, 6 and 7 and are reflected in SEPP 'Gross Floor Area' and 'Height of Buildings' mapping

Condition A2(1)(c)

The condition approves the Barangaroo Part 3A Modification Report - Headland Park and Northern Cove prepared by MG Planning Pty Ltd on behalf of Sydney Harbour Foreshore Authority dated January 2009 (MOD 3), which included :

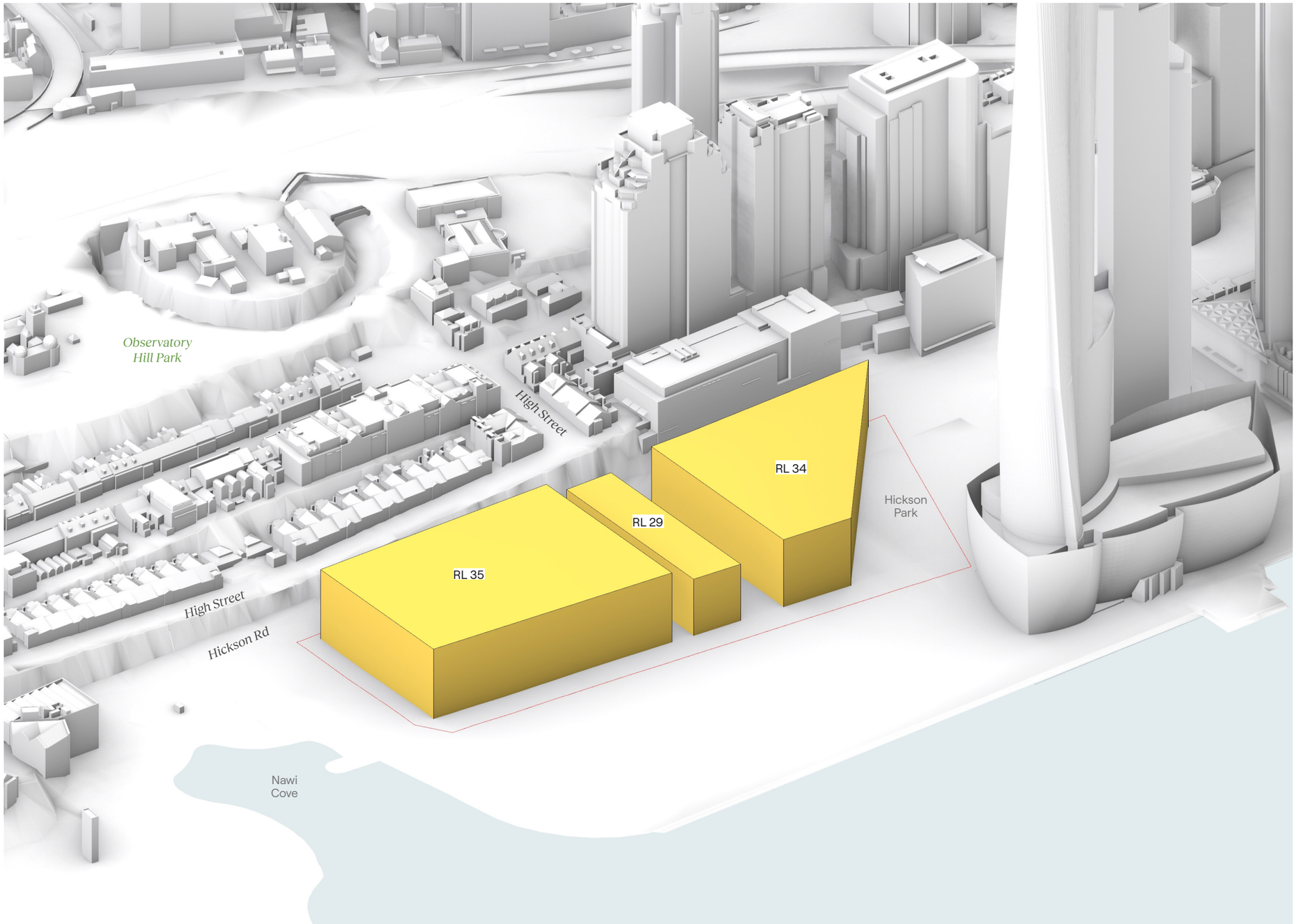
- 'Revised Development Blocks', and
- 'Revised Street Hierarchy'.

Approved Concept Plan envelope

The consolidation of the two key parameters produces a building envelope that depicts an appropriate representation of the approved Concept Plan, which includes the following :

- A 20m wide east-west pedestrian link between Block 5 and 6;
- A 10m wide east-west pedestrian link between Block 6 and 7;and
- The realignment of Hickson Park via MOD 8 altered the southern configuration of Block 5

The approved Concept Plan building envelope considering the above parameters is reflected in the built form on the right.



Approved concept plan envelope with RL's

Approved Concept Plan Envelope

Approved Concept plan envelope

Public space analysis

The Concept Plan envelopes allows for two east-west connections between the massing of 10m and 20m wide.

Public space areas

The total public space allowed for within the development boundary = 5671sqm.

3051sqm of the area forms the interface to Hickson Park.

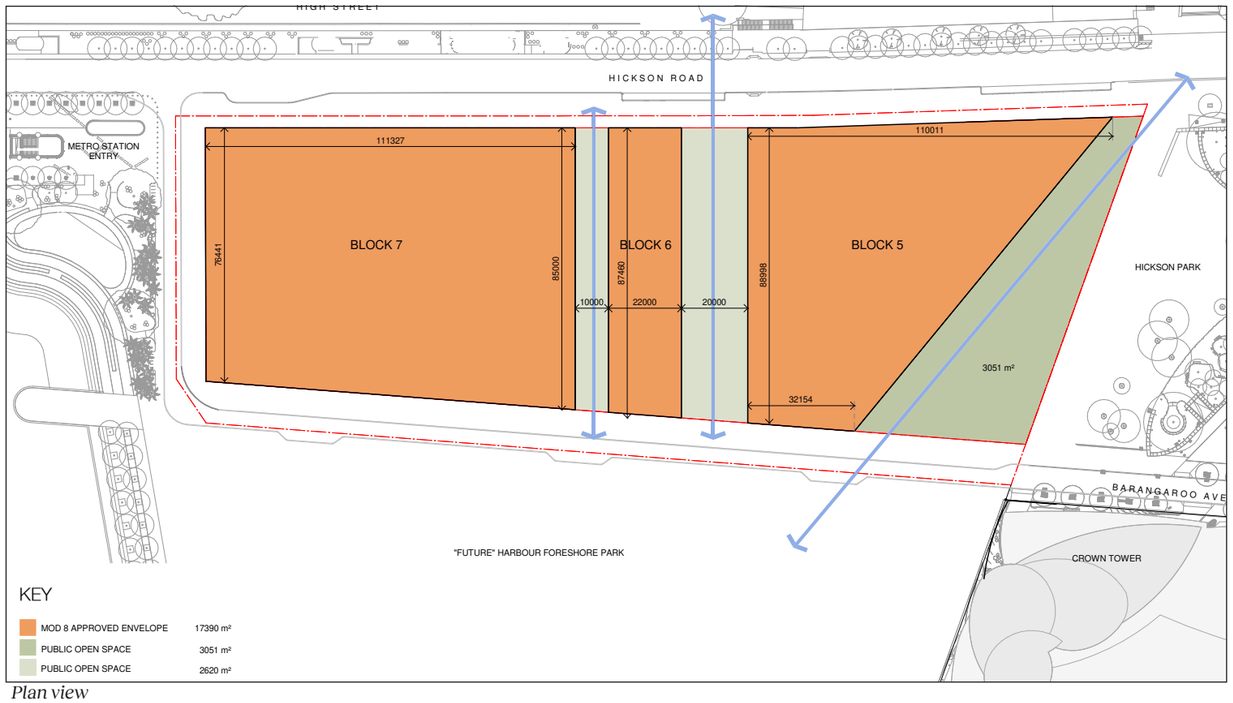
2620sqm of the area sits between the envelopes.

Shadow analysis

Overshadowing of Hickson Park

Overshadowing control for Hickson Park limits an area of 2500sqm between the hours of 12pm to 2pm on winter solstice.

The approved Concept Plan envelope results in a shadow area of 3836sqm between the hours of 12pm to 2pm on winter solstice which is higher than the control.



Plan view

Plan view

Axo from south-west

Approved Concept plan envelope

Solar performance

The below insolation diagrams assess the direct sunlight access to all facades of the Concept Plan envelope.

Insolation

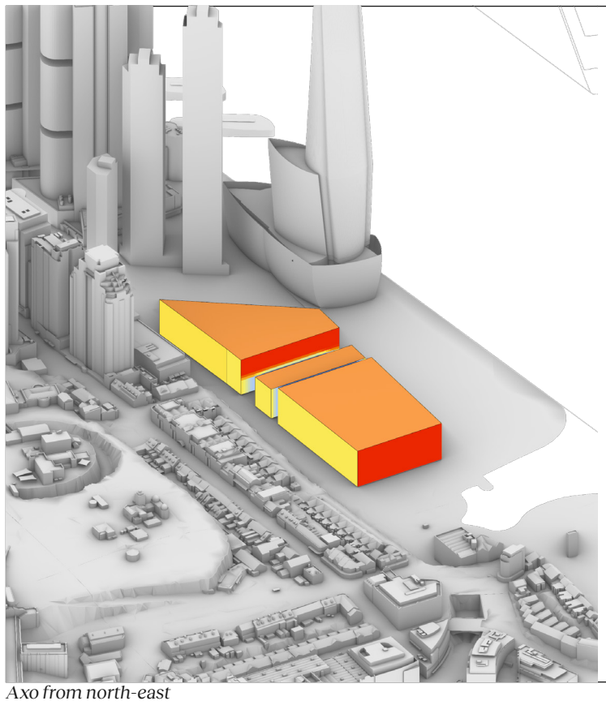
Area of facade with 2 hours or more direct sunlight access = 16,906 sqm.

Built form typologies

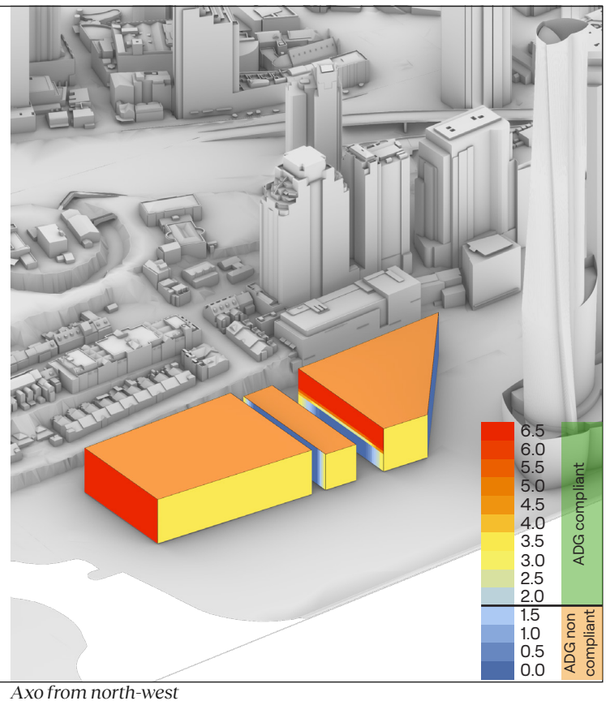
The allowable planning envelope drives a specific project typology with three blocks proposed.

The northern and southern blocks are very large and are suited to large-format retail typologies.

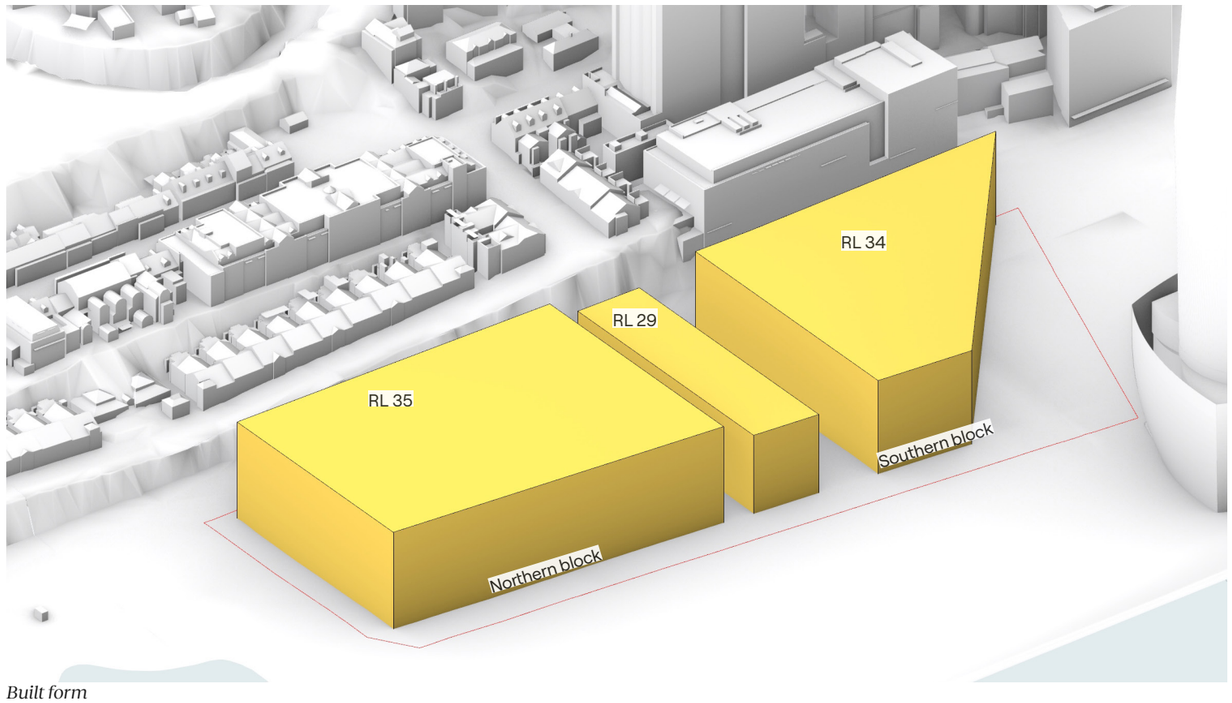
The narrow block at the center of the site provides for limited uses. The dimensions and orientation are not suited to residential so would be limited to retail, commercial or hotel uses.



Axo from north-east



Axo from north-west



Built form

Approved Concept plan envelope

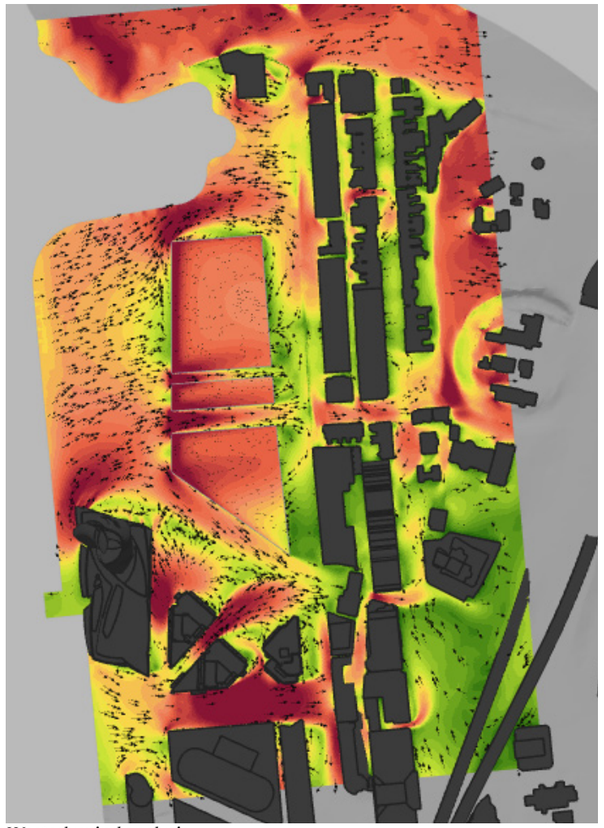
Wind analysis

A wind analysis study has been undertaken by RWDI consulatants for the approved concept plan envelope to allow for comparison with the design response to submissions. The three significant wind conditions that have been tested are northerly, westerly and southerly, each presenting differing challenges for the development site.

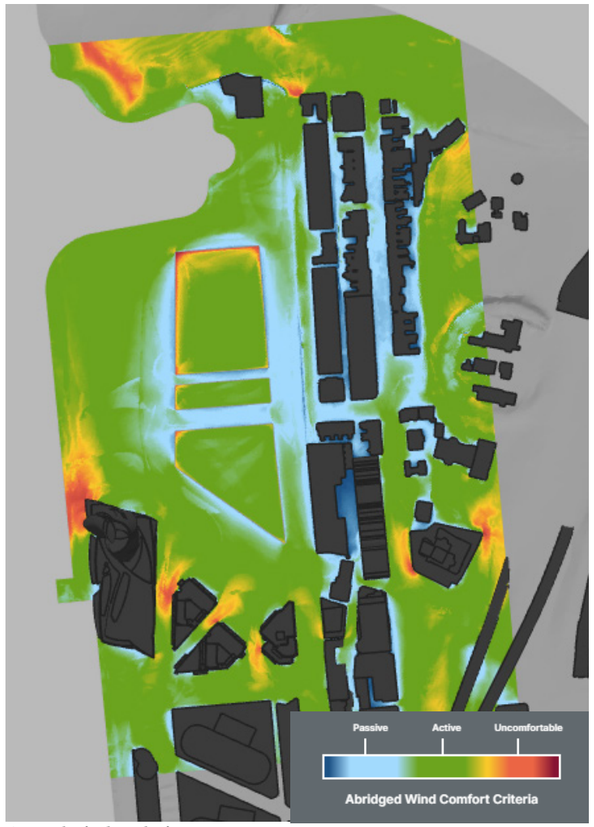
Key observations

The site performs well from a wind perspective throughout the majority of the predominant wind conditions with the exception of the westerly wind condition.

Areas closer to the waterfront are noted to be windier and wind speeds exceeding the safety thresholds are observed along Wulugul Walk near the Crown Tower base, within the Barangaroo Harbour Park and the Hickson Park. At the northwest corner of Crown Tower and Wulugul Walk, high wind speeds are perceived as uncomfortable which are consistent year-round.



Westerly wind analysis

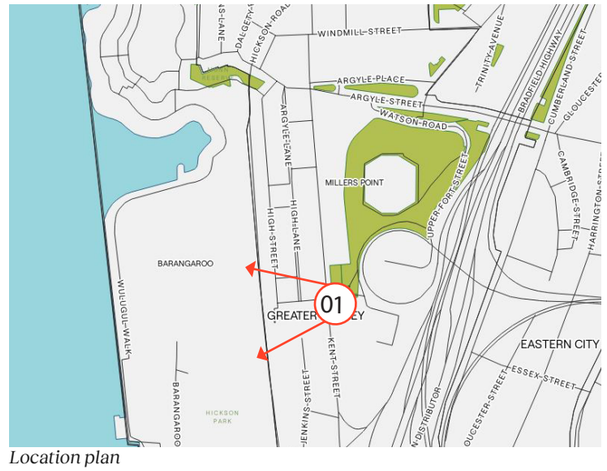


Annual wind analysis

View analysis

The view analysis presented here compares the existing condition with the approved Concept Plan envelopes from key public viewpoints surrounding the site.

Key views that are crucial from a public domain perspective are discussed in this report. Refer to AECOM's visual analysis report for a more comprehensive assessment of these views.



Location plan

1. View along High Street from Kent Street

Existing

Approved concept plan envelope

Approved Concept plan envelope

View analysis

2. South-west corner of Observatory Hill Park from public path

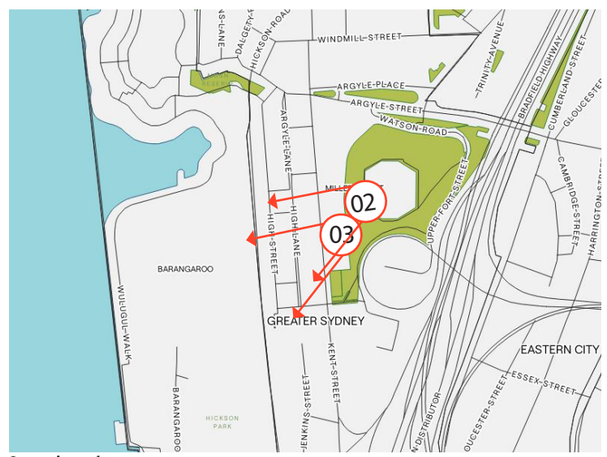
Existing

Approved concept plan envelope

3. South-west corner of Observatory from bench seat

Existing

Approved concept plan envelope



Location plan

Approved Concept plan envelope

View analysis

4. View from pathway on north-west corner of Observatory Hill

Existing

Approved concept plan envelope

5. North-west corner of Observatory Hill Park

Existing

Approved concept plan envelope

Location plan

Approved Concept plan envelope

View analysis

6. View from Barangaroo Reserve

Existing

Approved concept plan envelope

7. View from Stargazer Lawn

Existing

Approved concept plan envelope

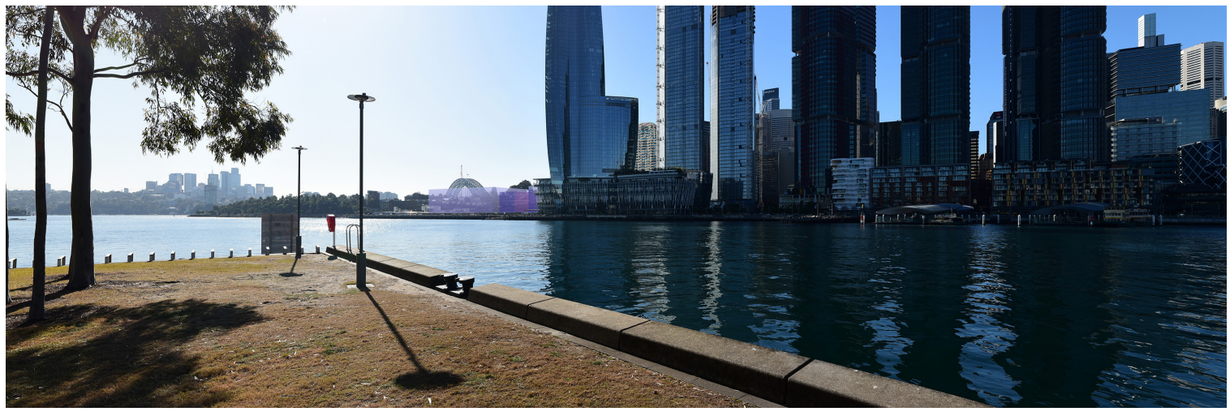
Location plan

Approved Concept plan envelope

View analysis

8. View from Ballaarat Park, Pyrmont

Existing



Approved concept plan envelope

9. View from Pirrama Park boardwalk, Pyrmont

Existing

Approved concept plan envelope

Location plan

Approved Concept plan envelope

View analysis

10. View from The Bond plaza on Hickson Road

Existing

Approved concept plan envelope

11. View from National Trust car park

Existing

Approved concept plan envelope

Envelope behind existing buildings

Location plan

5 Proposed envelope

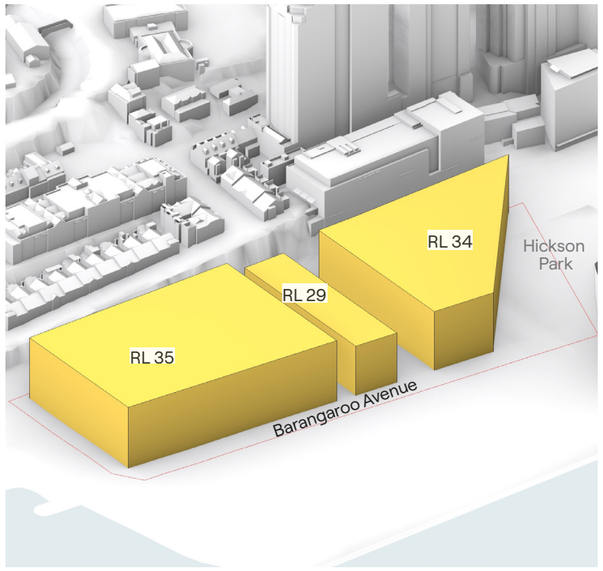
The section puts forward the *proposed envelope*, a design response to submissions addressing the key issues which uses the *approved concept plan envelope* and it's urban principles for the basis of comparison.

Proposed Envelope

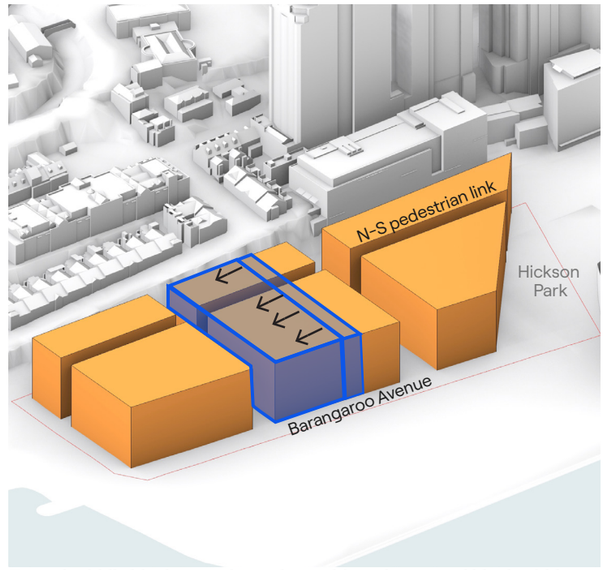
Proposed envelope amendments

The proposed envelope amendments are developed from the approved Concept Plan envelope.

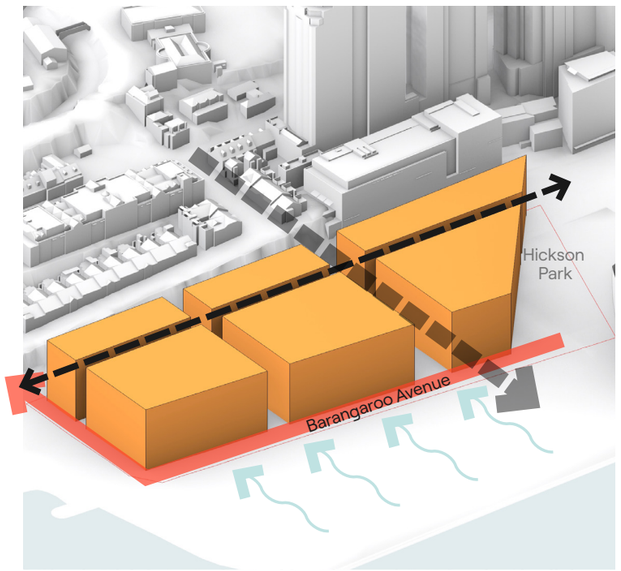
The diagrams to the right outline the key principles applied to the approved plan envelope to arrive at the proposed design response.



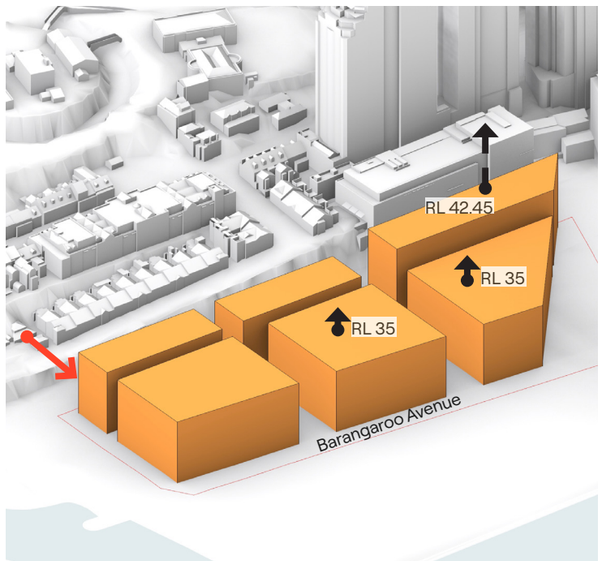
Approved Concept Plan envelope



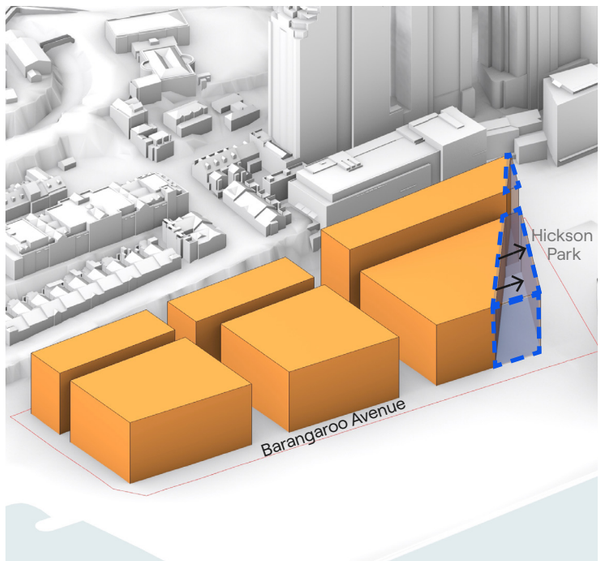
Extend middle block towards north to achieve three equal block widths.



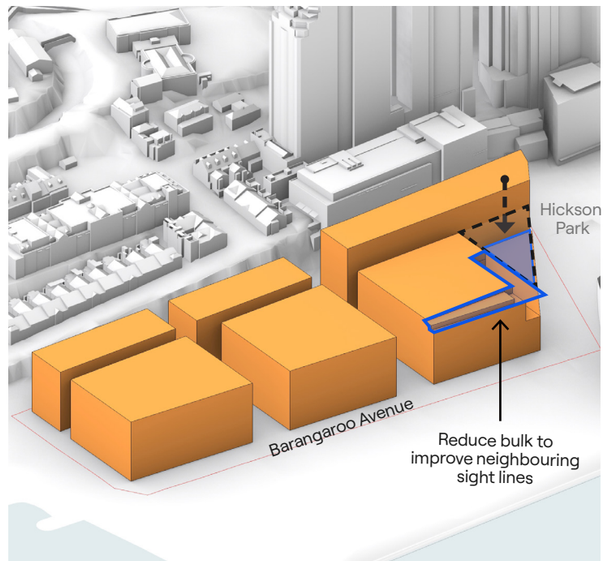
Maintain High Street and extend Scotch Row via a N-S pedestrian link.
Extend Baranagroo Avenue around the site.



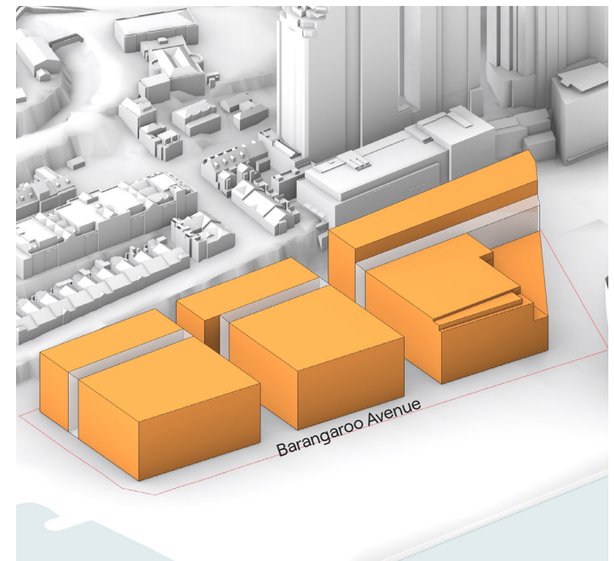
Reinstate historic footbridge link and increase height where it does not impact views of the horizon from the observatory



Adjusting southern edge to obtain consistent block structure and reduce wind impacts



Reducing block height to reduce overshadowing of Hickson Park and introducing notch for sightline



Continuous North - South lane with future location flexibility

Proposed Envelope

Form

Massing description

The proposed envelope defines 3 building blocks with 2 generous east-west public spaces proposed.

A north-south lane of 8m clear is proposed through each block.

The predominant height proposed to all blocks is RL35 with the exception of the south-east block which has been raised to RL42.45 (this height sits outside the visual catchment of Observatory hill and the visual connection to the horizon).

The southern portion of the envelope has been lowered to RL22 to improve solar access to Hickson Park.

The diagrams to the right show the proposed amended envelope with RLs and a direct comparison between the exhibited Mod 9 envelope and the Approved Concept Plan envelope.

Proposed Areas

Proposed GFA across site (Allowable GFA) = 47,688 sqm

Total lot area = 23,059 sqm

Key issues responses

1. Height and massing

   The proposed amendments respond to the height and massing issues raised by reducing the predominant top RL down to 35, largely consistent with the approved Concept Plan envelope.

2. Visual impacts

   The envelopes have been reduced in height with the only component sitting above the approved Concept Plan envelope sitting in the south-east portion of the site where it has no visual impact from Observatory Hill and surrounding Millers Point view lines as its sits within the view shadow of Crown Casino.

3. Heritage impacts

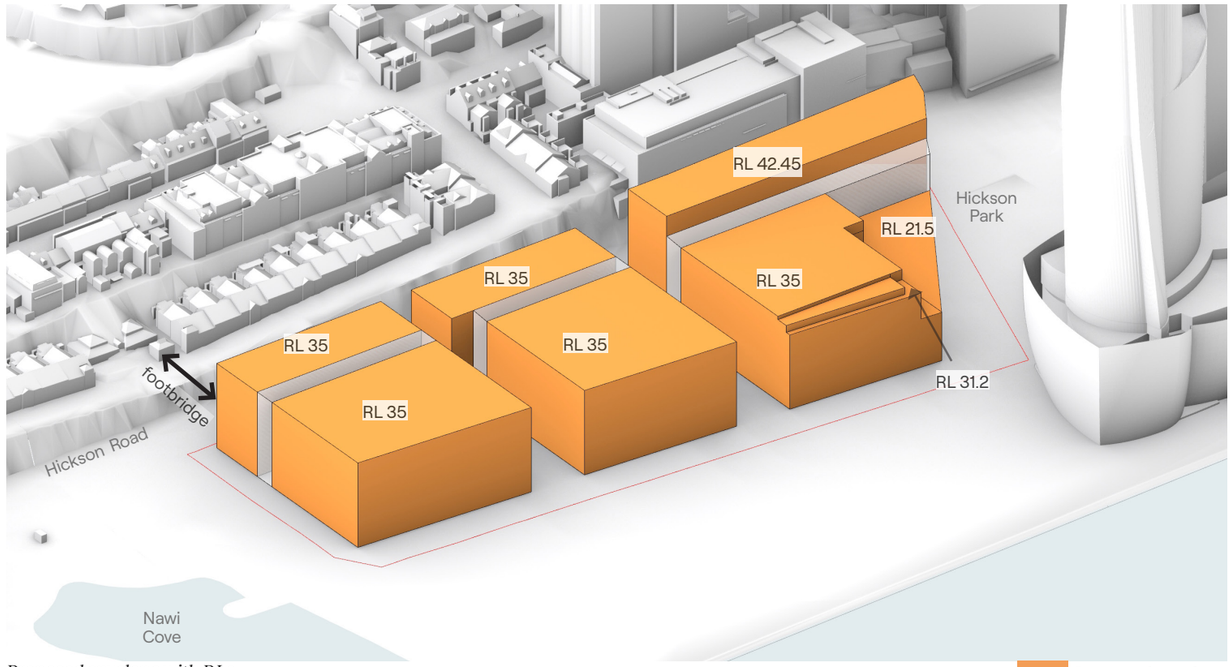
   The reduction in height reduces the potential impact to Millers Point. Further, the additional breaks in the envelopes result in smaller building footprints which creates a more appropriate scale to the surrounding heritage character.

4. Solar access and public open space impacts

   Additional generous breaks in the building envelopes increase solar access to the development and the surrounding public domain. A further reduction to the southern edge of the envelope improves the interface and solar access to Hickson Park.

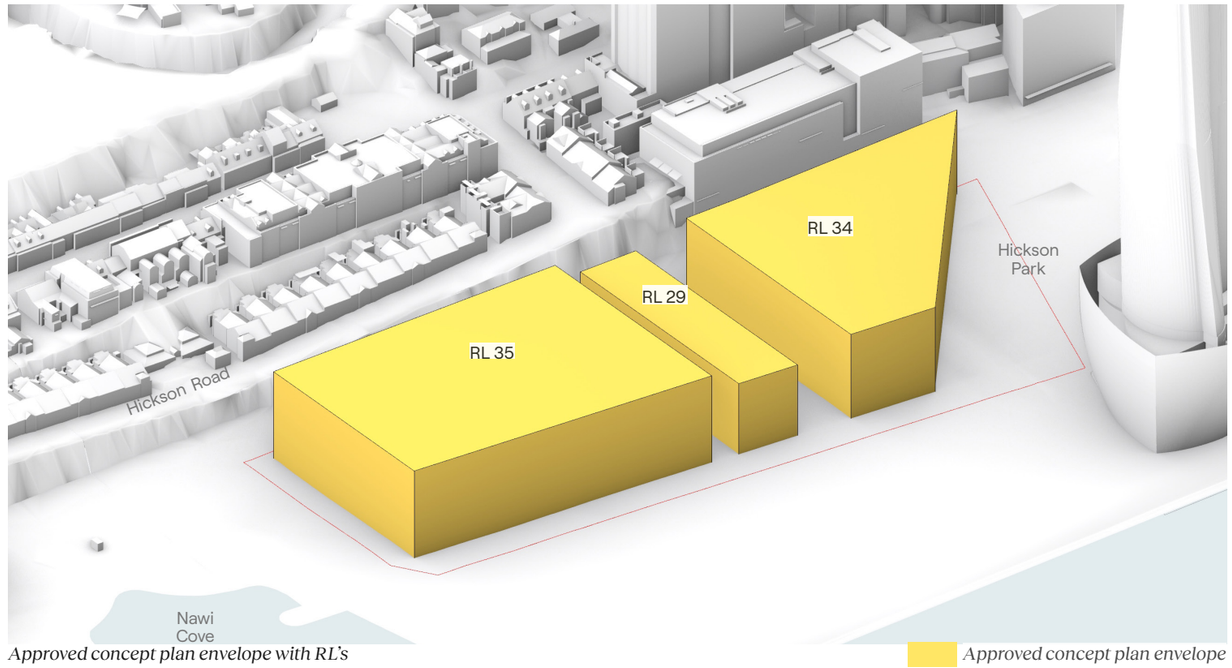
5. Public amenity and benefits

   Two large plazas and a series of lanes have been created between the building envelopes to increase porosity and views through the precinct, and contributing a significant area to public domain.



Proposed envelope with RLs

Proposed envelope

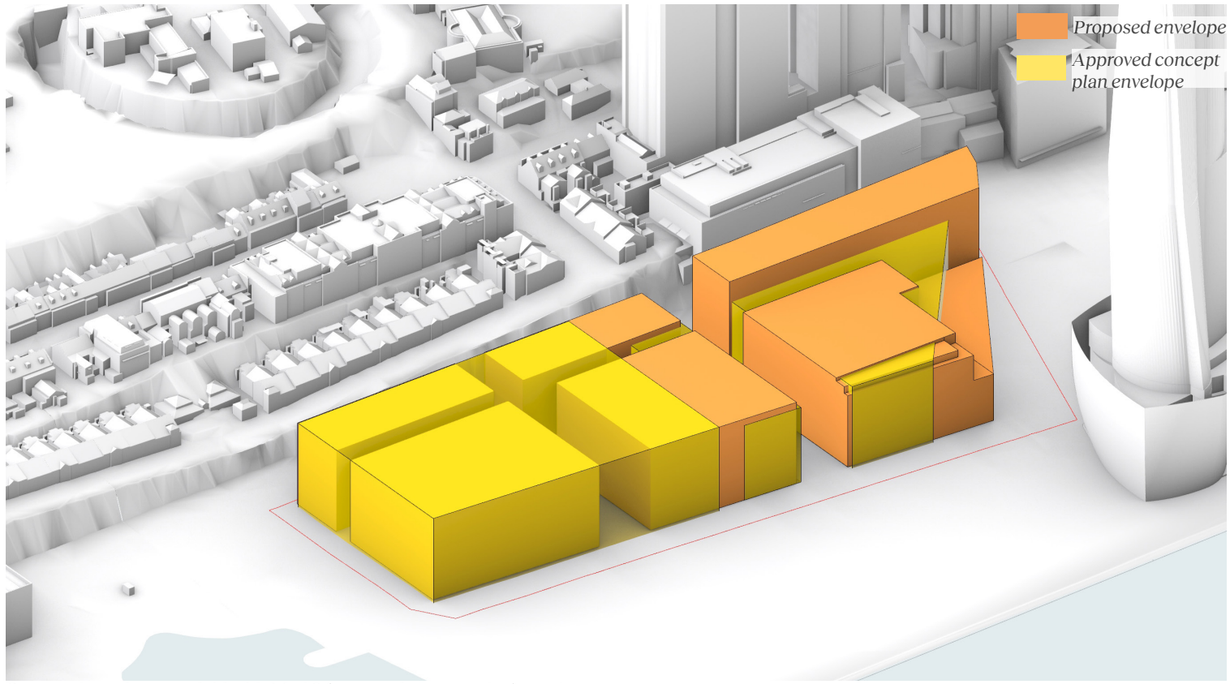


Approved concept plan envelope with RL's

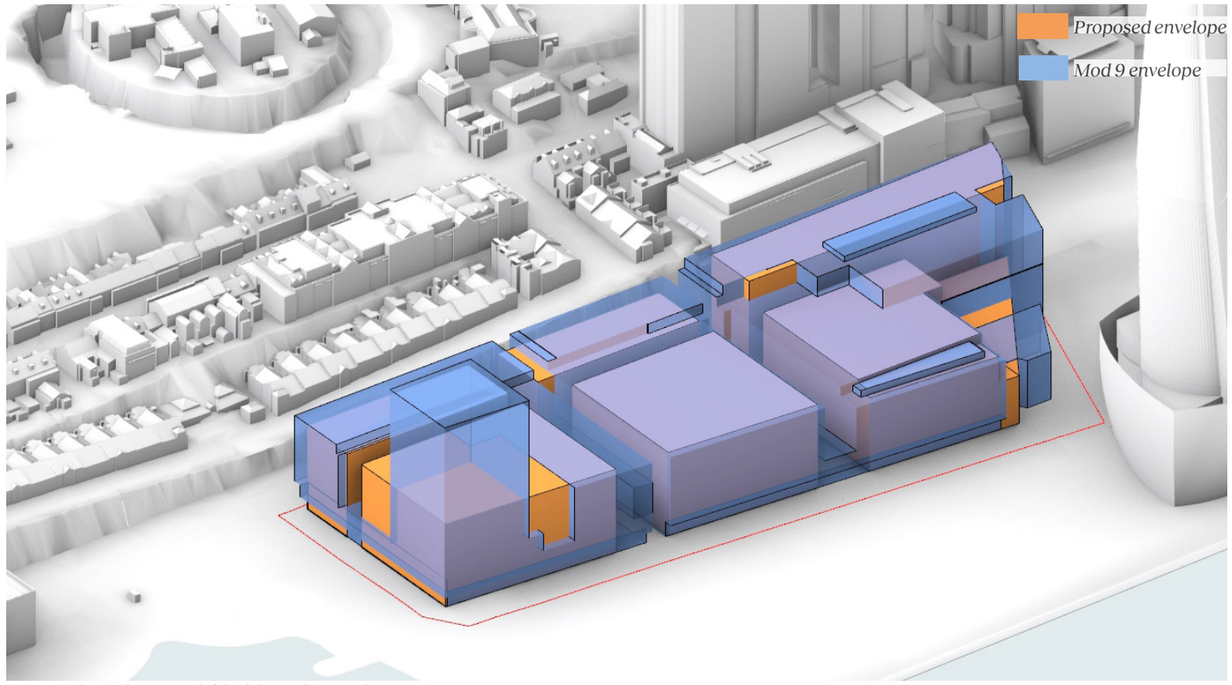
Approved concept plan envelope

Proposed Envelope

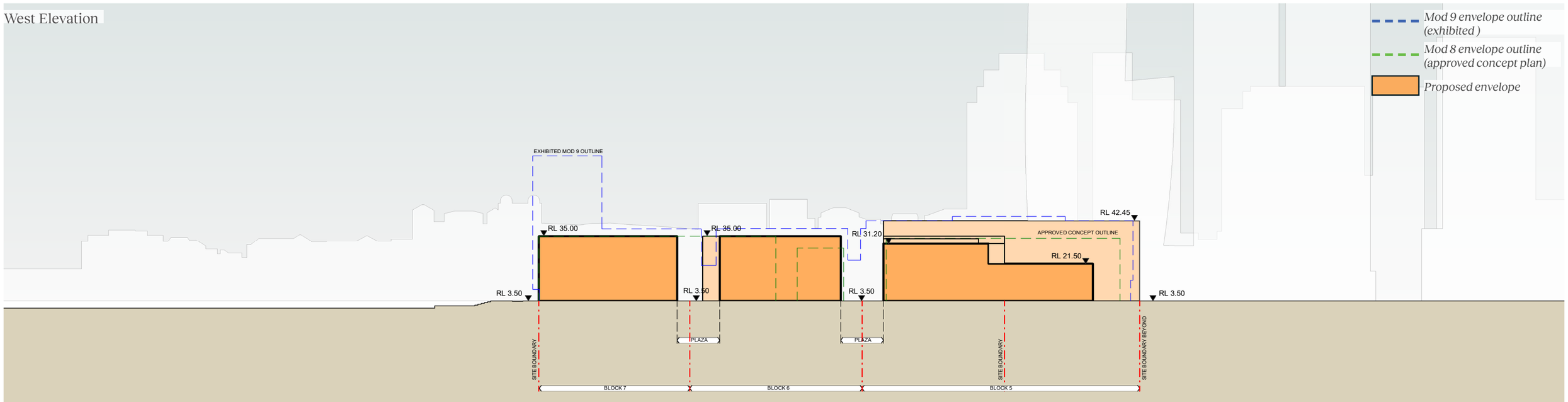
Form



Proposed envelope overlaid with Mod 8 (approved concept plan) envelope



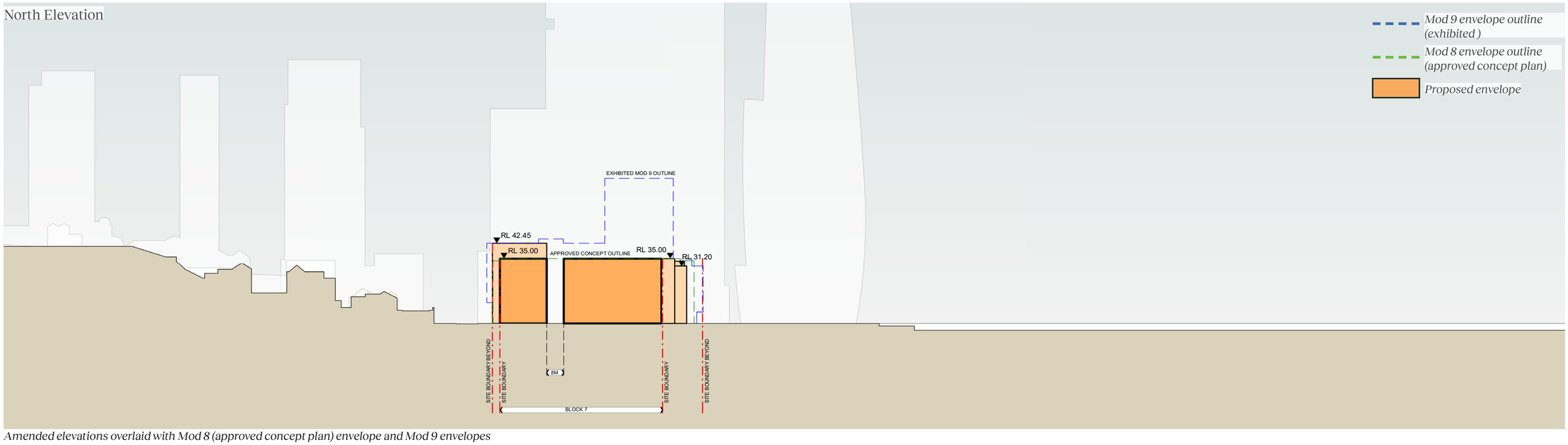
Proposed envelope overlaid with Mod 9 envelope



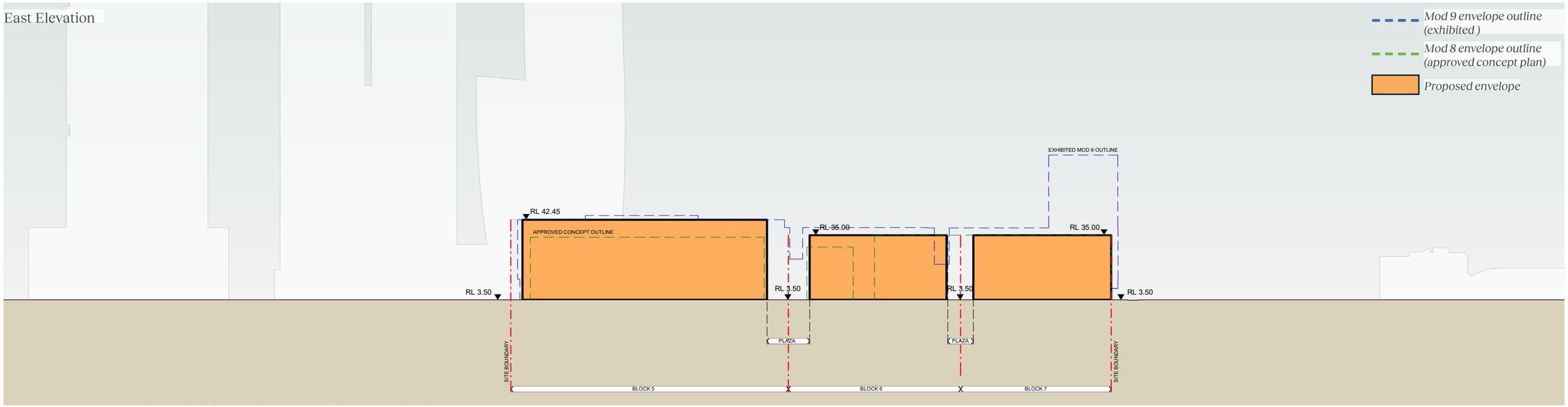
Amended elevations overlaid with Mod 8 (approved concept plan) envelope and Mod 9 envelopes

Proposed Envelope

Form



Amended elevations overlaid with Mod 8 (approved concept plan) envelope and Mod 9 envelopes



Amended elevations overlaid with Mod 8 (approved concept plan) envelope and Mod 9 envelopes

Proposed Envelope

Public space analysis

The amended envelopes propose two east-west breaks between the massing at 12-20m wide each. An additional east-west connection is proposed as a through-building arcade.

A continuous open to sky north-south lane of 8m wide is proposed between each block.

Public space areas

The total public space allowed for within the development boundary = 6938sqm.

1,434sqm of the area forms the interface to Hickson Park

5,505sqm of the area sits between the envelopes

The proposed envelope provides an overall increase of 1,264 sqm of publicly accessible open space as compared to the approved Concept Plan envelope.

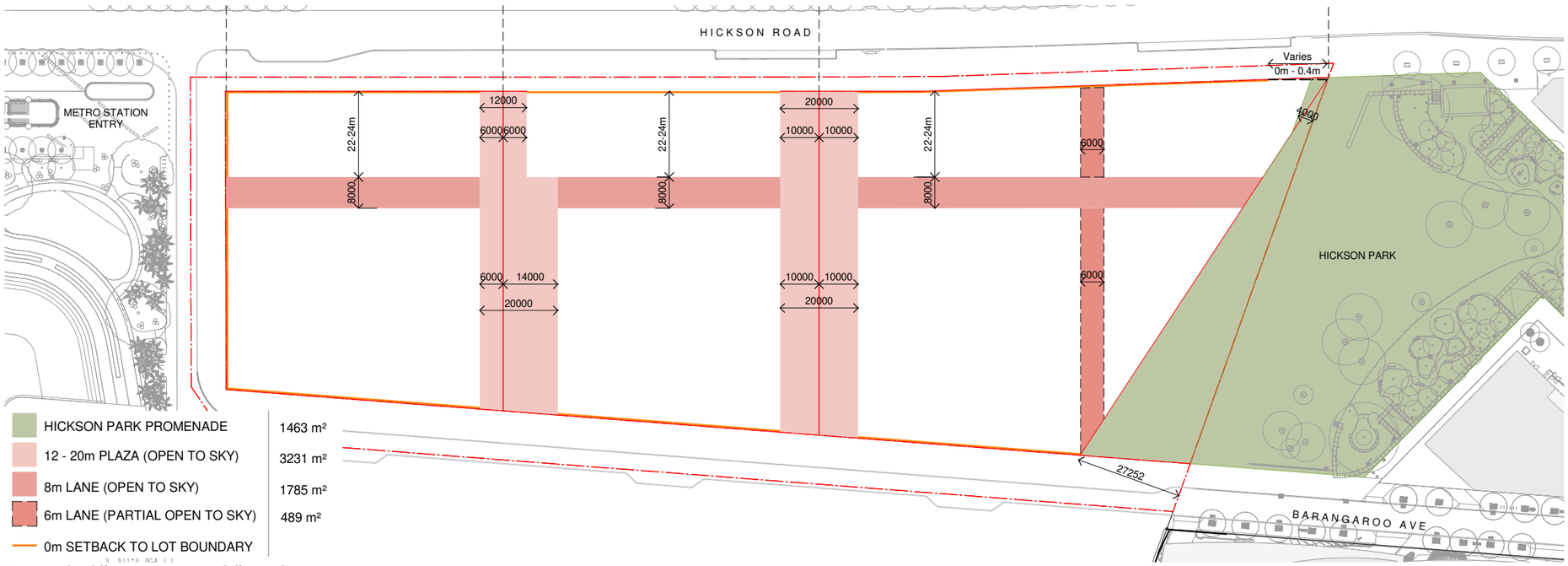
Key issues responses

Solar access and public open space impacts

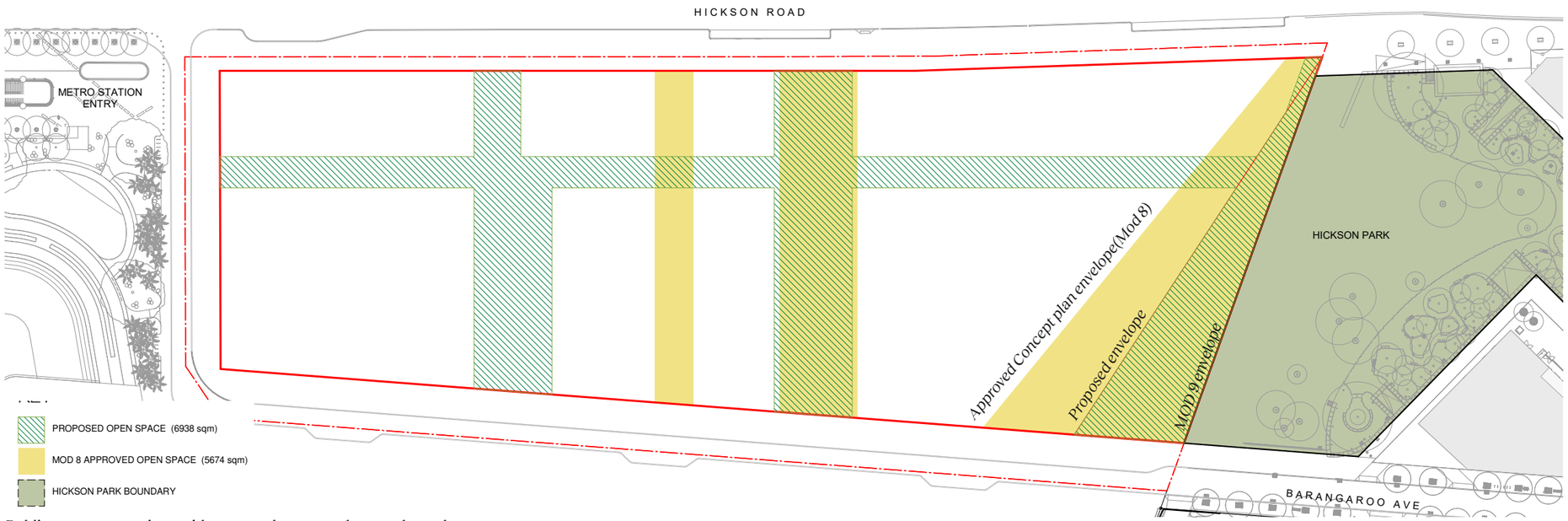
- Public open space has been increased with the proposed amendments providing a series of typologies including plazas, lanes, arcades and park interfaces.
- The potential shadow impact to Hickson Park has been reduced when compared to the approved Concept Plan envelope due to the reduced height at the southern edge

Public amenity and benefits

- The increased quantum of public space, and different typologies, provide greater public choice suited to different climatic conditions and activities.
- The amended envelopes increase visual permeability through the site as well as the walkability of the precinct with additional opportunities to move from Metro to Barangaroo south and from Millers Point to the harbour.



Proposed public space types and dimensions



Public space comparison with approved concept plan envelope plan

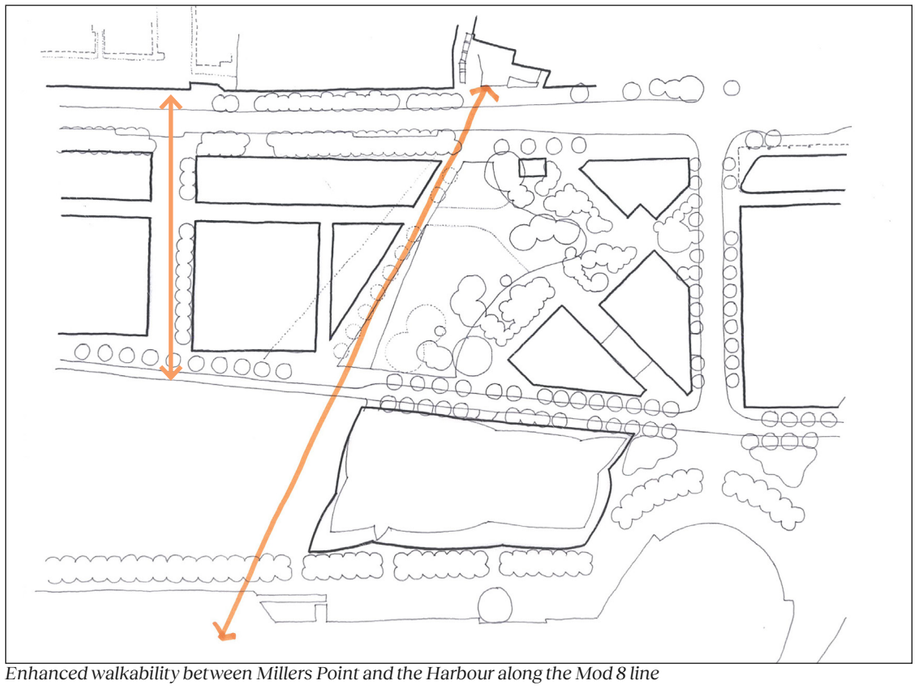
Proposed Envelope

Hickson Park interface

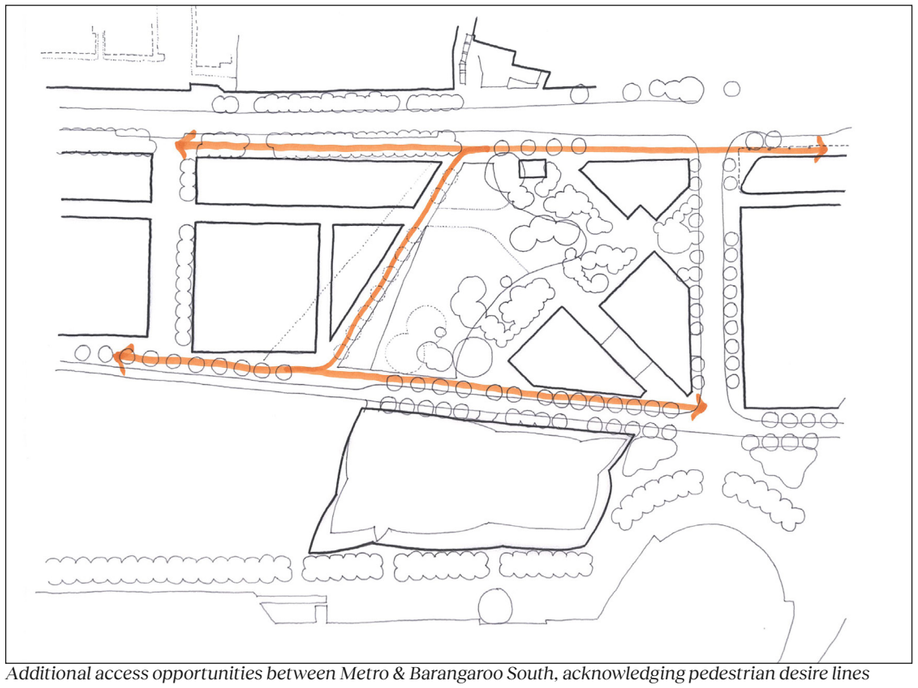
The approved concept plan envelope determination by the Planning Assessment Commission shifted the alignment of Hickson Park and Block 5, which resulted in impacts on the built form and future renewal of the precinct.

The proposed envelope takes into the consideration how Block 5 would respond to the Hickson Park interface as it's key objective and ensures that the design responds to the four key principles depicted on the right side. These principles demonstrate the key considerations for an enhanced urban character, increased permeability while ensuring walkability of the precinct. It also illustrates the strengthened connect between the public transport node in the north (Metro) and South Barangaroo, whilst providing immense opportunities for the park to be used for both passive and active uses. These considerations and principles, along with discussions with stakeholders have informed the envelope edge to Hickson Park.

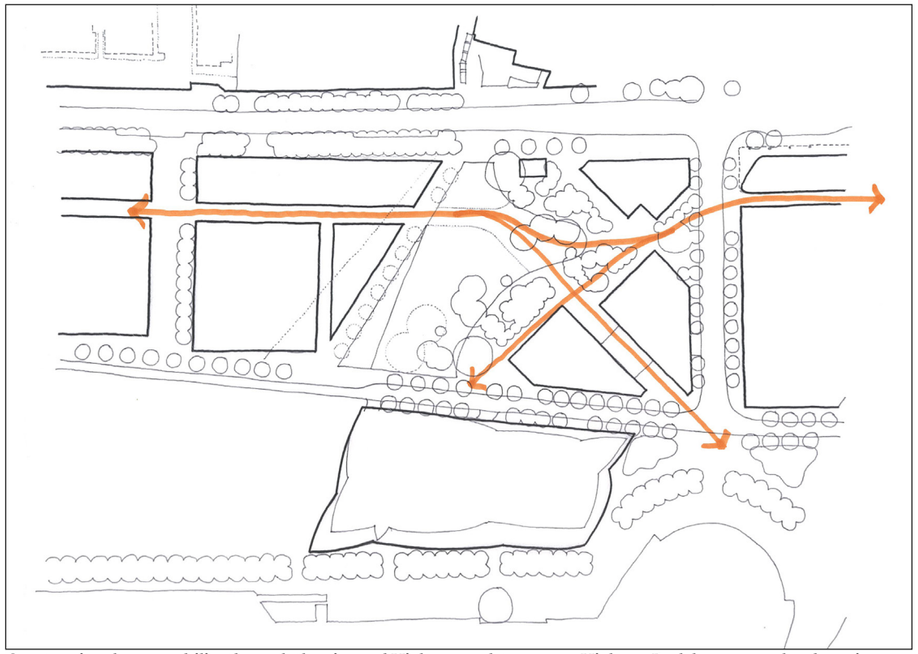
A detailed Hickson Park study has been carried out to guide the character and strategic vision of the park, which is outlined in the Appendix 03 of this report.



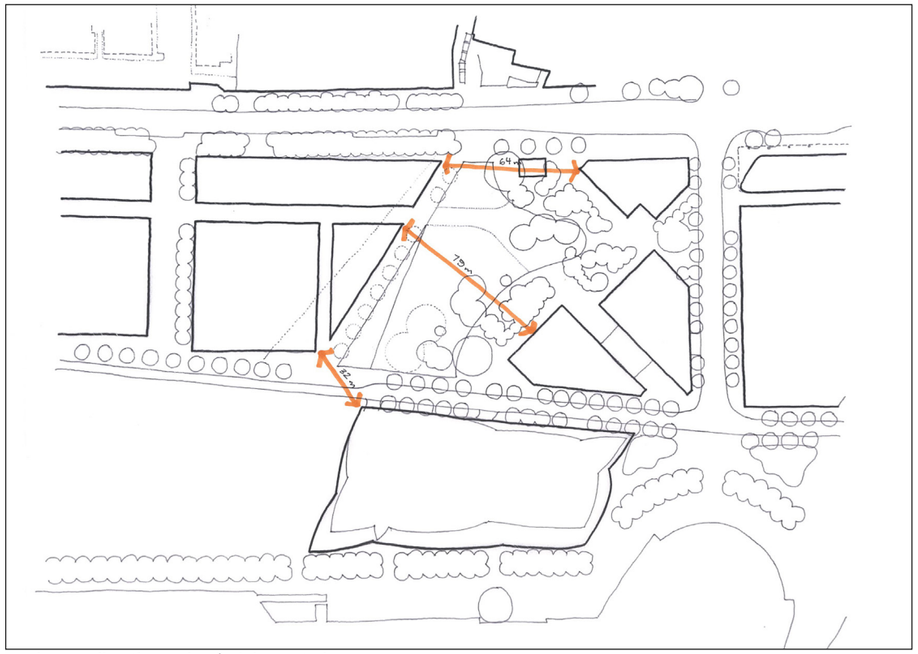
Enhanced walkability between Millers Point and the Harbour along the Mod 8 line



Additional access opportunities between Metro & Barangaroo South, acknowledging pedestrian desire lines



Greater visual permeability through the site and Hickson park to ensure Hickson Park becomes a landscaping heart



Understanding the scale of Hickson Park

Proposed Envelope

Solar Analysis

Overall Public Space

The below analysis draws comparison between the proposed envelope and the approved concept plan envelope.

This proposed envelope provides a significant increase in the total public space proposed, which increases the quality and amenity of the lane ways, Hickson Park and North-south lane way.

There is an overall increase in the solar amenity of the public space with an addition of 1,691 sqm.

Comparative analysis of Hickson Park

Updated Instrument of Approval under Condition B3 requires that Hickson Park is to not be overshadowed more than an average area of 3,000 sqm between 12pm and 2pm on 21 June each year.

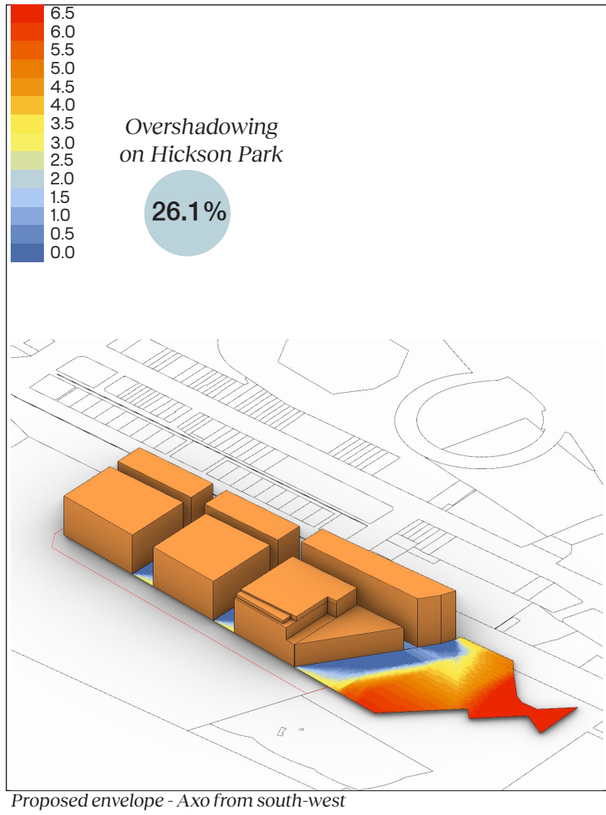
The proposed amended envelope reduces overshadowing to the Hickson Park by 1,275 sqm when compared to the approved Concept Plan envelope. The analysis below depicts the decrease in shadow area between the hours of 12pm to 2pm on winter solstice, which is attributed to north-south links and reduction of height of the southern block form to RL 21.5.

Proposed envelope

Hickson Park Area	*Laneways + Plazas*	*Total Public Space*	*Overshadowing on Hickson Park*	**> 2 hours solar access on public spaces**	**Additional area of solar amenity**
9,789 sqm	5,505 sqm	15,294 sqm	2,561 sqm	12,733 sqm	+2539 sqm

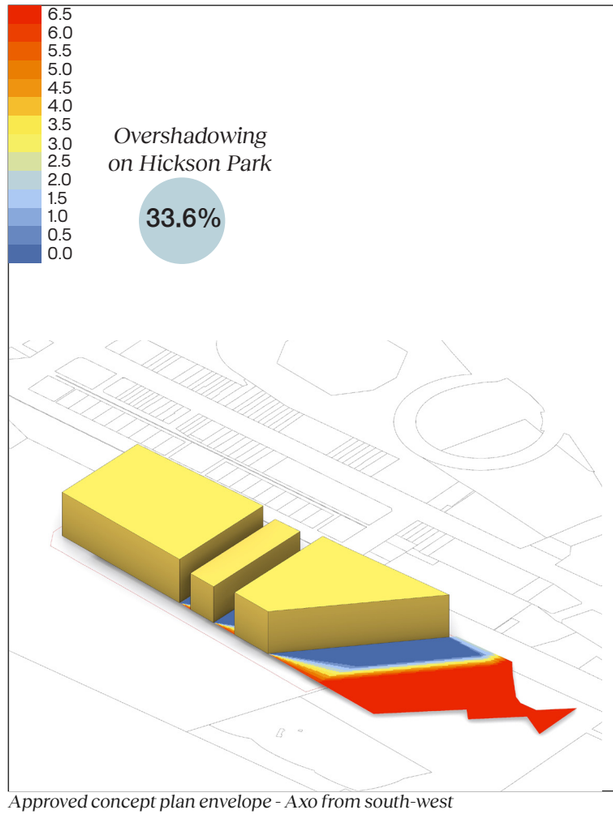
Approved concept plan envelope

Hickson Park Area	*Laneways + Plazas*	*Total Public Space*	*Overshadowing on Hickson Park*	**> 2 hours solar access on public spaces**
11,414 sqm	2,616 sqm	14,030 sqm	3,836 sqm	10,194 sqm

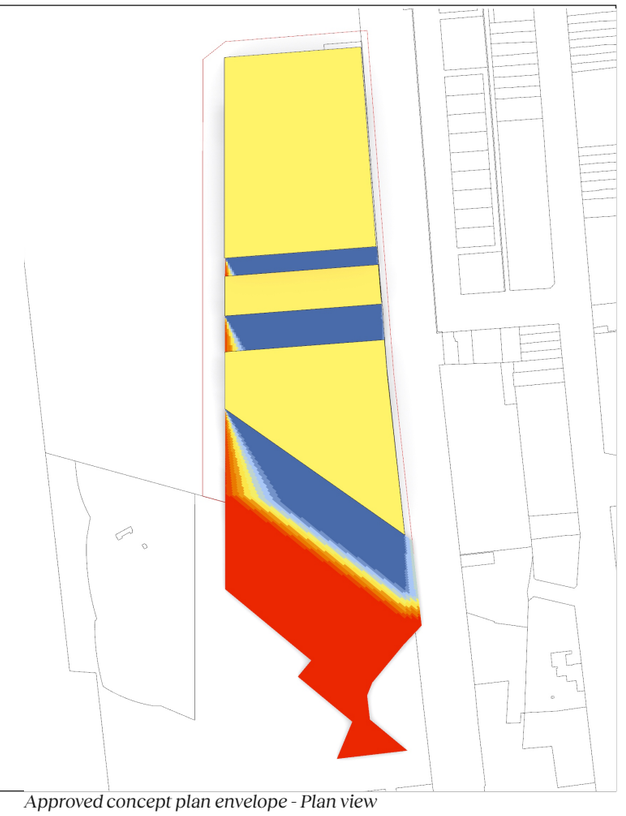


Proposed envelope - Axo from south-west

Proposed envelope - Plan view



Approved concept plan envelope - Axo from south-west



Approved concept plan envelope - Plan view

Proposed Envelope

Solar performance

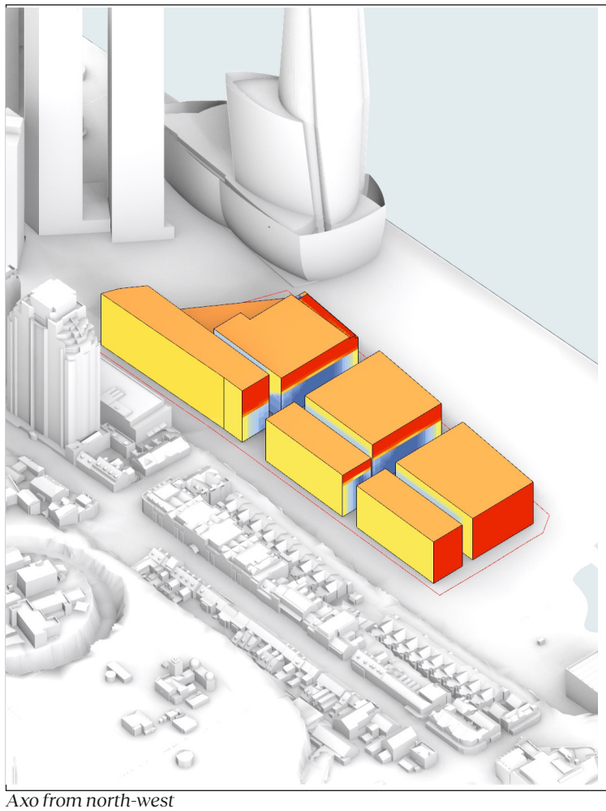
The below insolation diagrams assess the direct sunlight access to all facades of the proposed envelope.

Insolation

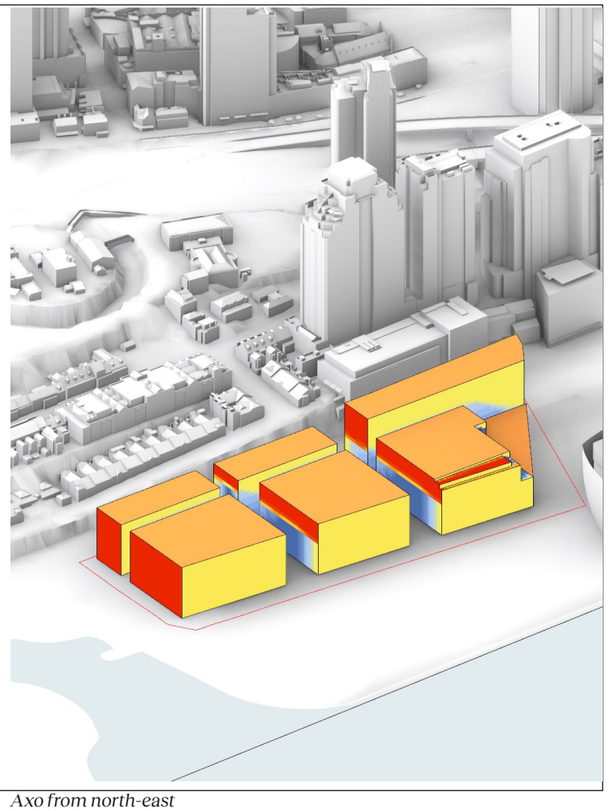
The proposed envelope has 25,527 sqm facade area with 2 hours or more direct sunlight access. This is comparatively greater than the solar perceived on the approved concept plan envelope facade which is 16,906 sqm.

An increase in facade area receiving direct solar amenity will enable better performing built form outcomes & a greater number of potential programatic uses.

Proposed Envelope

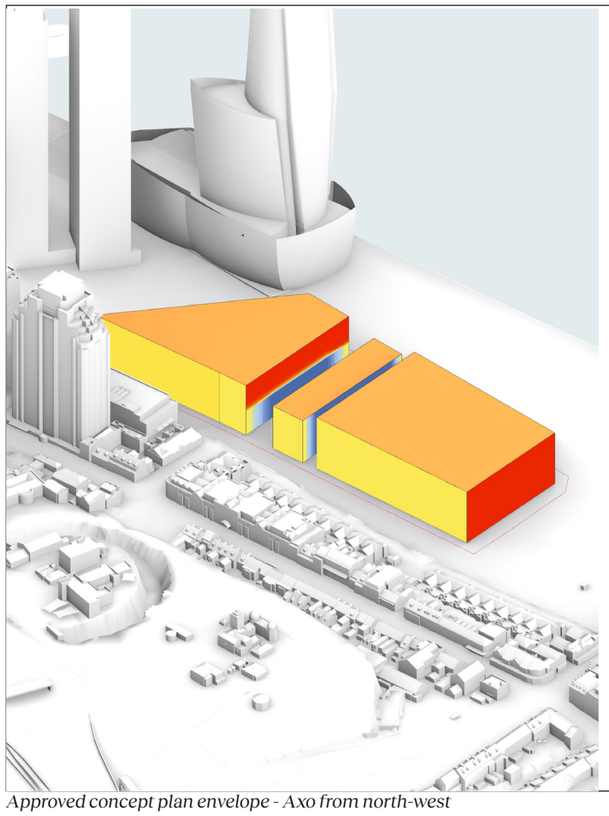


Axo from north-west

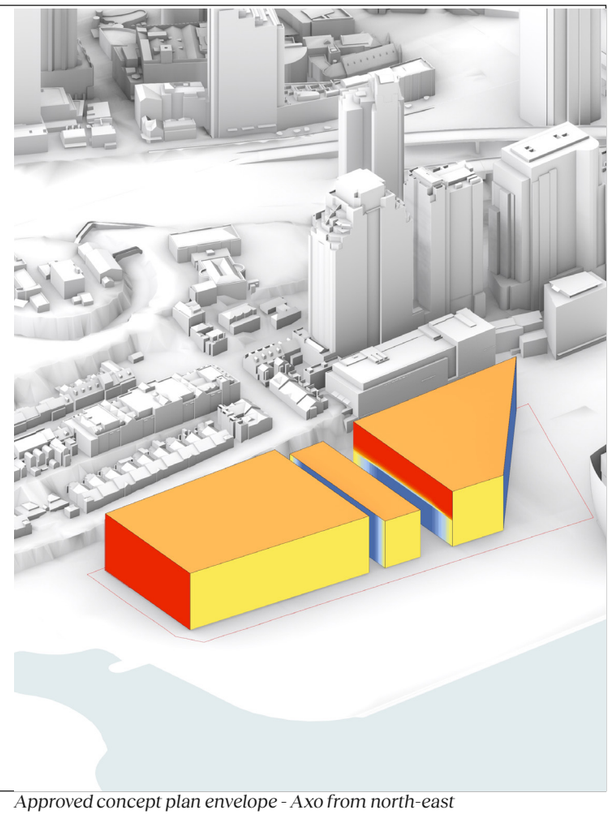


Axo from north-east

Approved concept plan envelope



Approved concept plan envelope - Axo from north-west



Approved concept plan envelope - Axo from north-east

Proposed Envelope

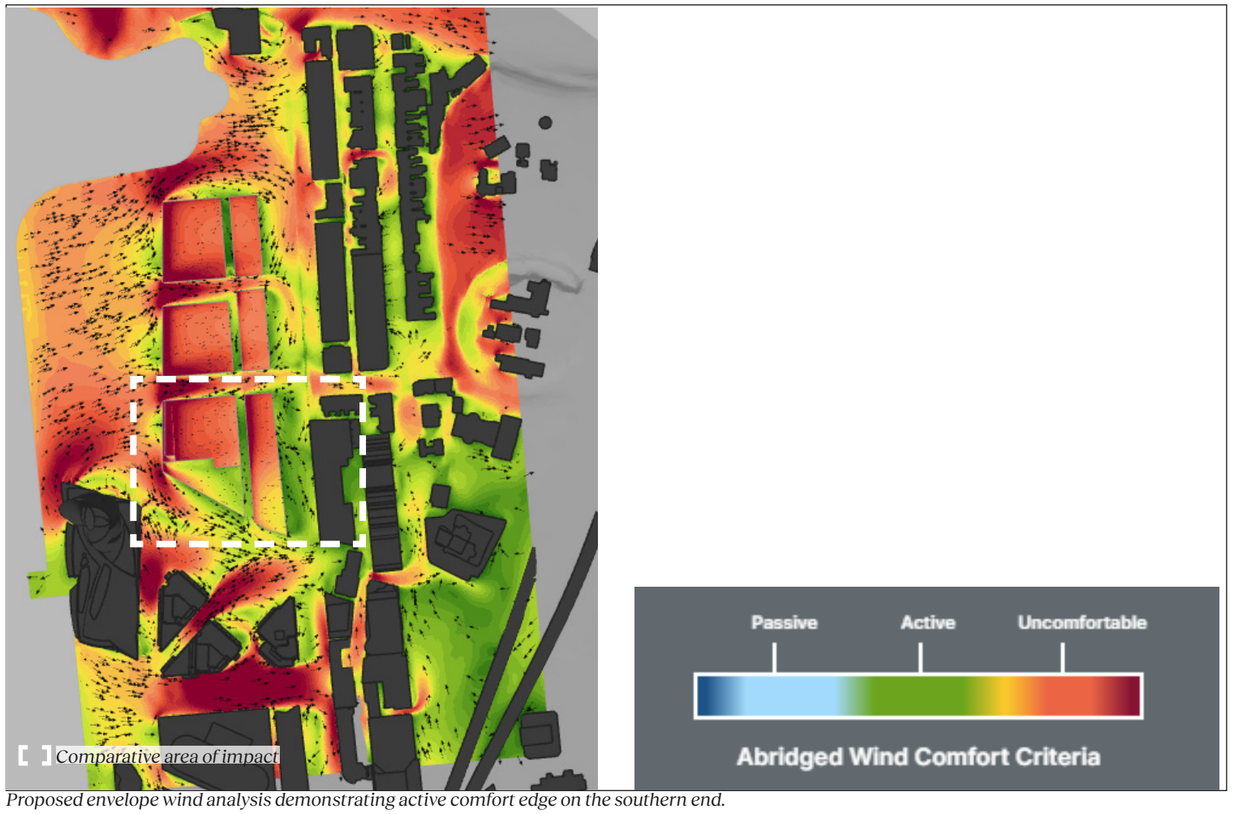
Wind Analysis

The proposed envelope gives consideration to the impact of the westerly winds from the harbor by developing the southern edge of the site to decrease the wind washing effects. The amended envelope provides greater areas for pedestrian comfort as a result of the amended aperture of the south west corner and results in reduced wind washing around Hickson Park leading to active and comfortable condition for various active and passive uses.

The overall wind micro climate remains generally consistent with the existing site conditions. Most areas are likely to be comfortable for sitting through to strolling use.

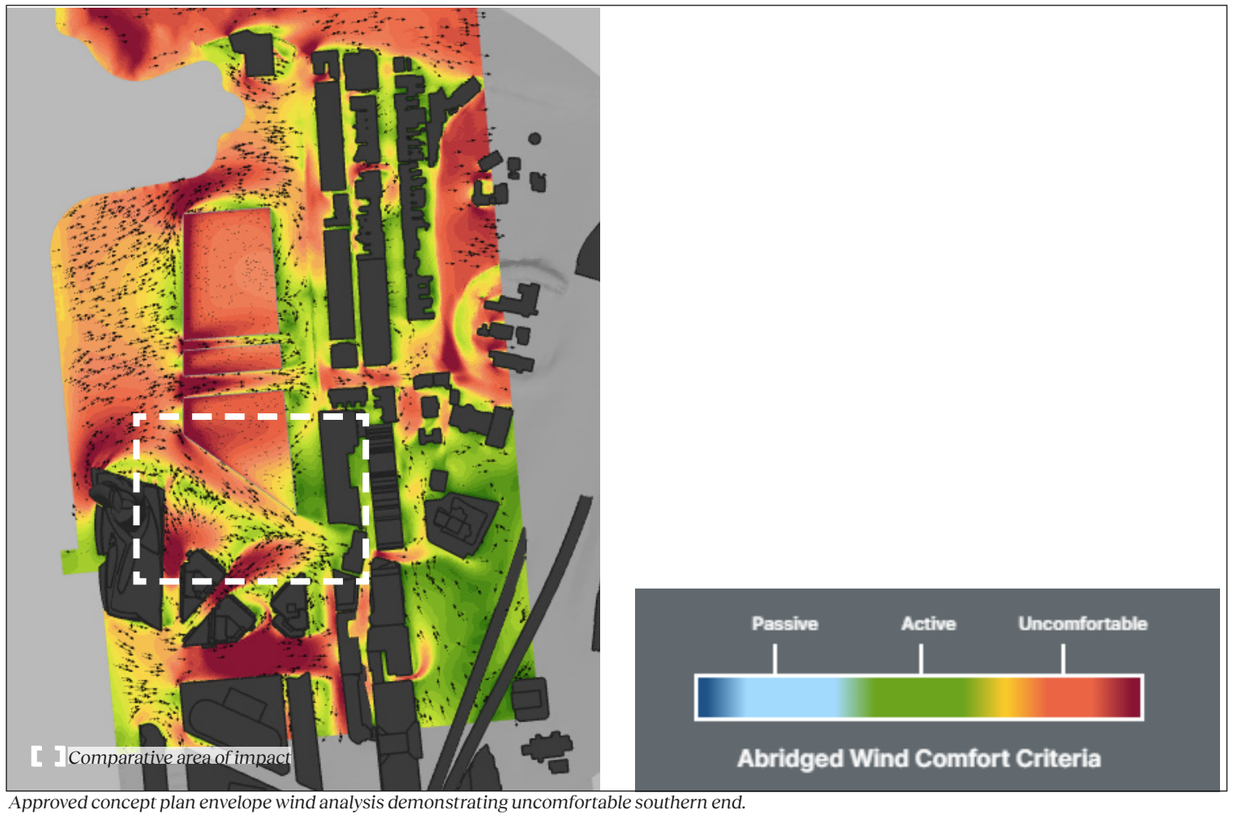
Wind comfort conditions are favorable around lobby entrances and the plazas during summers, with a slight impact to the South plaza due to winter winds.

Proposed Envelope



Proposed envelope wind analysis demonstrating active comfort edge on the southern end.

Approved concept plan envelope



Approved concept plan envelope wind analysis demonstrating uncomfortable southern end.

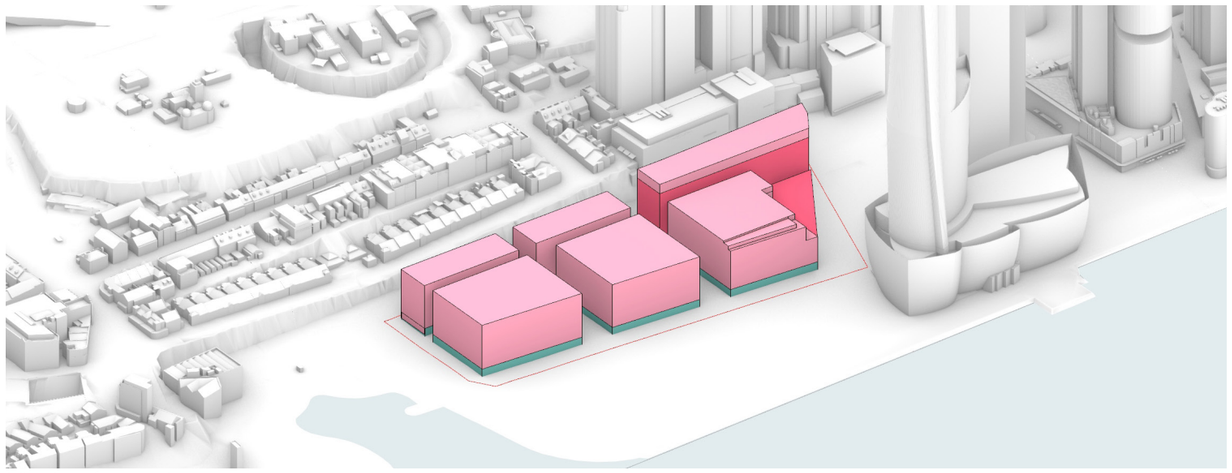
Proposed Envelope

Built form typologies

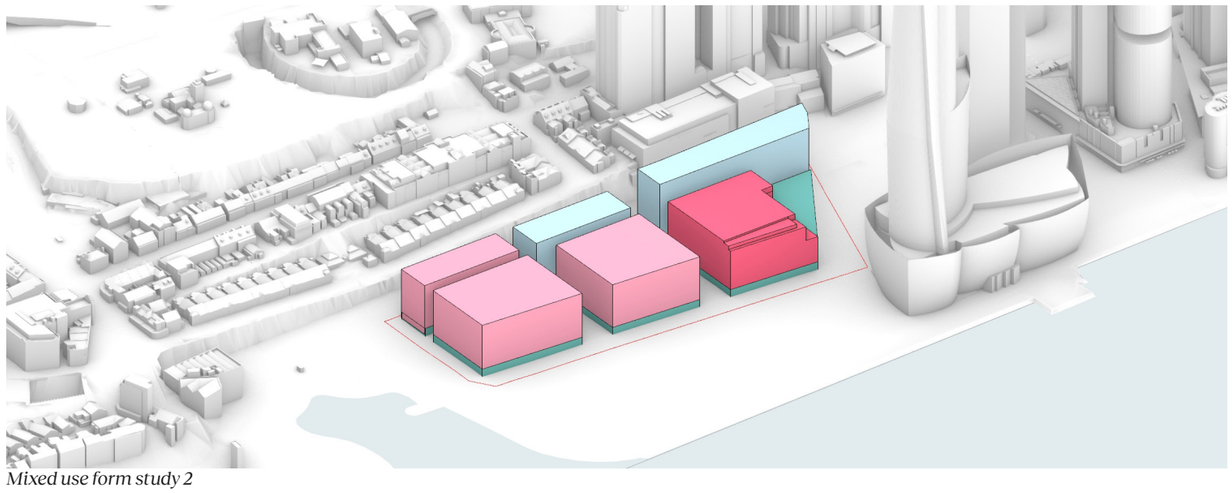
The proposed envelope were tested to ensure maximum flexibility for future uses, acknowledging shifting demands & market shifts.

Residential
Hotel/residential
Office
Retail

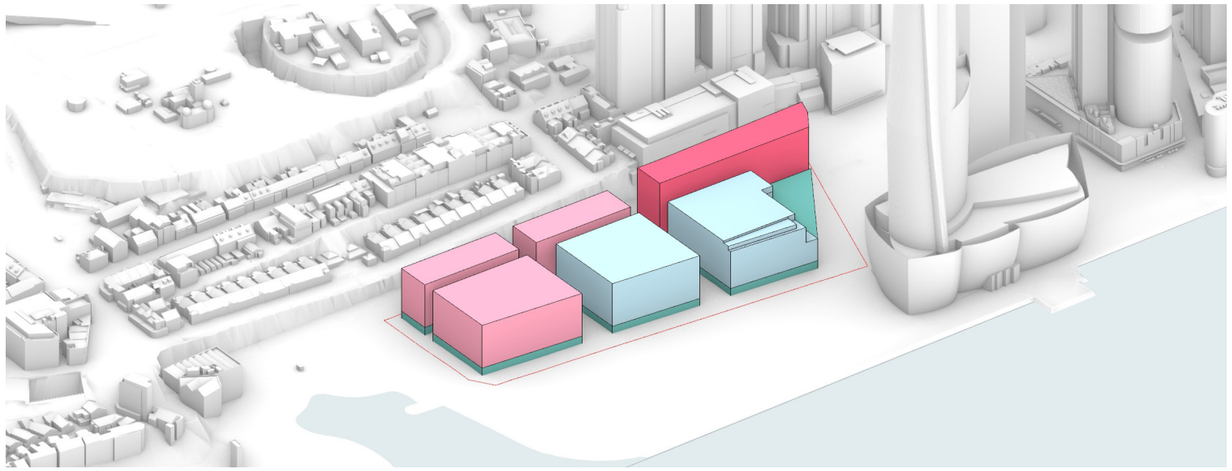
Form testing



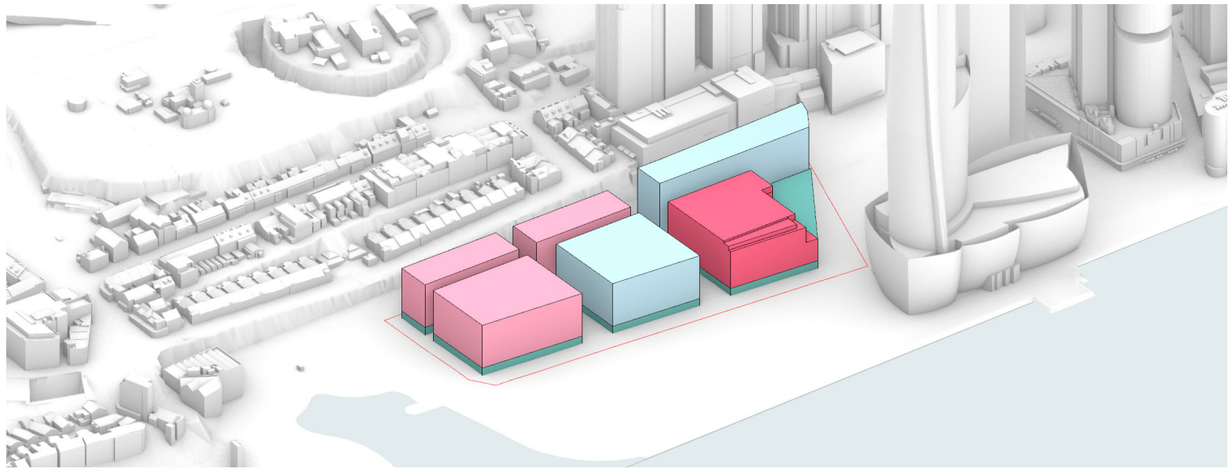
Mixed use form study 1



Mixed use form study 2



Mixed use form study 3



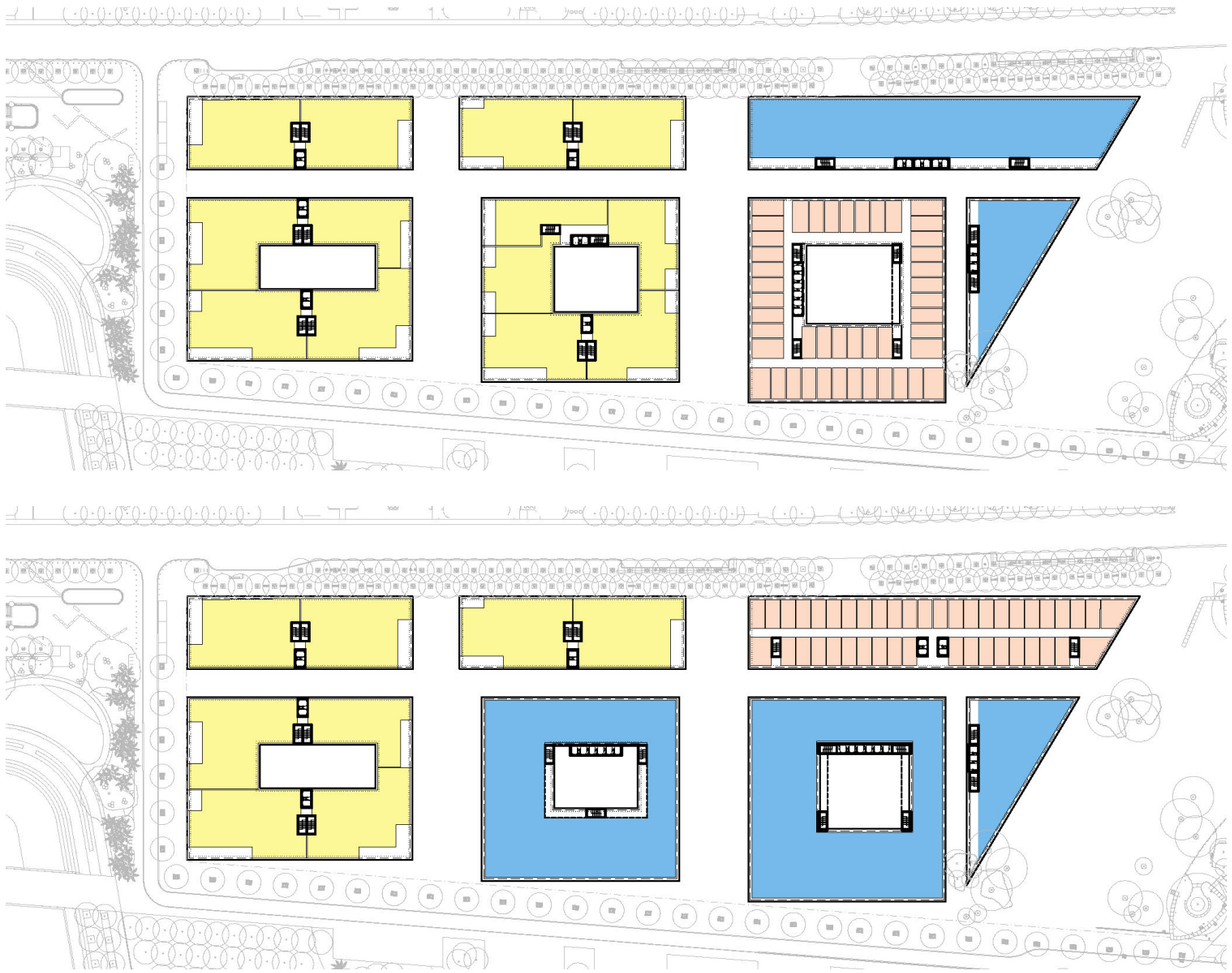
Mixed use form study 4

Proposed Envelope

Floor plan typologies

Typology testing informed the flexibility at both the site level and block typology scale. The envelope form was tested for commercial, residential and hotel uses to develop optimum dimensions for the envelope.

Schematic layout testing



Block testing

Proposed Envelope

View analysis

1. View along High Street from Kent Street

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

The view analysis presented here compares existing condition with the approved Concept Plan envelope, Mod 9 submission and the revised massing proposal from key public viewpoints in the surrounding public domain.

Key views that are crucial from a public domain perspective are discussed in this report. Refer to the Visual Analysis Report by AECOM's for a more comprehensive assessment of views.

1. View along High Street from Kent Street
2. South-west corner of Observatory Hill Park from public path
3. South-west corner of Observatory from bench seat
4. Western side of Observatory Hill Park from path
5. North-east corner of Observatory Hill Park
6. View from Barangaroo Reserve
7. View from Stargazer Lawn
8. View from Ballaarat Park, Pyrmont
9. View from Pirrama Park boardwalk, Pyrmont
10. View from the corner of Hickson Road and Barton Street
11. View from From National Trust carpark

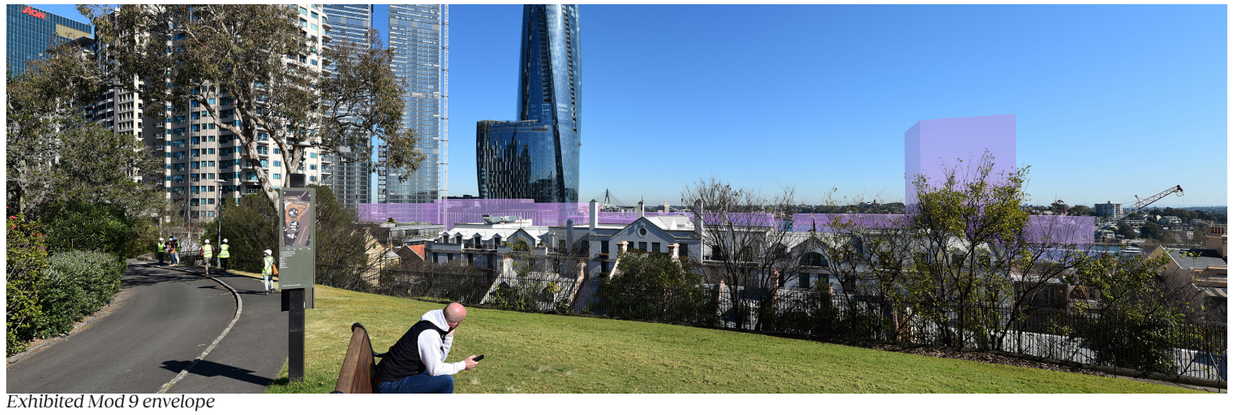
Location plan

Proposed Envelope

View analysis

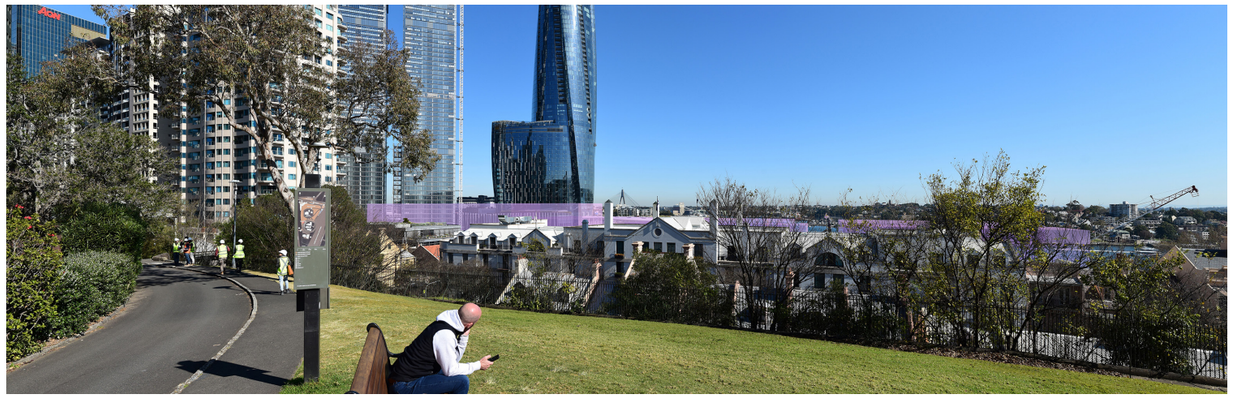
2. South-west corner of Observatory Hill Park from public path

Existing



Exhibited Mod 9 envelope

Approved concept plan envelope



Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

3. South-west corner of Observatory from bench seat

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

4. View from pathway on north-west corner of Observatory Hill

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

5. North-west corner of Observatory Hill Park

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

6. View from Barangaroo Reserve

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

7. View from Stargazer Lawn

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

8. View from Ballaarat Park, Pyrmont

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope

Location plan

Proposed Envelope

View analysis

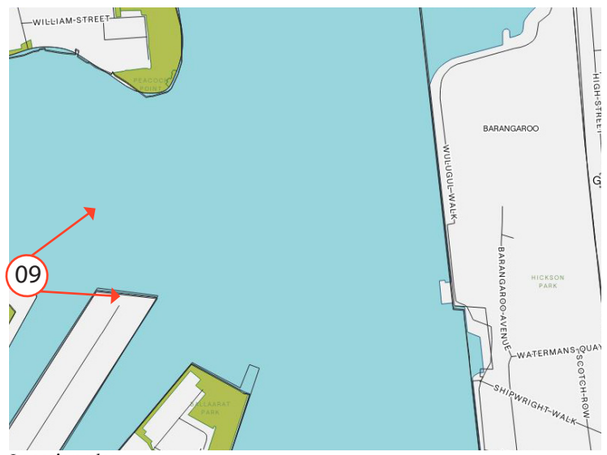
9. View from Pirrama Park boardwalk, Pyrmont

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope



Location plan

Proposed Envelope

View analysis

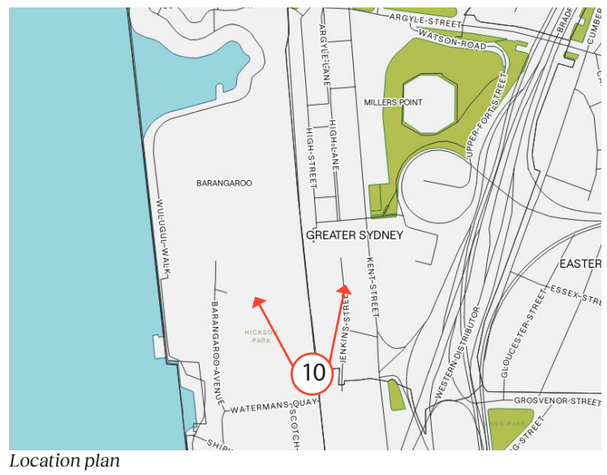
10. View from The Bond plaza on Hickson Road

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope

Proposed amended Envelope



Location plan

Proposed Envelope

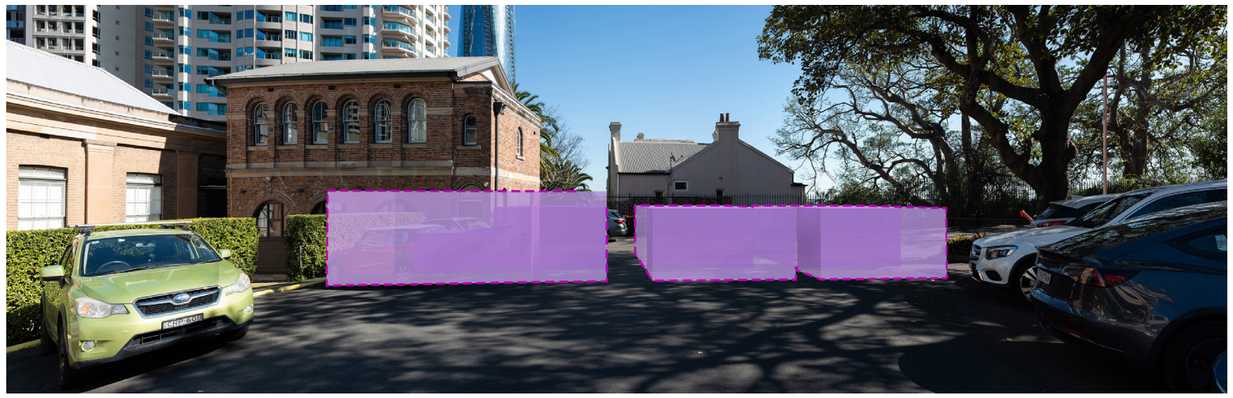
View analysis

11. View from NSW Trust parking

Existing

Exhibited Mod 9 envelope

Approved concept plan envelope



Proposed amended Envelope

Envelope behind existing buildings

Location plan

Proposed Envelope

Shadow Analysis

The shadow analysis presented below depicts the movement of shadows on the 21st of June (winter solstice) from 9 am to 2 pm for the proposed amended envelope and MOD 9 exhibited envelope.

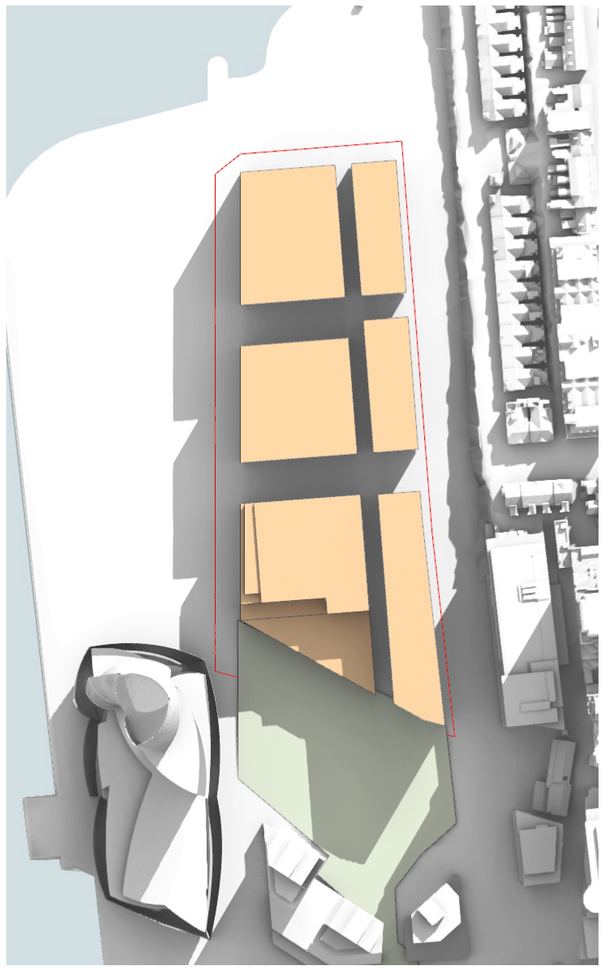
The study demonstrates that the proposed amended envelope results in a less significant impact of overshadowing on Hickson Park as compared to the MOD 9 exhibited envelope and also reduces the morning shadow over harbor park.

9:00 am

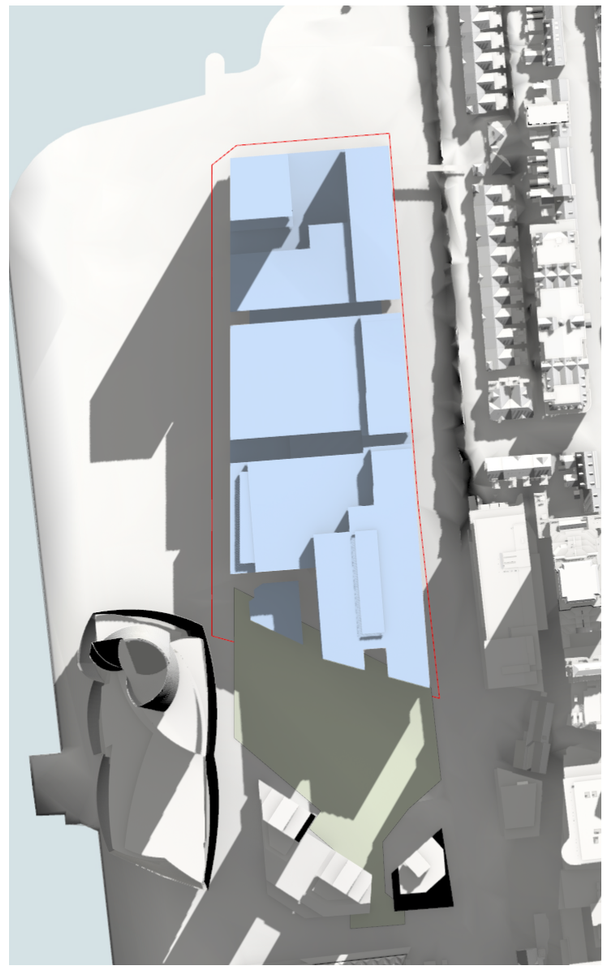
Proposed envelope

MOD 9 envelope

10:00 am



Proposed envelope



MOD 9 envelope

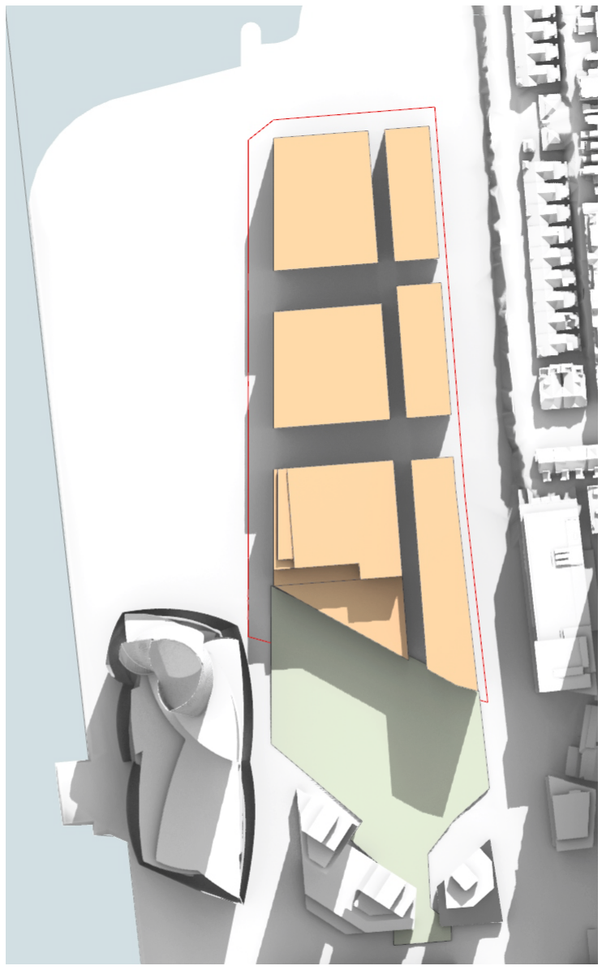
Proposed Envelope

Shadow Analysis

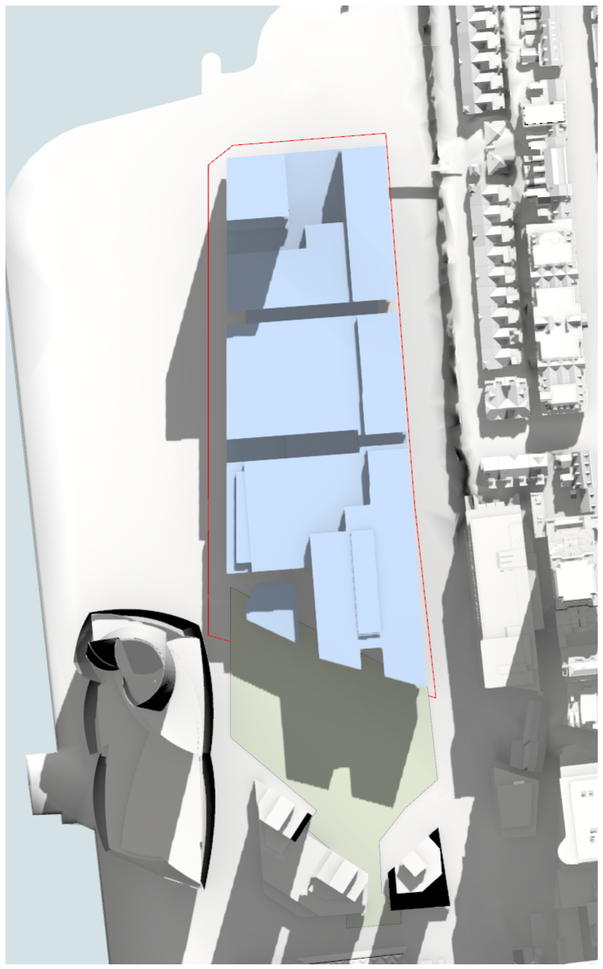
The shadow analysis presented below depicts the movement of shadows on the 21st of June (winter solstice) from 9 am to 2 pm for the proposed amended envelope and MOD 9 exhibited envelope.

The study demonstrates that the proposed amended envelope results in a less significant impact of overshadowing on Hickson Park as compared to the MOD 9 exhibited envelope and also reduces the morning shadow over harbor park.

11:00 am

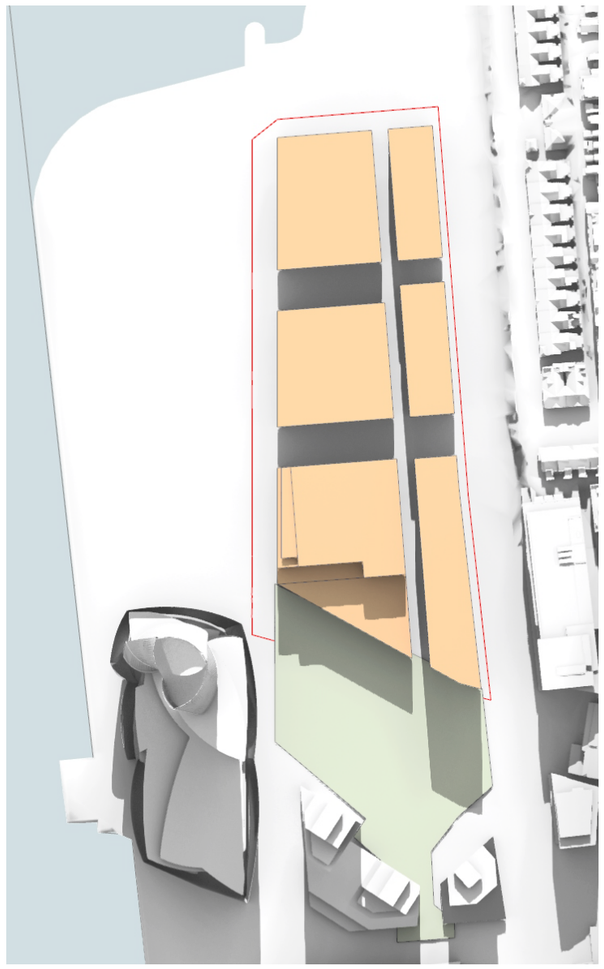


Proposed envelope

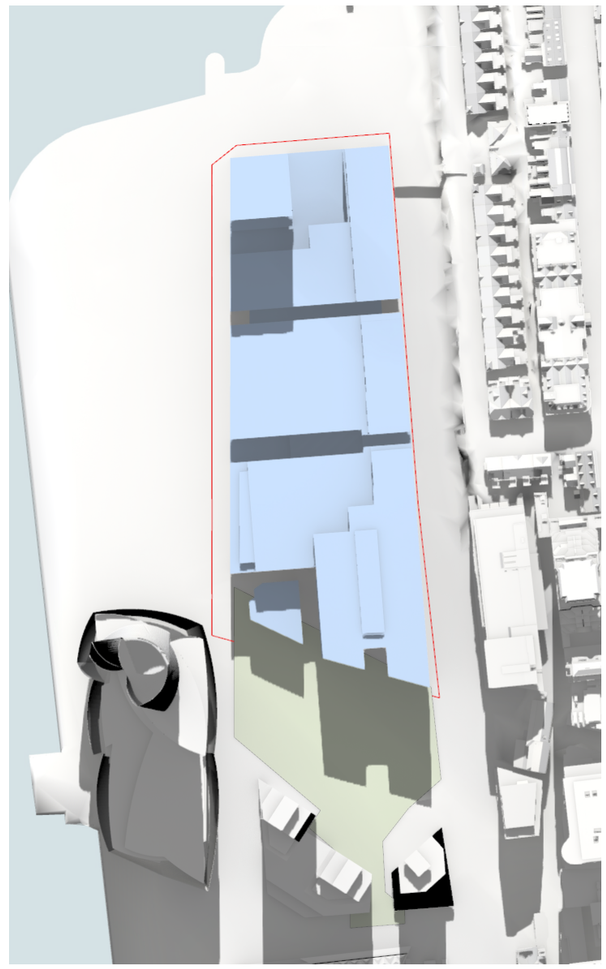


MOD 9 envelope

12:00 pm



Proposed envelope



MOD 9 envelope

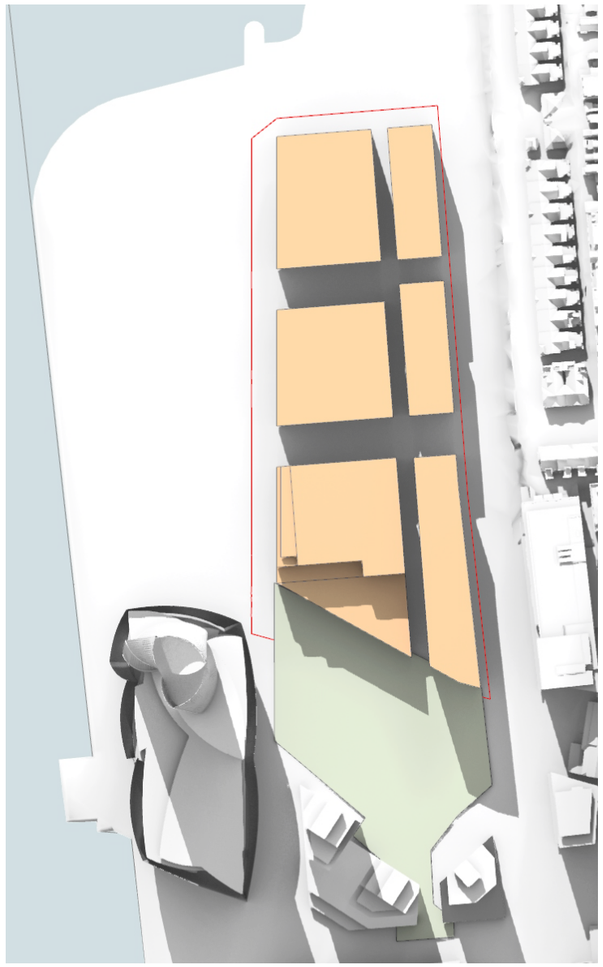
Proposed Envelope

Shadow Analysis

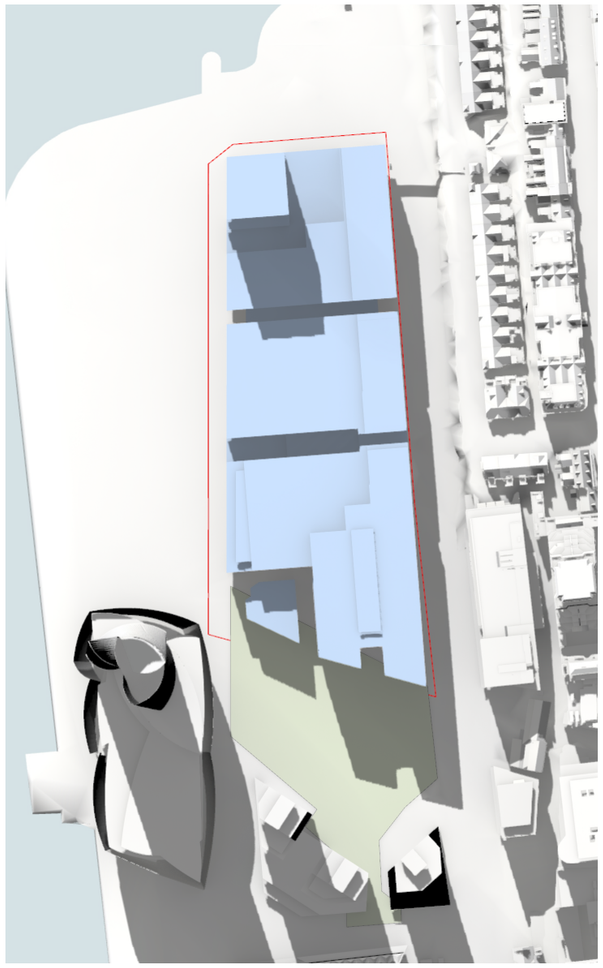
The shadow analysis presented below depicts the movement of shadows on the 21st of June (winter solstice) from 9 am to 2 pm for the proposed amended envelope and MOD 9 exhibited envelope.

The study demonstrates that the proposed amended envelope results in a less significant impact of overshadowing on Hickson Park as compared to the MOD 9 exhibited envelope and also reduces the morning shadow over harbor park.

1:00 pm



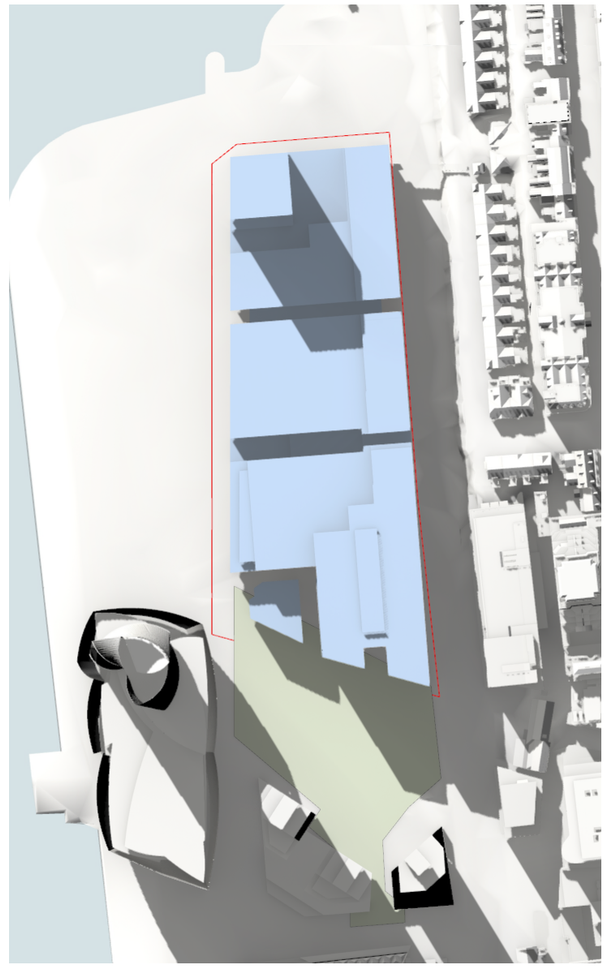
Proposed envelope



MOD 9 envelope

2:00 pm

Proposed envelope



MOD 9 envelope

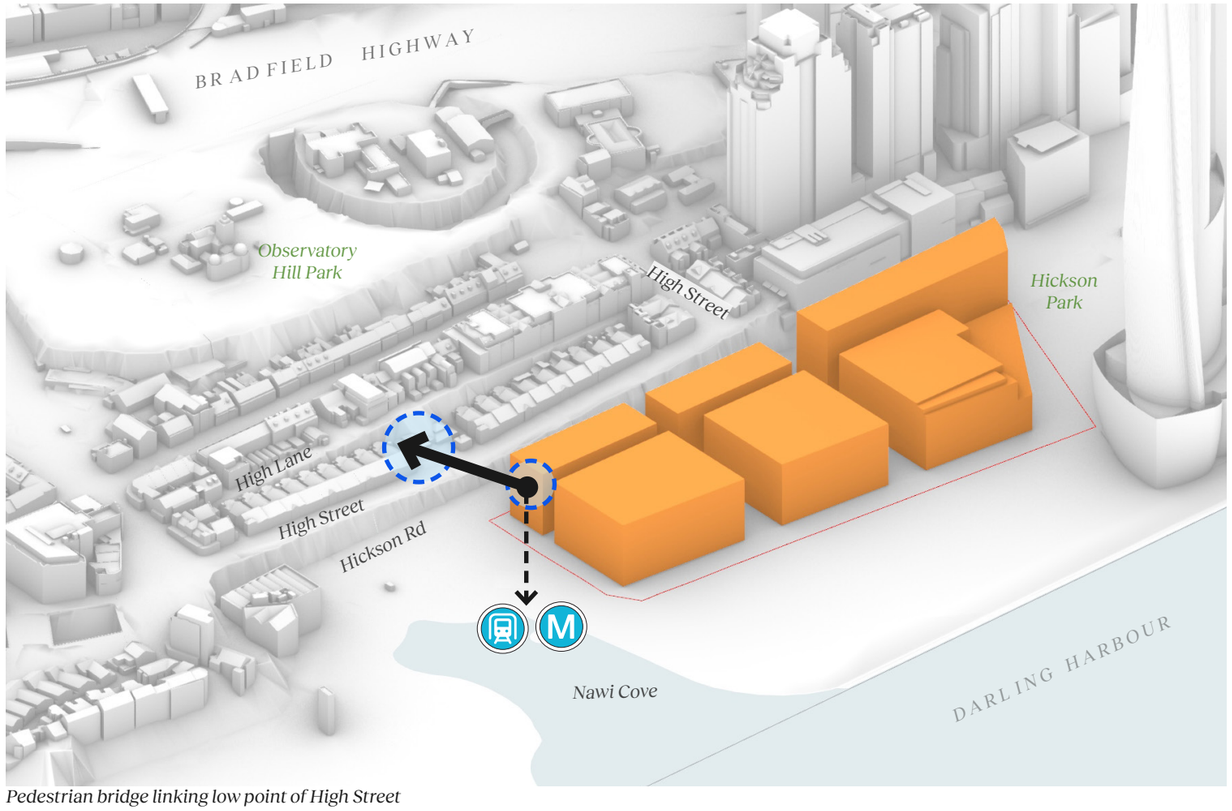
Proposed Envelope

Pedestrian bridge design

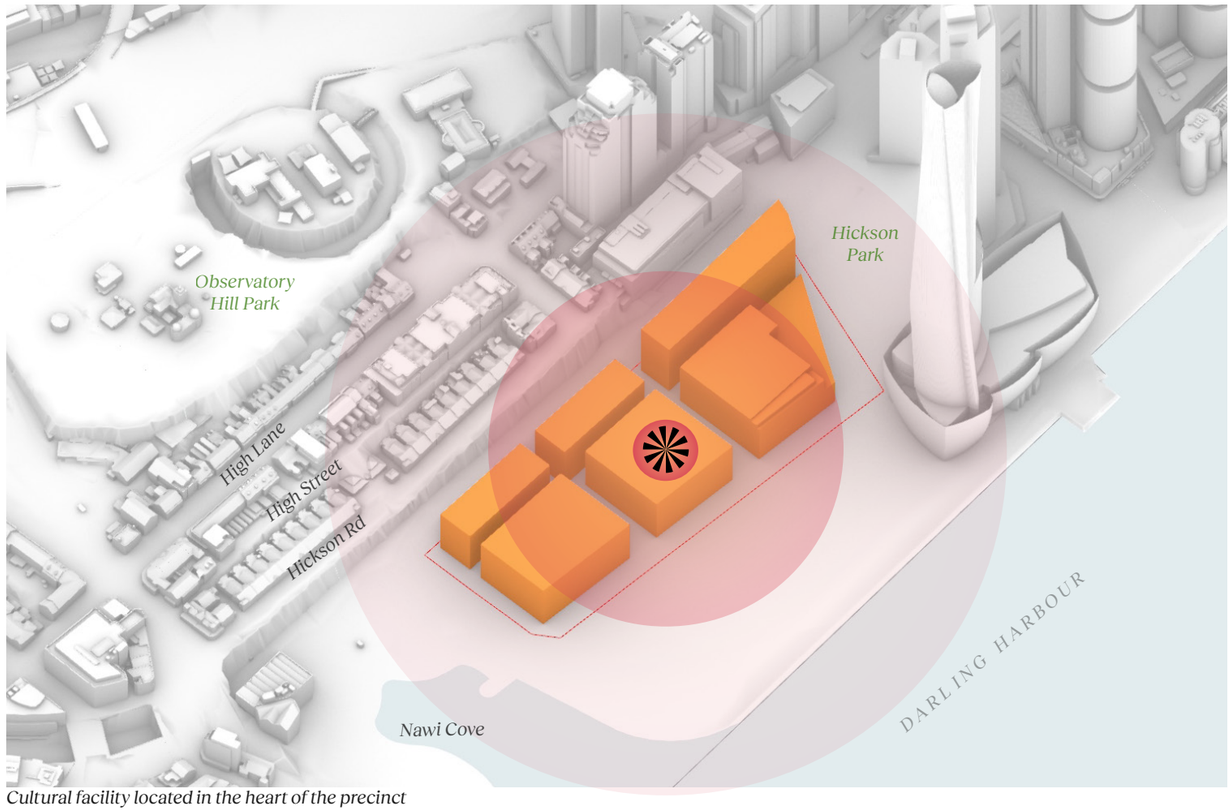
The proposed reinstatement of a bridge at the low point of High Street, connecting Millers Point to Central Barangaroo, calls to Sydney's maritime history while providing a critical link for the precinct's future. One of the pedestrian bridge's key features will be its integration with the new Sydney Metro Station, with easy access to the station concourse via lifts. The bridge will be designed to reflect its former industrial setting, incorporating elements such as an exposed framework and raw finishes. The proposed envelope considers the integration of the footbridge with the building for a holistic approach.

Cultural facility

A new cultural facility is being conceived at the heart of the precinct, located in the central block. Its strategic location at the ground level of the building will provide an unexpected cultural haven. The facility will accommodate a theatre, envisaged as a beacon of activity, drawing diverse audiences and performers to its stage. It will support cultivating the dynamic 18-hour rhythm within the precinct. The theatre will have a prominent entry from the ground floor public plaza, that positions culture and the arts at the foundation of urban life.



Pedestrian bridge linking low point of High Street



Cultural facility located in the heart of the precinct

Proposed envelope

6 Built form

The section describes the detailed design relating to the *proposed envelope* and highlights key urban framework elements.

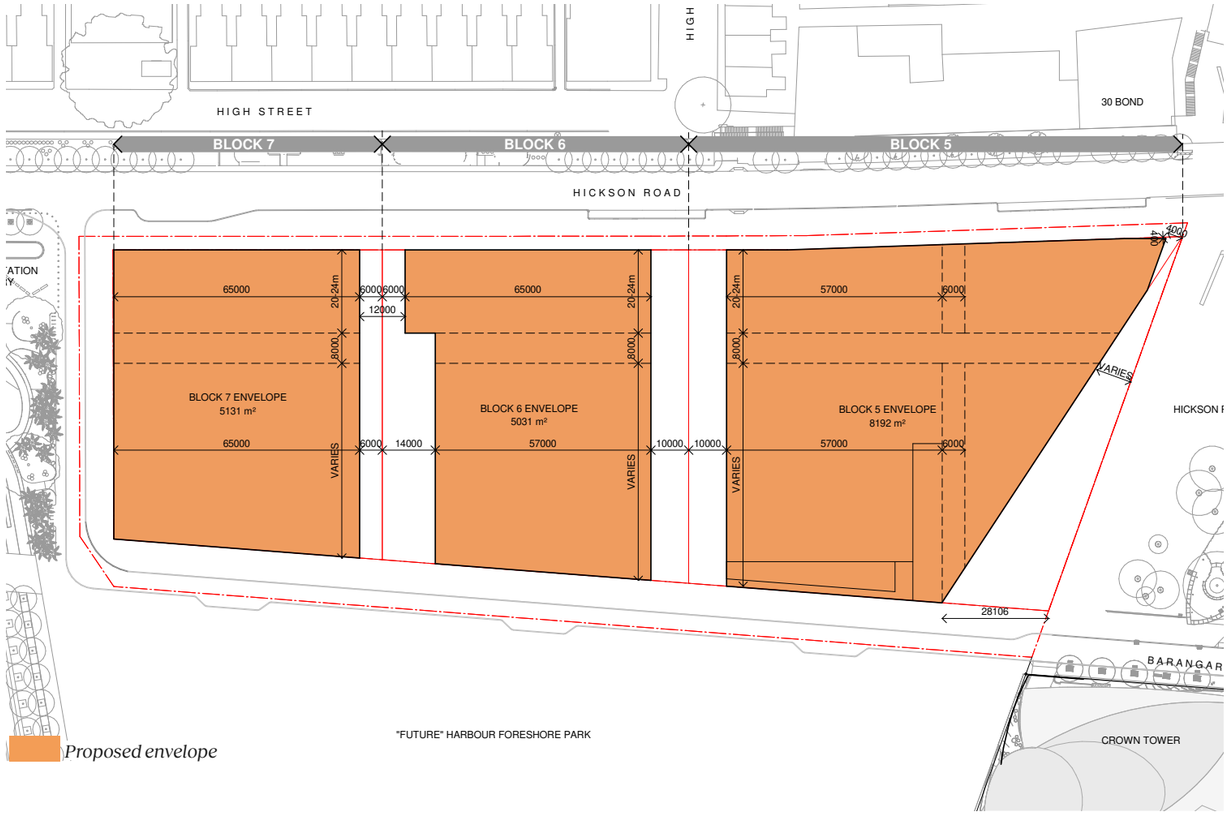
Proposed Envelope

Block dimensions

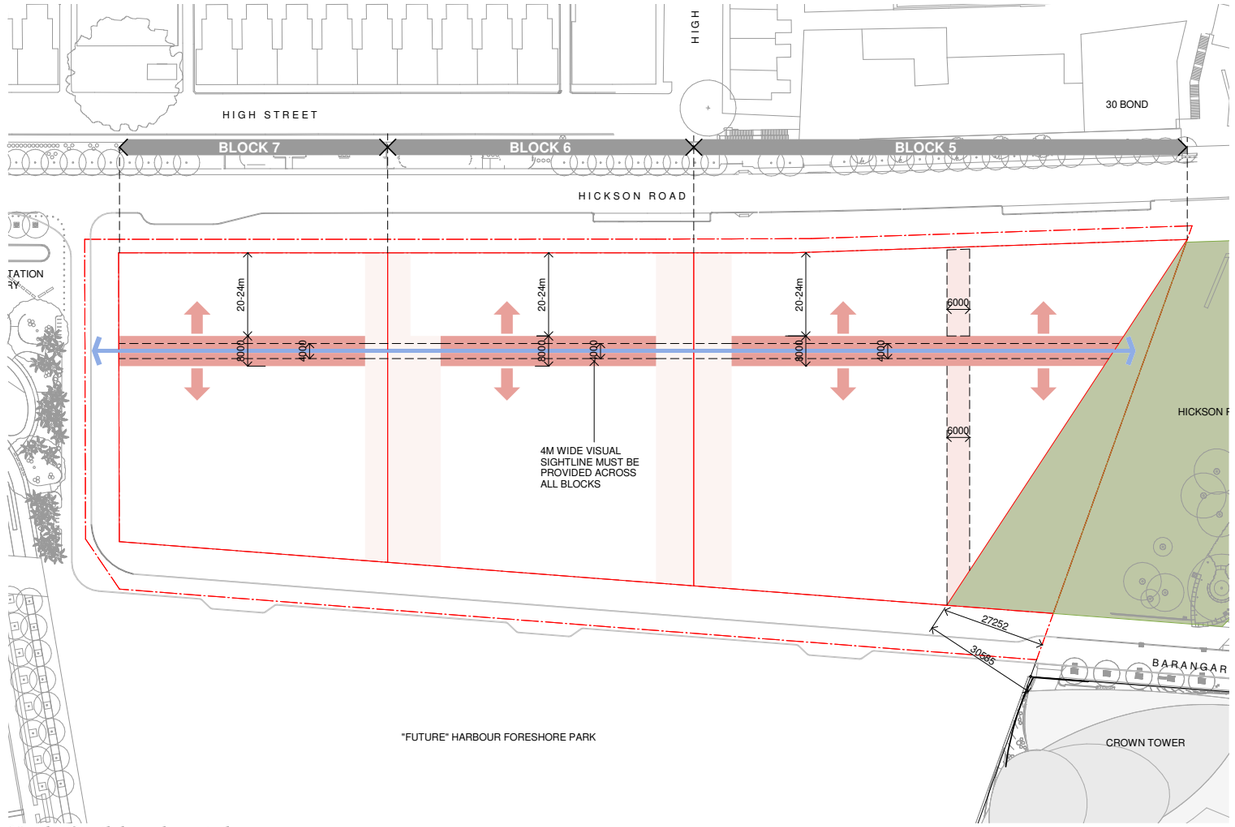
- The overall dimensions and footprints of Blocks 5, 6 and 7 including new pedestrian connections open to the sky, greater porosity and framed views to the harbour.
- Block dimensions provide maximum flexibility for delivery of commercial and/or residential uses as well as retail, hotel and community uses.

North-south lane

- An 8m wide north-south lane is proposed between each block at a distance range of 20-24m from Hickson Road.
- The lane can stagger within this zone but a continuous north-south visual link of 4m must be retained between all buildings.



Block Dimension Plan



North - South lane layout plan

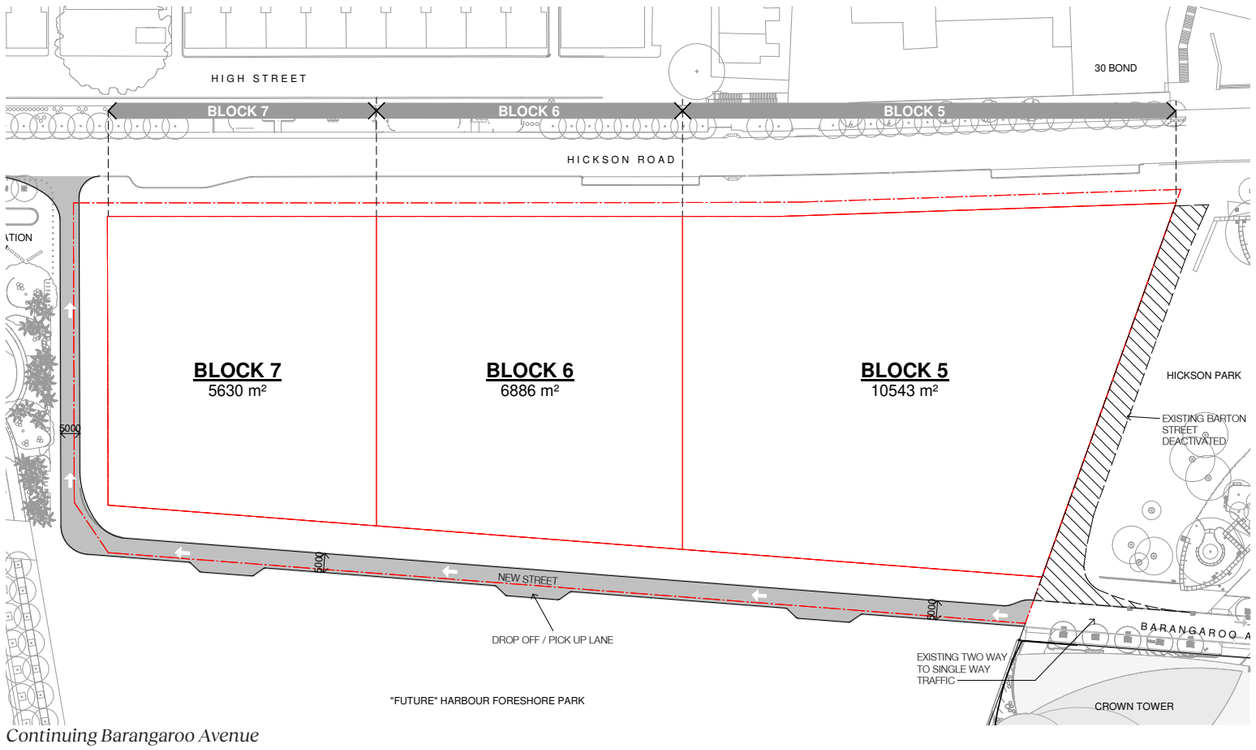
Proposed Envelope

Barangaroo Avenue

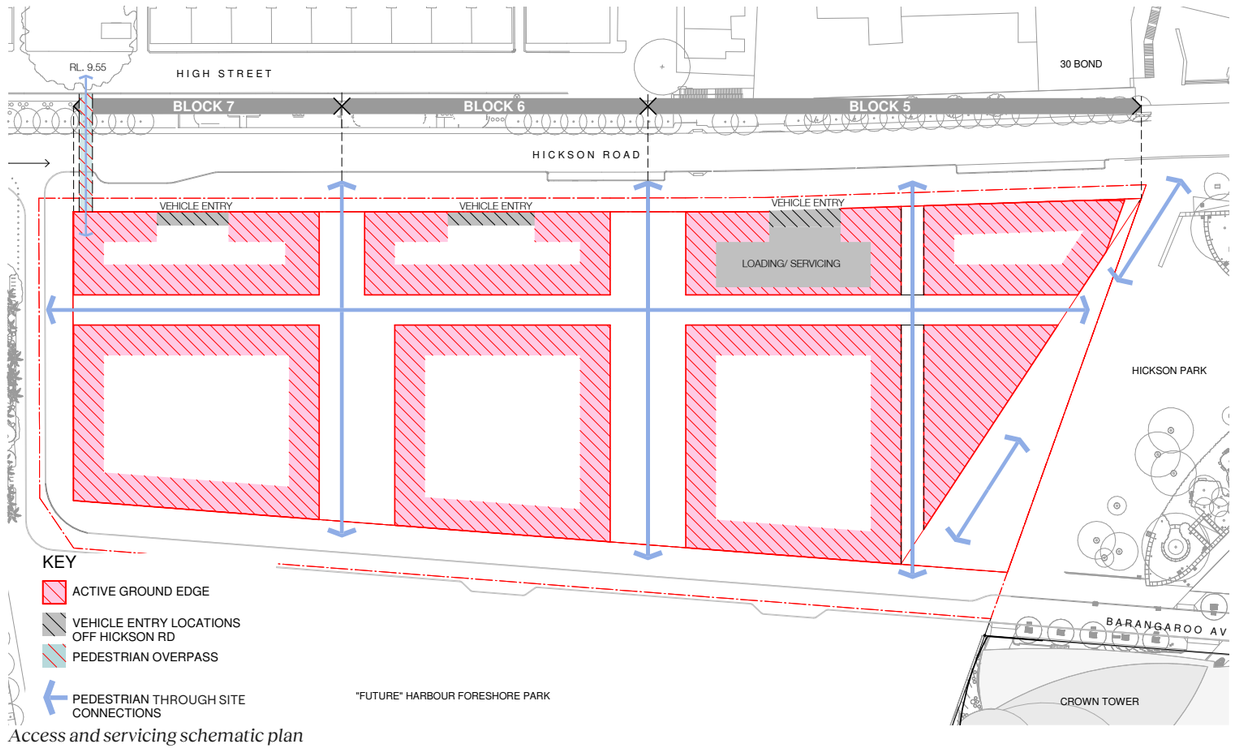
— Continue Barangaroo Avenue along the western interface as a slow one-way shared street, connecting to Hickson Road.

Access and servicing

— Vehicular entries must be contained to the Hickson Road interface with a maximum of three vehicular entrances.
— Vehicular entrances should be centralised within each block to allow activation of corners fronting Hickson Road and new east-west connections.



Continuing Barangaroo Avenue



Access and servicing schematic plan

Proposed Envelope

Heights

- Proposed envelopes allow for generous floor-to-floor heights and can achieve a maximum of 7-8 storeys dependent upon the proposed building uses.
- The ground level heights must accommodate loading and servicing access at a minimum of 5m
- The roof levels of all buildings must be sized to contain green roofs and parapet heights and lift overruns within the envelopes.

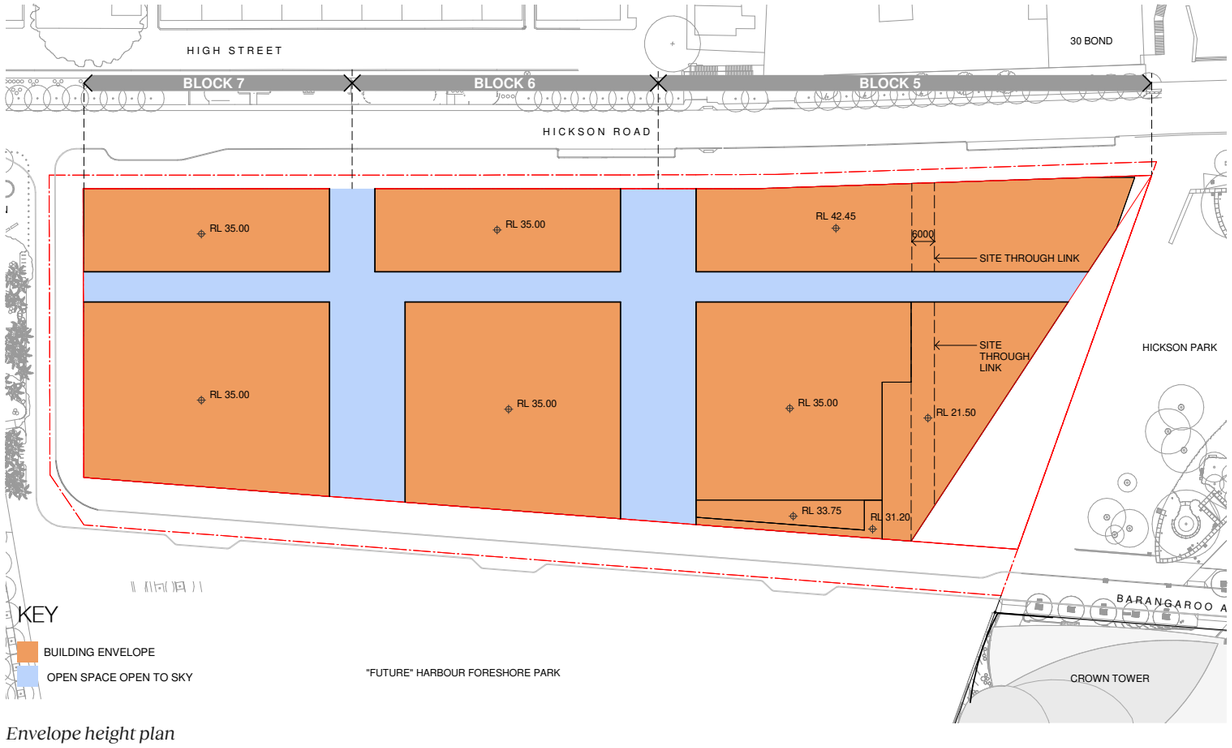
Deep soil

- Additional allowance for planting and deep soil zones across the site
- All planting proposed within the public spaces between the blocks must be flush with the finished ground level
- The 7% deep soil requirement should be considered generally within the zones shown on the below plan, located to assist with wind amelioration and interfaces with surrounding parklands.
- The deep soil areas are indicative only. The precise quantum and distribution of deep soil areas will be determined at future SSDA stages for individual buildings.

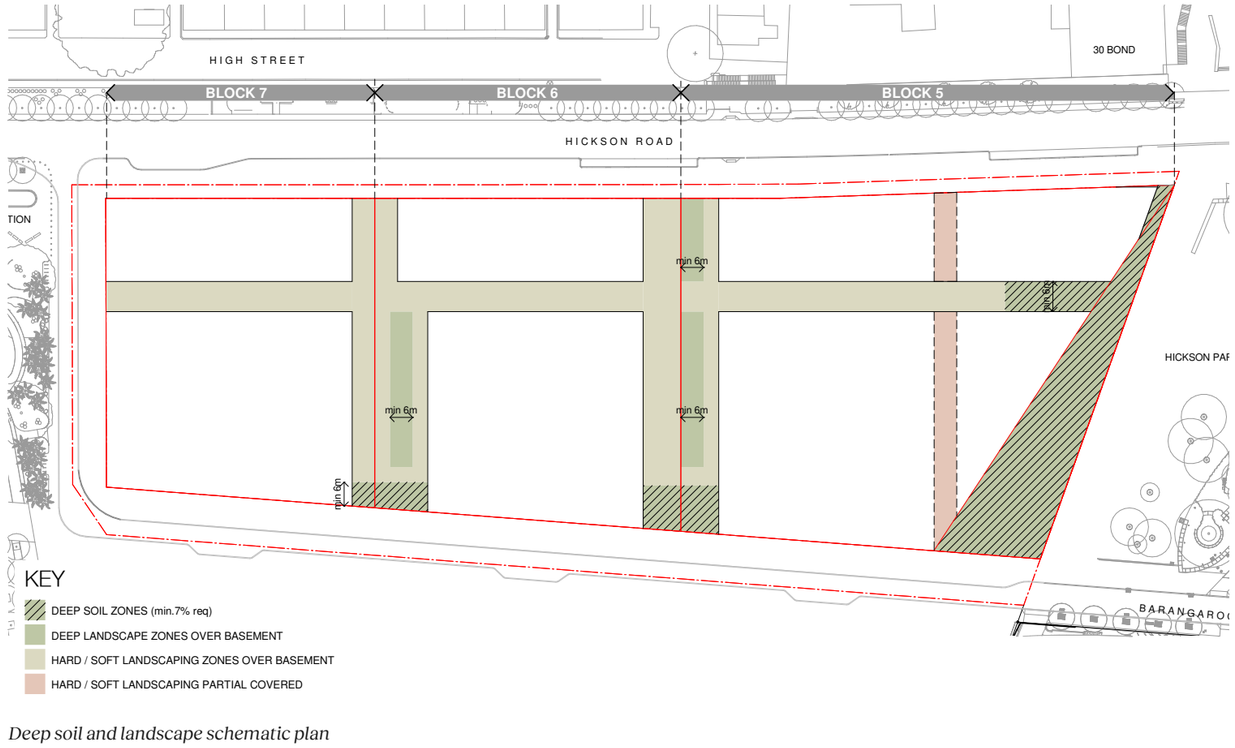
Deep soil is provided in various locations across the site precinct to allow for new parks and substantial vegetation to occur. The deep soil zones are located within the open space at ground, and will comprise of soft and hard landscaping as indicated in the concept open space landscape plan.

Under the Apartment Design Guide (ADG) the proposal would overall exceed the minimum requirements, as outlined in the below table:

Total LOT site area :	23059 m²	100 %
Deep Soil Zones provided:	2050 m²	8.8 %
Minimum area required in accordance with ADG:		7 %
Public open space areas combined:	2311 m²	10 %



Envelope height plan



Deep soil and landscape schematic plan

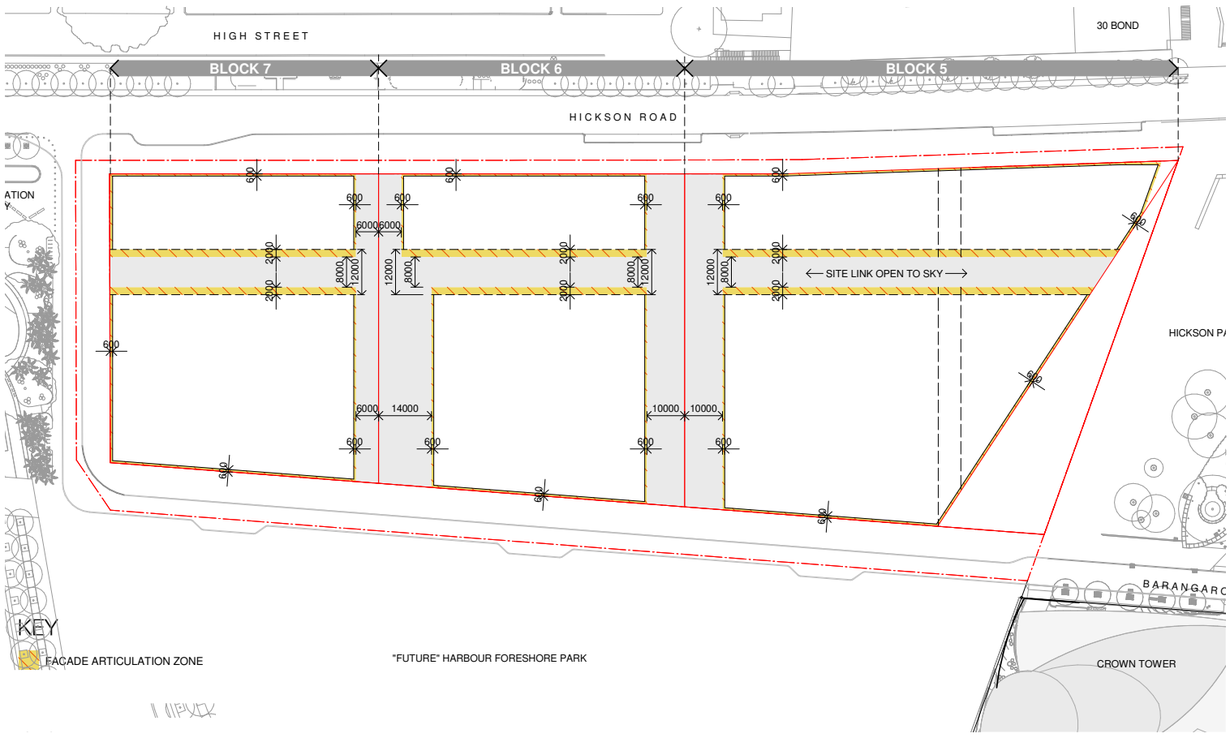
Proposed Envelope

Articulation zones and Facades

- 0m setbacks with buildings built to street edges are encouraged.
- A zone of 600mm has been accommodated for building articulation across all facades.
- An additional 1400mm articulation zone has been proposed along the north-south lane to allow for designed interfaces appropriate to the proposed building uses.

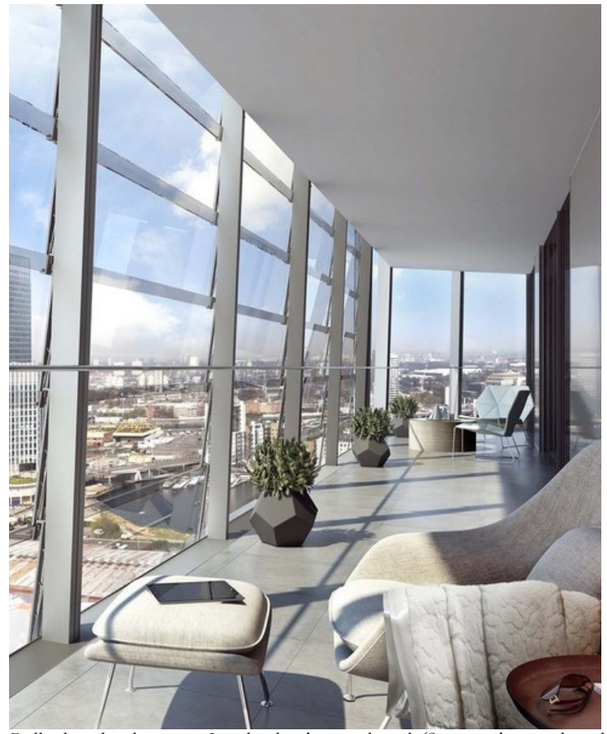
Wintergardens

- All wintergardens should be integrated into the architectural form of the building and should be a part of the facade design.
- Wintergardens should be provided with high level of amenity and considers noise mitigation strategies.
- The design should mitigate the wind impact by facade articulation or by incorporating exposed facades for wind flow.
- Private open spaces such as wintergardens are to be excluded from GFA calculations.
- Wintergardens should allow direct sunlight and achieve natural ventilation.



Facade articulation zone plan

Wintergarden - Aurora Place by Renzo Piano (Source :Martin Van der Wal)

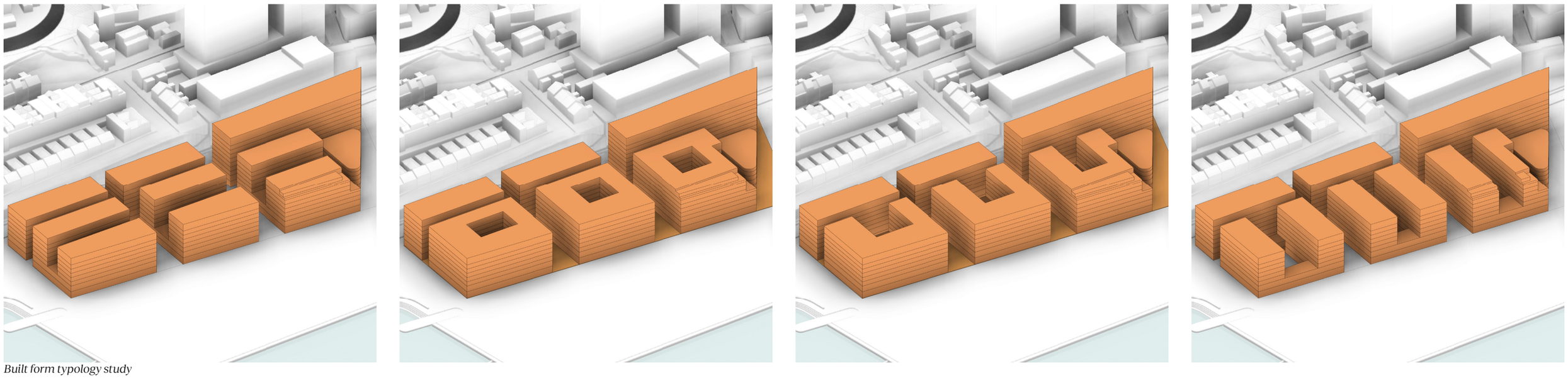


Dollar bay development, London by simpsonhaugh (Source: simpsonhaugh)

Proposed Envelope

Potential built form configurations

— A range of building typologies can be achieved within the proposed envelopes and area allowances, suitable to different building uses. The provision of public spaces between the blocks remain continuous within any scheme.

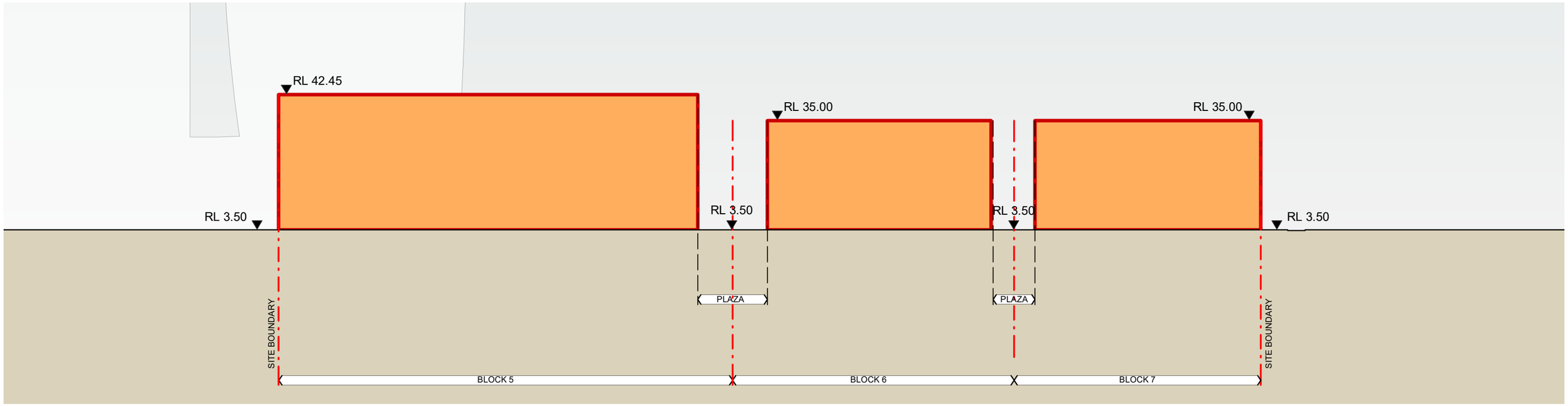


Built form typology study

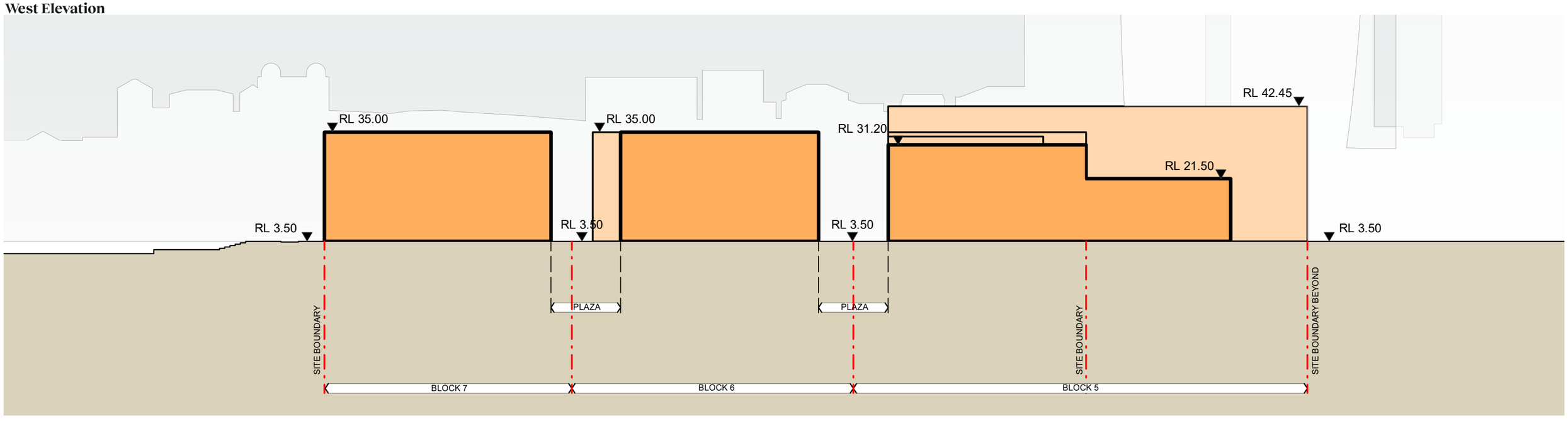
Proposed Envelope

Elevations

East Elevation



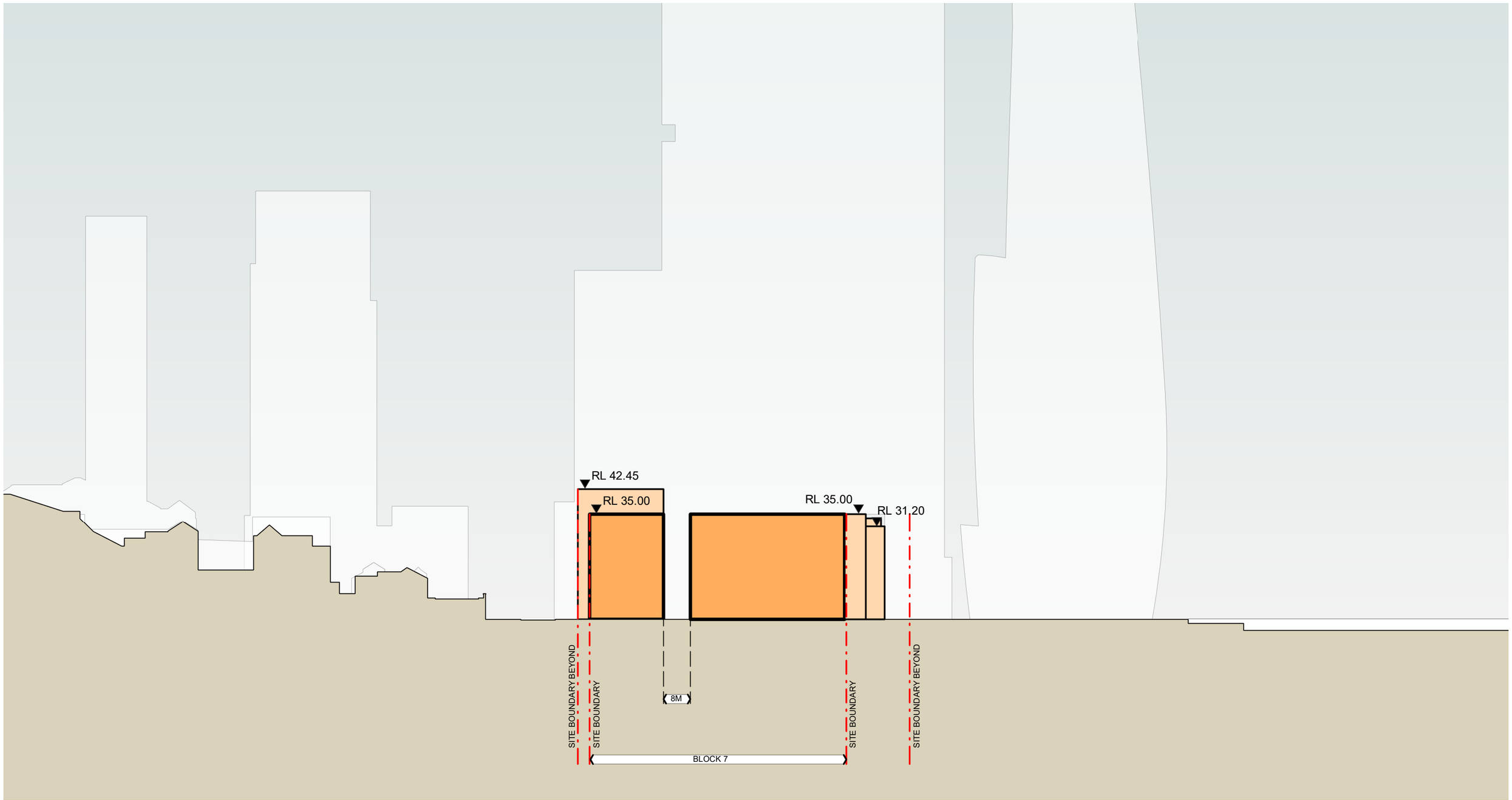
West Elevation



Proposed Envelope

Elevations

North Elevation



7

Design Excellence

Design Excellence Strategy

The Central Barangaroo Applicant is fully committed to achieving design excellence within the Central Barangaroo precinct, to deliver the highest standard of architectural, urban and landscape design and continue the exemplar urban design response along the western Sydney Harbour foreshore. The objective of the development is to create a fully integrated precinct whereby the individual uses, architecture, art and landscape combine to create a holistic experience for the surrounding community, visitors, its residents and occupants.

Design Team

SJB Architecture has been engaged as the Urban Designer for the amended master plan that forms the basis of the Response to Submissions. Adam Haddow, Director of SJB, will be retained as Urban Design and Lead Architect overseeing the design of the development.

Landscape Architecture team Oculus and Cola Studio will work together in collaboration with SJB to design the ground plane and landscaped building elements to ensure the design process is controlled and coordinated.

A waiver was previously sought for Smart Design Studio, Durbach Block and Jaggers, David Chipperfield Architects and John Wardle Architects on the basis they were considered to satisfy the waiver condition Cl19④(b) Appendix 5 of the Precincts SEPP. Whilst the revised strategy outlined below will explore alternative architects and processes, the Central Barangaroo Developer seeks confirmation that the nominated architects, along with SJB Architects, will satisfy the requirements of Appendix 5 of the Precincts – Eastern Harbour City SEPP (PEHC SEPP).

With the removal of the retail podium and basement retail mall, Scentre Group has been removed as the retail architect. The architecture at ground level will now be the responsibility of the individual building architects which will be selected in consultation with the Infrastructure NSW and the GANSW.

Revised Approach

The Design Excellence Strategy submitted as part of the previously submitted MOD 9 Application will be revised to reflect changes to the scale, character and mix of the development, and in response to the feedback provided by DPE and the Government Architect of NSW.

The proposed development has materially changed and is now intended to comprise of multiple individual buildings, primarily residential, that come to ground in a landscaped ground plan of streets and laneways. The previously submitted MOD 9 proposal was much larger, included a retail podium and was more weighted towards commercial office space.

The Central Barangaroo Developer wishes to explore a range of alternative design excellence strategies in consultation with Infrastructure NSW and GANSW and not rule out a non-traditional approach that promotes a highly coordinated and cooperative approach intended to create a coherent and integrated precinct that supports architectural diversity and design excellence outcomes.

Compliance with Statement of Commitments

This Strategy has also been prepared in accordance with the amended Statement of Commitments for Central Barangaroo MOD 9 (MP06_0162), as outlined in Table 1.

Commitment	Compliance with Commitment
1. A Design Excellence Strategy that clearly articulates a process to achieve quality in both the private built form and the detailed design of the public domain (streets, pedestrian connections, parks and squares) is to be prepared.	The Strategy, which will be developed in consultation with the GANSW and Infrastructure NSW, will identify the process to achieve design excellence on the site.
2. The Design Excellence Strategy may include the preparation of site-specific design guidelines, articulate a process(es) for the conduct of design competitions for major developments and the design of public open spaces, and/or establish a competitive process for individual development sites.	The Strategy will outline the design excellence process for individual development blocks within the site. Guidelines for built form, streets, parks and public spaces have been developed by SJB and are included in the Urban Design Report submitted in the MOD 9 Response to Submissions.
5. The Design Excellence Strategy is to be submitted by the Working Group to the Barangaroo Planning Reference Group of the equivalent body. The Barangaroo Planning Reference Group or equivalent body will report to the IPCC on relevant matters as recommended by the proponent team and the Working Group. The Proponent will report to the Barangaroo Delivery Authority on recommendations from the Working Group.	The Central Barangaroo Developer will demonstrate compliance with this condition following submission of the Strategy. It is noted that the established Infrastructure NSW DEAP will provide independent guidance and advice to ensure a rigorous process is followed and that Design Excellence is achieved and maintained.
6. Following endorsement, the Design Excellence Strategy is to be made publicly available in a manner to be determined by the Barangaroo Planning Reference Group or equivalent body.	The Central Barangaroo Developer will demonstrate compliance with this condition following endorsement of the Strategy.

Table 1

Design Excellence Approach

Design Excellence requirements aim to ensure that buildings, places, and spaces deliver unique, innovative, and successful outcomes for landowners and relevant stakeholders. There are several processes available that have the capacity to enable Design Excellence to be achieved, but common to all is the capacity to receive and act on inputs of respected 3rd party participants - Design Reviewers.

Commonly 3rd party Design Reviewers are design professionals able to ask challenging questions, present lived experience inputs, and potentially advocate for alternative solutions not imagined within established planning frameworks. The process creates a safe environment for the design team to test ideas responding to the project brief in collaboration with the Design Reviewers. It is important that the environment creates a feedback loop where ideas can be expressed, challenged, and reimagined - to ultimately deliver a project outcome better than that of a direct singular commission.

Commonly there are two avenues to facilitate Design Excellence: Competition &/or Curatorial.

The amended MOD 9 proposal will be supported by an amended Design Excellence Strategy, which complies with the general intent of Clause 19③ of the PEHC SEPP which states:

③ Consent must not be granted to the following development unless a design competition has been held in relation to the proposed development—

(a) the erection of a new building that will be greater than Reduced Level (RL) 57,

(b) the erection of a new building on a site of greater than 1,500 square metres.

④ Subclause ③ does not apply if the Secretary—

(a) certifies in writing that the development is one for which an architectural design competition is not required because of the excellence of the proposed design for the development concerned, and

(b) is satisfied that—

(i) the architect responsible for the proposed design has an outstanding reputation in architecture, and

(ii) necessary arrangements have been made to ensure that the proposed design is carried through to the completion of the development concerned.

Pursuant to the above, Design Excellence can be achieved on projects via several methods. The Central Barangaroo Developer, in consultation with Infrastructure NSW and GANSW will explore design excellence strategies that include an architectural design competition, curational approach and potential alternative strategy that complies with the intent of the SEPP.

Competitions

Competitions in NSW are well established. A detailed brief is prepared, up to 6 architectural teams are invited and paid to participate, and a jury of esteemed architects and property professionals is organised to judge. Central to a competition is the establishment of a detailed brief and relevant background information, and its sign off by the relevant consent authority. Usually, 8 weeks is provided as the competition period and physical presentations are delivered two weeks after lodgment - allowing enough time for relevant specialist consultant input to be provided to the jury. The winner of the competition is then appointed to complete the project.

It is proposed the competition process and composition of the jury will be developed and agreed in consultation with Infrastructure NSW and GANSW.

Positives:

- Clarity of brief,
- Clarity of ideas able to be established,
- Intensity of time to establish a position,
- A clear outcome that enables project clarity moving forward,
- Competition jury has a short and sharp engagement.

Negatives:

- Lack of professional relationship with the client group - winning schemes are developed in a vacuum,
- Problems identified by a consent authority or stakeholder may only come to light after the competition is awarded and the project has expended significant effort - making it difficult to turn the project around,
- On large projects a greater degree of 'sameness' emerges because of limited authorship,
- A lot of intellectual property is expended as part of the process with multiple 'losing' projects,
- Competition juries can take an 'all care, no responsibility' approach,

Competitions are better suited to singular buildings whereby a clearly defined and very specific brief can be established. Projects that comprise of multiple buildings are inherently more complex and need to consider a multitude of variables including the overall composition, the relationships between buildings and the relationship with the ground plane. Under the competition scenario it is difficult to procure a scheme whereby each and every building is optimized in terms of use, function and design excellence.

Curatorial Approach

A curatorial process is usually contemplated where the project is large and composed of several individual buildings. From a short list of proposed architects, agreed in consultation with Infrastructure NSW and the GANSW, the client group in collaboration with the Design Reviewers agree on the final makeup of the architectural team - ensuring that: there is a relevant level of typological experience, offices have been recognised by the Institute of Architects Awards program or international equivalent, that they have capacity, and that at least one emerging practice is identified to collaborate within the project group. During the process one office is identified as being the Coordinating Architect - the office responsible for ensuring architectural coordination across the project. Once appointed, the design team works collaboratively with each office assigned authorship of a single building. The architectural coordination role is there to facilitate clarity about the project as a whole - to ensure coordination.

Positives:

- Multiple authors.
- Ability to negotiate between architects across 'property boundaries' to resolve challenges.
- Clear relationships between design and client teams are established.
- A longitudinal competitive environment is established between the architectural teams.
- Ability to piggyback off ideas and solutions, particularly regarding engineering consultancies, to achieve architectural outcomes

Negatives

- Not short and sharp design process.
- Requires commitment from a design advisory panel to be involved over an extended period of time.

Potential Alternative Strategy

We believe that Barangaroo Central offers the opportunity to support a dual approach to project procurement - Competition & Curatorial.

Given the nature of the project we believe that the site could benefit from a curatorial & limited competition approach. The curatorial approach would be used to deliver buildings for sites 3A, 3B, 4A & 4B. A competition would be used for the procurement of buildings 1A/2A, 1B & 2B.

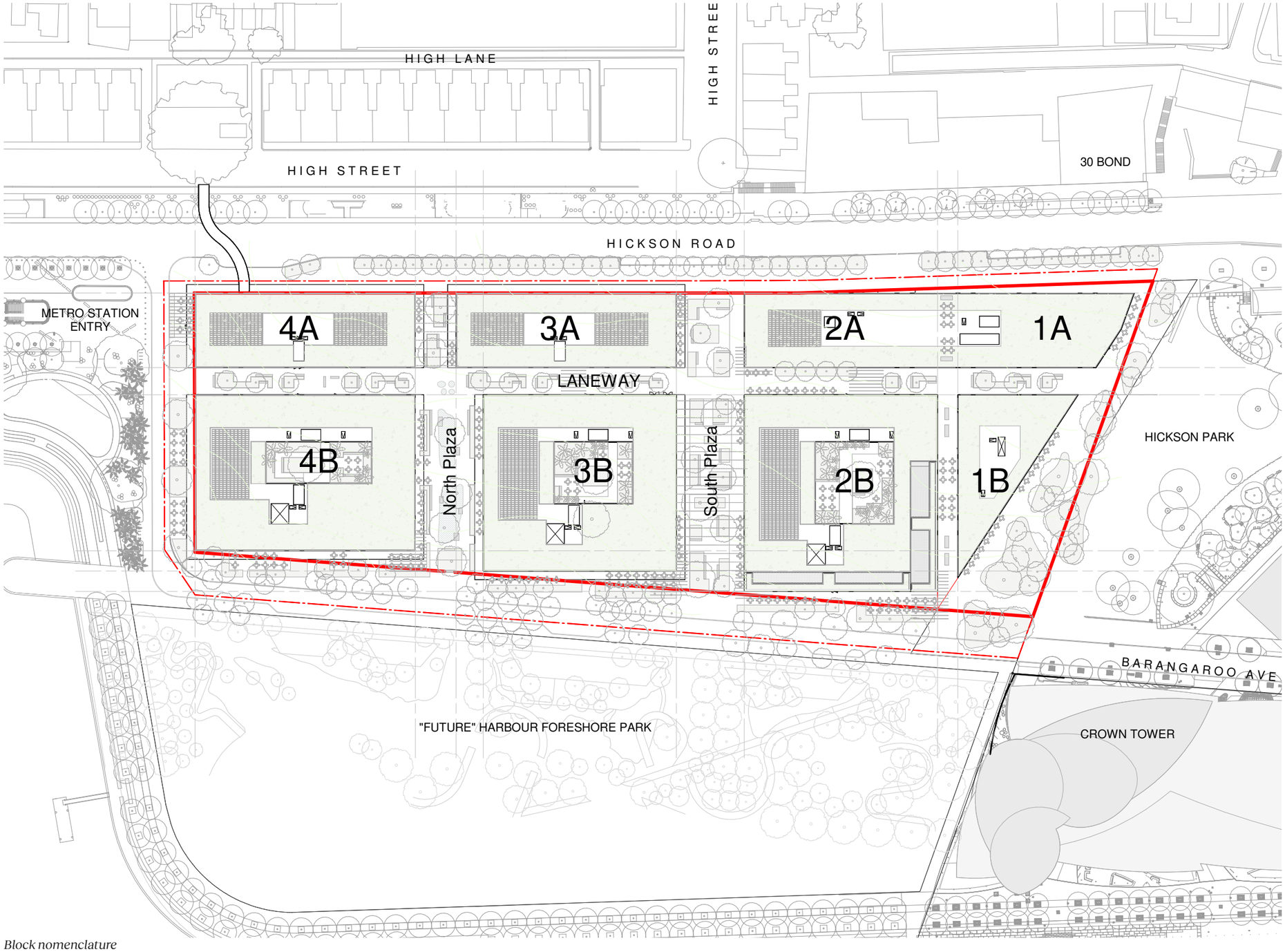
Under the dual approach the architects for sites 3A, 3B, 4A & 4B will be selected via a consultation process with Infrastructure NSW and GANSW and form the team to deliver most of the project. A competition for Buildings 1A/2A, 1B & 2B would be conducted, with teams composed from a minimum of 4 x Australian based practices and a maximum of 2 x International practices as agreed with Infrastructure NSW and GANSW at the appropriate time. One practice must be identified as an 'emerging practice'.

A design advisory panel as agreed in consultation with Infrastructure NSW and GANSW will be established to continually review the curatorial design milestones and will be responsible for judging the single stage competition.

The design advisory panel would meet two times for the competition phase of the project, and fortnightly up to 6 times for the curatorial/concept design phase of the project.

The Central Barangaroo Developer proposes to engage directly with the GANSW and Infrastructure NSW to develop and agree a Design Excellence strategy based on the approaches outlined in the report. A bespoke design excellence strategy that fully considers the unique nature of Central Barangaroo will help underpin the success of the development and create a new public place for Sydney that will be admired by all.

The consultation process will commence once the uses and brief for individual buildings has been finalised, which may result in a re-allocation of buildings to the respective Competition and Curatorial processes to achieve Design Excellence.



Block nomenclature

ESD Strategy

The sustainability initiatives and targets for Central Barangaroo remains consistent as the previous ESD Summary report lodged with MOD 9 development proposal.

It comprises of environmental parameters with a focus on Materials, Waste, Water , Landscape, Amenity, Transport and micro-climate.

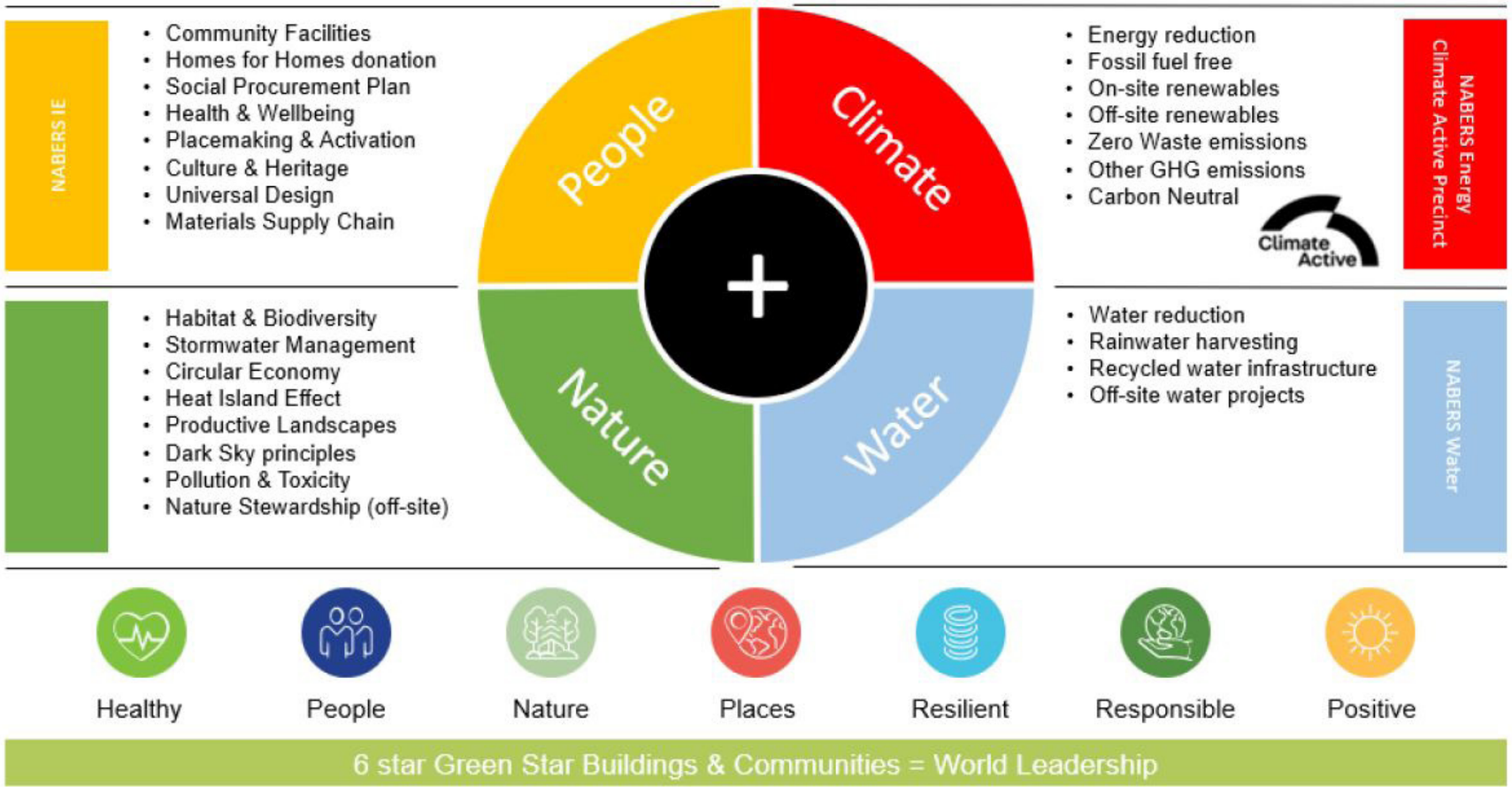
Each building is benchmarked for achieving industry standards of :

- Green Star 5 rating
- Residential Green star score >60
- NABERS Energy

Following future strategies are envisioned for Central Barangaroo

- Reduction in potable water consumption as compared to standard practice ;
- Carbon Neutral in operation for the duration of the 99-year lease;
- Recycled water infrastructure provided for non-potable uses;
- Public open spaces to receive direct sunlight in mid-winters ;
- Centralised waste recycling areas that allows for waste separation; and
- Reduction in Greenhouse Gas Emissions as compared to standard practice . Use of low impact, renewable source.

Refer to the "MOD 9 - ESD Summary Report" , August 2023 by CUNDALL for detailed ESD initiatives.



Summary of ESD strategies (Source : MOD 9 - ESD Summary Report, Cunndall)

8 Design Guidelines

The section provides guidance around design elements that is pivotal for Central Barangaroo's future precinct character and should be referred for design aspirations during future development processes.

Vision

Central Barangaroo is a highly important development as it will complete the masterplan for the Barangaroo headland. The timing of this development has the benefit of understanding the experiences offered by Barangaroo South as well as sitting amongst significant parklands and infrastructure projects which will be completed in time for this development to be ready for public use. This site will stitch together the varied surrounding precincts including the old town of Millers Point, Barangaroo headland Reserve and the future Metro station to the north, the Harbour Park directly to the west, Hickson Park to the south and the completed large scale commercial and residential developments of Barangaroo South. A highly important place historically, it is critical that this project ensures its future has longevity, flexibility for change and a lively 18hr activation at its core.

The vision for this precinct is for an active, fine-grained precinct which combines a mix of uses that meets demands of locals and visitors alike, and extends the hours of activation in this precinct. There is a focus on the needs of the local community, ensuring that this place is self-sustaining and optimises its highly connected location. Central Barangaroo will extend the amenity of the precinct and offer a place that complements the completed developments of Barangaroo South while providing an alternate set of experiences and built typologies.

Artist's impression of Central Baranagroo (Source : SJB)

Connecting with Country

A significant amount of work has been completed by INSW & the Barangaroo Delivery Authority in connecting with, listening to, and recording stories of Country from the Traditional owners of the land that constitutes Barangaroo Central. An effort should be made to connect with this work's findings.

Respecting identity crafted over eons

1. The various historic conditions of the site and the future aspirations of the local First Nations Elders and community should be understood by the design team through an iterative engagement process to allow this knowledge to be embedded in the place and represented in the public domain design, architectural expression and the material palette of the precinct.
2. The identity of place is formed well beyond the past 200 years - stretching thousands of generations in the past and into the future.
3. Design should seek to understand the story embedded within place and within Gadigal and Dharawal knowledge systems via ongoing engagement and cultural research.

Stolen shoreline

1. The site sits along the apron of the old wharves, a giant platform of reclaimed shoreline stolen from the Gadigal people
2. Design should honour and consider the eons held water story from a steep river canyon over 15,000 years ago to a tidal bay of sandstone platforms, rocky outcrops and escarpments, and pockets of sand lapped by the salt water of the harbour - next to the deepest part of the harbour where Humpback whales would birth their young, women would fish from nawis , men fish and hunt from the shore
3. Consider the stories of resilience embedded within the hungry mile and history of wharf usage
4. Design should connect with the tidal water story, celestial connection to the moon, patterns of erosion and sedimentation, movement and flow of water as well as cultural significance of the saltwater

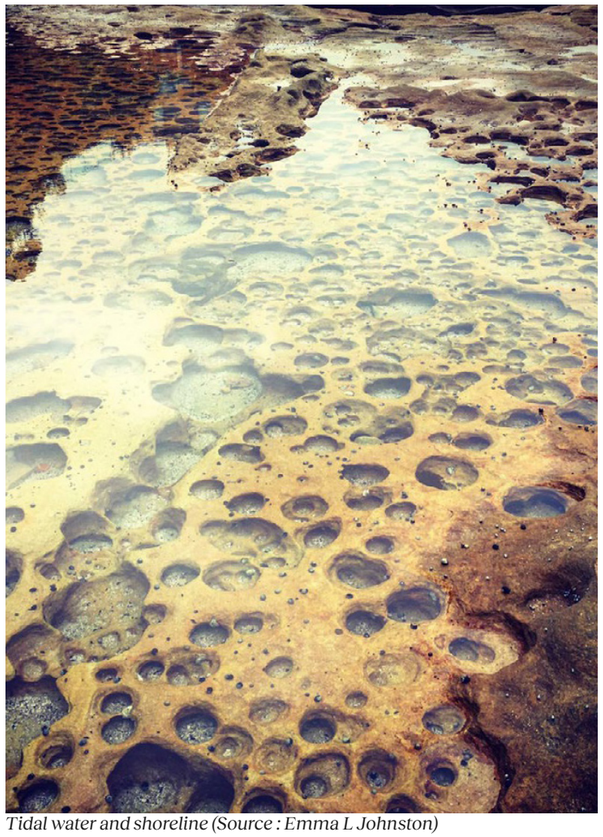
Nourishment, plenty and responsibility

1. The role this place has held in nourishing people for eons is held within the names of place - Tumbalong - the place of seafood and Gomora place of light speak to the nourishment and plenty Country has offered for thousands of years
2. With plenty and nourishment comes the responsibility to care and sustain - as witnessed in Barangaroo's protection and assertion to colonists who over-fished
3. Honour the role women have maintained in caring for land and community through drawing upon matriarchal strength and nourishment as design values
4. Consider how the design holds place for Indigenous communities, plants and animals
5. Consider how the design practices responsibility - via responsible material use and choice, innovative technologies, systems thinking
6. Consider how the design contributes to the health of the harbour and landscape

Matriarchal lands

1. Connect with the eons held name Gomora - place of ligh
2. Consider what this means when making design decisions
    - Does it respect access to light, warmth?
    - How can the design preserve visual connections to the harbour - the liquid light reflecting from the sky, casting the bay in golden light?
    - How might the colours, textures and form convey a feeling of light an warmth?
    - Conversely, how might we protect from heat during hot weather?

Exploring embedded story (Source : COLA Studio)



Tidal water and shoreline (Source : Emma L Johnston)

'bara' by Judy Watson (Source : City of Sydney)

Fishing canoe , Port Jackson, 1800. (Source : Robert Edwards)

Land story (Source : COLA Studio)

Connecting with Country

Drawing inspiration from Country

1. Consider the colours, textures, systems and cultural knowledges embedded in Country
2. Through ongoing collaboration with cultural researchers and engagement specialists, consider how the design can belong to Gadigal Country- could the design feel as an extension of Country?
3. Draw upon the qualities of Gadigal Country, the sandstone, the tidal patterns, the topography, plants, animals and marine life, the climate and weather systems, the Western aspect of place
4. Texture, form and colours drawn from Country
5. Consider how the design forms a part of an enduring story, how it may be made and remade, imagined and re-imagined, programming shift and change through the seasons, day and night. Country is always changing, especially in tidal places.
6. Consider how the design feels connected to the broader precinct, whilst having own identity and ecologies - like rock pools on a sandstone platform

Making space for all entities of Country

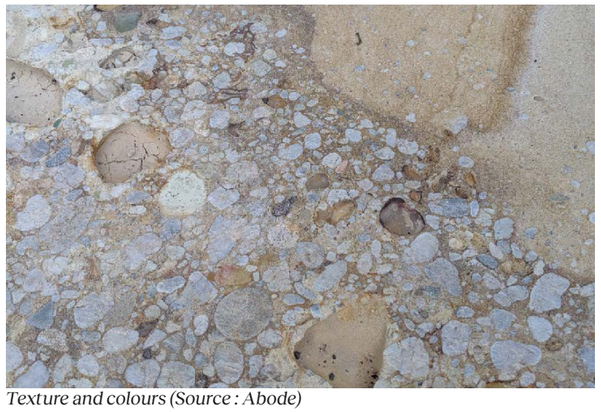
1. Landscape opportunities should be maximised to support the health and amenity of this site's various micro-climates and using a native palette of plants to encourage and support local bird and insect life.
    - Consider Sky Country and the experience of sky as people interact with the precinct.
    - Consider wind and its affects on place, material and landscape.
    - Consider the ecologies at all scales of the design - from micro ecologies to how the design fits within the broader landscape
    - Consider how water systems move through the design - how can the design work to clean the water before it reached the harbour?

Respect topography, aspect and Sky Country

1. The site is in close proximity to Observatory Hill, which is understood to have been an important place for connecting to Sky Country and the stars long before colonial settlement, as well as a meeting place for many clans. The height of the proposed buildings and their night mode should avoid impacting the function of that special place.
2. Consider the sandstone cliffs in close proximity to the site, their presence, mass, scale and material quality are important to this precinct.
3. Consider the view lines to the West and the harbour, maximise opportunities to connect.
4. Design should consider the celestial connections to this tidal place, how it connects with the night sky, how it changes.

Cultural Expression

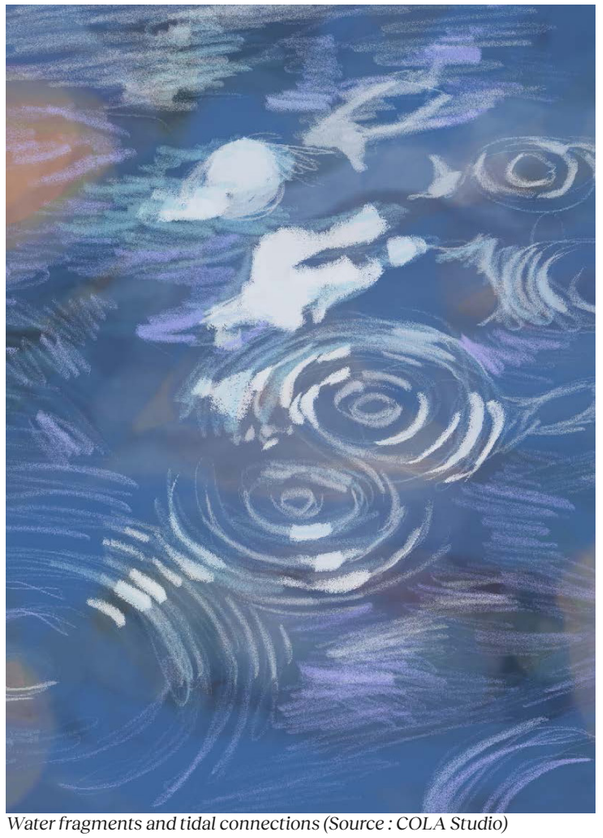
1. Through further engagement throughout the design process, the stories of the First Nations water spirits which are underpinned by a deep knowledge and long history of the creation of the Harbour and the surrounding landscapes - should be given space to be told in different forms to meet different audiences - oral / audio stories, embedded art making.
2. Internal and external opportunities for cultural community uses and activities should be provided within the precinct program, affording the local community agency of those spaces beyond completion and to allow the local culture to be present and visible in our lives.
3. Opportunities for art and story telling programs to be investigated, opportunities for connection with Yananurala
4. Opportunities for ongoing Custodianship and cultural practice beyond performative actions should be investigated



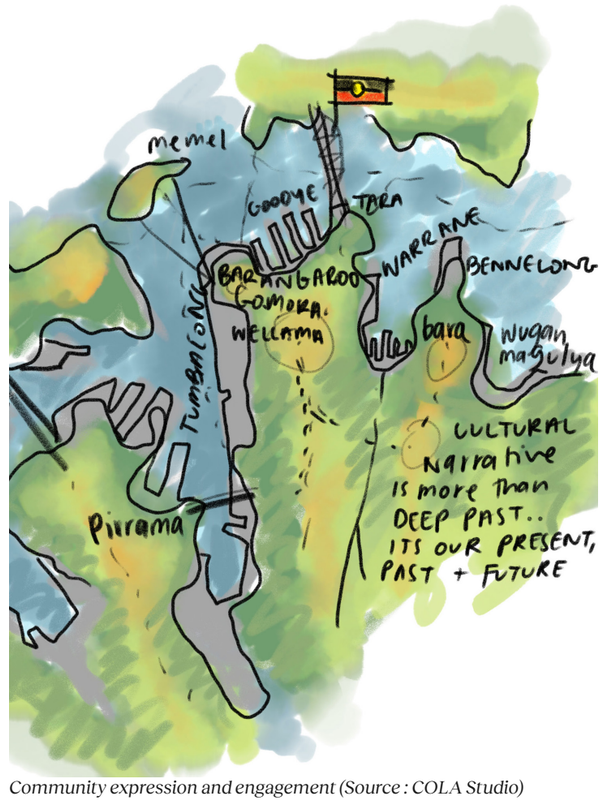
Texture and colours (Source : Abode)

Geology and form (Source : maplogs)

Considering all entities (Source : COLA Studio)



Water fragments and tidal connections (Source : COLA Studio)



Community expression and engagement (Source : COLA Studio)

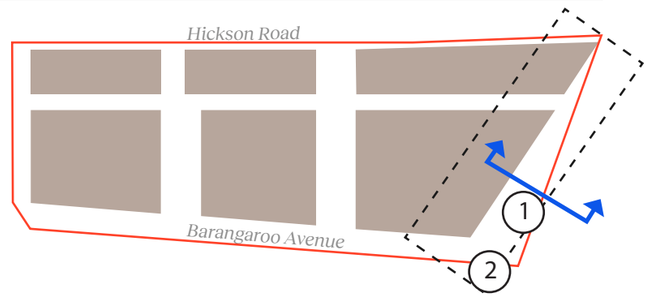
Hickson Park interface

Architectural

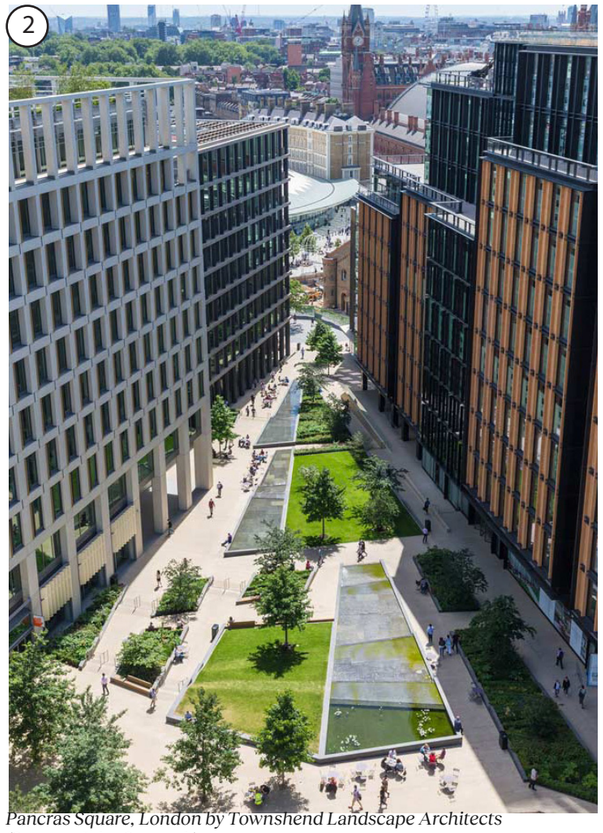
1. Provide weather protected pedestrian connection from Hickson Road to the harbour
2. Provide continuous active frontages with retail, cafes, restaurants, outdoor dining and other uses that maximise interest and interaction; and passive surveillance to the public space(s)
3. Maintain views from The Bond plaza on Hickson Road to the water
4. Buildings must address and 'face' Hickson Park, forming a strong definition along the park's edge.

Landscape

1. Continue pedestrian connections from The Bond building plaza and Hickson Road through to Barangaroo Harbour Park
2. The landscape will strengthen the vista to the Harbour
3. Consider opportunity to embellish Hickson Park with a more local focus serving as a village green, with shaded spaces



Woolloomooloo Wharf (Source : Kingsleys)



Pancras Square, London by Townshend Landscape Architects (Source : John Sturrock)

Indicative Section

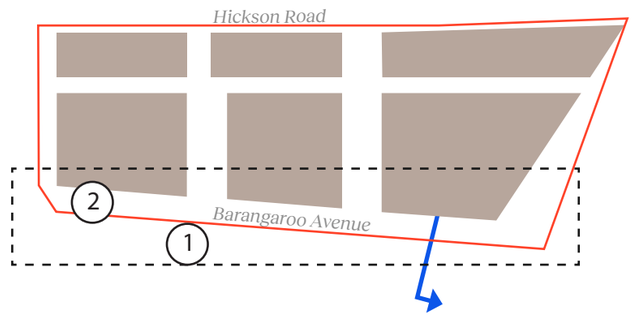
Barangaroo Avenue and Harbour Park interface

Architectural

1. Provide weather protected pedestrian connection between Nawi Cove and Barangaroo South
2. Provide continuous active frontages with cafes, restaurants and outdoor dining that maximises its landscape setting adjacent Harbour Park and with views to the water.
3. Consider the west orientation in the design of the buildings to ensure user comfort.
4. Appropriate sun shade design for solar and wind protection

Landscape

1. Encourage the public domain to flow seamlessly between Harbour Park and the precinct
2. Consider materiality to ensure a cohesive public domain treatment
3. Extend Barangaroo Avenue the full length of the site, turning to meet Hickson Road
4. Consider strategically placed mitigation devices such as spheres, planter boxes, seats and other unique high quality opportunities for hostile vehicle mitigation
5. Barangaroo Avenue to be designed as a one-way north bound slow traffic zone, prioritising pedestrians
6. Position large trees to frame views towards Headland Reserve and provide shade from the west facing aspect
7. Promote connections between the park and plaza spaces and maintain clear views and movement between these spaces
8. Assist with wind amelioration into public spaces with a west facing aperture



Pancras Square, London by Townshend Landscape Architects (Source : John Sturrock)

Darling Square, Sydney by ASPECT Studios (Source : Brett Boardman)

Indicative Section

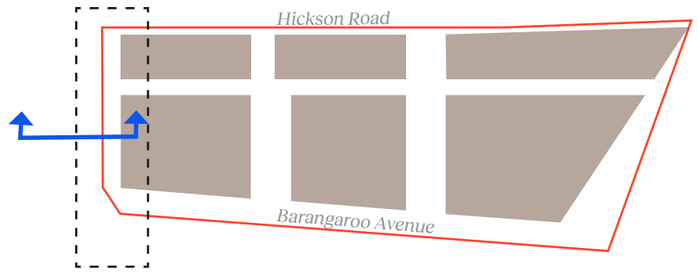
Nawi Cove interface

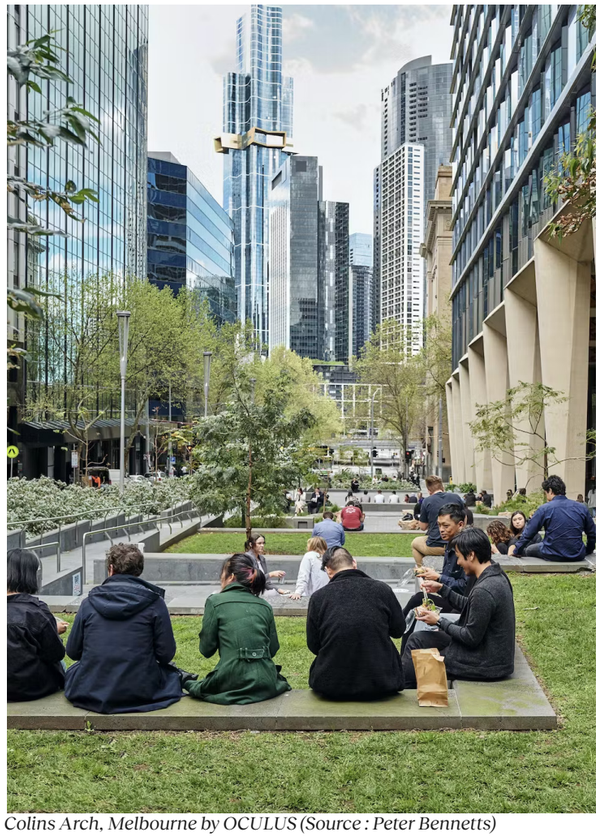
Architectural

1. Provide weather protected pedestrian connection between Barangaroo Metro Station and Harbour Park
2. Provide continuous active frontages with retail, cafes, restaurants, outdoor dining and other uses that maximise interest and interaction; and passive surveillance to the public space(s)
3. Ensure seamless vertical circulation from Sydney Metro's Station's concourse to the ground level and the proposed upper-level pedestrian bridge to Millers Point
4. Ensure retail activation to the upper-level pedestrian link

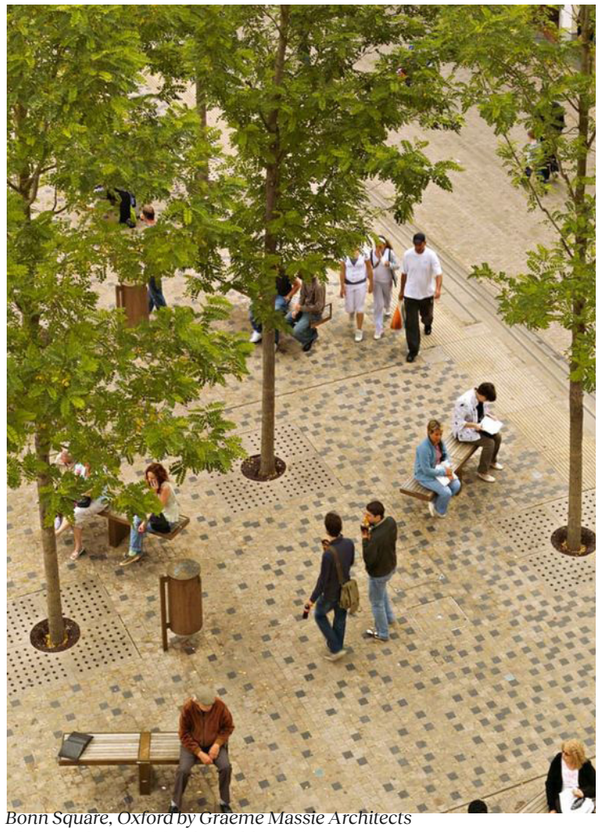
Landscape

1. Create a new shaded street with major pedestrian connection between the Sydney Metro Station to Harbour Park
2. Consider slow traffic/ shared zone at Hickson Road, Barangaroo Metro Station and the north/south laneway intersection
3. Frame views to Headland Reserve with considered planting
4. Capitalise on the sunny north facing aspect, with outdoor dining areas and places to rest and enjoy the setting
5. Provide water connection to the cove

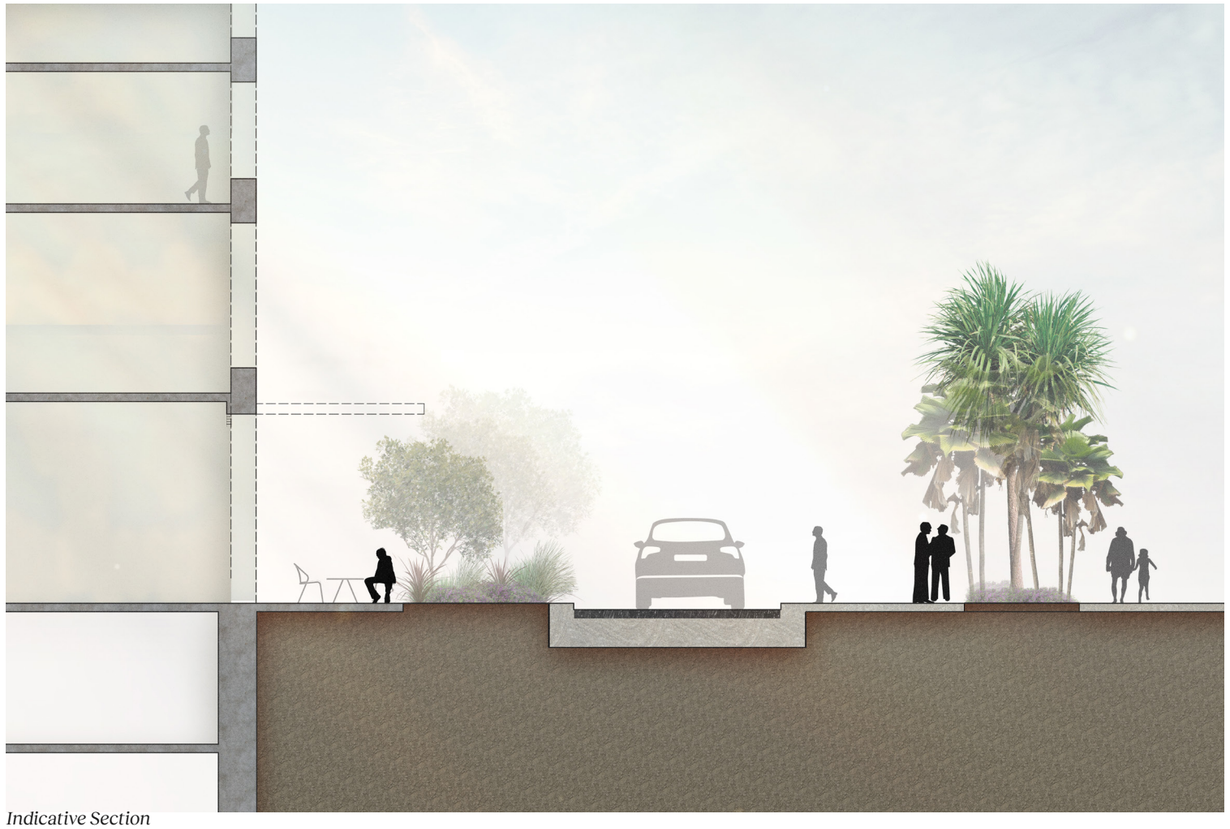




Colins Arch, Melbourne by OCULUS (Source : Peter Bennetts)



Bonn Square, Oxford by Graeme Massie Architects (Source : Greame Massie Architects)



Indicative Section

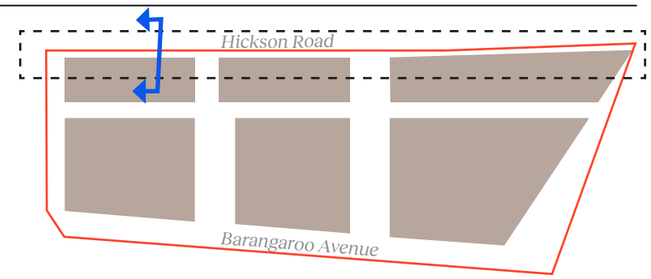
Hickson Road interface

Architectural

1. Provide weather protected pedestrian connection between Barangaroo Metro station and Barangaroo South
2. Activate the Hickson Road frontage with building entrances and retail evenly distributed along its length, where possible.
3. Ensure considered design and location of loading and service access to avoid the Hickson Road interface presenting as ‘back-of-house’.

Landscape

1. Opportunity for significant street tree planting along the western side of Hickson Road; greening and softening the hard edge between High Street, the exposed cliff-face and Barangaroo Central
2. Consider materiality to ensure a cohesive public domain treatment to provide a consistent visual language, encouraging pedestrians to move through to the plaza spaces
3. Prioritise pedestrian movement and active transport along Hickson Road
4. Provide dedicated bi-directional cycleway along the eastern side of the street



Constitution Avenue by Jane Irwin Landscape Architecture (Source : John Gollings)

Bourke Street Cycleway, Sydney by Group GSA (Source : Simon Wood)

Indicative Section

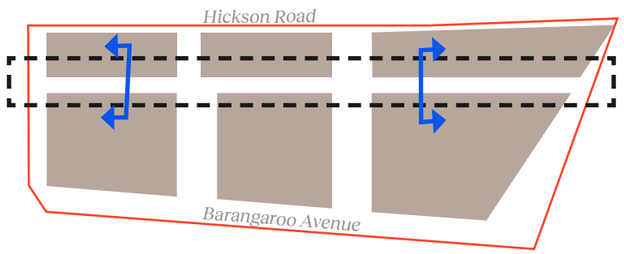
Lanes

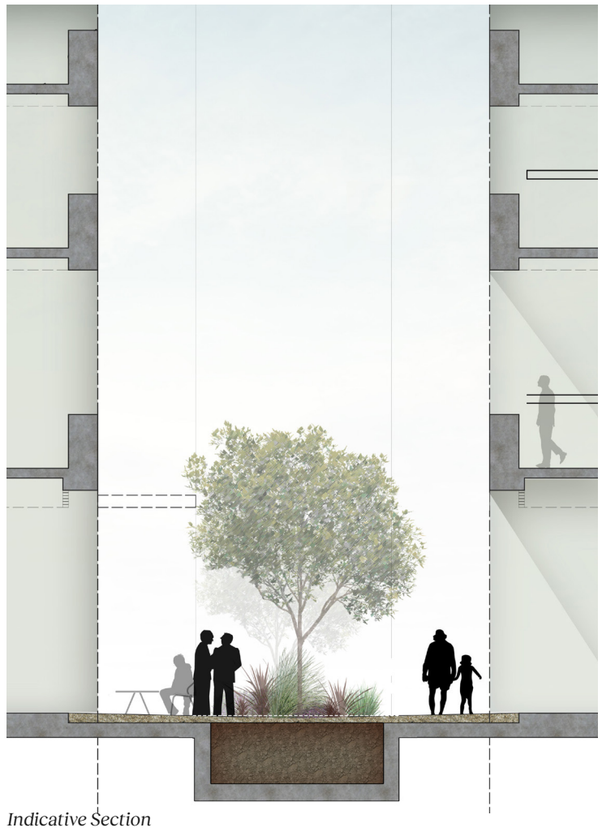
Architectural

1. Form and maintain open-to-sky links through the site, consider permeability throughout precinct
2. Proportion lanes as an intimate space for public movement, activated with fine-grained retail, outdoor dining and building entrances
3. Ensure high-quality public domain design and consider a palette and experience that is unique from other developments and spaces within the precinct
4. Lanes to be publicly accessible at all times during the day and night
5. North-south lane to be 8 metres wide

Landscape

1. Act as a connecting thread between plaza spaces and Nawi Cove/Hickson Park
2. Establish distinct conditions for each lane space, allowing more intimate settings to cater for fine-grain retail needs.
3. Integrate seating and rest opportunities so the spaces are not purely thoroughfare
4. Consider planting, where possible, to prevent the space from becoming hard scape dominant
5. The public domain design should be of high quality and consider a palette and experience that is unique from other developments in the precinct.

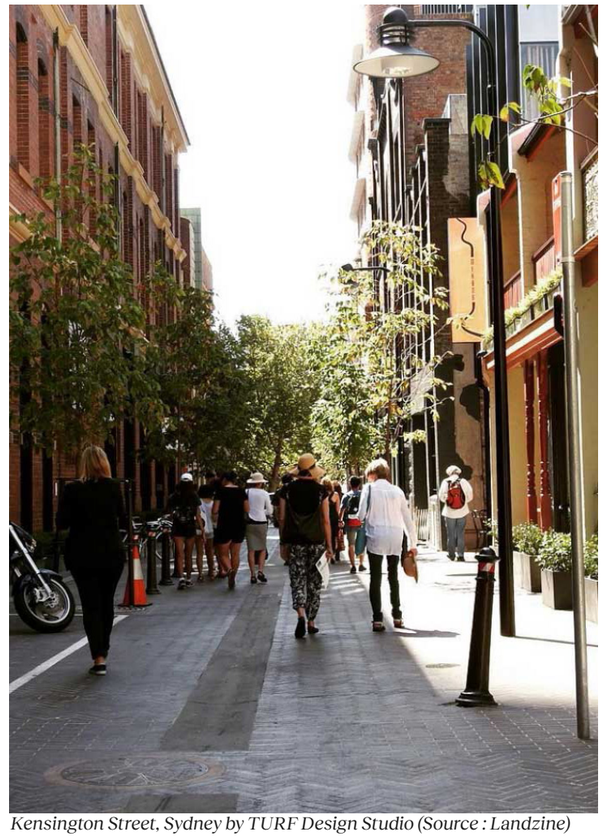




Indicative Section

Quay Quarter Lanes by, SJB, Silvester Fuller, Studio Bright, Carter Williamson , Lippmann Partnership and ASPECT Studios (Landzine)

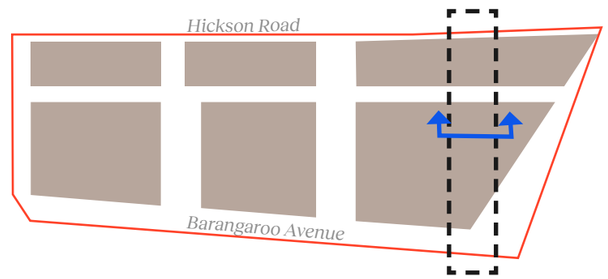
Angel Place, Sydney (Source : Simon Wood)



Kensington Street, Sydney by TURF Design Studio (Source : Landzine)

Arcades

1. Form arcades through buildings to increase porosity and visual connectivity through the precinct, providing a series of unique experiences and alternate protected pedestrian pathways
2. Arcades should be generous in height and form, ensuring good visibility end-to-end for good way finding and safety
3. The design and material palette of these spaces must be of high quality and of the building character
4. Arcades to be publicly accessible at all times during the day and night
5. Arcades to be maximum 6 metres wide



Quay Quarter Lanes by, SJB, Silvester Fuller, Studio Bright, Carter Williamson , Lippmann Partnership and ASPECT Studios (Landzine)

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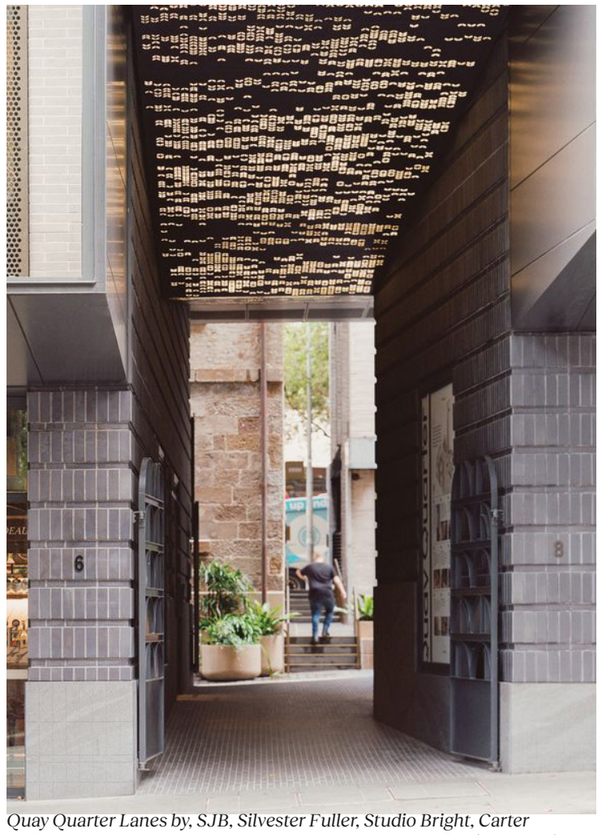
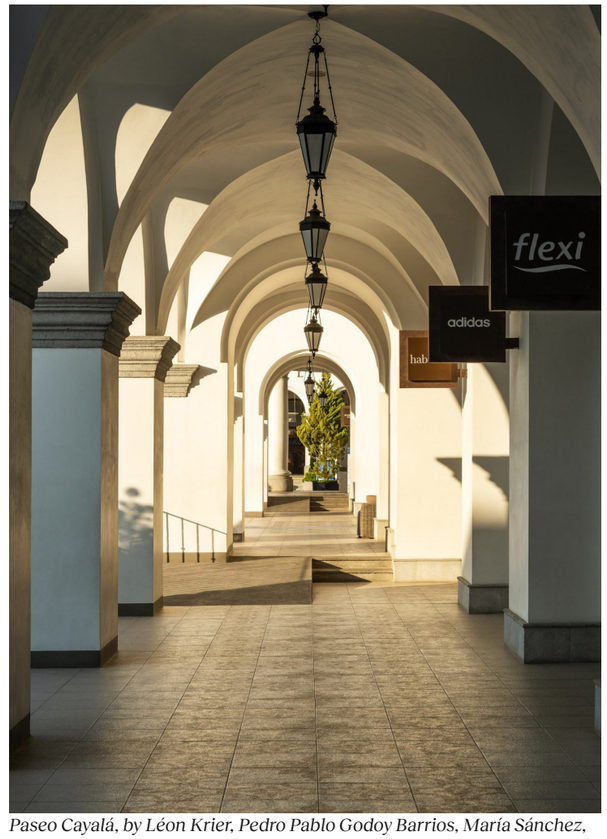


Quay Quarter Lanes by, SJB, Silvester Fuller, Studio Bright, Carter Williamson , Lippmann Partnership and ASPECT Studios (Landzine)



Paseo Cayalá, by Léon Krier, Pedro Pablo Godoy Barrios, María Sánchez, Richard Economakis, Estudio Urbano (Source: Marc Landers)

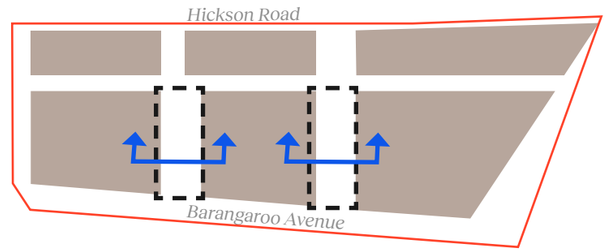
Plazas

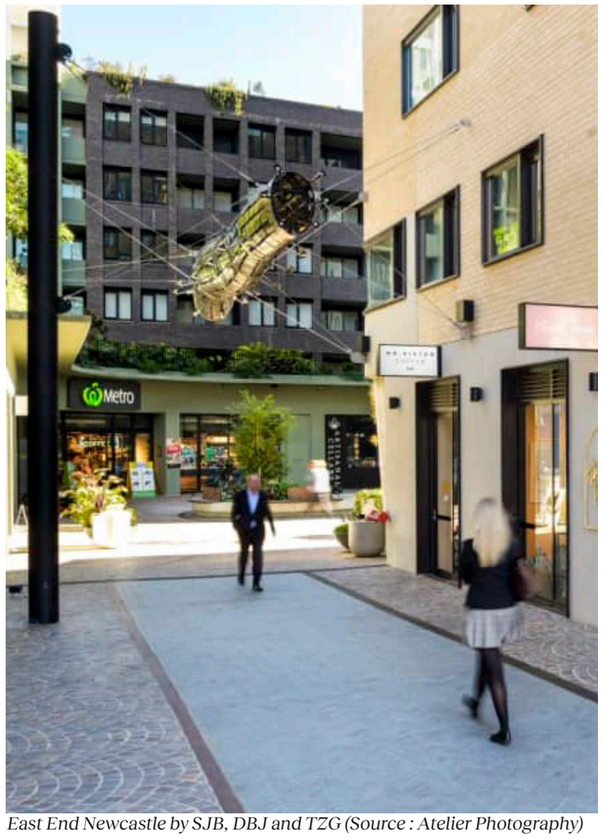
Architectural

1. Provide generous public spaces at key nodes within the precinct
2. Create opportunities for stopping and resting within the precinct without the requirement to engage in retail or paid experiences
3. Optimise views and connections to the water and Harbour Park
4. Maintain good visibility into plazas from the street edges for good way finding and safety
5. Flexible space that can be configured for civic events
6. Plazas to be 20 metres wide

Landscape

1. Ensure generous widths to allow for a diversity of conditions, activations and uses, including retail
2. Create a clear visual and spatial connection to Harbour Park
3. Integrate planting and screening to minimise any wind tunnel effects from westerly winds
4. Opportunity to integrate ephemeral water elements to echo the history of the site as well as influence micro climatic conditions
5. The public domain design should be of high quality and consistent with the adjoining public domain areas, utilising the City's and Barangaroo's palettes. This will ensure these spaces look and feel public
6. Consider greening of the plazas for public amenity and define varying experiences within the public domain
7. Consider the micro climatic conditions of each space when selecting the appropriate landscape treatment





East End Newcastle by SJB, DBJ and TZG (Source : Atelier Photography)

Banyoles old town, Girona by Josep Mias Architects (Source :Adria Goula)

Indicative Section

Roofs

Architectural

1. The building roofs will be highly visible from many vantage points, making it crucial to regard their roofs as the fifth facade. Ensure the roofs are of high design quality, minimising the visibility of roof services, and maximise greening.
2. Rooftop structures and screening should not be visible from public areas. Any screening elements should be thoughtfully integrated with the overall architectural response.
3. Photovoltaic systems (PVs) should be well considered, and incorporated into green roofs to make the most of the available opportunities

Landscape

1. Consider opportunities for planting on all rooftop spaces to assist with reduction of the heat island affect, to slow the movement of water, to provide habitat for fauna in an urban context and to visually green the precinct
2. Consider opportunities to provide ecological diversity and habitat across the precinct
3. Provide visual interest from higher viewpoints around the precinct, encouraging exploration of Barangaroo Central from beyond the site
4. Limiting public access allows for denser planting
5. Opportunity for overhanging planting to be viewed from plazas and lane ways, increasing visual interest upwards

Chicago City Hall Green Roof, Chicago (Source: Inhabiltat.com)

360 MCentral (Source : City of Sydney)

Illustrative roof top plan

Activation

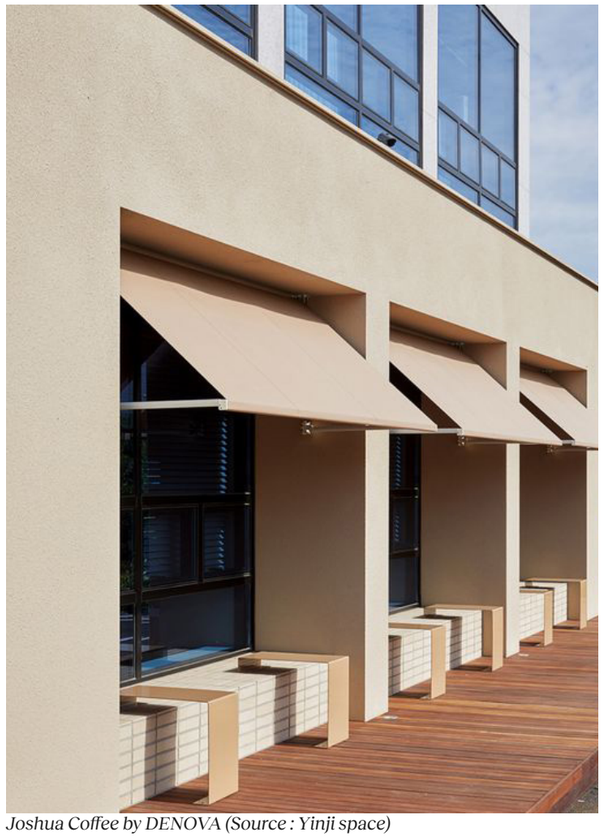
1. Provide dynamic and adaptable spaces
2. Ensure there are rich day and night experiences
3. Allow for a diverse range of events and overlays
4. Considered resolution of services to avoid large expanses of inactive facades
5. The unique aspect and climatic conditions of each facade should be considered in the design of the ground plane to optimise user comfort

Awnings

1. Fixed awnings to be provided to selected perimeter edges of the buildings to accommodate protected public movement
2. Fixed awnings to be high quality and considered within the facade design
3. Awnings can be unique to individual building designs to establish a varied experience
4. The height of fixed awnings should be no more than 4.5m from proposed ground levels and no less than 3- 4m nominal depth
5. Retractable awnings should only be considered in north-south lane to maximise daylight
6. Retractable awnings should be integrated into the facade design and not appear as an after thought
7. Retractable awnings should be fixed from a height of no more than 3.5m-4.5m from the proposed ground levels
8. All awnings should have a horizontal coverage of up to 4m as the extend from the building line

One Sydney Harbour, Baranagroo (Source: Lendlease)

Triton complex (Source : Samuel Martinez)



Joshua Coffee by DENOVA (Source : Yinji space)

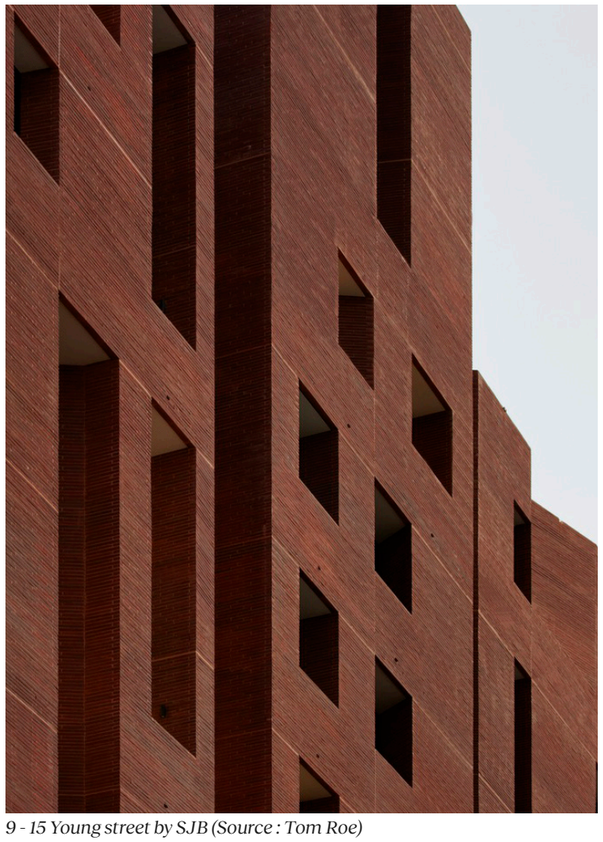
Articulation

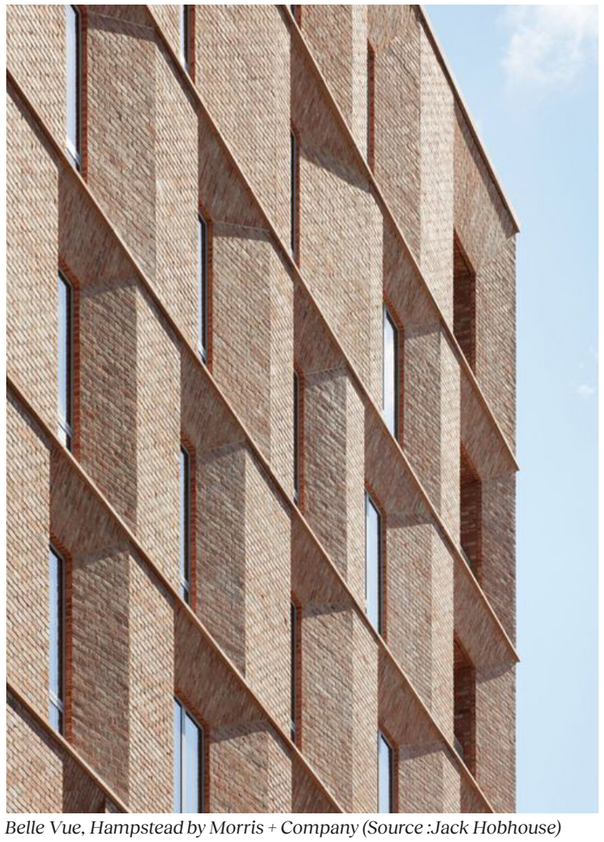
1. Architectural facade articulation should be responsive to each unique interface to ensure that privacy, shading and outlook is achieved in an integrated manner
2. A zone of 600mm has been accommodated for minimum articulation depths to all facades. An additional 1400mm has been allowed for within the envelopes edges along the north-south lane to allow for designed interfaces appropriate to the proposed building uses.
3. Building forms should hold their outer edges to create a series of meaningful and safe public spaces and lanes
4. Balconies should be protected and contained within facades
5. Consider privacy and amenity of private open spaces proposed within the precinct so they are highly functional outdoor rooms.
6. Consider the use of Juliet balconies at appropriate levels
7. Building entrances should be considered for their sense of address and way finding within the precinct.
8. Consider facade articulation to achieve user comfort at all levels especially on ground level.

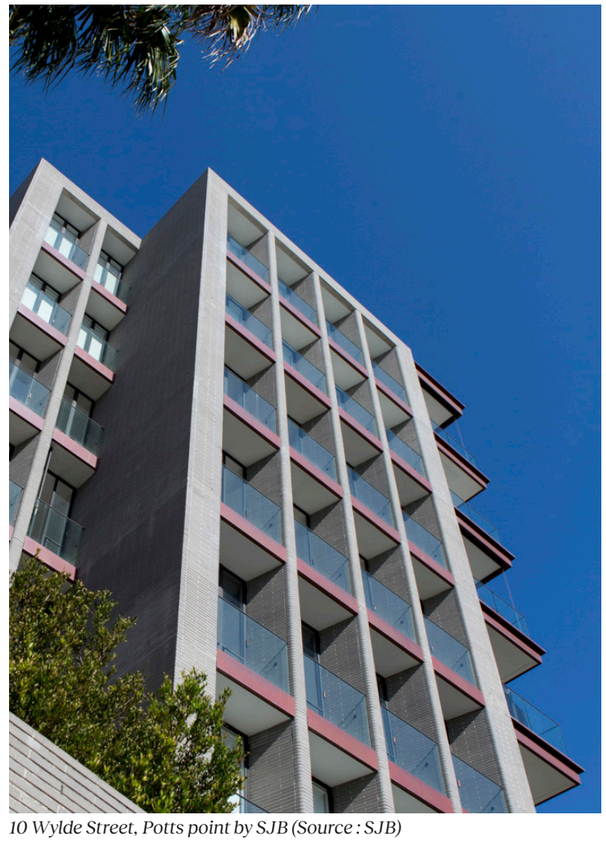
Shading

1. The facades should consider passive design principles relevant to each aspect.
2. Facade depths should provide integral shading where possible
3. Incorporating a predominately solid materiality
4. The extensive western facades should be designed to accommodate high quality shading devices to ensure user thermal comfort and glare reduction

Turmill, London by Piercy & Company (Source : Hufton+Crow)


9 - 15 Young street by SJB (Source : Tom Roe)


Belle Vue, Hampstead by Morris + Company (Source :Jack Hobhouse)


10 Wylde Street, Potts point by SJB (Source : SJB)

Material Palette

Architectural

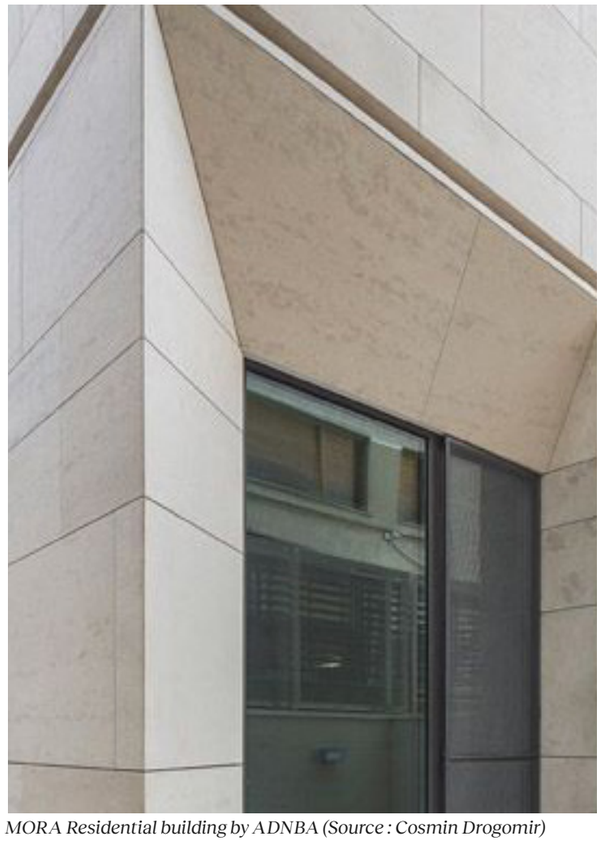
1. An understanding of Country should underpin the design, form and palette of the precinct's buildings
2. Whilst diverse building design responses are imperative, material palettes should be minimal and consider variation in detailing or the use of a material rather than holistic material changes to achieve variation, unity and diversity across the precinct
3. Material colours should be considerate of their historic and natural context
4. Materials should be of high quality and durable for this location and consider low maintenance requirements
5. Materials should be timeless and define a series of buildings that will be loved and cared for, ensuring a long future
6. Buildings should display a care in craft and detail
7. Consider materials that have low embodied energy in their production, transportation and required maintenance
8. Encourage masonry character with high solid to void ratio design
9. Consider using recycled materials and materials that are informed by life cycle assessment of environmental impacts

Public Domain

1. East-west public spaces and lanes incorporate a civic palette to ensure their sense of publicness
2. Consider an alternate palette of materials in the north-south lane to create a unique experience that is responsive to this place
3. Consider the use of water in public spaces to provide cooling, and white noise
4. Consider using material that are sustainable and durable

Landscape

1. An understanding of Country should underpin the design and palette of landscape elements and the public domain
2. A diverse, primarily all-native palette of materials should be used within the precinct
3. Edible plant species may be considered for food focused garden spaces and to provide education of species local to place
4. Consider the use of water within the landscape design to draw on the natural history of this place



MORA Residential building by ADNBA (Source : Cosmin Drogomir)

Residential building, London by Haptic (Source : Simon Kennedy)

Casa Guzman Jimenez, Estudio Macías Peredo (Source: César Béjar Studio)

Darling Harbour (Source : Simon Wood)

Public Art

1. Public art and interpretation are key public domain overlays that can reinforce a sense of place, acknowledge the underlying physical characteristics of an area, reflect the cultural history of a place, celebrate the local community, and promote an intellectual or emotional response.
2. Local art practitioners should be emphasised
3. The integration of public art and architecture is encouraged – with the intent that both can enrich the other.
4. A variety of 'object' art and 'integrated' art should be pursued across the site
5. Public art can tell a story of communities past present and future. It is one of the many voices that shape the public domain into a dynamic and unique place.
6. The approach to the public art should have a strong first nations representation being curated to ensure that there is a coordinated precinct wide approach.
7. Public art should
   - Complement the monumental approach to public art throughout the Harbour Park through the integration of art that has an element(s) of discovery
   - Be multi layered, programmable approach that responds to seasonal and/or cultural changes to provide an evolving experience to users and local community each time they visit
   - Incorporate specially commissioned or purchased works of art
   - Avoid a haphazard or piecemeal approach that 'decorates' a space
   - Be fully integrated with the public domain and provide interpretation of a space
   - Recognise and respect cultural heritage
   - Create artworks to engage all the senses
   - Compliment the wider design process and enable the work(s) to provide an additional layer of meaning that resonates with the structure of the public domain.

Sct. Olai Square by MASU Planning (Source : Kirstine Autzen)

Yirranma Place (Source : Anson Smar, Tom Roe)

'bara' , Bathed in Moonlight (Source : Chris Southwood, City of Sydney)

One of five artworks "Remembering Arabanoo" by Jonathan Jones (Source: Mark Pokorny)

Wayfinding & Signage

1. The wayfinding approach should be aligned with Barangaroo Signage Style Guide, City of Sydney way finding strategy intentions , Yananurala (Harbour Walk) Interpretation Signage Strategy and Barangaroo Heritage Interpretation plan.
2. Way finding and signage identity should compliment the signage already developed for Baranagroo Headland Park, Baranagroo South and the overall character of the place.
3. Provide strategically located and limited way finding information boards to ensure clear pedestrian movement.
4. Clear and legible signage should be considered at access points.
5. Braille and tactile indicators should be used to assist people with vision impairments. These should consider aspects of color, luminance, contrast and differences in hues and saturation that are important for people with visual impairment.
6. All signs must be well lit to ensure they are legible.
7. Sympathetically designed interpretive signage should be considered throughout the precinct that provides an opportunity for the visitors to understand the place intellectually.

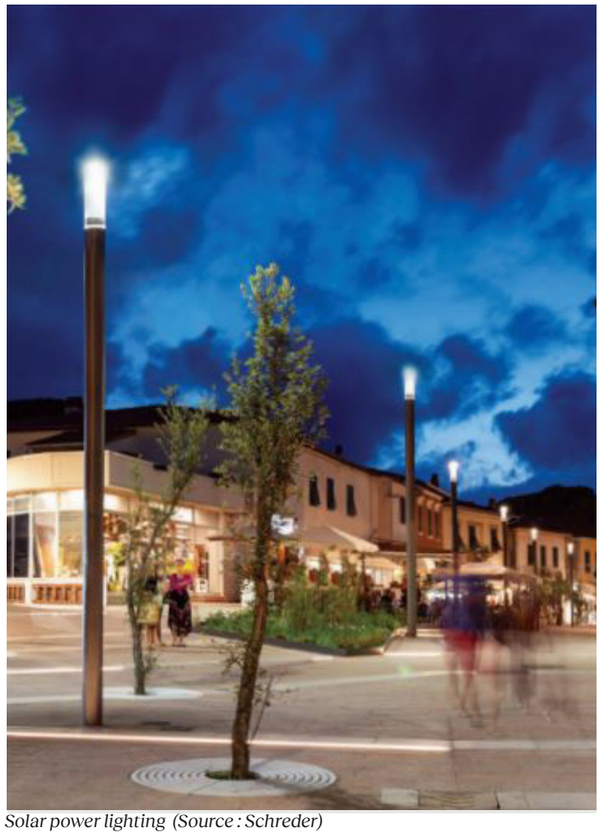
Lighting

1. The location and design of the operational lighting should provide safety to the pedestrians and reduce any obtrusive lighting impact to its surroundings.
2. The materials and typology of the lighting should be coherent with the other elements of the public domain.
3. Street lights should achieve minimum luminance standards and should not cause unacceptable glare.
4. Consider to provide a consistent level of luminance to avoid dark pool of areas.
5. The location and distribution of the lights should consider the visual amenity of the residents and surrounding views.
6. Consider minimal lighting around waterfront to enhance the shore view.
7. The lighting installations should not cause any direct lighting affect on the Sydney Observatory and should consider the impact of luminance to reduce the “sky glow phenomena”.
8. Other technical strategies such as colour temperature, shorter light wavelengths and digital control systems should be considered to minimise the light spill to the local environment.

Westhaven Promenade by ASPECT Studios (Source: ASPECT Studios)

Anja Streetscape by LUC, Abertarff House, Scotland (Source: Landuse)

Totem and short totem signage across Barangaroo Reserve (Source : Barangaroo Heritage Interpretation Plan)



Solar power lighting (Source : Schreder)

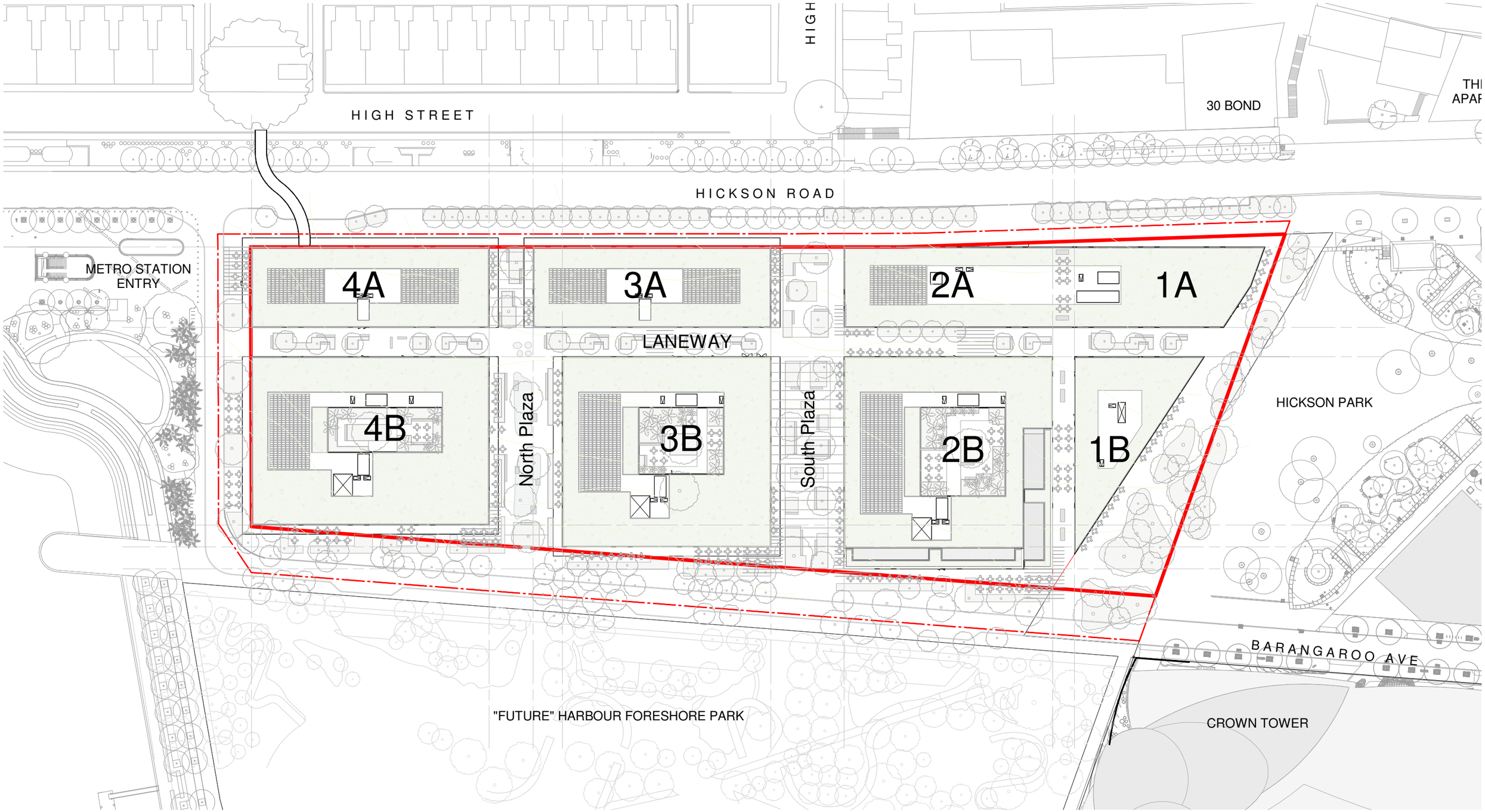
Palm Trees and ground lighting , Circular Quay, Sydney (Source : Erco)

HARLEN
& CO.
HARLEN
& CO.
café

9 Appendix : Reference Scheme

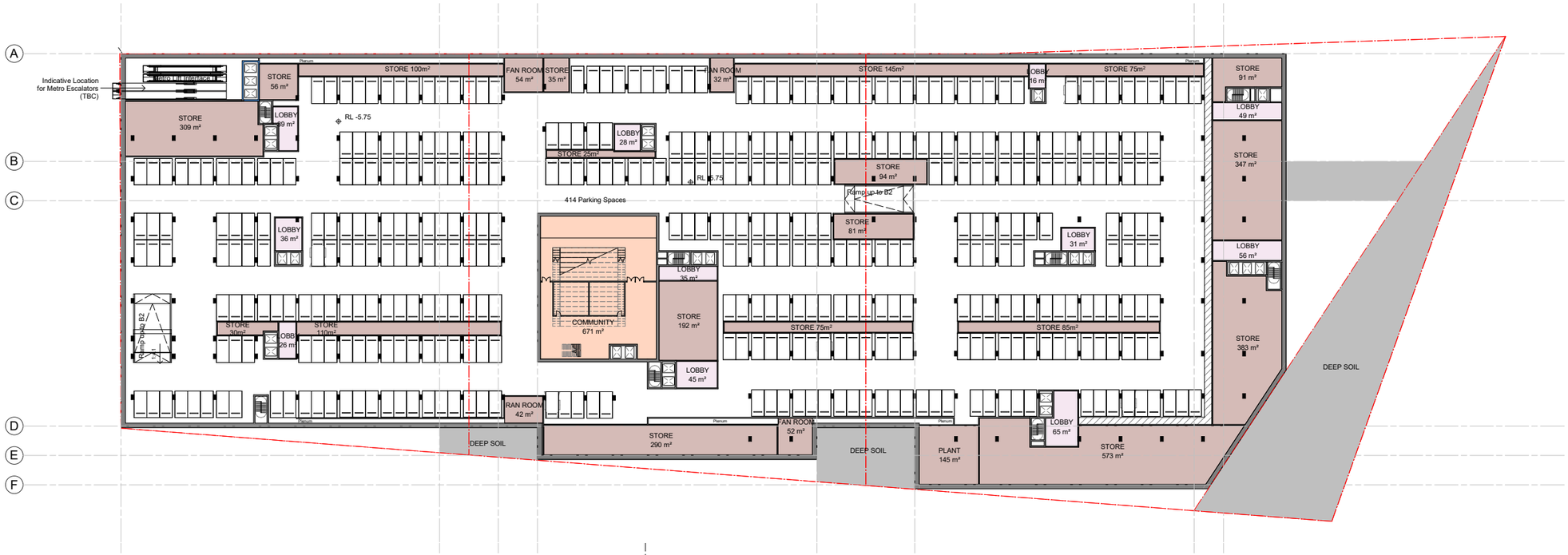
The section depicts one of the various reference schemes that are possible within the proposed envelope.

Site Plan

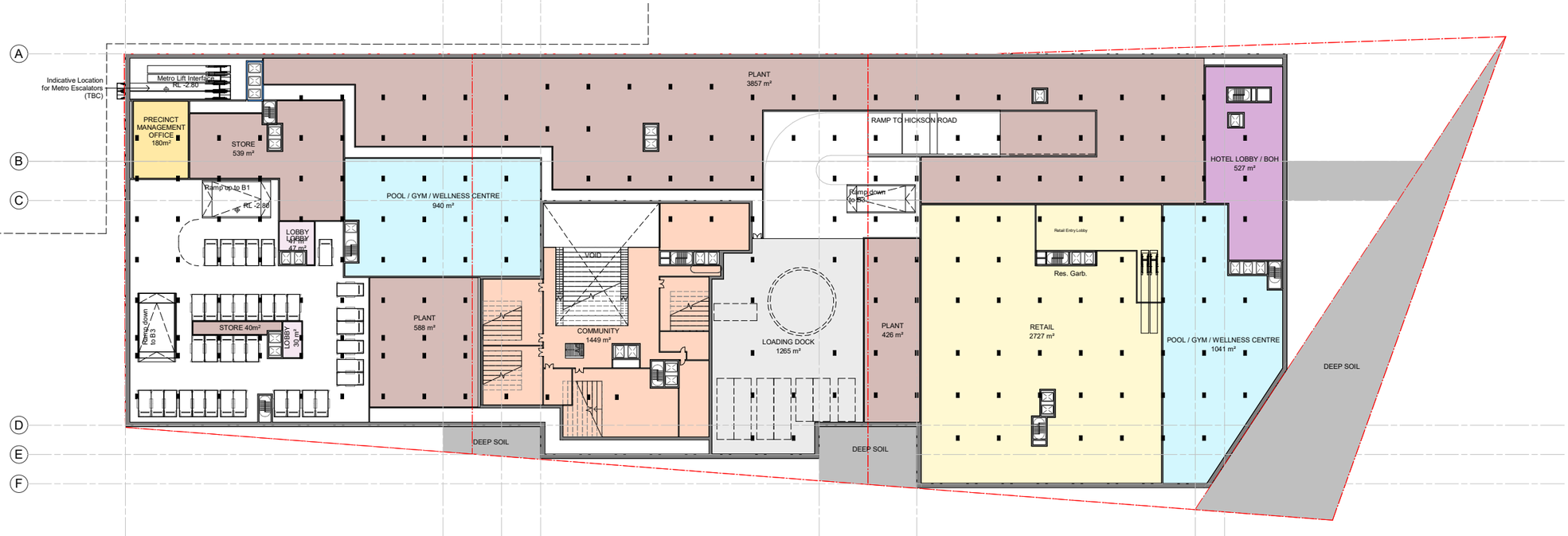

HIGH STREET
HICKSON ROAD
30 BOND
METRO STATION ENTRY
4A
3A
2A
1A
LANEWAY
4B
3B
2B
1B
North Plaza
South Plaza
HICKSON PARK
BARANGAROO AVE
"FUTURE" HARBOUR FORESHORE PARK
CROWN TOWER

Illustrative Ground Plan

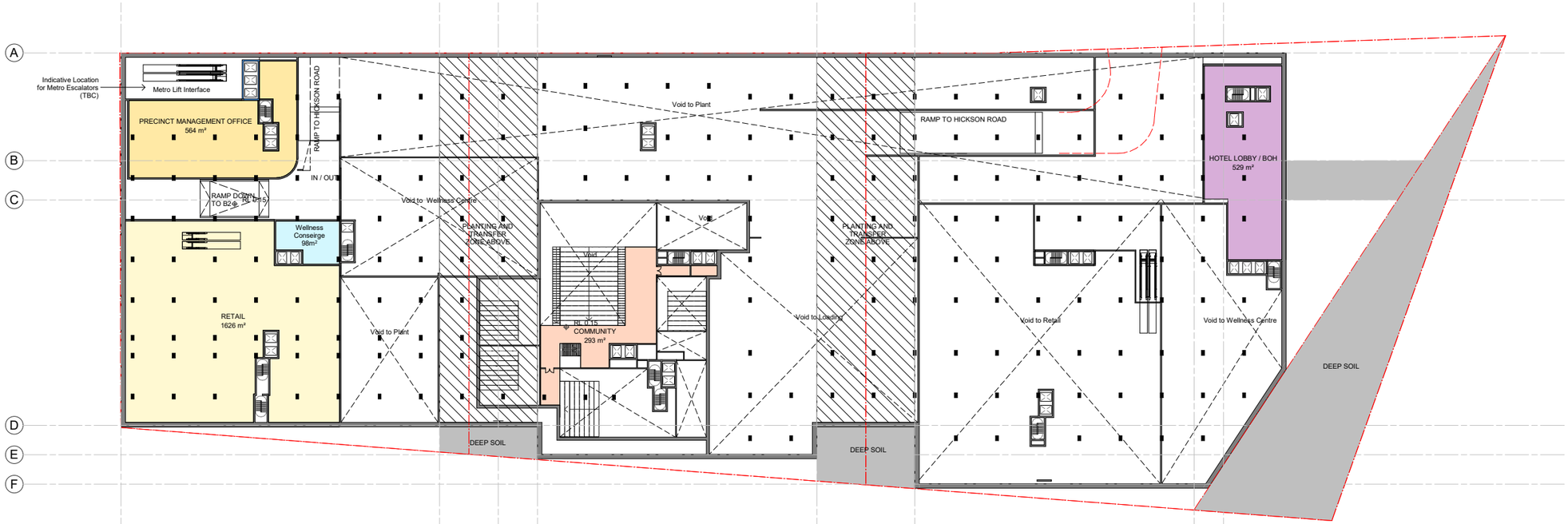
Basement 3



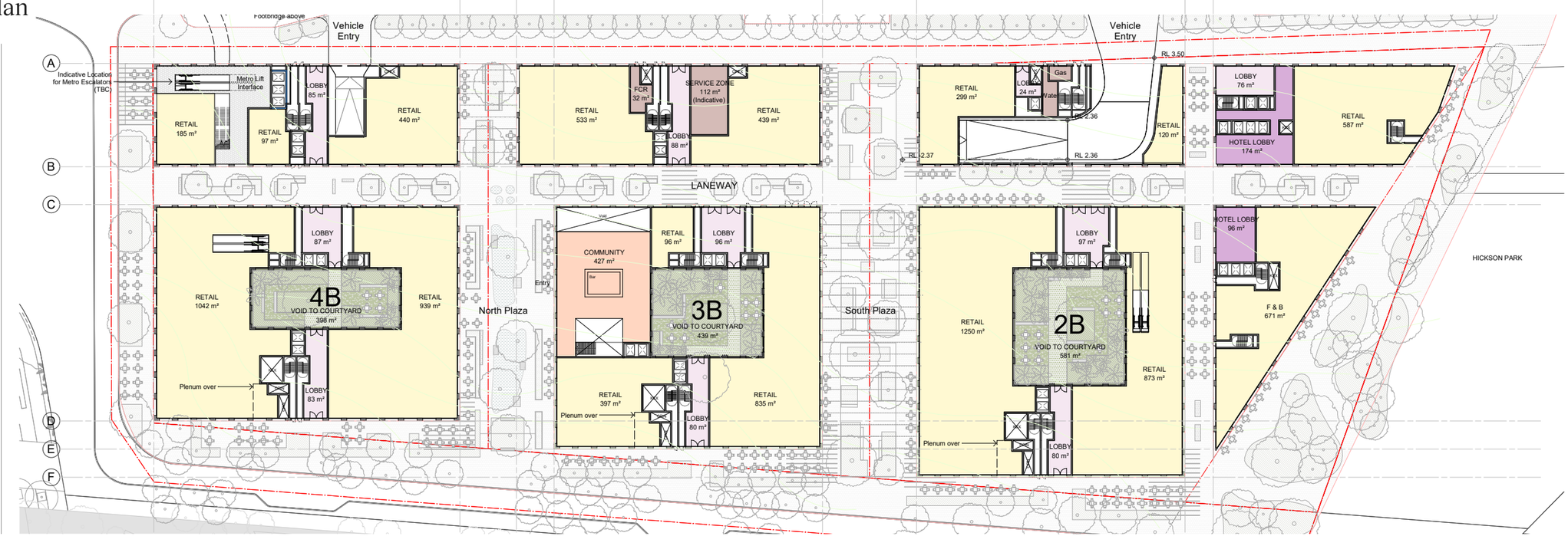
Basement 2



Basement 1



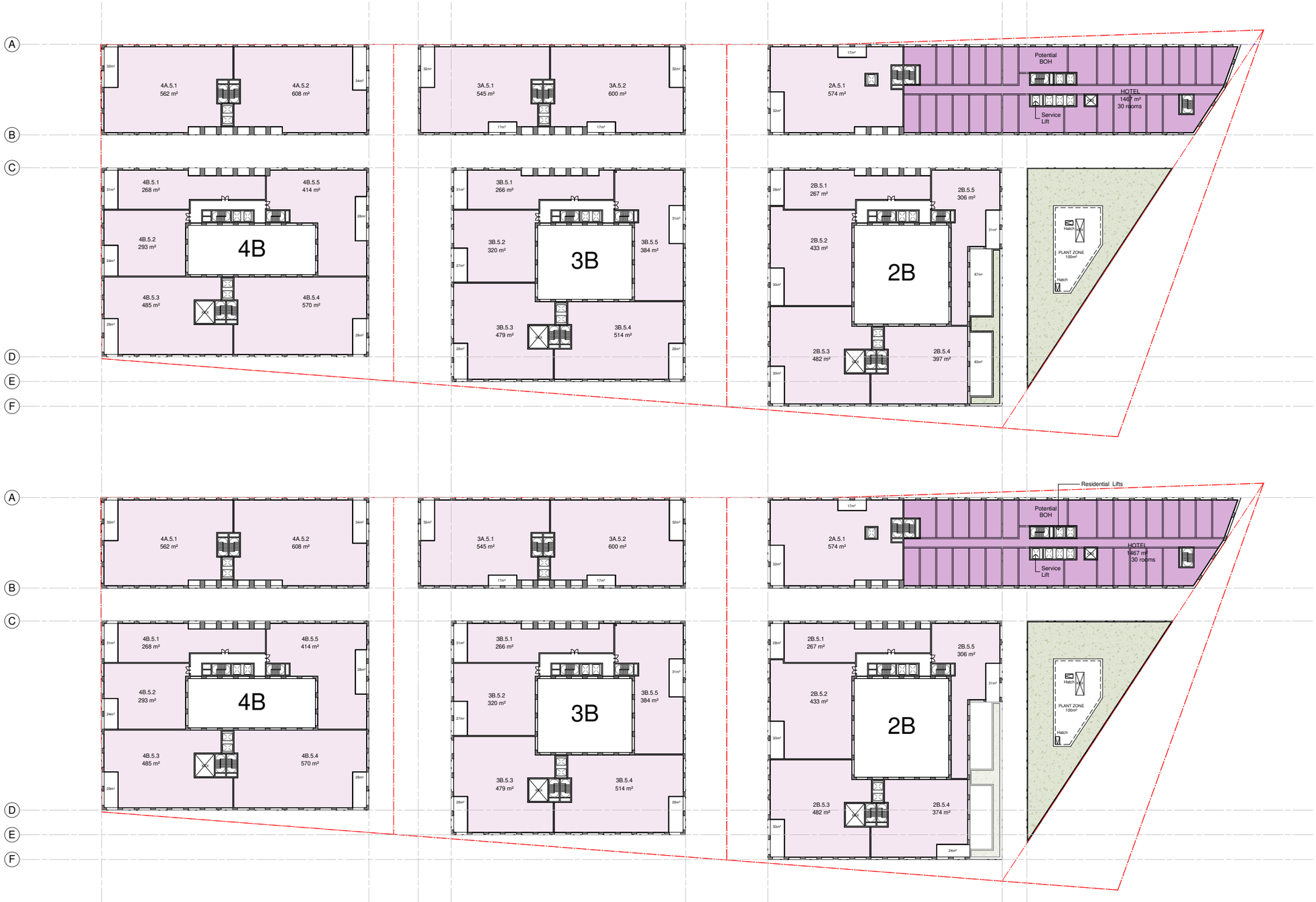
Ground Floor Plan



Level 1

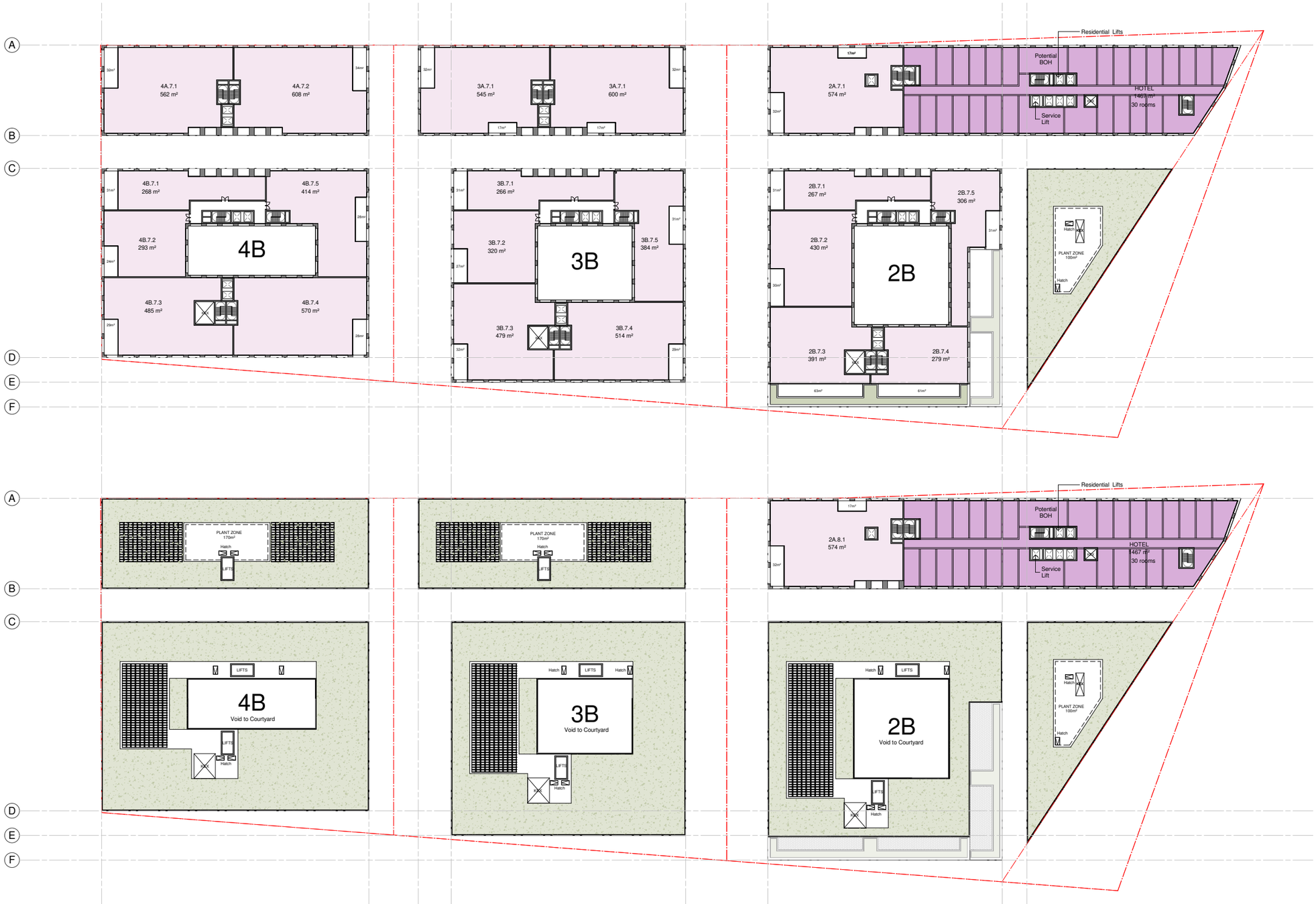
Level 2 - 3

Level 4



Level 5 - 6

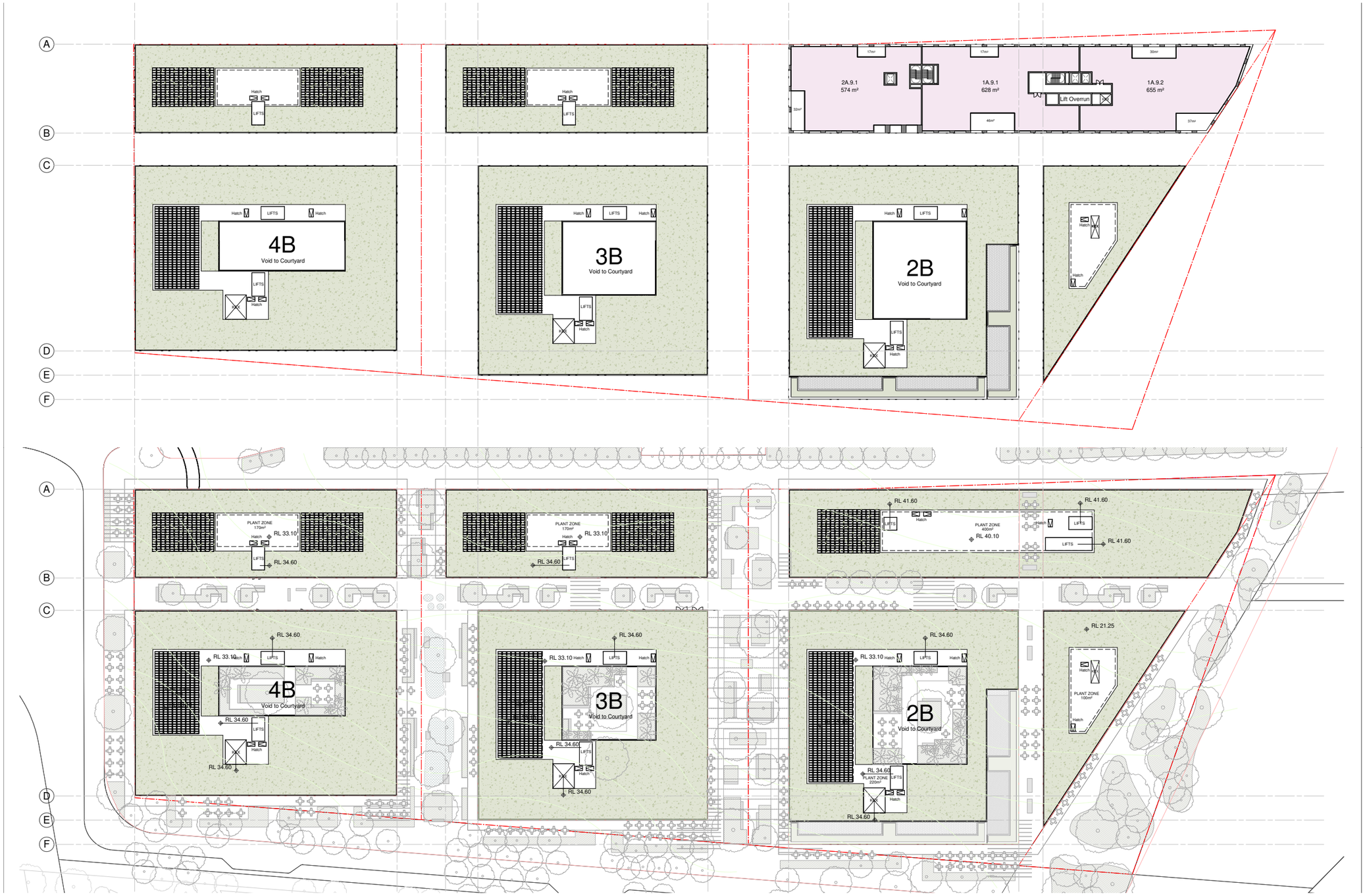
Level 7



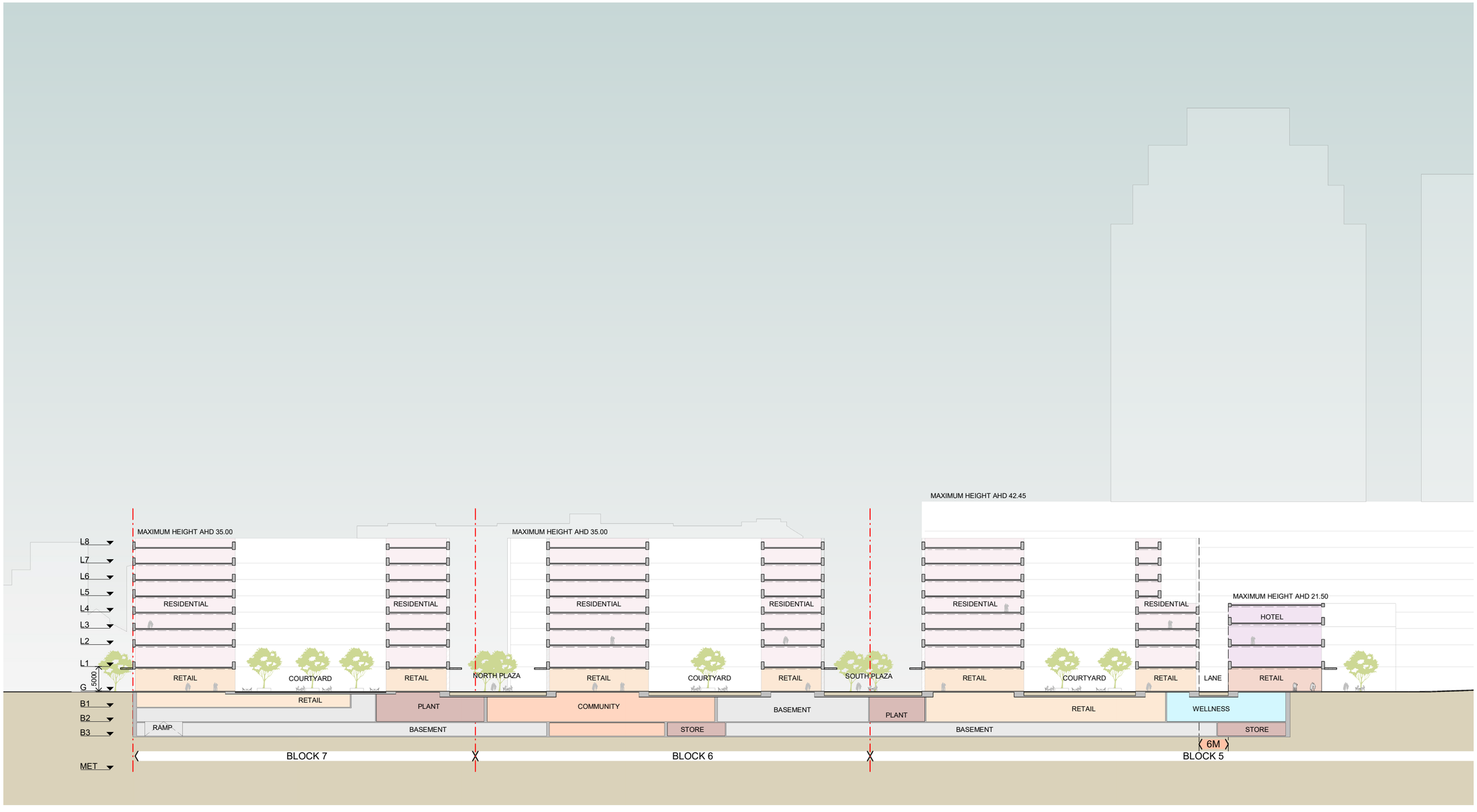
Level 8

Level 9

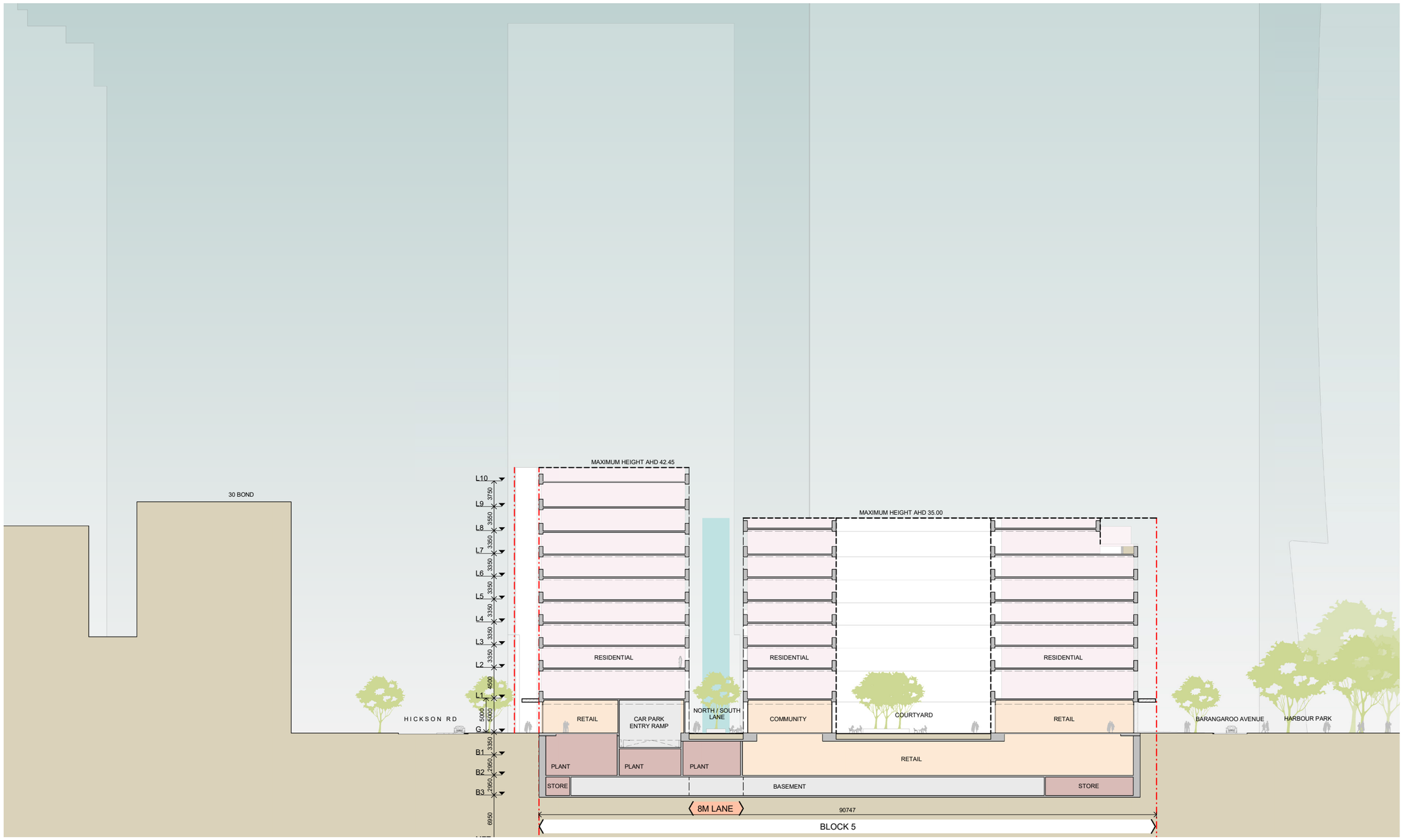
Roof


A
B
C
D
E
F
4B
Void to Courtyard
3B
Void to Courtyard
2B
Void to Courtyard
2A.9.1
574 m²
1A.9.1
628 m²
1A.9.2
655 m²
Lift Overrun
LIFTS
Hatch
PLANT ZONE
170m²
PLANT ZONE
100m²
PLANT ZONE
220m²
PLANT ZONE
400m²
RL 33.10
RL 34.60
RL 41.60
RL 40.10
RL 21.25

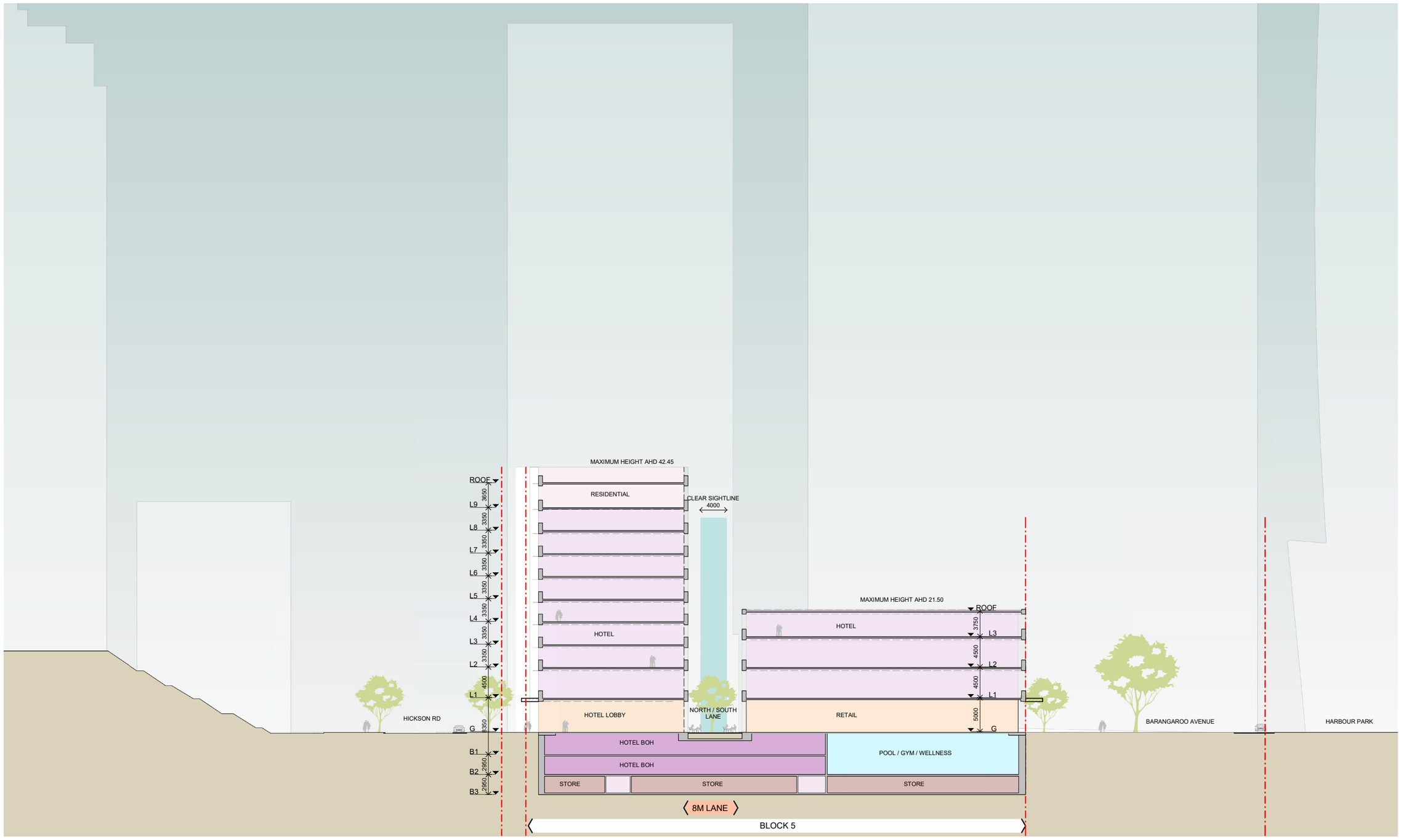
Longitudinal Site Section



Site Section - Block 5



Site Section - Block 5



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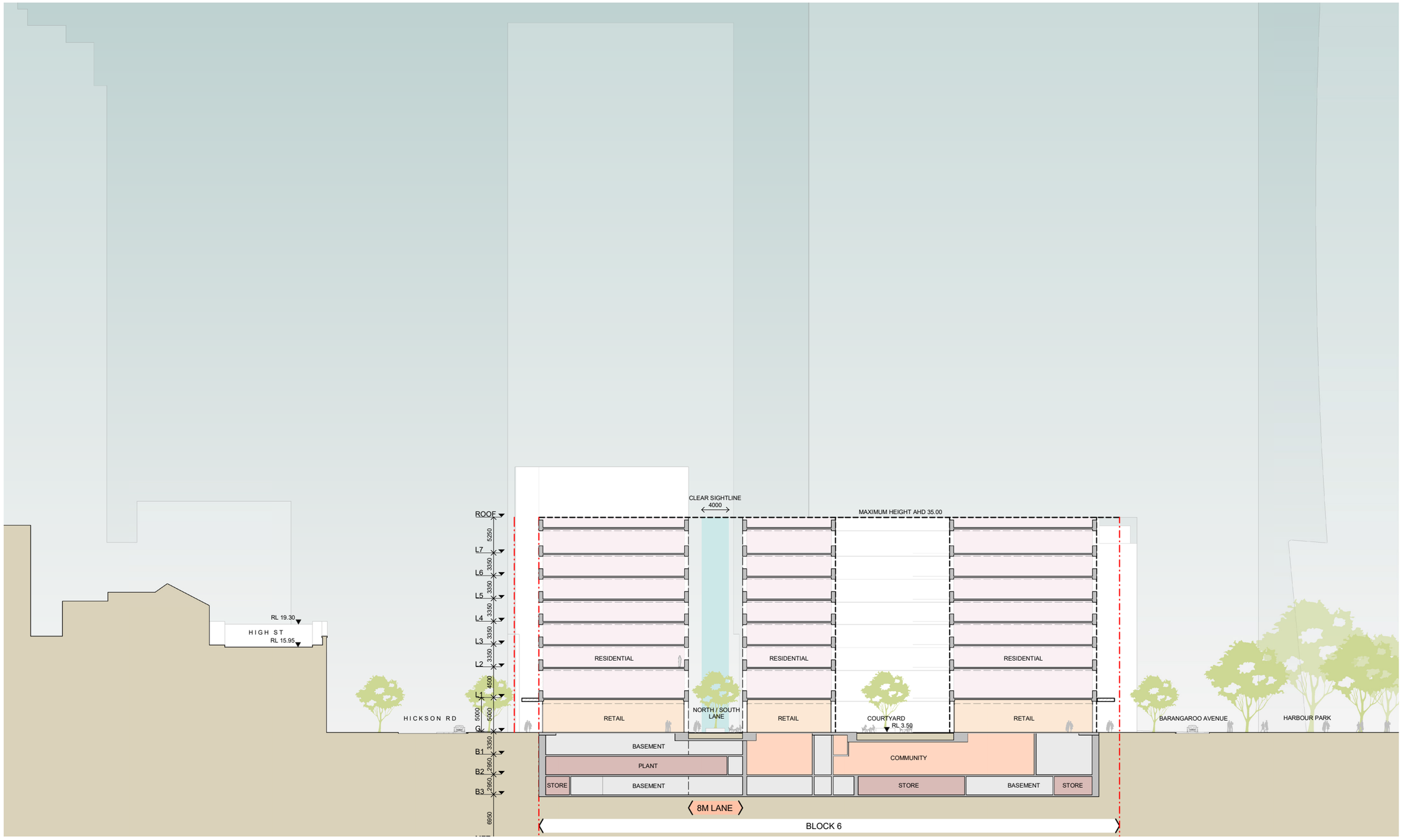

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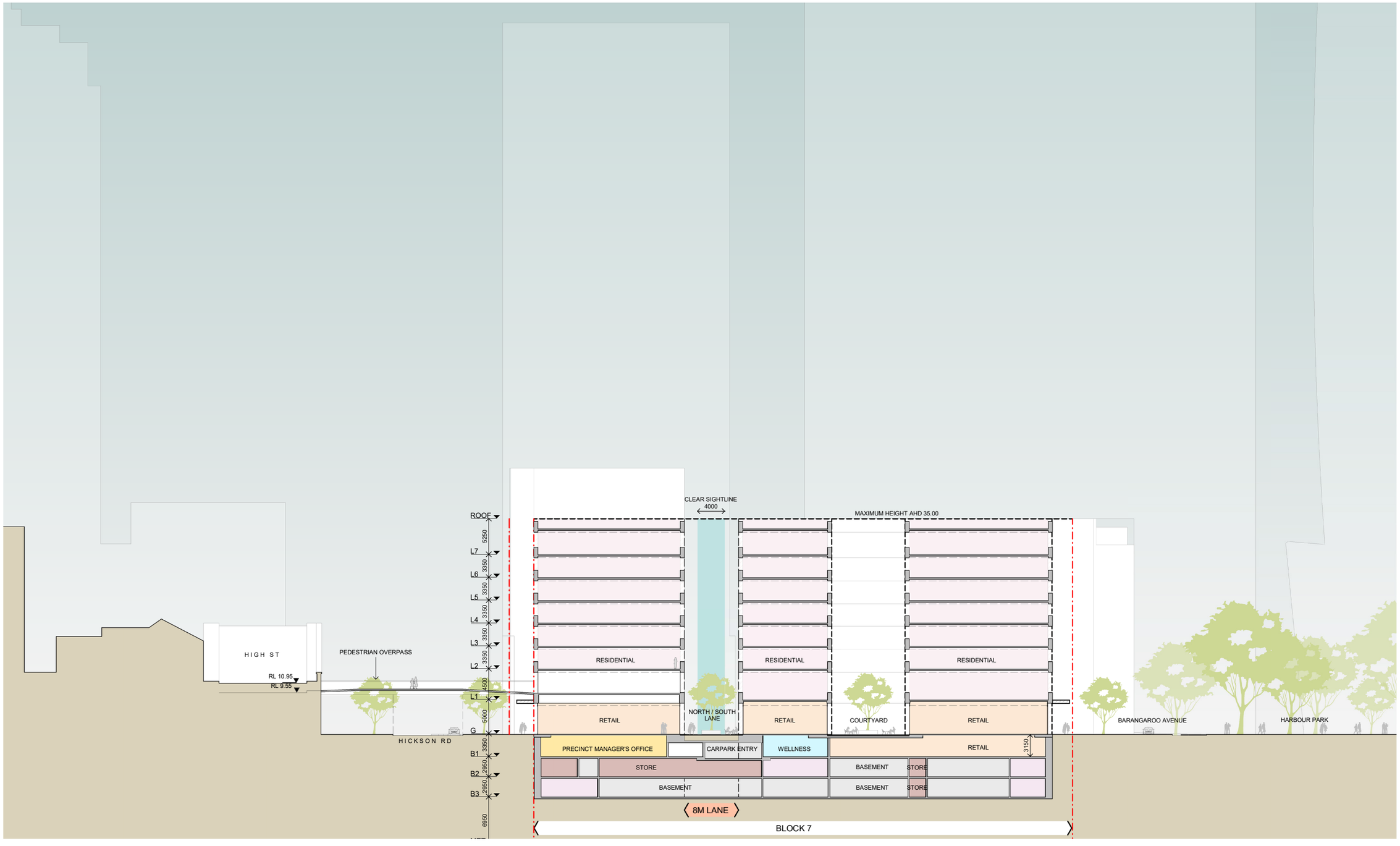
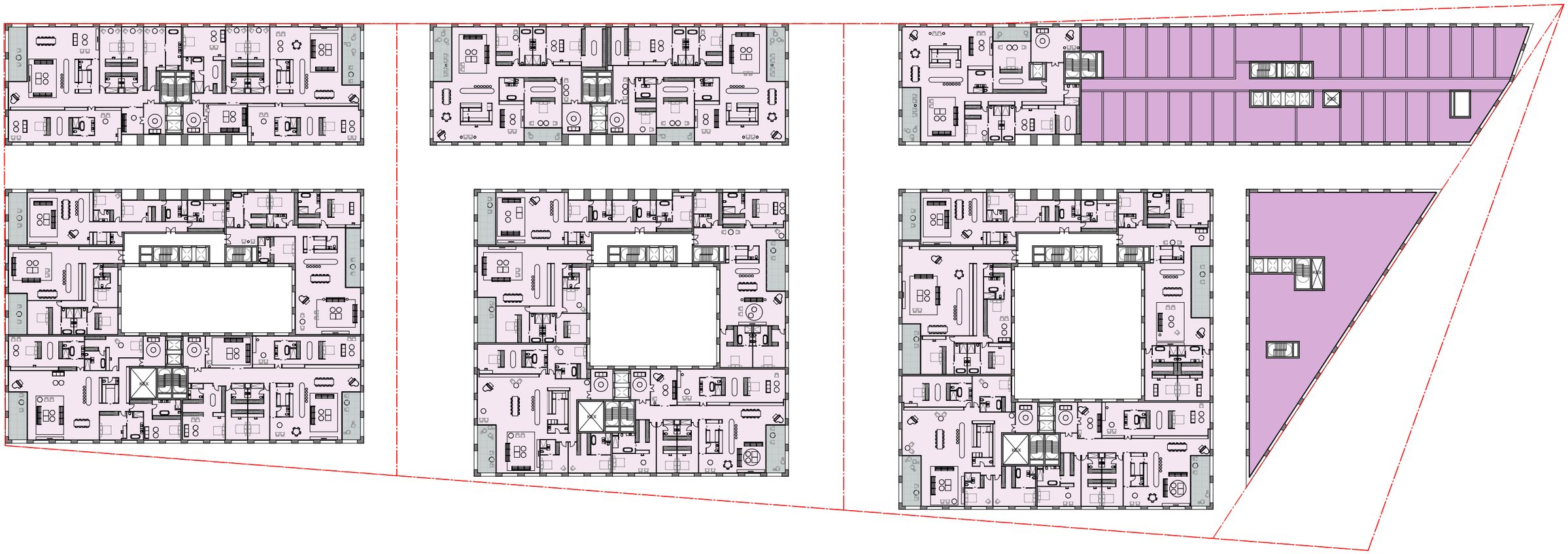


Typical Apartment Plan



FOOD TRUCK
extravaganza

Gelato
mini cart

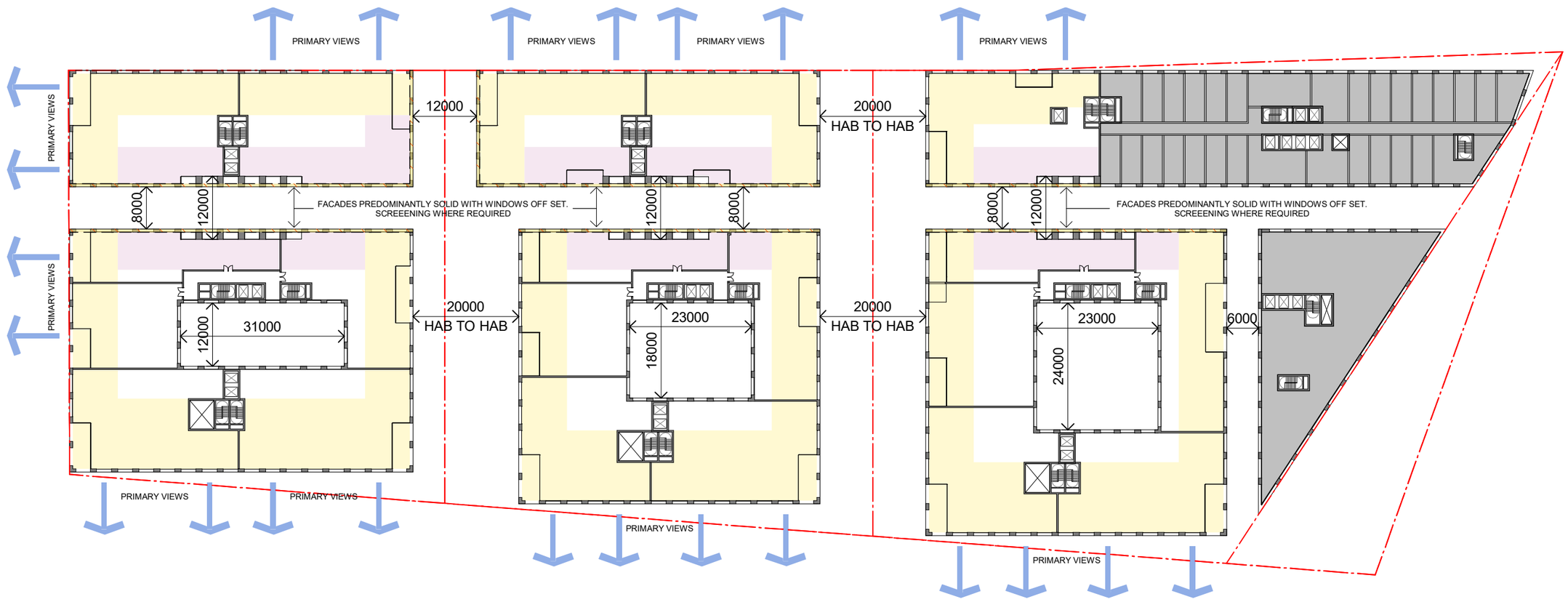
BARANGA DO BAR

HARLEN
& CO.
HARLEN
& CO.

10

Appendix : Reference Scheme Analysis

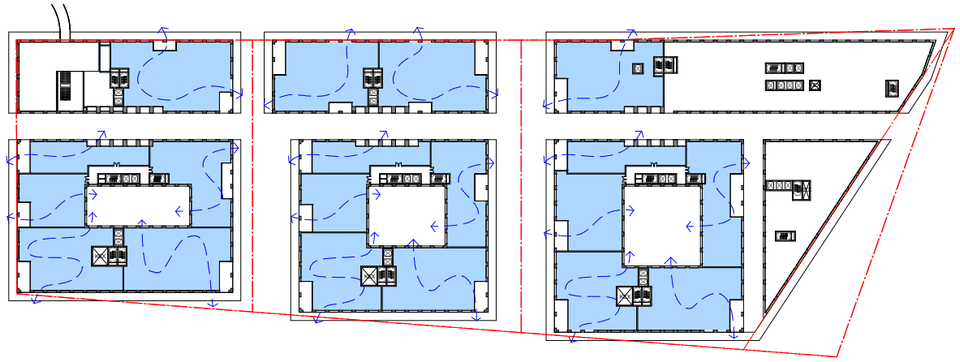
Building Separation



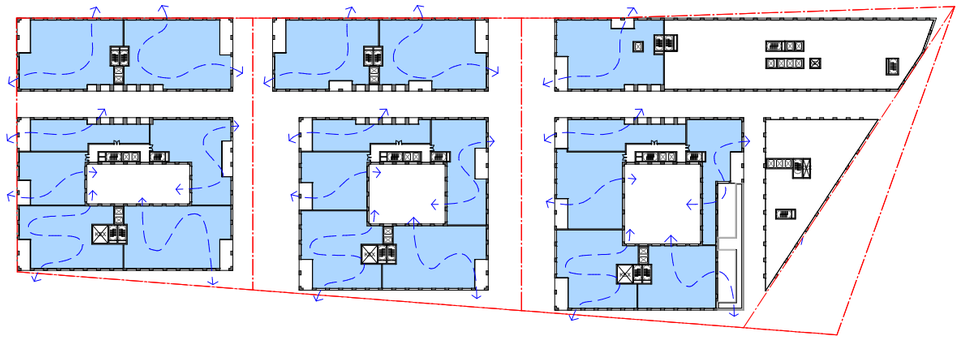
KEY

- PRIMARY LIVING SPACES & HABITABLE ROOMS
- SECONDARY SPACES & NON-HABITAL ROOMS
- NON-RESIDENTIAL USES

Cross- Vent Compliance



CROSS VENT - LEVEL 1
SCALE 1 : 800



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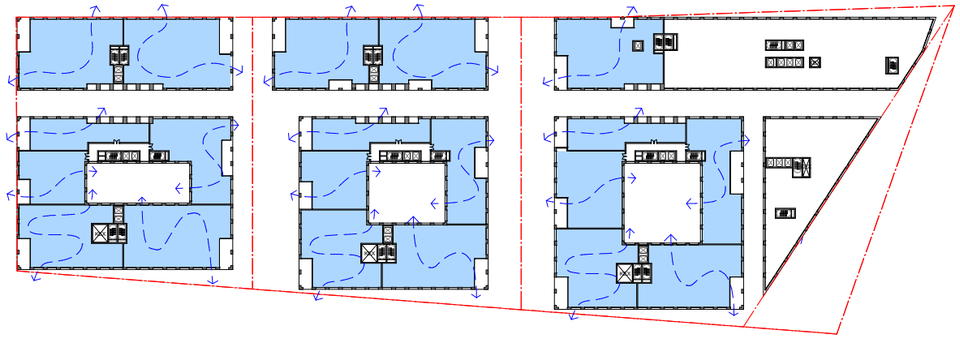

CROSS VENT - LEVEL 2
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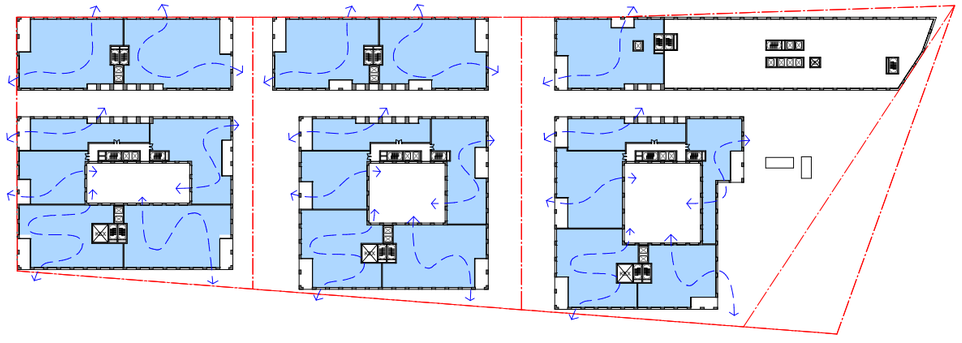

CROSS VENT - LEVEL 5
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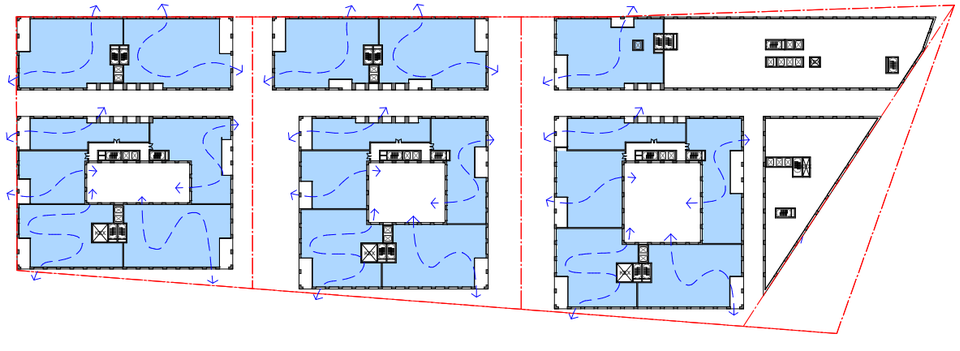


CROSS VENT - LEVEL 3

LEGEND

YES	CROSS VENTILATION ACHIEVED UP TO LEVEL 9
NO	CROSS VENTILATION NOT ACHIEVED UP TO LEVEL 9

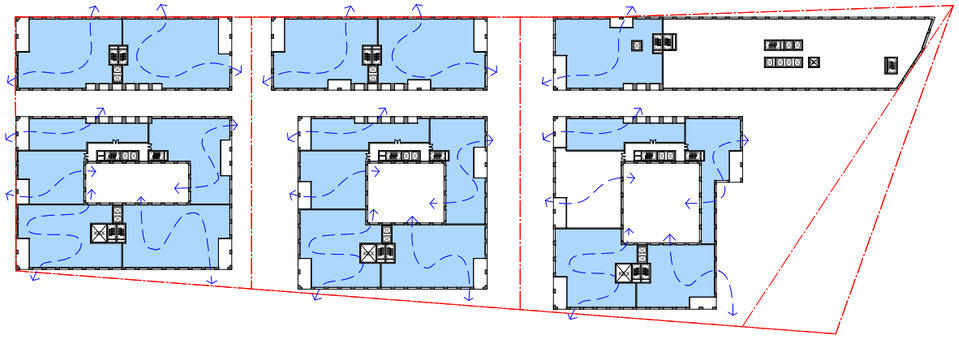
ADG DESIGN CRITERIA

- AT LEAST 60% OF APARTMENTS ARE NATURALLY CROSS VENTILATED IN THE FIRST NINE STOREYS OF THE BUILDING
- APARTMENTS AT TEN STOREYS OR GREATER ARE DEEMED TO BE CROSS VENTILATED ONLY IF ANY ENCLOSURE OF THE BALCONIES AT THESE LEVELS ALLOWS ADEQUATE NATURAL VENTILATION AND CANNOT BE FULLY ENCLOSED.

CROSS VENT SUMMARY

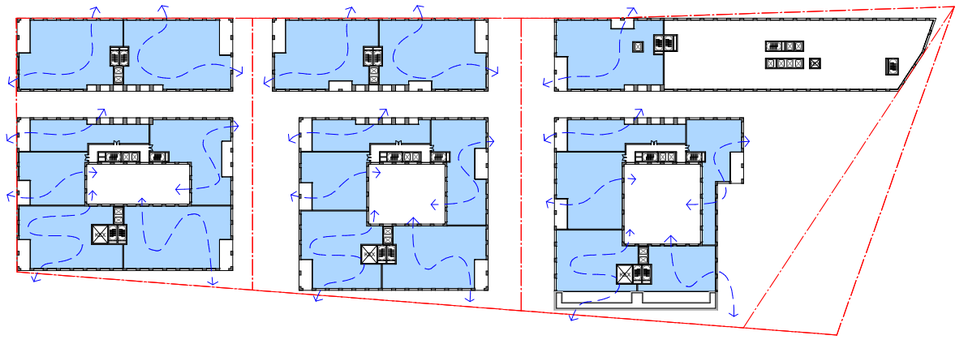
100% (144 UNITS) OF ALL RESIDENTIAL UNITS ARE CROSS VENTILATED

Cross- Vent Compliance



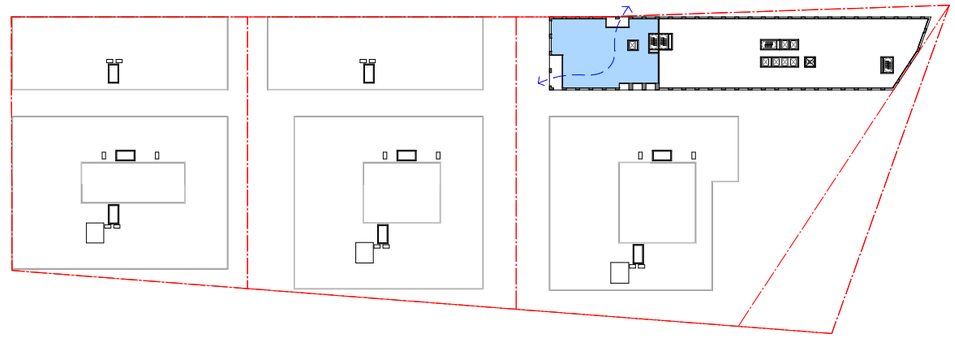
CROSS VENT - LEVEL 6

SCALE 1 : 800

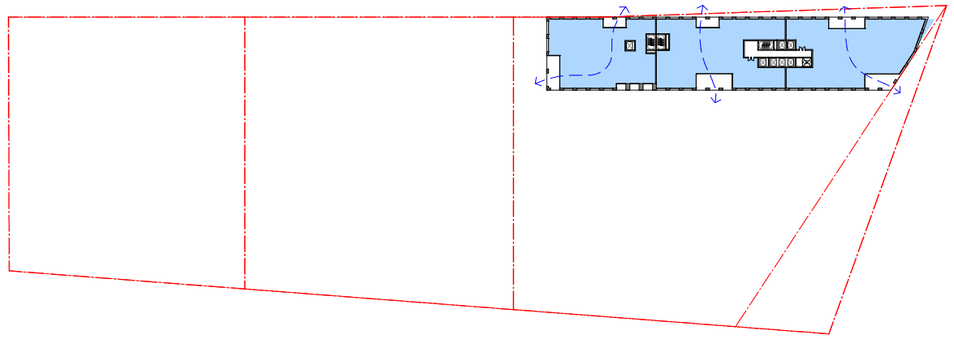


CROSS VENT - LEVEL 7

SCALE 1 : 800



CROSS VENT - LEVEL 8



CROSS VENT - LEVEL 9

SCALE 1 : 800

LEGEND

YES — CROSS VENTILATION ACHIEVED UP TO LEVEL 9

NO — CROSS VENTILATION NOT ACHIEVED UP TO LEVEL 9

ADG DESIGN CRITERIA

- AT LEAST 60% OF APARTMENTS ARE NATURALLY CROSS VENTILATED IN THE FIRST NINE STOREYS OF THE BUILDING
- APARTMENTS AT TEN STOREYS OR GREATER ARE DEEMED TO BE CROSS VENTILATED ONLY IF ANY ENCLOSURE OF THE BALCONIES AT THESE LEVELS ALLOWS ADEQUATE NATURAL VENTILATION AND CANNOT BE FULLY ENCLOSED.

CROSS VENT SUMMARY

100% (144 UNITS) OF ALL RESIDENTIAL UNITS ARE CROSS VENTILATED

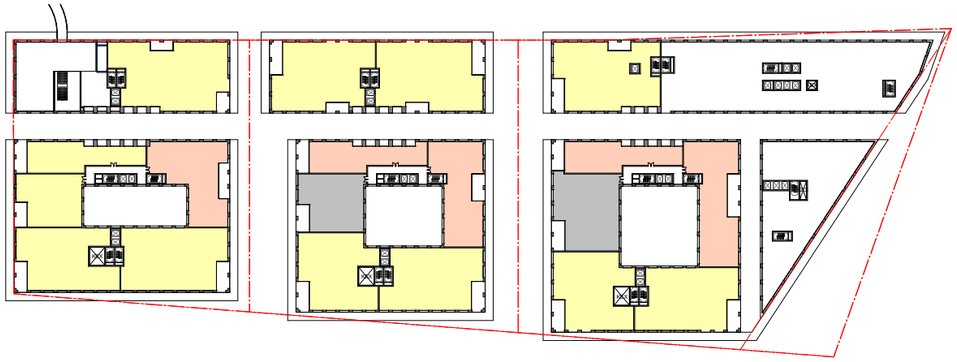
Cross Vent	
Room Number	Cross Vent
L1	
2A.1.1	Yes
2B.1.1	Yes
2B.1.2	Yes
2B.1.3	Yes
2B.1.4	Yes
2B.1.5	Yes
3A.1.1	Yes
3A.1.2	Yes
3B.1.1	Yes
3B.1.2	Yes
3B.1.3	Yes
3B.1.4	Yes
3B.1.5	Yes
4A.1.1	Yes
4B.1.1	Yes
4B.1.2	Yes
4B.1.3	Yes
4B.1.4	Yes
4B.1.5	Yes
L2	
2A.2.1	Yes
2B.2.1	Yes
2B.2.2	Yes
2B.2.3	Yes
2B.2.4	Yes
2B.2.5	Yes
3A.2.1	Yes
3A.2.2	Yes
3B.2.1	Yes
3B.2.2	Yes
3B.2.3	Yes
3B.2.4	Yes
3B.2.5	Yes
4A.2.1	Yes
4A.2.2	Yes
4B.2.1	Yes
4B.2.2	Yes
4B.2.3	Yes
4B.2.4	Yes
4B.2.5	Yes

Cross Vent	
Room Number	Cross Vent
L3	
2A.3.1	Yes
2B.3.1	Yes
2B.3.2	Yes
2B.3.3	Yes
2B.3.4	Yes
2B.3.5	Yes
3A.3.1	Yes
3A.3.2	Yes
3B.3.1	Yes
3B.3.2	Yes
3B.3.3	Yes
3B.3.4	Yes
3B.3.5	Yes
4A.3.1	Yes
4A.3.2	Yes
4B.3.1	Yes
4B.3.2	Yes
4B.3.3	Yes
4B.3.4	Yes
4B.3.5	Yes
L4	
2A.4.1	Yes
2A.9.4	Yes
2B.4.1	Yes
2B.4.2	Yes
2B.4.3	Yes
2B.4.4	Yes
2B.4.5	Yes
3A.4.1	Yes
3A.4.2	Yes
3B.4.1	Yes
3B.4.2	Yes
3B.4.3	Yes
3B.4.4	Yes
3B.4.5	Yes
4A.4.1	Yes
4A.4.2	Yes
4B.4.1	Yes
4B.4.2	Yes
4B.4.3	Yes
4B.4.4	Yes
4B.4.5	Yes

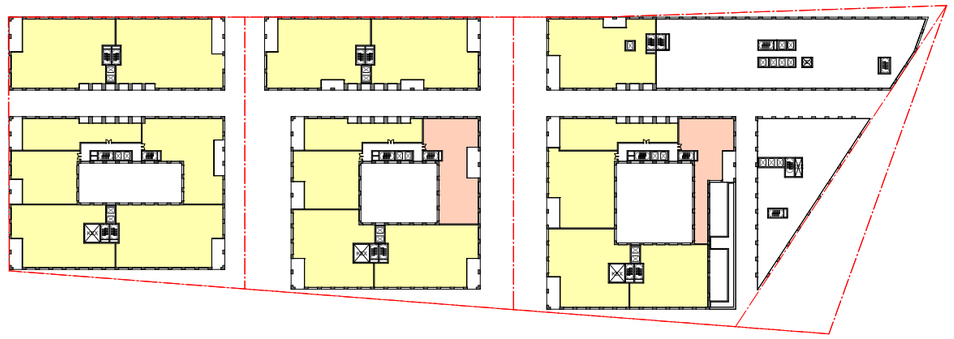
Cross Vent	
Room Number	Cross Vent
L5	
2A.5.1	Yes
2B.5.1	Yes
2B.5.2	Yes
2B.5.3	Yes
2B.5.4	Yes
2B.5.5	Yes
3A.5.1	Yes
3A.5.2	Yes
3B.5.1	Yes
3B.5.2	Yes
3B.5.3	Yes
3B.5.4	Yes
3B.5.5	Yes
4A.5.1	Yes
4A.5.2	Yes
4B.5.1	Yes
4B.5.2	Yes
4B.5.3	Yes
4B.5.4	Yes
4B.5.5	Yes
L6	
2A.6.1	Yes
2B.6.1	Yes
2B.6.2	Yes
2B.6.3	Yes
2B.6.4	Yes
2B.6.5	Yes
3A.6.1	Yes
3A.6.2	Yes
3B.6.1	Yes
3B.6.2	Yes
3B.6.3	Yes
3B.6.4	Yes
3B.6.5	Yes
4A.6.1	Yes
4A.6.2	Yes
4B.6.1	Yes
4B.6.2	Yes
4B.6.3	Yes
4B.6.4	Yes
4B.6.5	Yes

Cross Vent	
Room Number	Cross Vent
L7	
2A.7.1	Yes
2B.7.1	Yes
2B.7.2	Yes
2B.7.3	Yes
2B.7.4	Yes
2B.7.5	Yes
3A.7.1	Yes
3A.7.2	Yes
3B.7.1	Yes
3B.7.2	Yes
3B.7.3	Yes
3B.7.4	Yes
3B.7.5	Yes
4A.7.1	Yes
4A.7.2	Yes
4B.7.1	Yes
4B.7.2	Yes
4B.7.3	Yes
4B.7.4	Yes
4B.7.5	Yes
L8	
2A.8.1	Yes
L9	
2A.9.1	Yes
2A.9.2	Yes
2A.9.3	Yes
Grand total: 144	

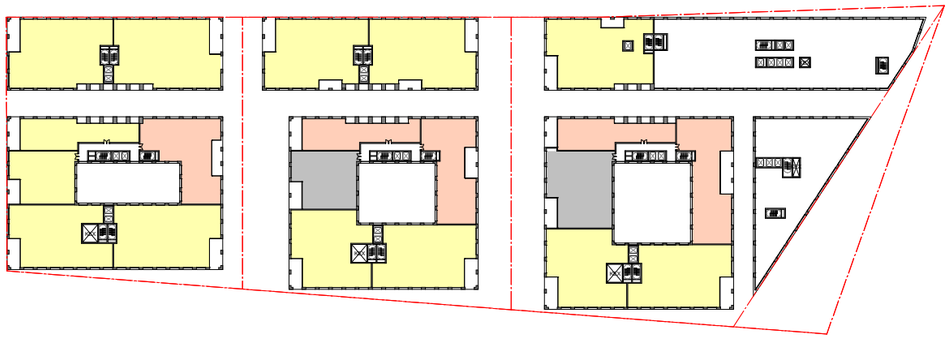
Solar Compliance



SOLAR ANALYSIS - LEVEL 1
SCALE 1 : 800



SOLAR ANALYSIS - LEVEL 4
SCALE 1 : 800



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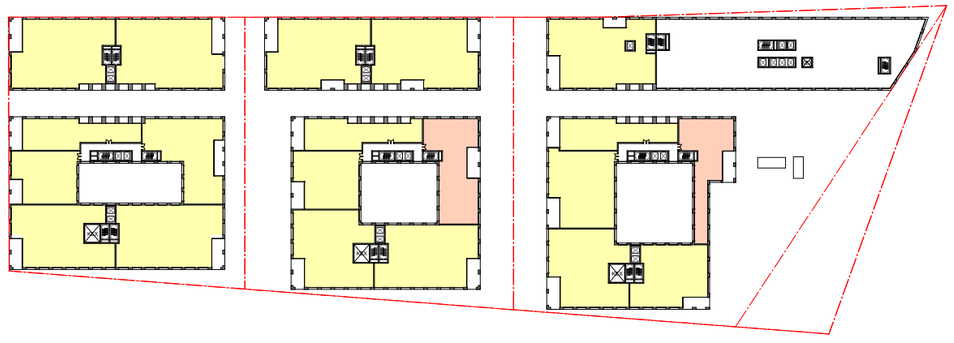
SCALE 1 : 800



SOLAR ANALYSIS - LEVEL 5
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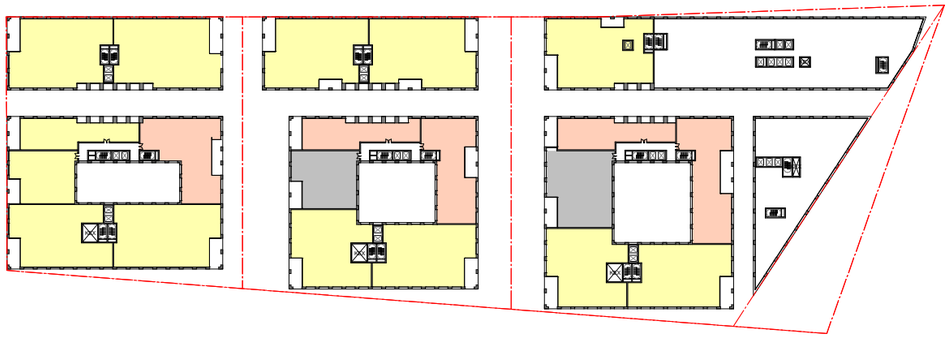


SOLAR ANALYSIS - LEVEL 3
SCALE 1 : 800

LEGEND

2HR — MININIMUM OF 2 HOURS SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

15MIN — MININIMUM OF 15 MINUTES SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

NA — LESS THAN 15 MINUTES SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

ADG DESIGN CRITERIA

- AT LEAST 70% OF APARTMENTS IN A BUILDING RECEIVE A MINIMUM OF 2 HOURS DIRECT SUNLIGHT BETWEEN 9AM AND 3PM IN MID WINTER
- A MAXIMUM OF 15% OF APARTMENTS IN A BUILDING RECEIVE NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM AT MID WINTER

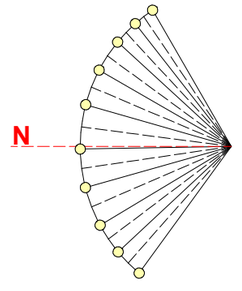
SOLAR SUMMARY

83% (119 UNITS OUT OF 143 TOTAL) OF ALL RESIDENTIAL UNITS RECEIVE A MINIMUM OF 2 HOURS OF SUNLIGHT TO LIVING ROOM AND PRIVATE OPEN SPACES

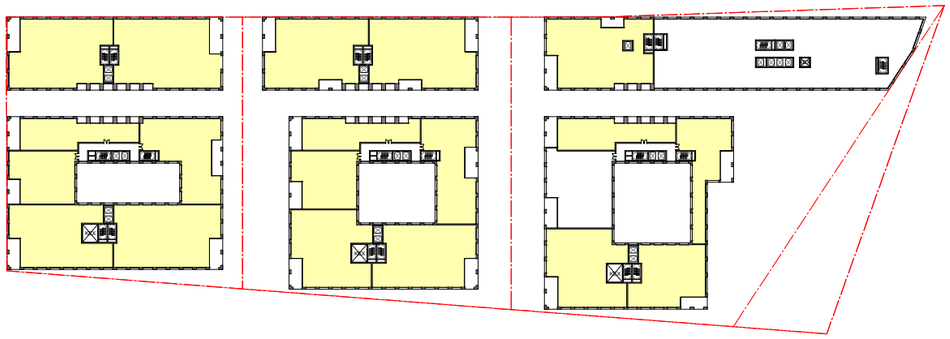
4% (6 UNITS OUT OF 143 TOTAL) OF ALL RESIDENTIAL UNITS RECEIVE NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM AT MID WINTER

WINTER SOLSTICE SOLAR DIAGRAM

WINTER SOLSTICE - 22nd of June

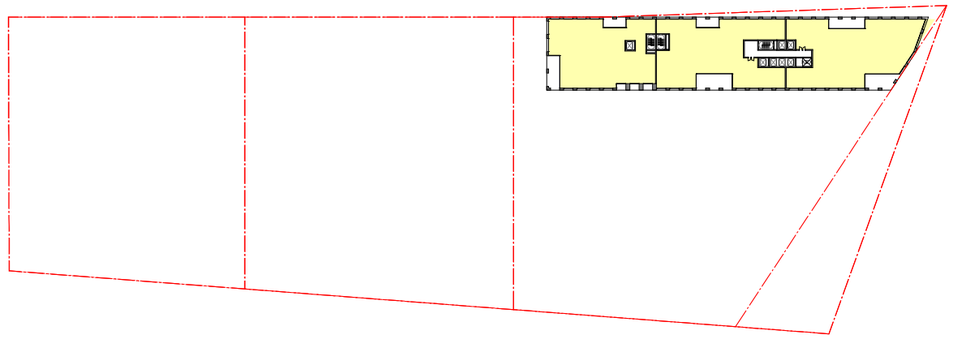


Solar Compliance



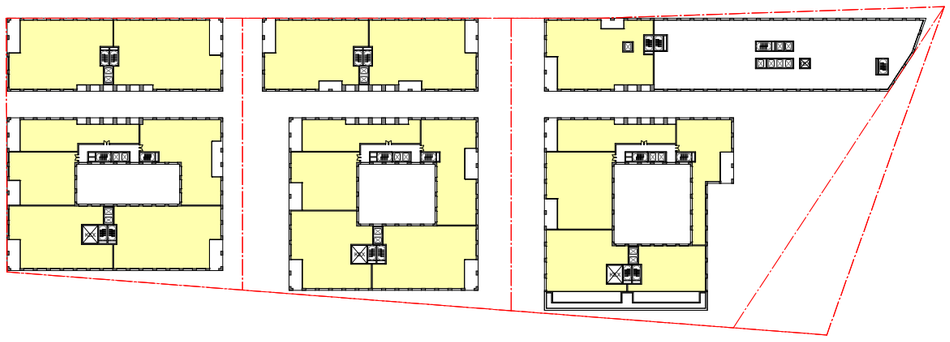
SOLAR ANALYSIS - LEVEL 6

SCALE 1 : 800



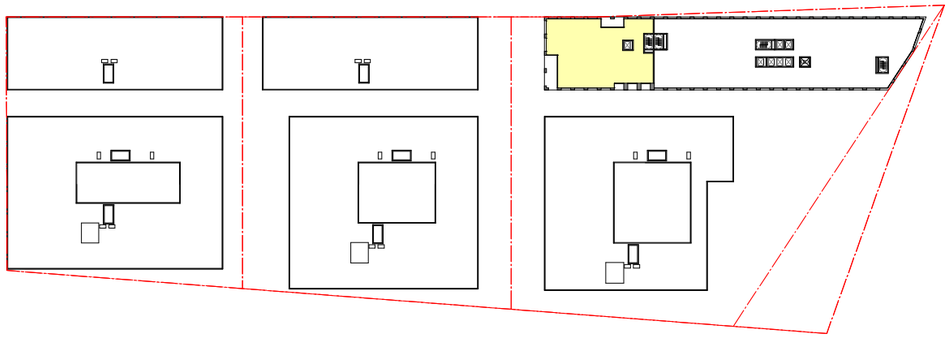
SOLAR ANALYSIS - LEVEL 9

SCALE 1 : 800



SOLAR ANALYSIS - LEVEL 7

SCALE 1 : 800



SOLAR ANALYSIS - LEVEL 8

SCALE 1 : 800

Solar Compliance	
Unit Number	Solar
L1	
2A.1.1	2 HR
2B.1.3	2 HR
2B.1.4	2 HR
3A.1.1	2 HR
3A.1.2	2 HR
3B.1.3	2 HR
3B.1.4	2 HR
4A.1.1	2 HR
4B.1.1	2 HR
4B.1.2	2 HR
4B.1.3	2 HR
4B.1.4	2 HR
L2	
2A.2.1	2 HR
2B.2.3	2 HR
2B.2.4	2 HR
3A.2.1	2 HR
3A.2.2	2 HR
3B.2.3	2 HR
3B.2.4	2 HR
4A.2.1	2 HR
4A.2.2	2 HR
4B.2.1	2 HR
4B.2.2	2 HR
4B.2.3	2 HR
4B.2.4	2 HR

Solar Compliance	
Unit Number	Solar
L3	
2A.3.1	2 HR
2B.3.3	2 HR
2B.3.4	2 HR
3A.3.1	2 HR
3A.3.2	2 HR
3B.3.3	2 HR
3B.3.4	2 HR
4A.3.1	2 HR
4A.3.2	2 HR
4B.3.1	2 HR
4B.3.2	2 HR
4B.3.3	2 HR
4B.3.4	2 HR
L4	
2A.4.1	2 HR
2A.9.4	2 HR
2B.4.1	2 HR
2B.4.2	2 HR
2B.4.3	2 HR
2B.4.4	2 HR
3A.4.1	2 HR
3A.4.2	2 HR
3B.4.1	2 HR
3B.4.2	2 HR
3B.4.3	2 HR

Solar Compliance	
Unit Number	Solar
3B.4.4	2 HR
4A.4.1	2 HR
4A.4.2	2 HR
4B.4.1	2 HR
4B.4.2	2 HR
4B.4.3	2 HR
4B.4.4	2 HR
4B.4.5	2 HR
L5	
2A.5.1	2 HR
2B.5.1	2 HR
2B.5.2	2 HR
2B.5.3	2 HR
2B.5.4	2 HR
3A.5.1	2 HR
3A.5.2	2 HR
3B.5.1	2 HR
3B.5.2	2 HR
3B.5.3	2 HR
3B.5.4	2 HR
4A.5.1	2 HR
4A.5.2	2 HR
4B.5.1	2 HR
4B.5.2	2 HR
4B.5.3	2 HR
4B.5.4	2 HR

Solar Compliance	
Unit Number	Solar
4B.5.5	2 HR
L6	
2A.6.1	2 HR
2B.6.1	2 HR
2B.6.2	2 HR
2B.6.3	2 HR
2B.6.4	2 HR
2B.6.5	2 HR
3A.6.1	2 HR
3A.6.2	2 HR
3B.6.1	2 HR
3B.6.2	2 HR
3B.6.3	2 HR
3B.6.4	2 HR
3B.6.5	2 HR
4A.6.1	2 HR
4A.6.2	2 HR
4B.6.1	2 HR
4B.6.2	2 HR
4B.6.3	2 HR
4B.6.4	2 HR
4B.6.5	2 HR
L7	
2A.7.1	2 HR
2B.7.1	2 HR
2B.7.2	2 HR

Solar Compliance	
Unit Number	Solar
2B.7.3	2 HR
2B.7.4	2 HR
2B.7.5	2 HR
3A.7.1	2 HR
3A.7.2	2 HR
3B.7.1	2 HR
3B.7.2	2 HR
3B.7.3	2 HR
3B.7.4	2 HR
3B.7.5	2 HR
4A.7.1	2 HR
4A.7.2	2 HR
4B.7.1	2 HR
4B.7.2	2 HR
4B.7.3	2 HR
4B.7.4	2 HR
4B.7.5	2 HR
L8	
2A.8.1	2 HR
L9	
2A.9.1	2 HR
2A.9.2	2 HR
2A.9.3	2 HR

Grand total: 119

LEGEND

2HR — MININIMUM OF 2 HOURS SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

15MIN — MININIMUM OF 15 MINUTES SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

NA — LESS THAN 15 MINUTES SUNLIGHT TO APARTMENTS RECEIVED ON 21 JUNE BETWEEN 9AM-3PM

ADG DESIGN CRITERIA

- AT LEAST 70% OF APARTMENTS IN A BUILDING RECEIVE A MINIMUM OF 2 HOURS DIRECT SUNLIGHT BETWEEN 9AM AND 3PM IN MID WINTER
- A MAXIMUM OF 15% OF APARTMENTS IN A BUILDING RECEIVE NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM AT MID WINTER

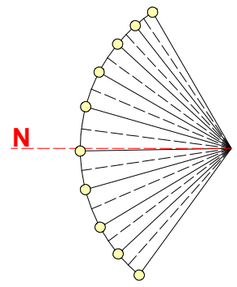
SOLAR SUMMARY

83% (119 UNITS OUT OF 143 TOTAL) OF ALL RESIDENTIAL UNITS RECEIVE A MINIMUM OF 2 HOURS OF SUNLIGHT TO LIVING ROOM AND PRIVATE OPEN SPACES

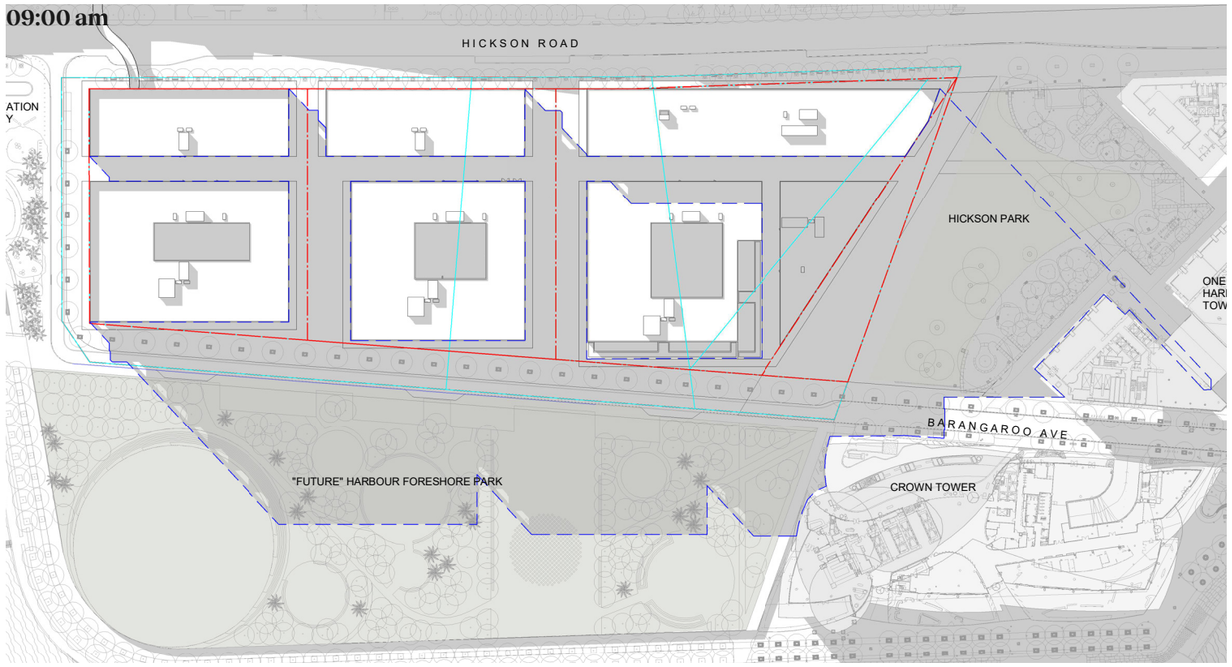
4% (6 UNITS OUT OF 143 TOTAL) OF ALL RESIDENTIAL UNITS RECEIVE NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM AT MID WINTER

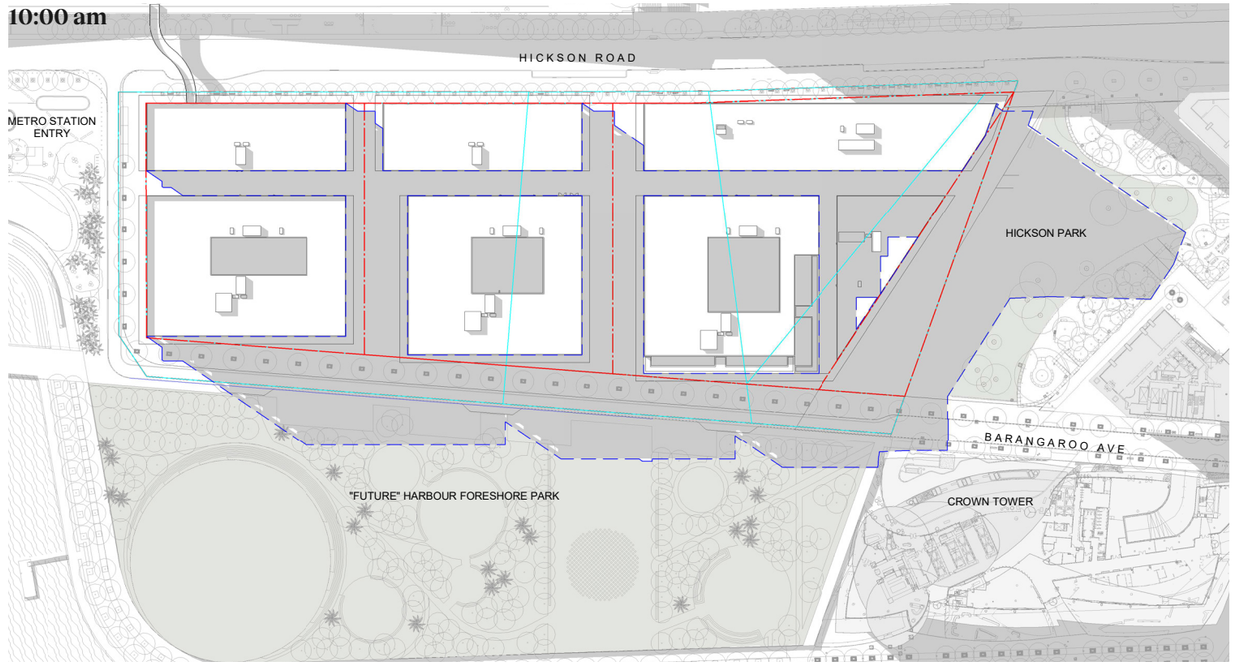
WINTER SOLSTICE SOLAR DIAGRAM

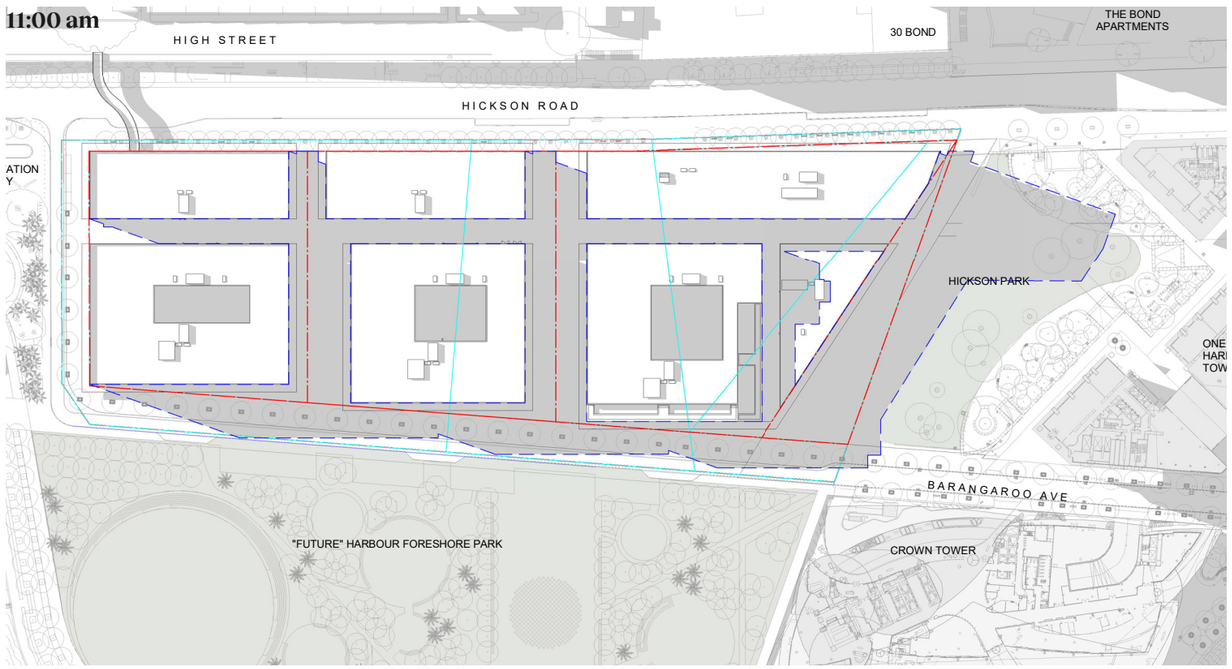
WINTER SOLSTICE - 22nd of June

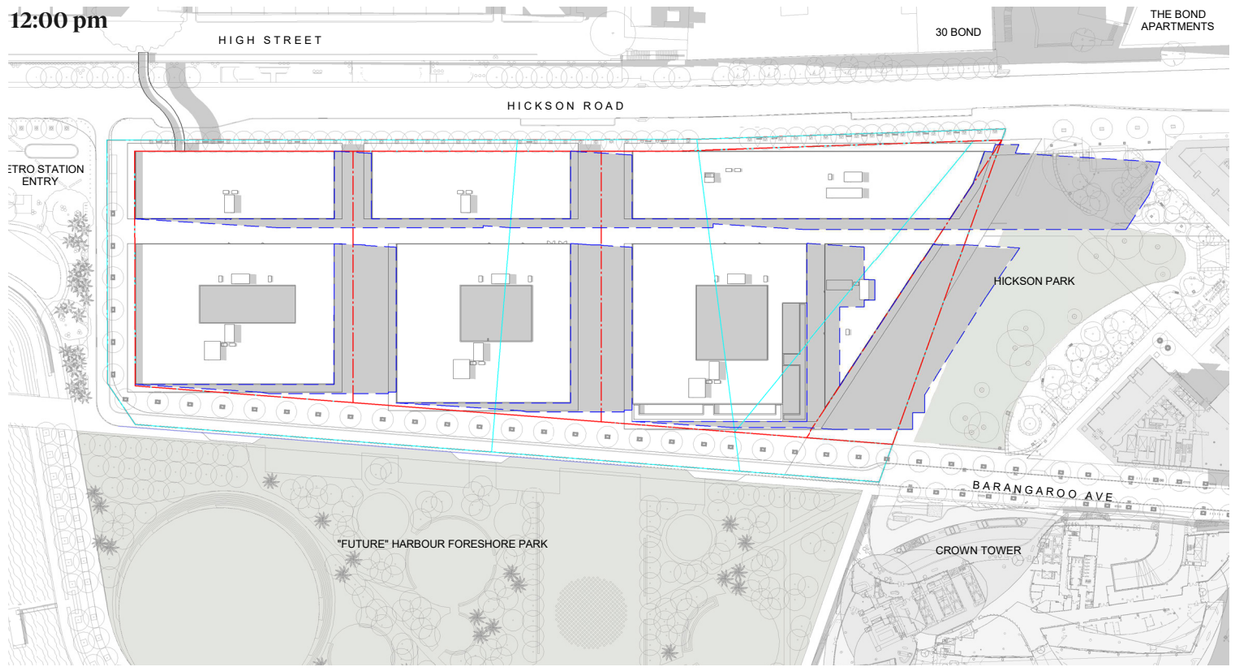


Shadow Diagrams



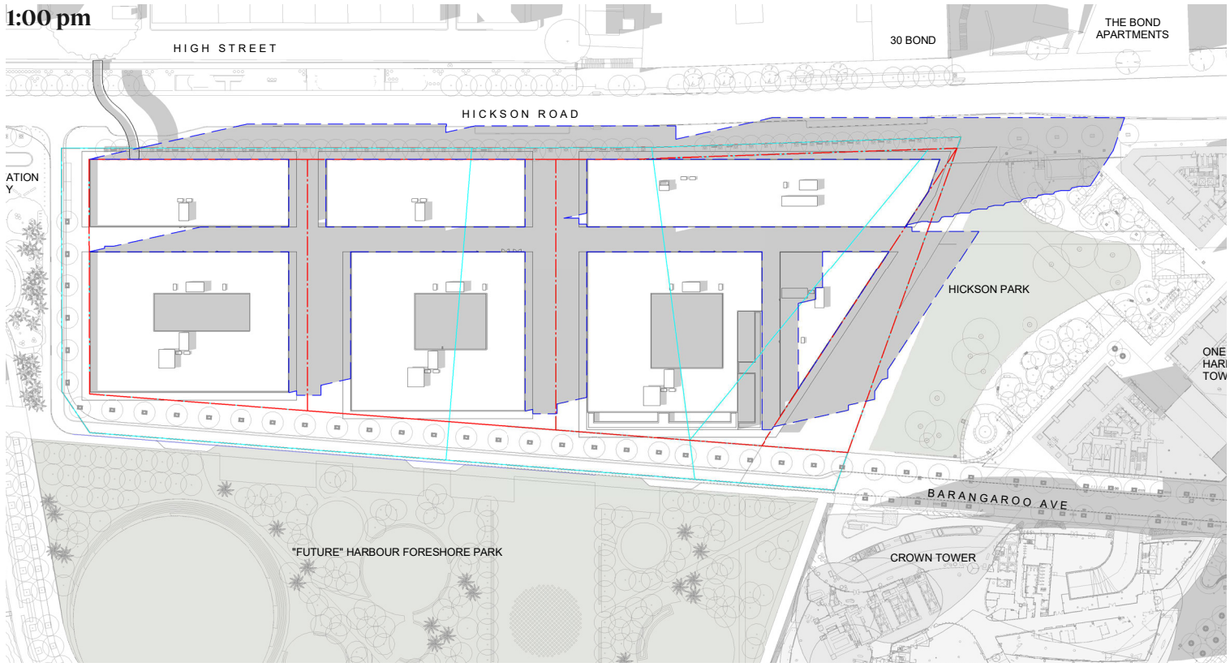




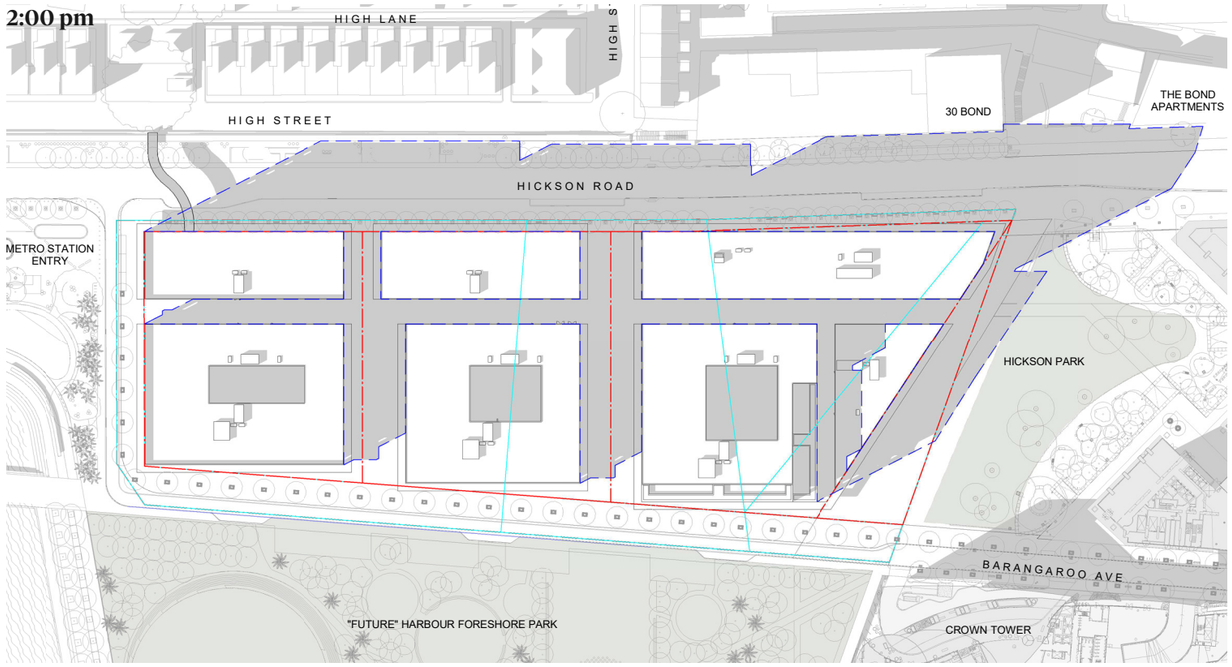


Shadow Diagrams

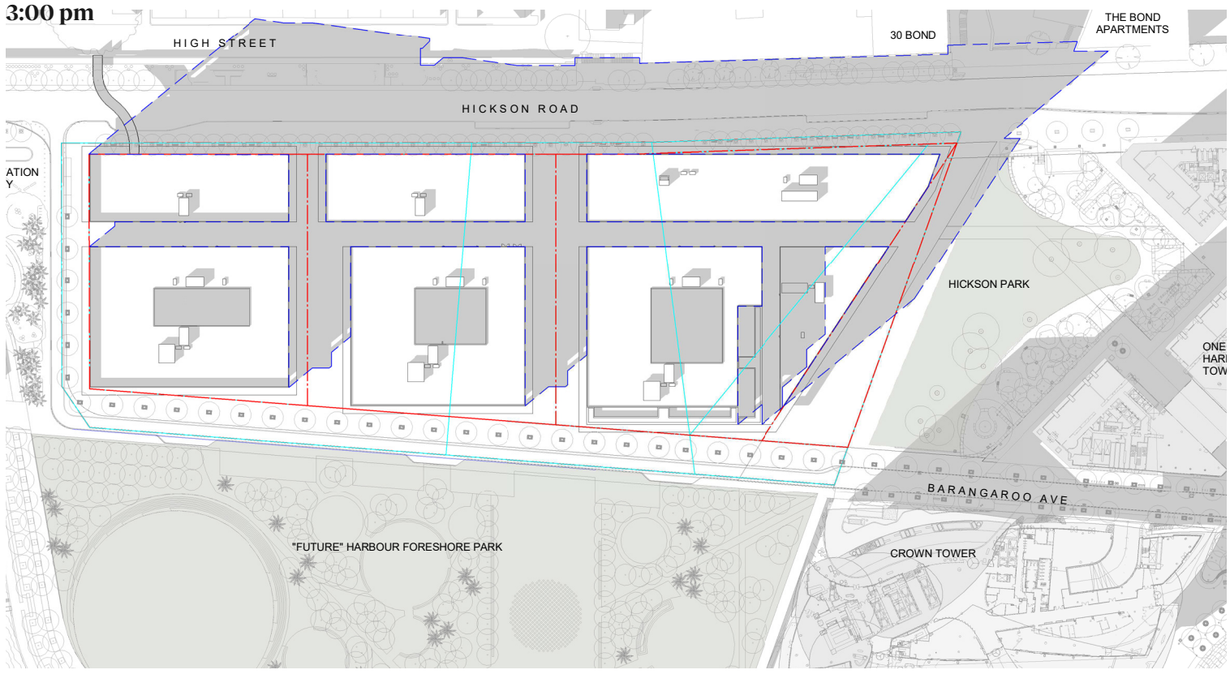
1:00 pm



2:00 pm

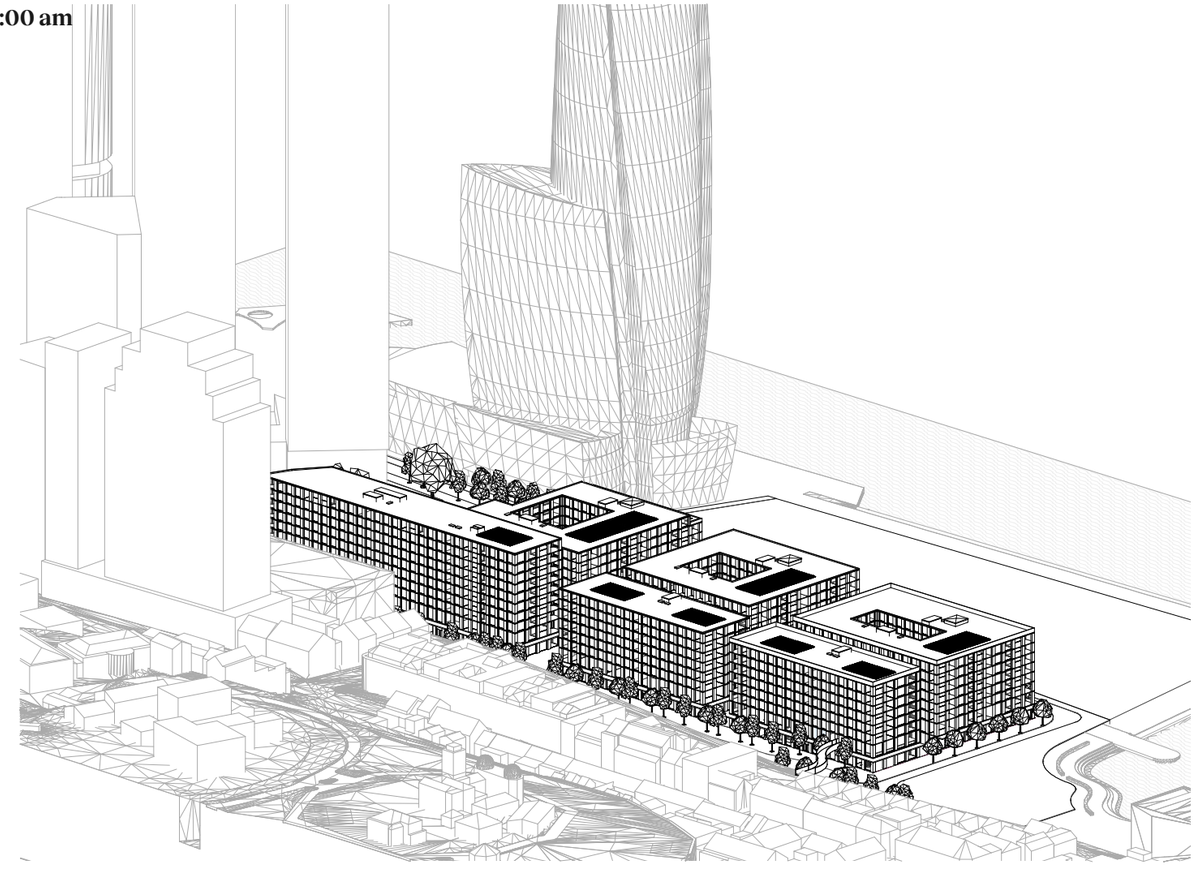


3:00 pm

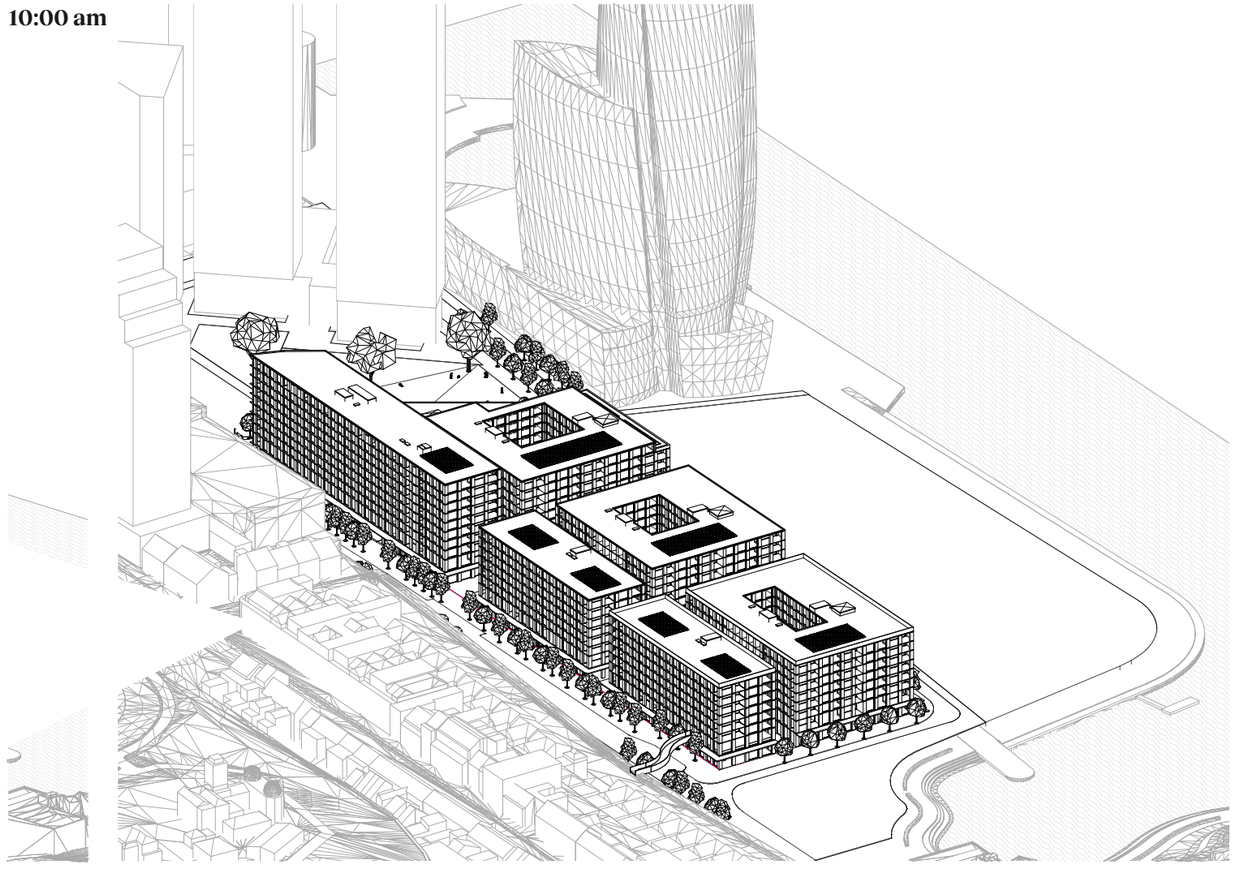


View from the Sun

09:00 am

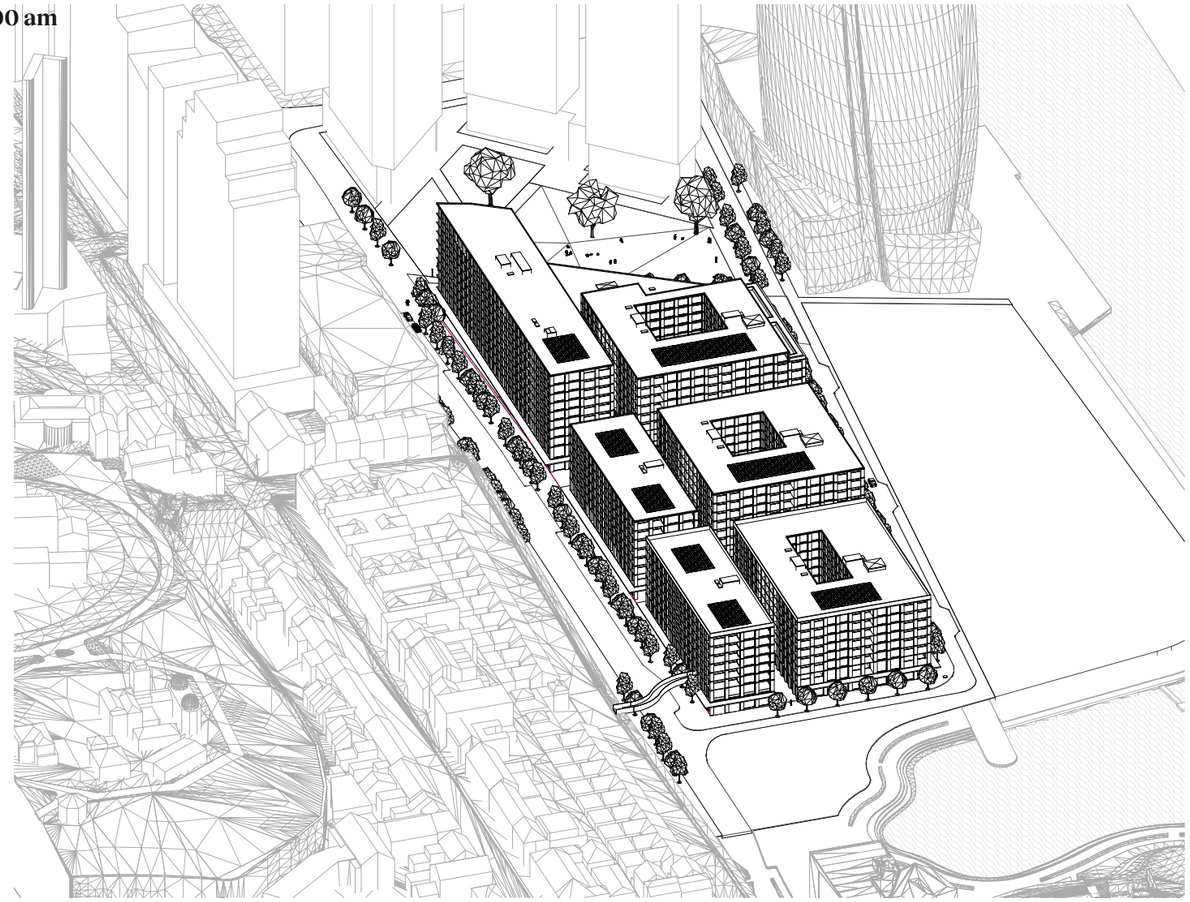


10:00 am



View from the Sun

11:00 am

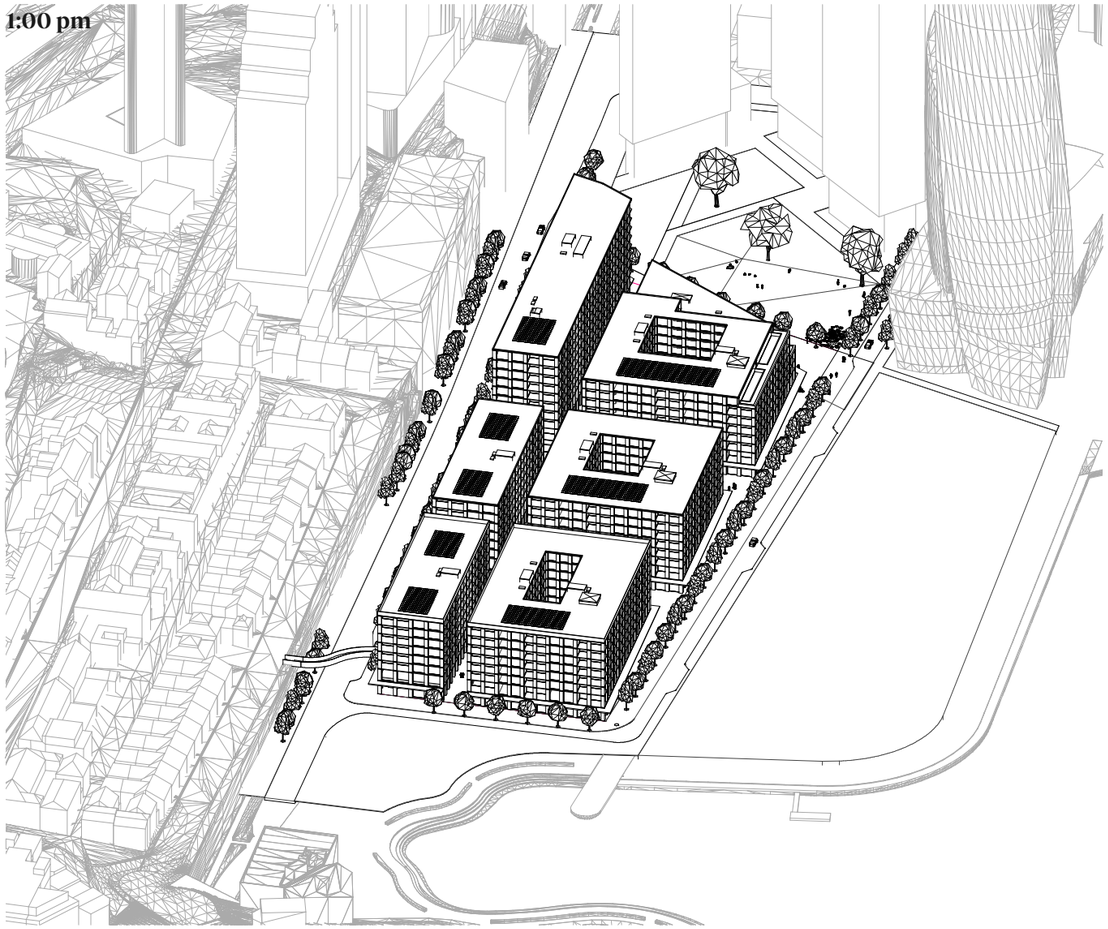


EYE OF THE SUN_11AM

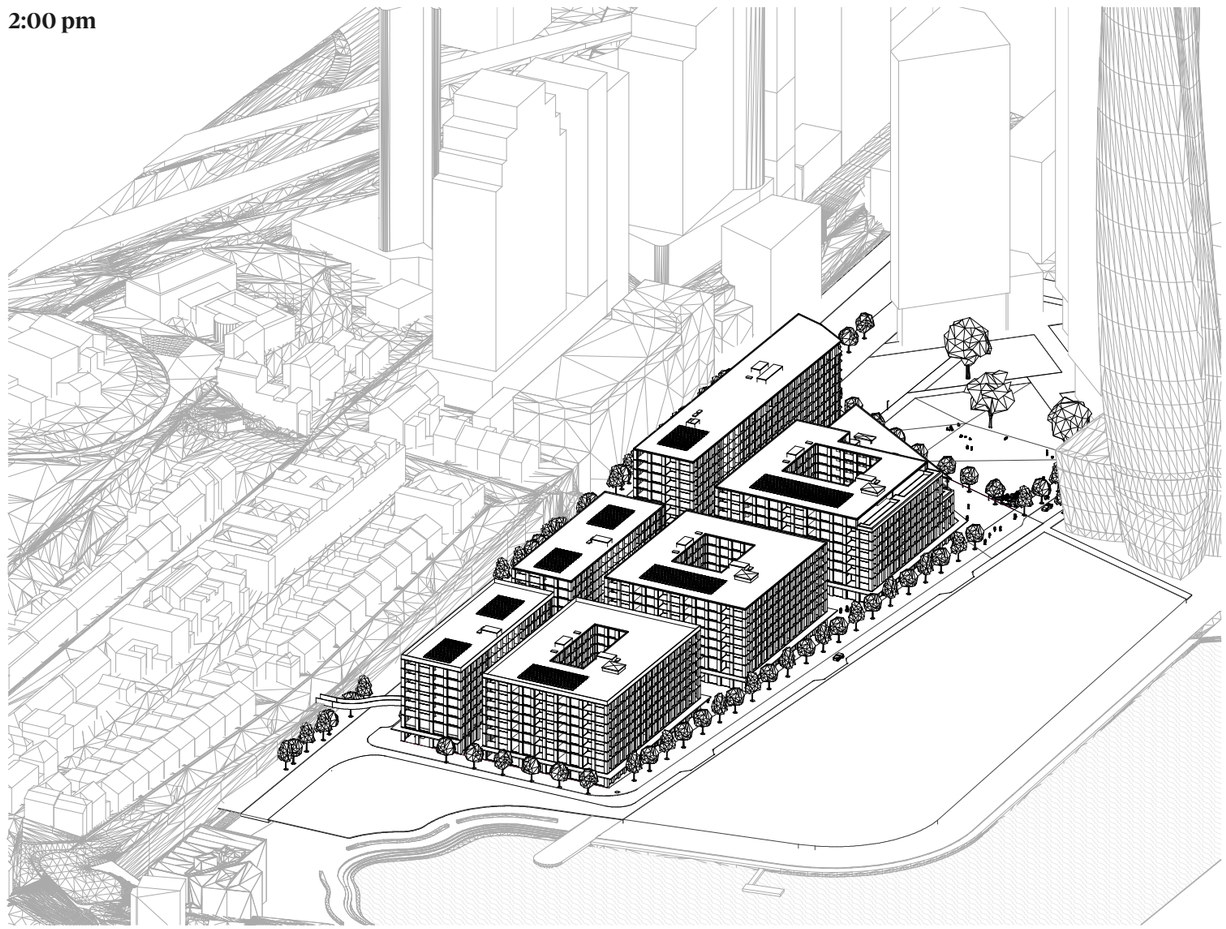
12:00 pm

View from the Sun

1:00 pm



2:00 pm

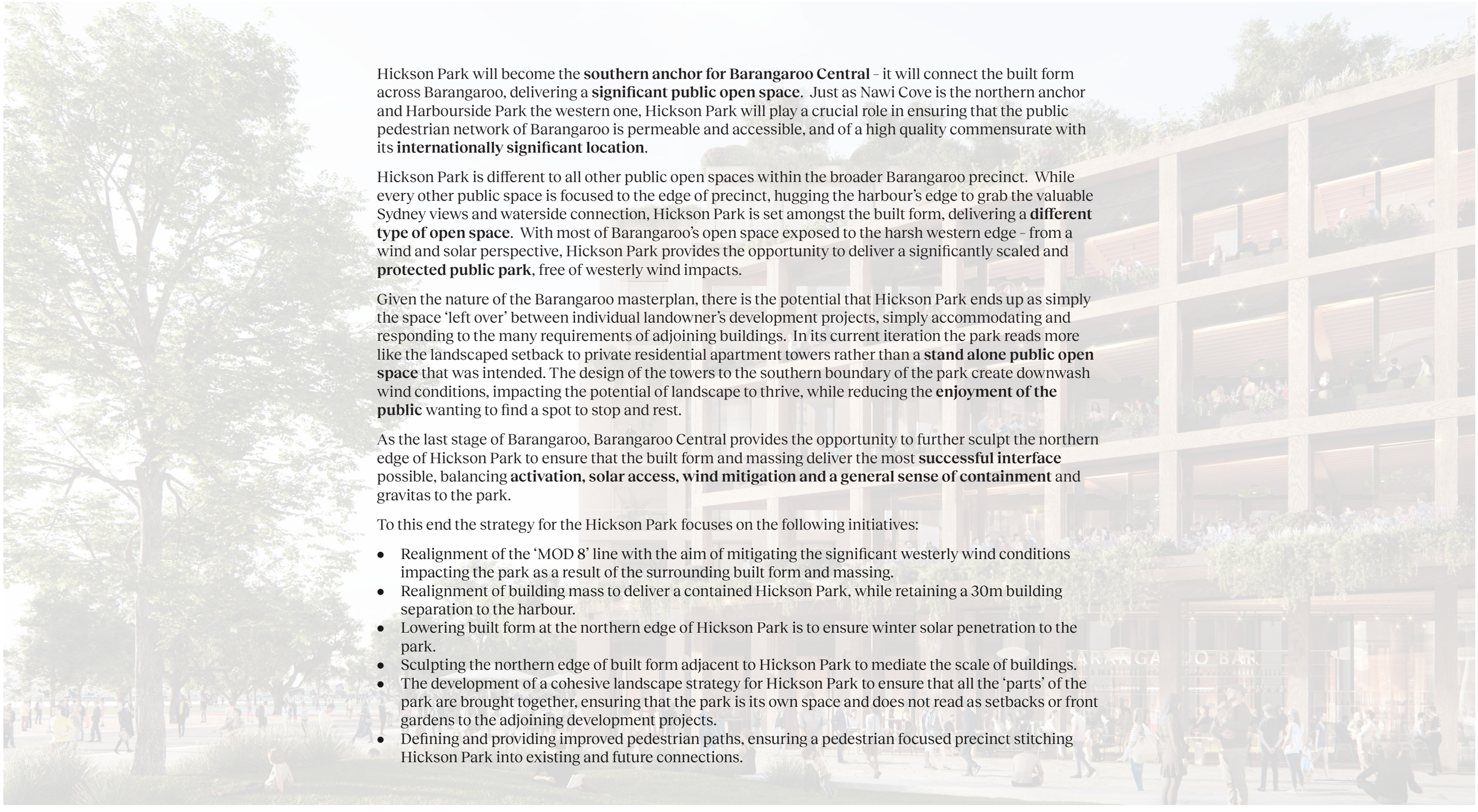


11

Appendix : Hickson Park Study

Principles & Character

Vision and Purpose



Hickson Park will become the **southern anchor for Barangaroo Central** – it will connect the built form across Barangaroo, delivering a **significant public open space**. Just as Nawi Cove is the northern anchor and Harbourside Park the western one, Hickson Park will play a crucial role in ensuring that the public pedestrian network of Barangaroo is permeable and accessible, and of a high quality commensurate with its **internationally significant location**.

Hickson Park is different to all other public open spaces within the broader Barangaroo precinct. While every other public space is focused to the edge of precinct, hugging the harbour's edge to grab the valuable Sydney views and waterside connection, Hickson Park is set amongst the built form, delivering a **different type of open space**. With most of Barangaroo's open space exposed to the harsh western edge – from a wind and solar perspective, Hickson Park provides the opportunity to deliver a significantly scaled and **protected public park**, free of westerly wind impacts.

Given the nature of the Barangaroo masterplan, there is the potential that Hickson Park ends up as simply the space 'left over' between individual landowner's development projects, simply accommodating and responding to the many requirements of adjoining buildings. In its current iteration the park reads more like the landscaped setback to private residential apartment towers rather than a **stand alone public open space** that was intended. The design of the towers to the southern boundary of the park create downwash wind conditions, impacting the potential of landscape to thrive, while reducing the **enjoyment of the public** wanting to find a spot to stop and rest.

As the last stage of Barangaroo, Barangaroo Central provides the opportunity to further sculpt the northern edge of Hickson Park to ensure that the built form and massing deliver the most **successful interface** possible, balancing **activation, solar access, wind mitigation and a general sense of containment** and gravitas to the park.

To this end the strategy for the Hickson Park focuses on the following initiatives:

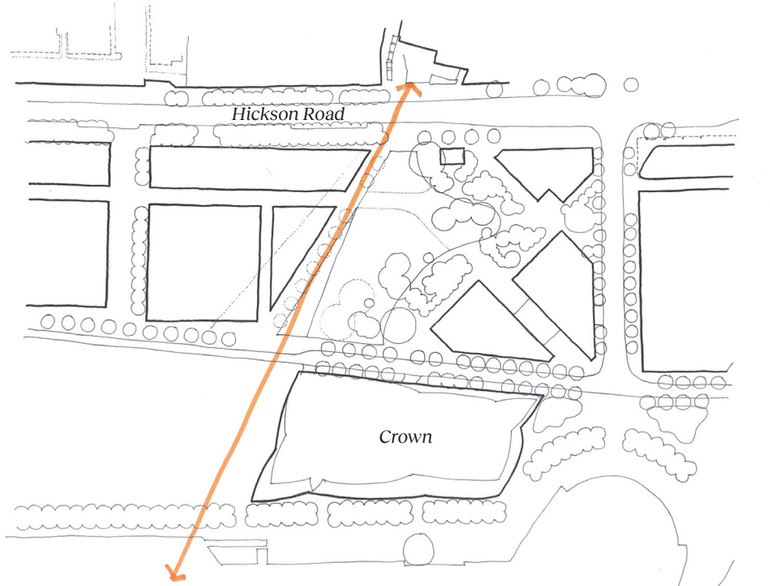
- Realignment of the 'MOD 8' line with the aim of mitigating the significant westerly wind conditions impacting the park as a result of the surrounding built form and massing.
- Realignment of building mass to deliver a contained Hickson Park, while retaining a 30m building separation to the harbour.
- Lowering built form at the northern edge of Hickson Park is to ensure winter solar penetration to the park.
- Sculpting the northern edge of built form adjacent to Hickson Park to mediate the scale of buildings.
- The development of a cohesive landscape strategy for Hickson Park to ensure that all the 'parts' of the park are brought together, ensuring that the park is its own space and does not read as setbacks or front gardens to the adjoining development projects.
- Defining and providing improved pedestrian paths, ensuring a pedestrian focused precinct stitching Hickson Park into existing and future connections.

Observations

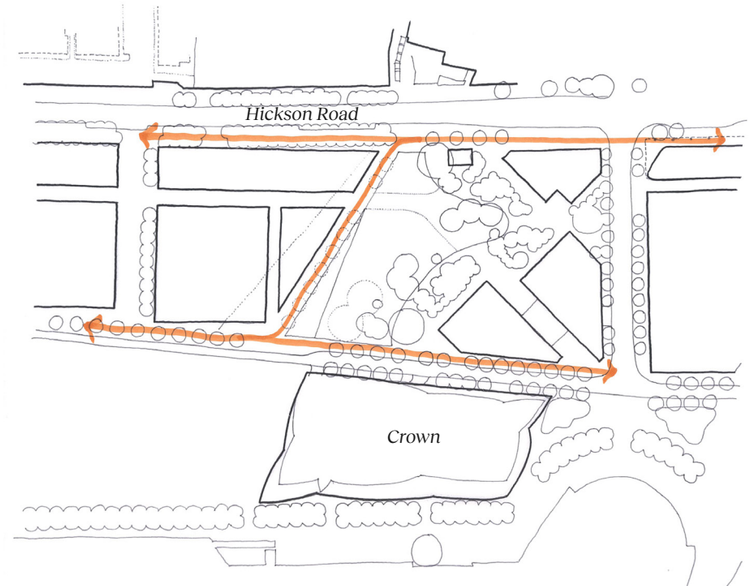
To guide the future development of Hickson Park a series of studies have been undertaken and principles established. The objective of this study is to clearly define the opportunities and constraints of the park to ensure that it becomes a loved community asset.

The adjoining diagrams are a series of observations defining the physical parameters of the park. The identification of constraints and opportunities assist in ensuring that the potential of the area is maximsied and any challenges are addressed and mitigated.

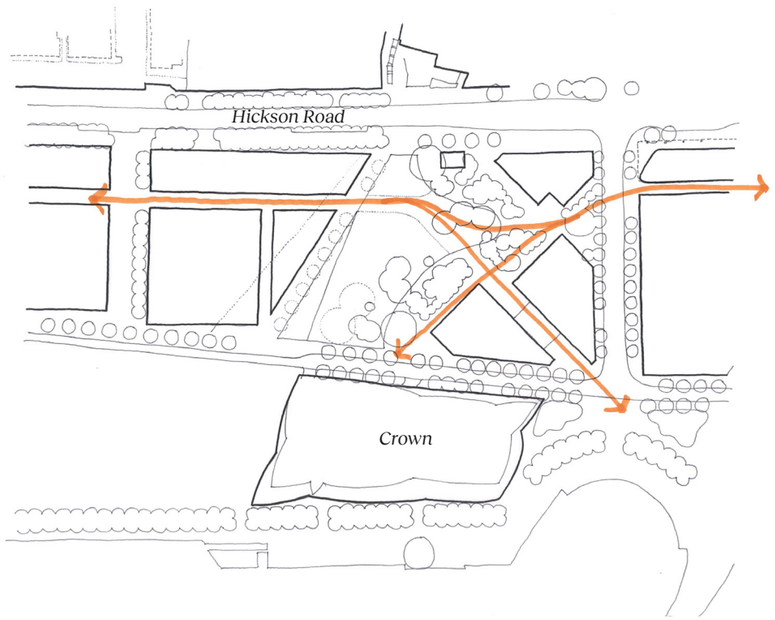
These observations establish a hierarchy of spatial conditions that need to be understood when establishing the design parameters for the park.



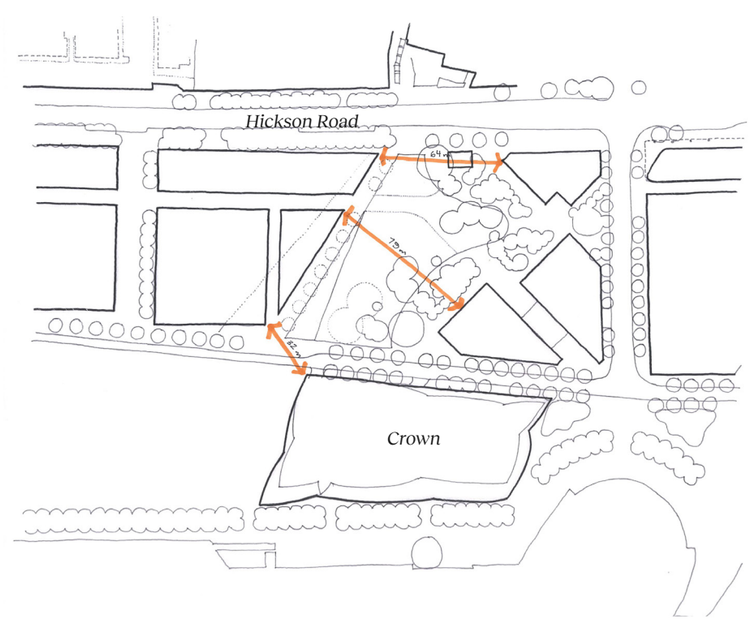
Enhanced walkability between Millers Point and the Harbour facilitated by the MOD 8 line.



Pedestrian desire lines surrounding the park, connecting Barangaroo south to the Metro and headland in the north.

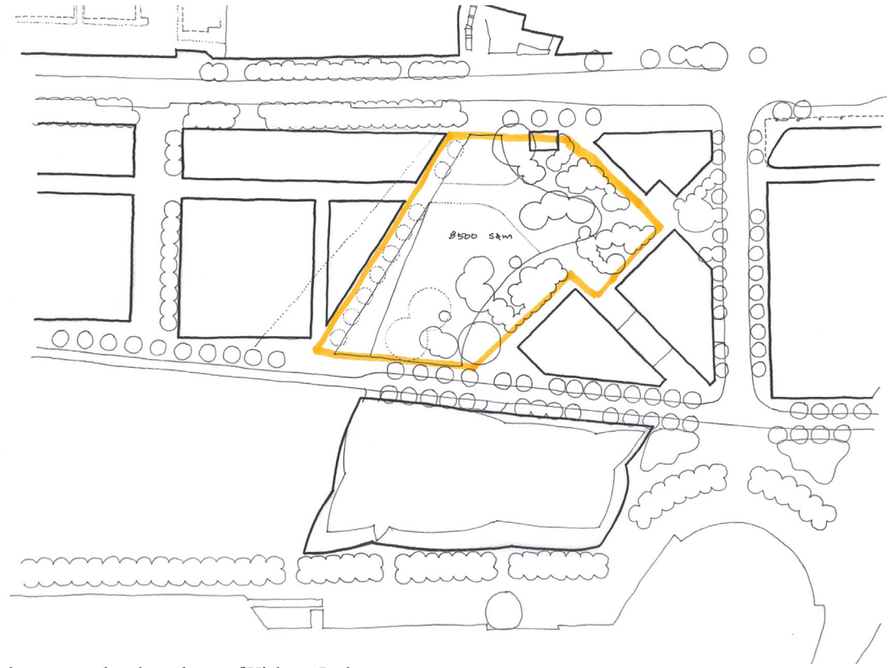


Pedestrian desire through the park, making intimate connections that result from walkways and building form established by Barangaroo south.



Establishing a clear understanding of the physical scale of Hickson Park.

Scale



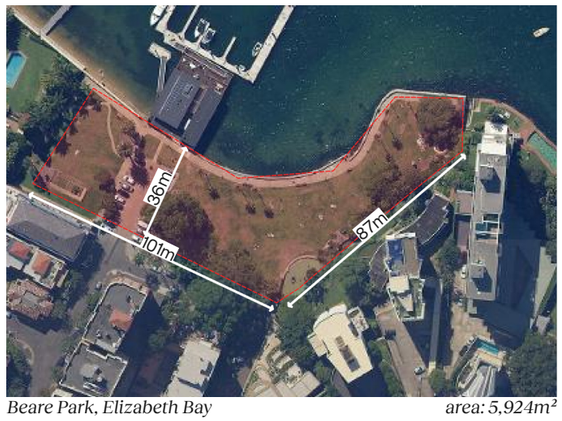
Showing the proposed scale and area of Hickson Park.

To understand the potential uses and activity levels of Hickson Park the park is benchmarked in terms of physical footprint with other Sydney parks.

The scale of Hickson Park is comparable to notable public spaces in inner Sydney, including Beare Park, Tumbalong Park, Crown Park and Eddie Ward Park, which range in scale from 4,000m² to 8,000m². With an area of approximately 8,500m², the Sydney park with the most similar footprint to the proposal is Eddie Ward Park in Surry Hills.

Images and dimensions of the parks mentioned above and other parks considered in this analysis are illustrated in the adjoining diagrams.

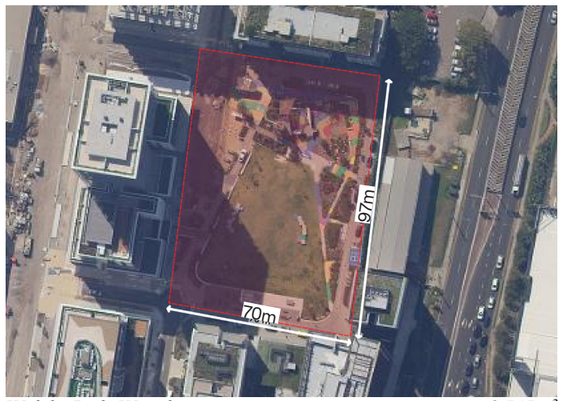
The scale of Hickson Park can achieve a quality local park. It is important to note that an open space of this size should not try to do too much, rather a simple design is more likely to result in a better outcome for the community. Importantly, Hickson Park provides a space with active edges delivering vibrancy, while also providing more quiet areas that allow people to sit and rest. Additional activities enabled by the scale of Hickson Park, includes a Young Children's Playground and Forest Walk, providing for further variety, and appealing to different user groups.



Beare Park, Elizabeth Bay *area: 5,924m²*

Tumbalong Park, Darling Harbour *area: 4,756m²*

Crown Park, Waterloo *area: 4,524m²*

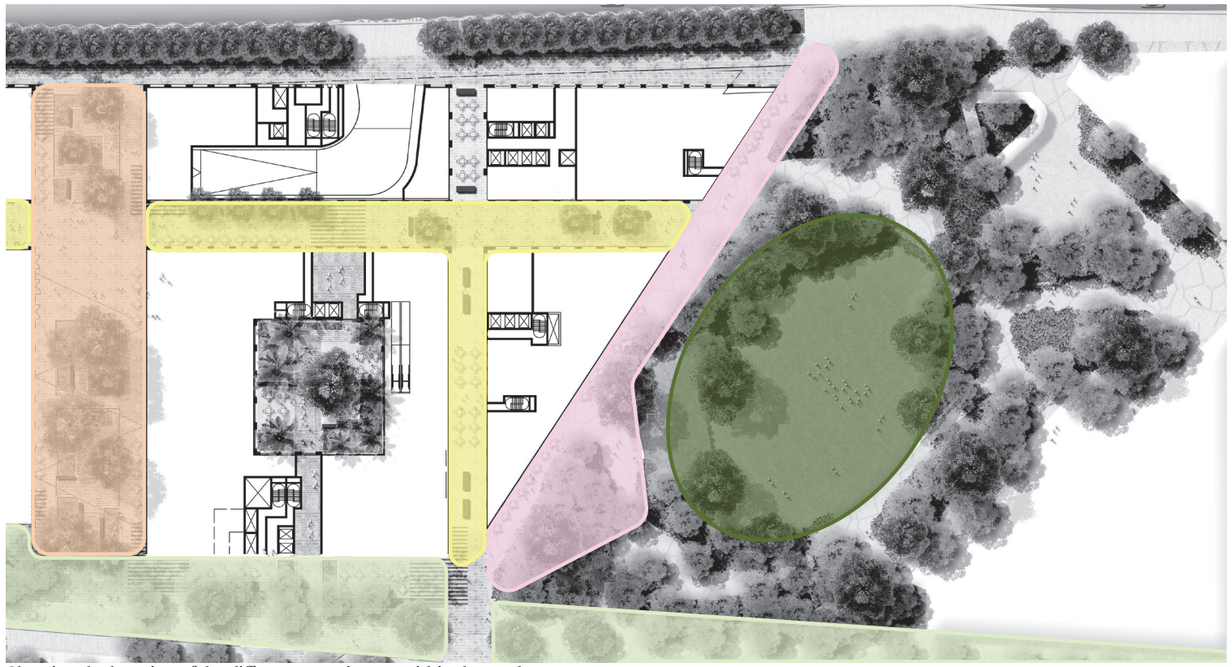


Wulaba Park, Waterloo *area: 6,545m²*

Shanon Reserve, Surry Hills *area: 2,928m²*

Eddie Ward Park, Surry Hills *area: 8,500m²*

Sequence of Experiences



Showing the location of the different experiences within the study area.

The aim of the re-envisioned Hickson Park is to provide a vibrant and welcoming experience for all users. The observations earlier discussed contribute to identifying the purpose of the individual spaces and how they collectively function to create a cohesive experience.

The individual points that contribute to achieving the desired outcome for Hickson Park are:

- Respond to the unique interfaces of the surrounding environment, including Harbour Park, Nawi Cove, Hickson Road, and the proposed arcades and laneways.
- Provide choice for different activity modes and weather conditions.
- Define a series of public spaces with clearly defined thresholds.
- Respond to an understanding of the characteristics of Country.

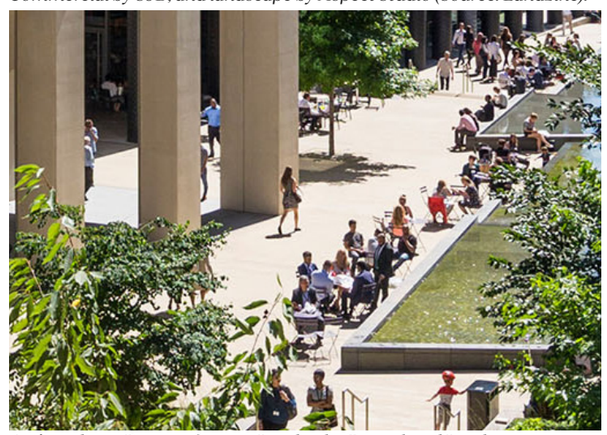
The adjoining images illustrate a range of existing public spaces that reflect ideas of what Hickson Park could deliver.

- Hickson Park Promenade
- Arcades and laneways
- Streets and plazas
- Bangaroo Avenue and Harbour Park
- Hickson Park lawn

Central green space - Darling Square, Sydney by ASPECT Studios (Source: Brett Boardman).

Adjoining arcades and connections - Quay Quarter Lanes, Sydney. Commercial by SJB, and landscape by Aspect Studio (Source: Landzine).

Hard paving to facilitate significant pedestrian movement - Banyoles Old Town, Girona by Jospeh Mias Architects (Source: Adria Goula).



Active edges - Pancras Square, London by Townshend Landscape Architects (Source: John Sturrock).

A diversity of soft landscaped spaces - Central Park Mall, Sydney (Source: Broadsheet, Central Park Mall).

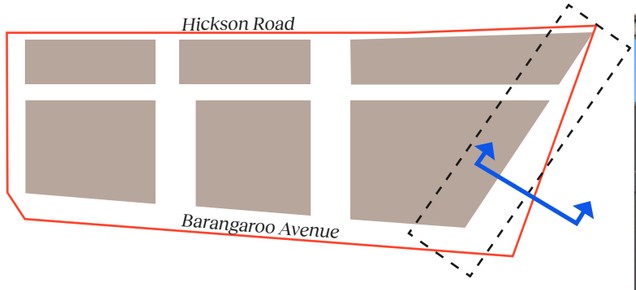
Small gatherings and performance - Royal Botanic Garden, Sydney (Source: The Garden Social).

Arrival Experience

Showing an indicative section of Hickson Park and the adjoining public realm, including parts of the built form.

Moving along the southern edge of Central Barangaroo (the northern edge of Hickson Park), the proposed built form strongly defines the park edge, establishing a hardscape to accommodate pedestrian movement together with retail and F&B activation. The placement of the hardscape directly adjacent to the buildings ensures that soft landscape set further back from the buildings will have adequate sun light to thrive. Similar to the pedestrian and food and beverage environment of Woolloomooloo Wharf, the pedestrian route from Hickson Road to Barangaroo Avenue will be activated on one edge, with significant open space to the other. This condition will create a welcoming environment for the public, visitors and the community, providing for a range of experiences:

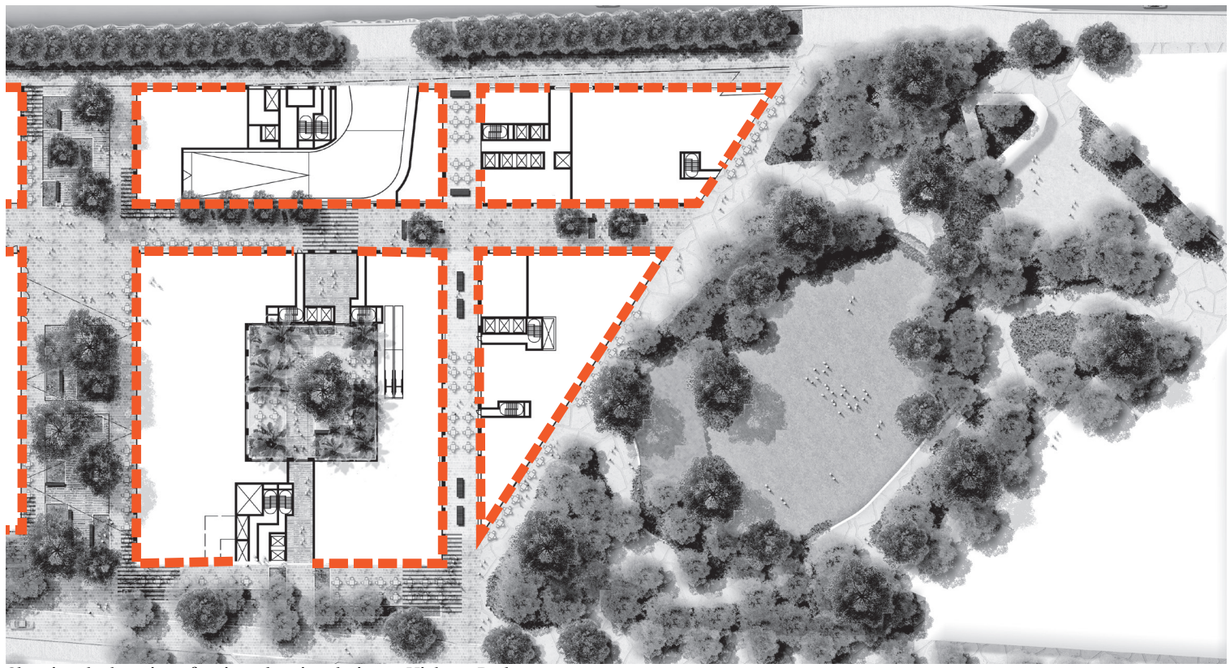
- Visibility - enabling people to have views across the green space, allowing them to understand the park, giving them the choice to linger, sit or continue their movement.
- Casual dining, particularly for families whose children are able to play in the adjoining open space.
- Quiet areas for rest and people-watching.
- Sunny and sheltered spots.



Active edges hugging the built form - Darling Square, Sydney by ASPECT Studios (Source: Brett Boardman).

A single sided food and beverage condition - Woolloomooloo Wharf, Sydney (Source: Kingsleys).

Activated Ground Plane



Showing the location of active edges in relation to Hickson Park.

Ground level interfaces across Barangaroo Central have been designed to allow retail, commercial, food and beverage, and community infrastructure activation. A realistic retail strategy is being developed to ensure that activation is distributed around the site to deliver an economically sustainable retail environment. Within this framework we understand the importance the role that park edges play in contributing to this activation.

It is the intention of the Barangaroo Central Masterplan that the built form edge opening onto Hickson Park will accommodate a vibrant retail, commercial, food and beverage, and hotel environment directly connected to the parkland setting.

Active edge

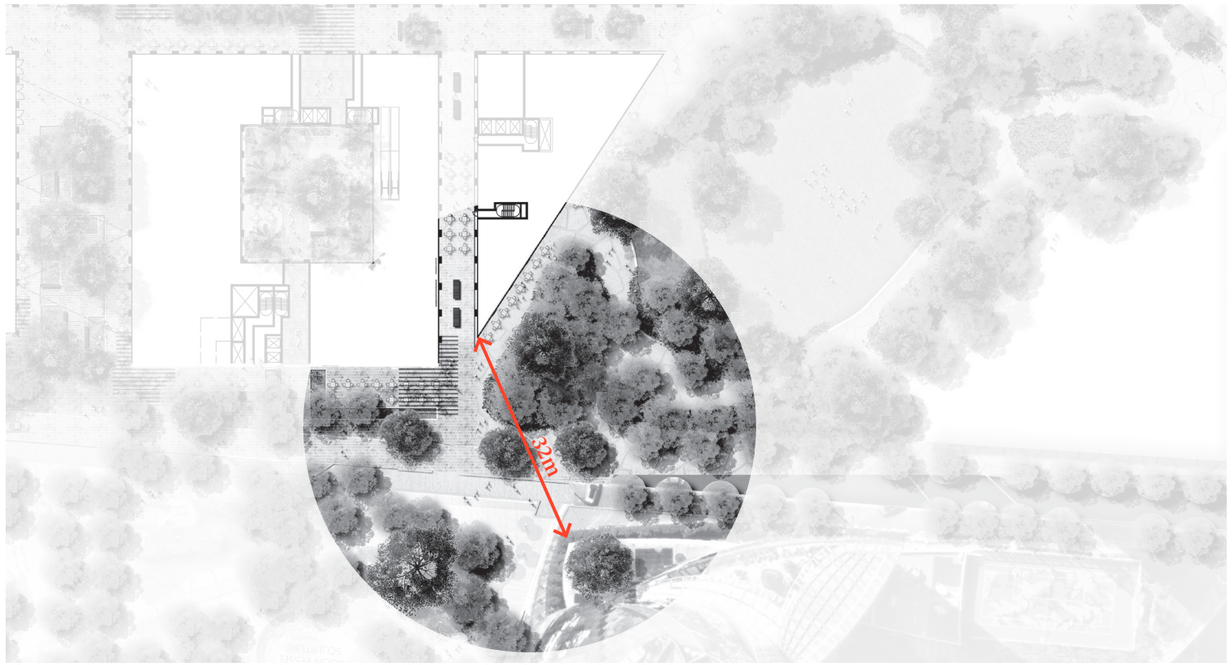
Adaptable protection for outdoor dining - Woolloomooloo Wharf, Sydney (Source: Kingsleys).

Building edges that react to activation - Nino Market, Barcelona by Mateo Arquitectura (Source: Adria Goula).

Pockets of space that provide protection - Quay Quarter Lanes, Sydney. Commercial by SJB, and landscape by Aspect Studio (Source: Landzine).

Fixed awnings that allow outdoor dining - St Margarets, Sydney by SJB (Source: SJB)

Urban Threshold

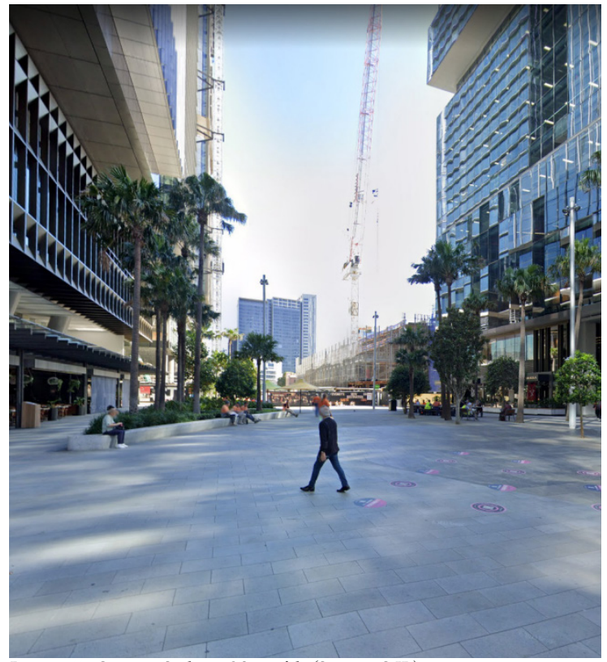


Showing the proposed seperation between the buildings at the edge of Hickson Park.

The realignment of the MOD 8 line achieves a number of outcomes to improve the public domain and pedestrian environment. In particular the slight reduction to the threshold between the south western corner of Barangaroo Central and Crown Sydney has been developed to reduce the impact of westerly wind conditions exacerbated by the built form of the Crown tower and podium. Importantly the threshold separation at this interface remains significant, measuring 32m, and is equal to the width of Martin Place and similar to Paramatta Square.

The built form threshold of 32m between Barangaroo Central and Crown will deliver a well defined urban environment for Hickson Park, ensuring that at completion it will have a unique sense of place when considered within the broader Barangaroo open spaces.

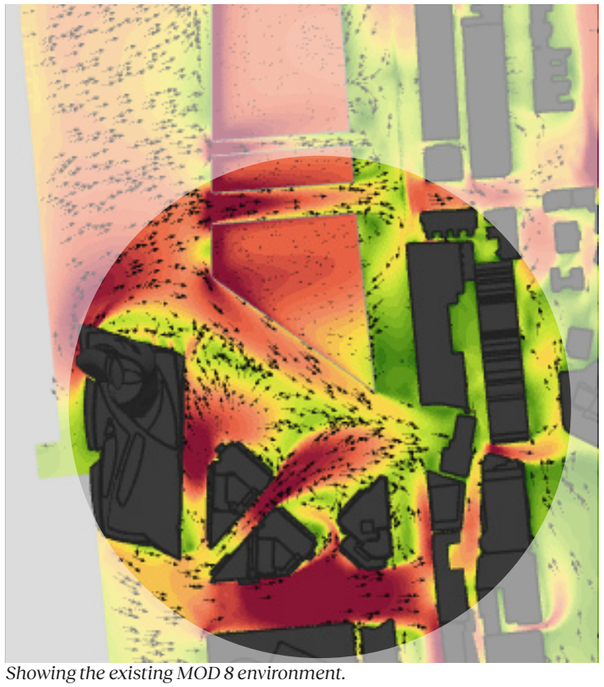
Martin Place, Sydney: 32m wide (Source: Hannah McCowatt).



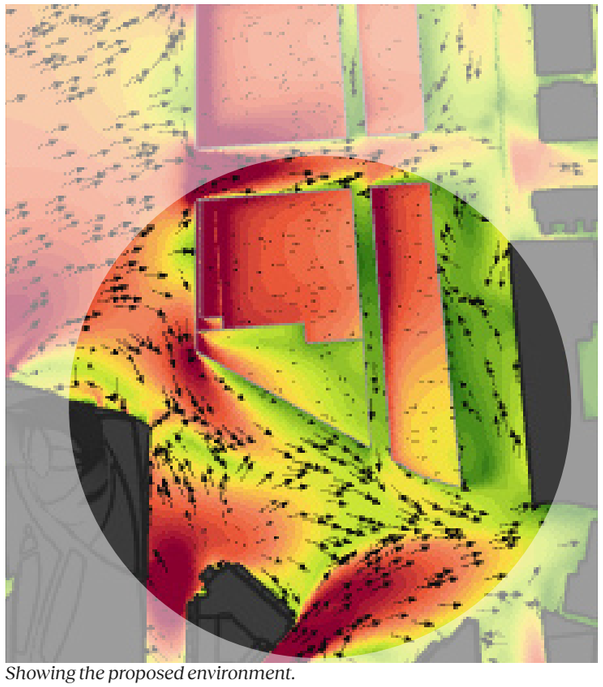
Paramatta Square, Sydney: 30m wide (Source: SJB).

Built form massing, showing the threshold between the Crown building and Barangaroo Central.

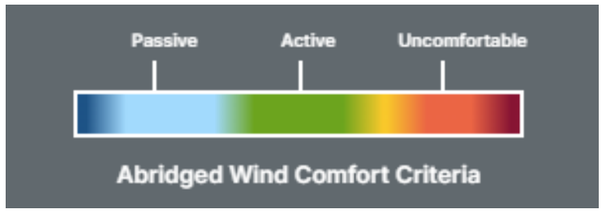
Reduced Wind Impact



Showing the existing MOD 8 environment.



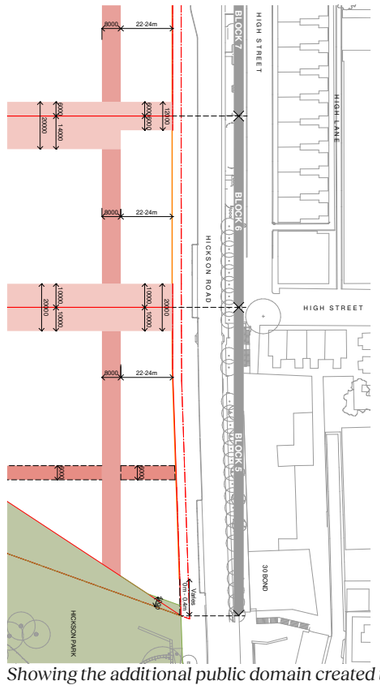
Showing the proposed environment.



The slight realignment to the MOD 8 line ensures a more pedestrian friendly ground level condition when considering the westerly wind condition.

When compared to the existing MOD 8 alignment, the revision of Hickson Park delivers an improved pedestrian environment, allowing greater enjoyment and activation of the space.

Conclusion/Overall Justification



Showing the additional public domain created through the reconfiguration and new design of Hickson Park.

The new configuration and proposed design of Hickson Park and adjoining spaces increases the total area available for movement and activity across the precinct. This additional public domain will provide for regular social encounters, contributing to a sense of community and neighborhood identity, while creating a strong sense of place and character.

The different dimensions and scales of the public domain in the form of plazas, laneways, arcades, promenades and avenues create opportunities for diverse uses and cater for people's varying needs and demands.

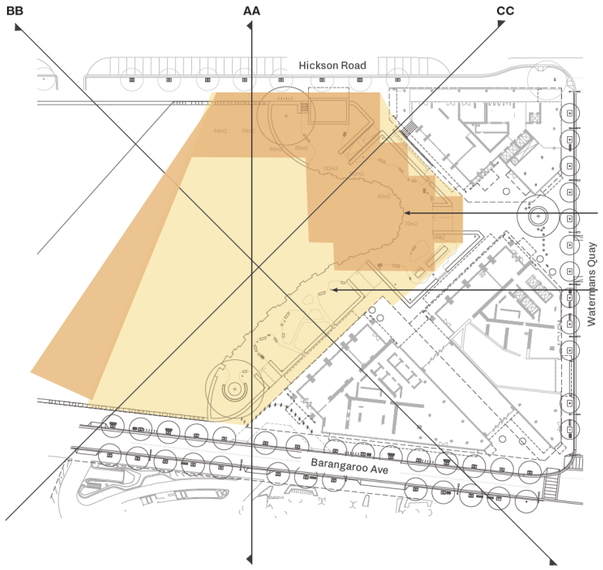
The southern interface with Hickson Park plays an important role in the provision of the public realm as it provides both active and passive spaces that will strongly influence how the spaces are used. More than a third of the park's interface consists of built edges which can accommodate a range of activities and create points of interest for the neighborhood. Accommodating spaces for relaxation, social gathering, outdoor dining and recreation will offer greater amenity and provide passive surveillance, thus also enhancing public safety around Hickson Park and the surrounding neighbourhood.

+1,264m²
additional public domain

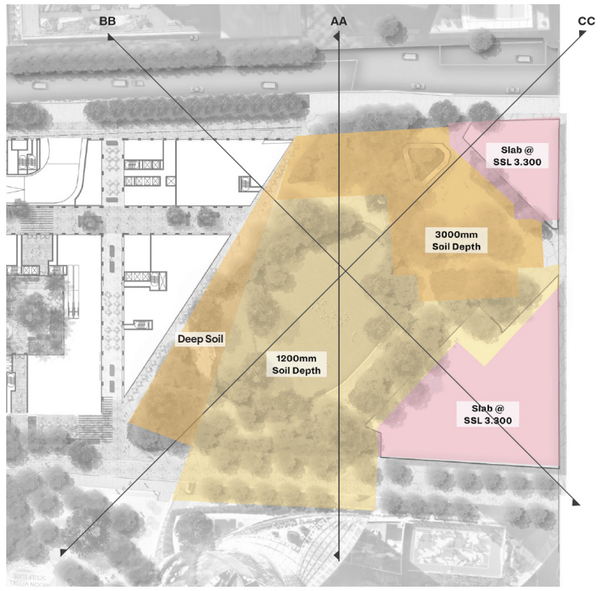
Indicative Landscape Design

Indicative Schematic Design

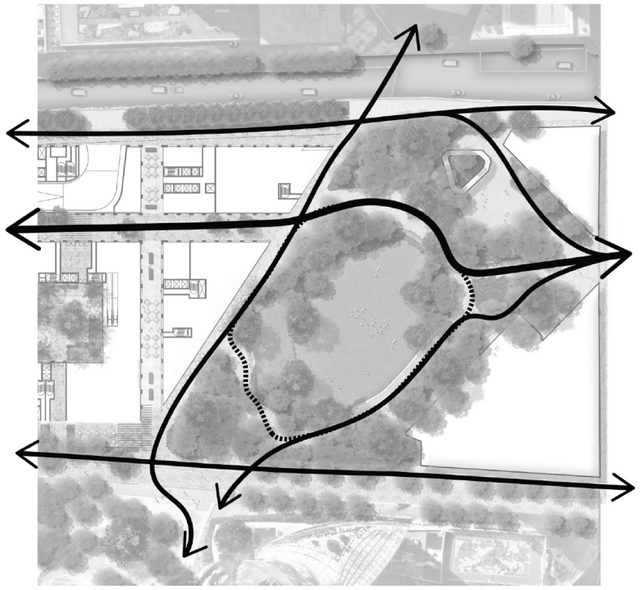
The adjoining diagrams provide an overview of the proposed elements that will contribute to Hickson Park becoming a popular destination and successful place within Central Barangaroo.



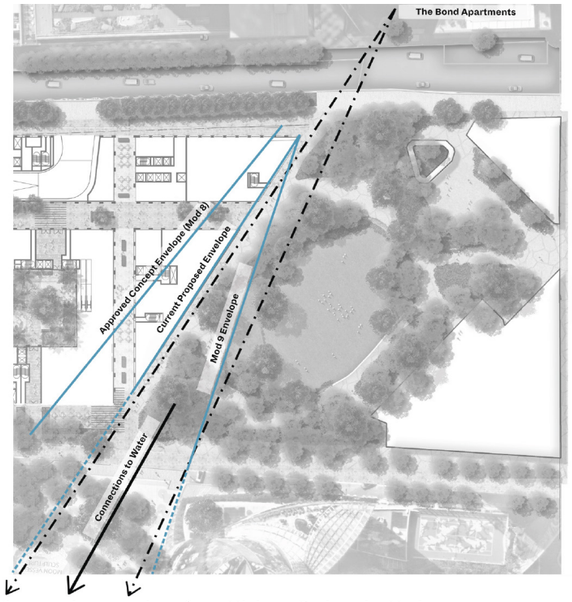
Deep soil layout.
3,000mm Deep soil area (2,640m²)
1,200mm Soil area



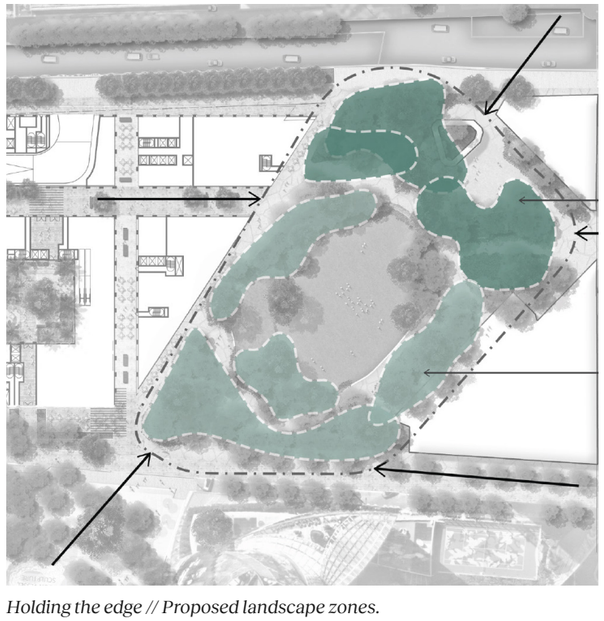
Depth of soil zones - indicative Hickson Park overlay.



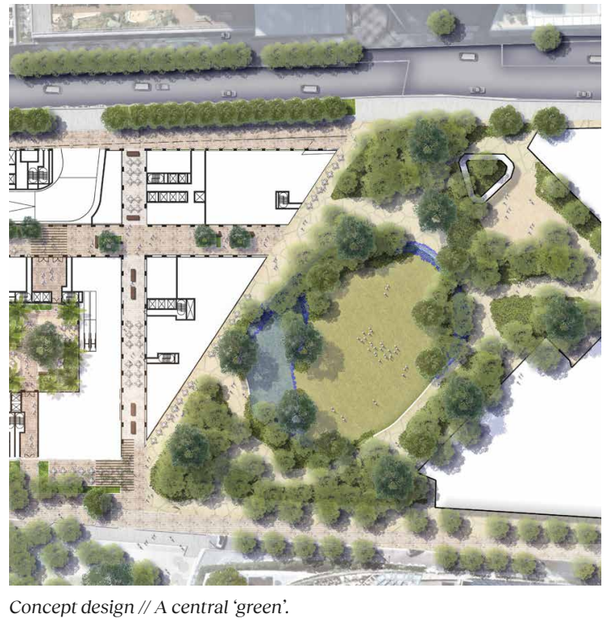
Pedestrian circulation of Hickson Park.



Views and connections from Hickson Park to the Harbour.



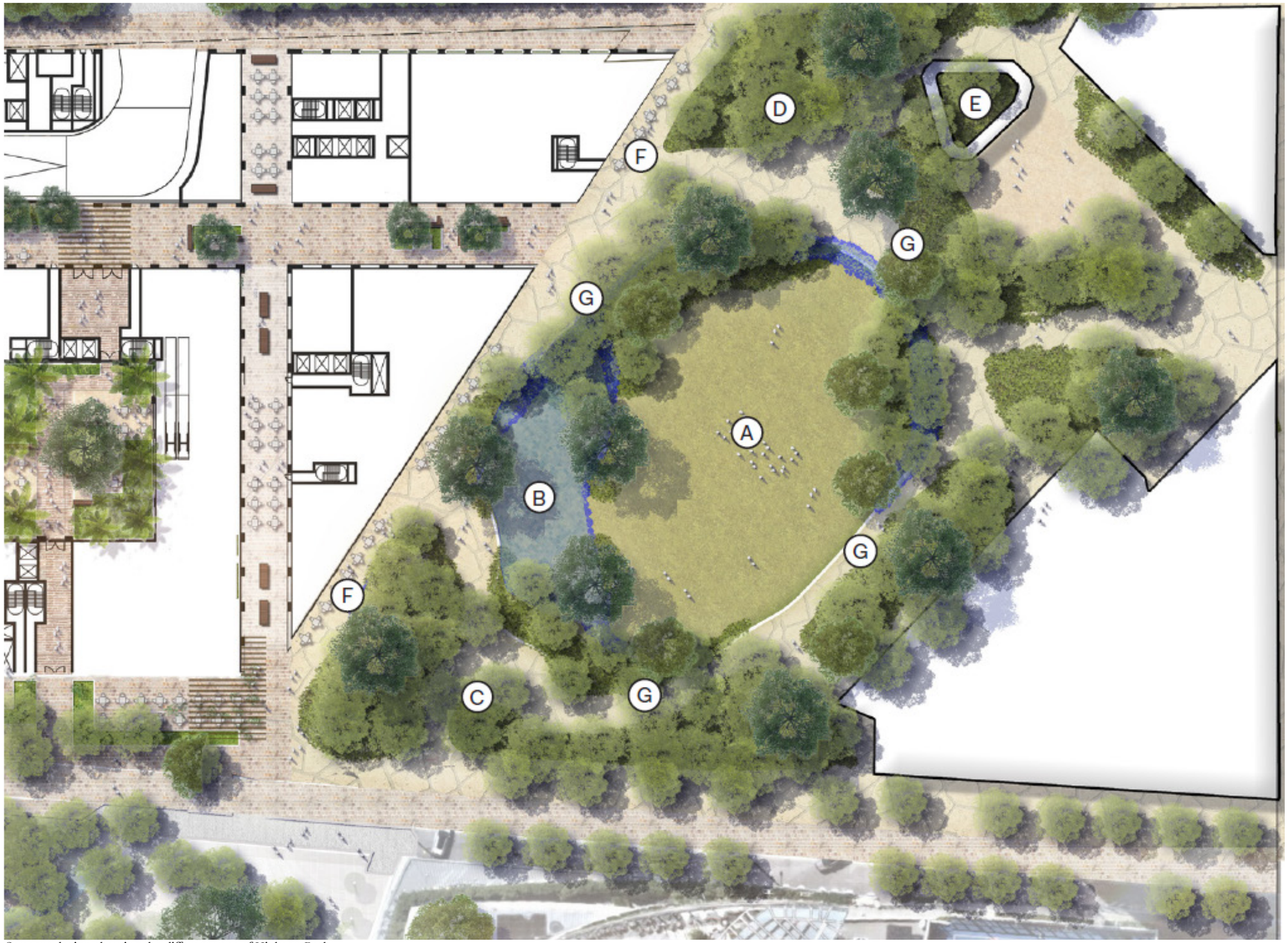
Holding the edge // Proposed landscape zones.
Heavy vegetation (trees & understorey)
Tree scattering (specific species & understorey)



Concept design // A central 'green'.

Indicative Concept Design

The adjoining plan provides a more detailed overview of the potential design of Hickson Park. The different uses ensure a diverse space is created that appeals to people of different ages and needs, while contributing to the amenity of the surrounding environment.



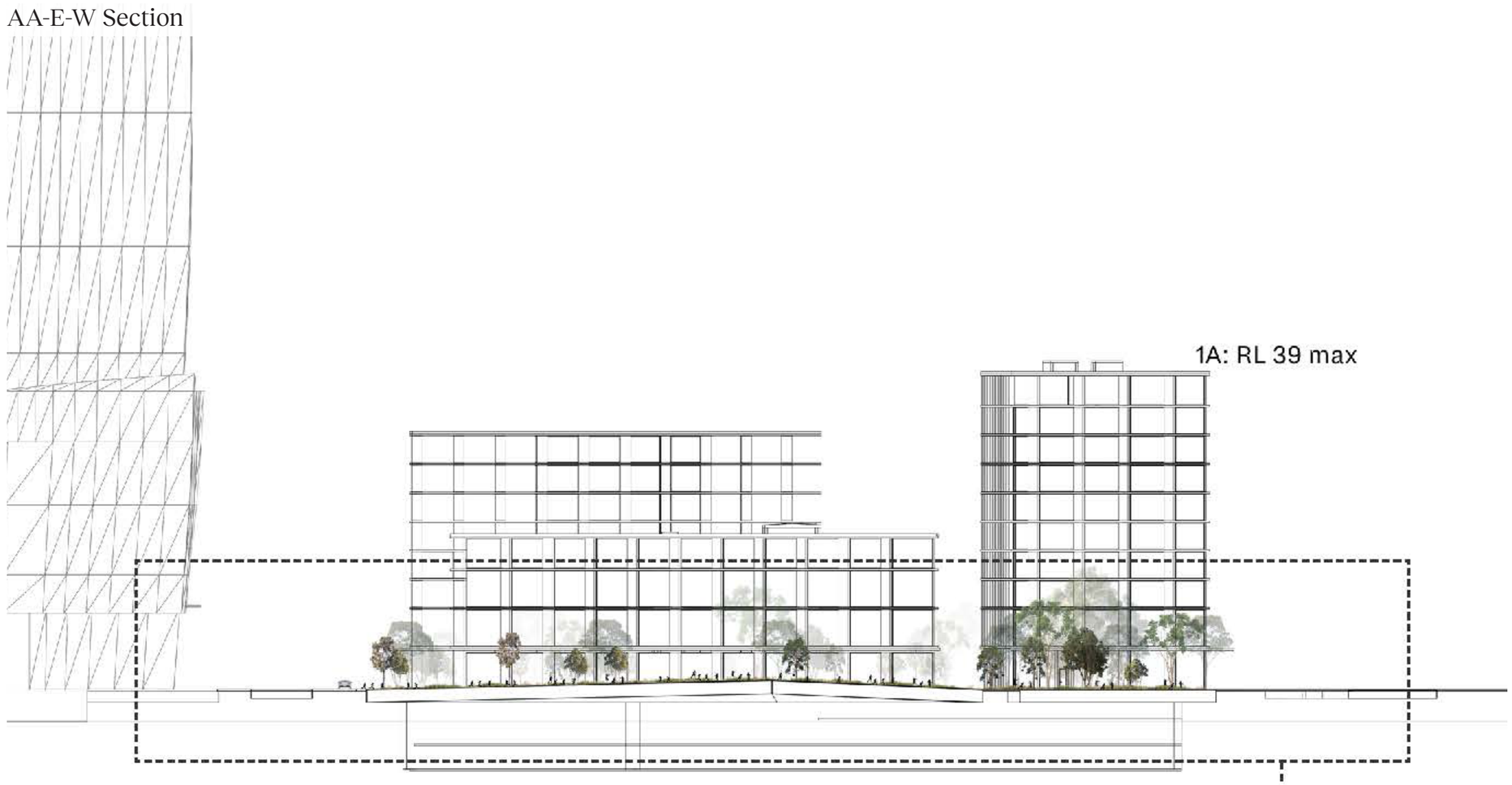
Concept design showing the different uses of Hickson Park.

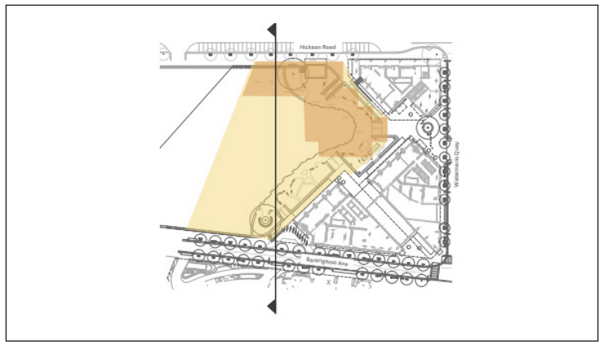
Ⓐ Central Open Lawn
Ⓑ Dry Creek Bed/Ephemeral Water Feature
Ⓒ Young Children's Playground
Ⓓ Forest Walk
Ⓔ Existing Amenities Block
Ⓕ Central Bangaroo Promenade
Ⓖ Main Circulation Loop

Indicative Schematic Section AA

The following sections illustrate how Hicksons Park will sit within the built form, creating a breathing space that fabricates a comfortable experience in the public domain while contributing to an enhanced internal experience of the built form at the same time.

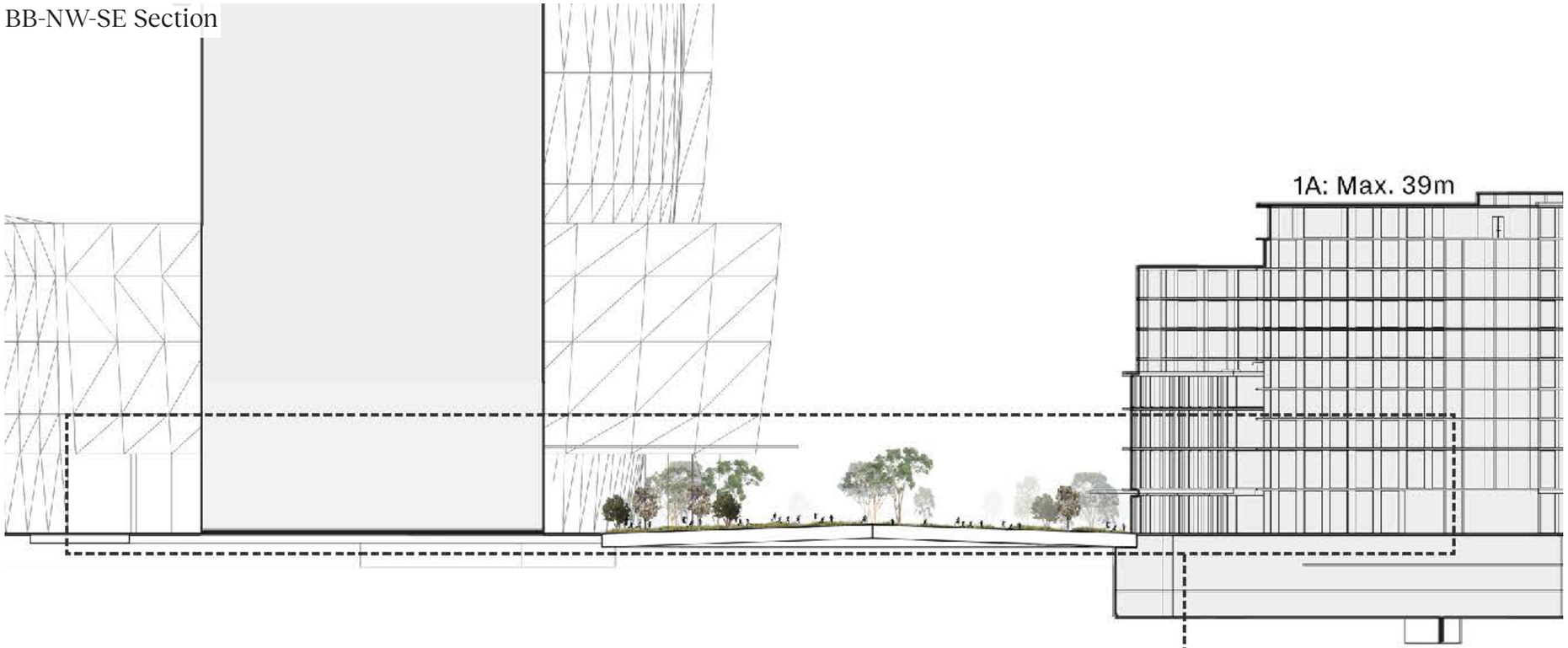
AA-E-W Section

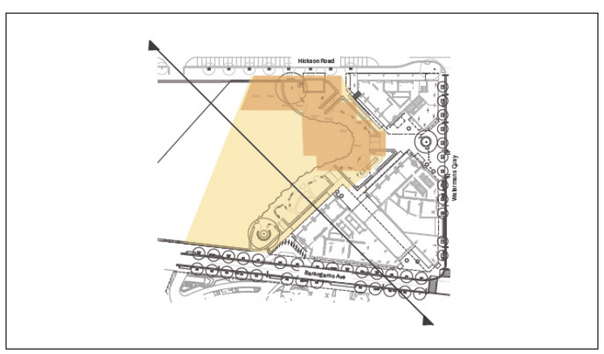


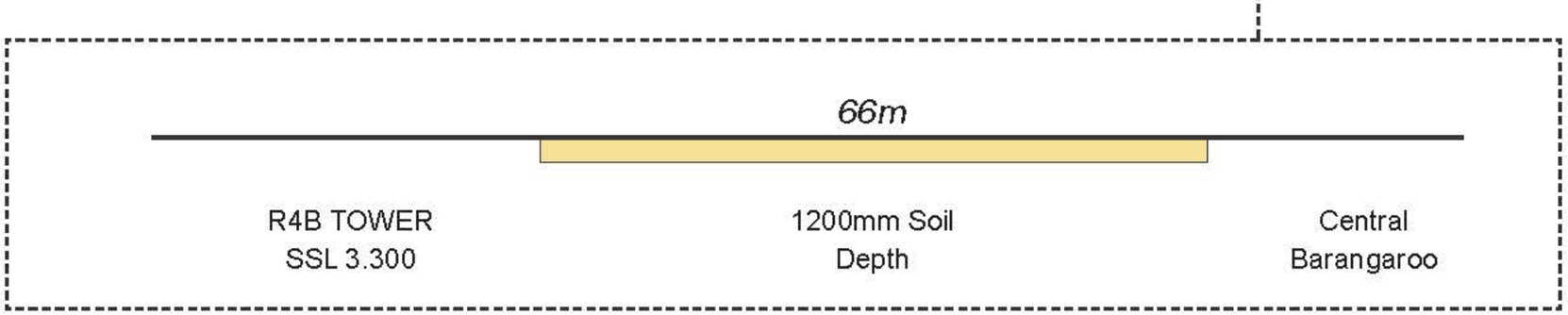


Indicative Schematic Section BB

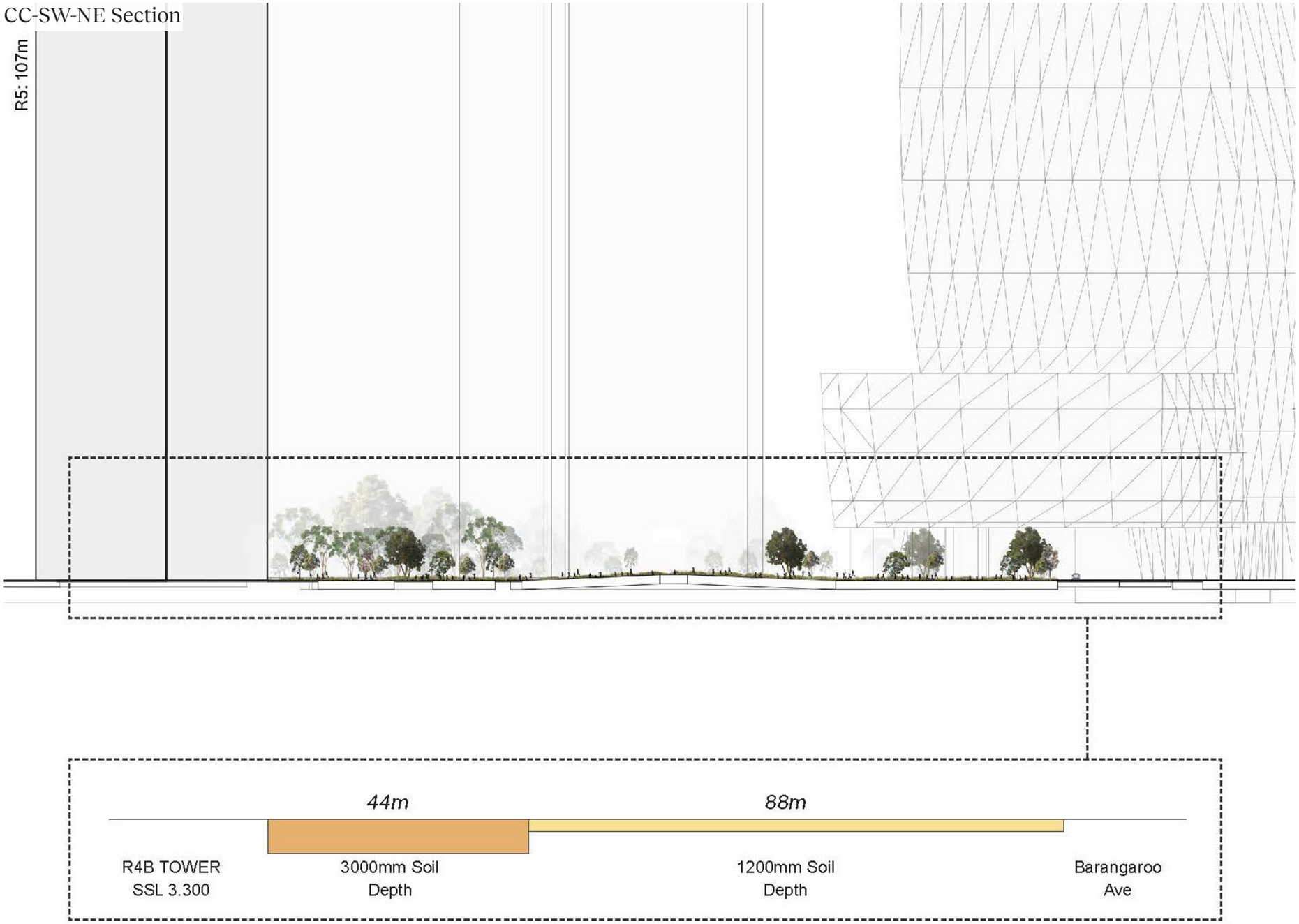
BB-NW-SE Section

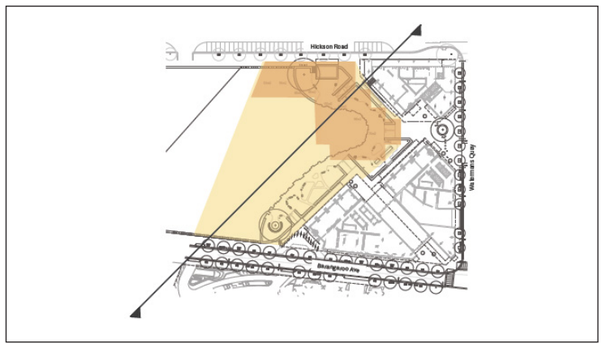






Indicative Schematic Section CC





SJB is passionate about the possibilities of architecture, interiors, urban design and planning. Let's collaborate.

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