

New Sydney Fish Market

SSD-DA 8924 : Stage 1 Concept Proposal Design Report



Contents

0.0 Executive Summary	4
1.0 Design Excellence	6
2.0 Built Form & Urban Design Analysis	
2.1 Blackwattle Bay - Existing Character	12
2.2 Blackwattle Bay - Desired Future Character	33
2.3 Design Strategy	39
2.4 Building Design	49
2.5 Vehicular Flow	54
2.6 Key Access & Arrival Points	56
2.7 Sustainability	60
Waste	63
Life Cycle	66
Transport	72
3.0 Public Domain & Public Access	76
4.0 Amenity	
Solar Access Analysis & Shadow Diagrams	86

0.0 Executive Summary

The harbour is synonymous with Sydney. It is, perhaps, the city's most recognisable and beautiful feature. The harbour's edge is dotted with landmarks that showcase its rare beauty and reinforce its relevance around the world – Sydney Opera House, Sydney Harbour Bridge, Woolloomooloo, Jones Bay Wharf, and Darling Harbour. As a continuation of iconic destinations connected by the uninterrupted promenade along the water's edge, the new Sydney Fish Market will take its place at the head of Blackwattle Bay.

The existing Fish Market, currently housed in a series of old warehouses and post-industrial buildings, is one of the most significant communities and tourist destinations in the city. 3XN has approached this project with the specific goal of creating a fish market that is much more than just a fish market. The building will serve many purposes when it is finished - a working fish market, an amenity for the city, a cultural destination, an urban connector, and an inspiring icon along the legendary Sydney waterfront.

In designing this project, 3XN was inspired by the traditional market archetype, which appears throughout history and across cultures. The market is the social hub of cities around the world; it is generally comprised of a series of stalls that are open to the air but covered in a canopy and located in a large plaza. The new site of the new Sydney Fish Market is a 1.9-hectare site at the head of Blackwattle Bay. The design capitalizes on the opportunity to link the bay with Wentworth Park to the south, and the entire community with this cultural icon.

As a significant community and tourist destination, the new Sydney Fish Market will facilitate interaction by combining a vast amount of public space with an authentic market. As an operating seaport and wholesale market, the new Sydney Fish Market must support these functions in an uninterrupted way. The new Sydney Fish Market goes beyond its immediate role of the sale and distribution of fish, and provides an array of varied experiences that enable change and responsiveness to the future, creating a destination that is an integral part of the city fabric.

The existing Fish Market has a conflict of functions. Like all other fish markets in the world, visitors come to try to get a sense of the behind the scenes activities, but this interrupts the daily business. In response, some markets have had to limit visitors. For this building, 3XN has physically separated the operational aspects from the recreational ones, while allowing visual connections between the two. In the new building, the ground floor hosts all the functions traditionally associated with fish markets – the landing and loading of fish, the wholesale market, and the auction hall.

The staircases that lead from the plaza to the upper ground level are a continuation of the surrounding landscape and act as an invitation for people to enter the market. The landscape stairs also double as seating, creating a public space where people can enjoy their food and the view over the bay.

The upper ground houses fresh seafood retailers, restaurants and cafés. The design focuses on maintaining a human scale and create a true market atmosphere – just like historic marketplaces or bazaars with a series of small stalls that are connected. The aim is to create an intimate market atmosphere.

A sweeping timber and aluminium roof floats over the building like a canopy; it ties all the various program elements together in one elegant move, while giving the building an iconic presence along the harbour. The wavy structure is a response to the underlying functions; it rises and falls to correspond with the program below. Beyond design, the roof has five primary efficiency and sustainability attributes: shading, daylighting, ventilation, collection of rainwater, and the potential production of solar energy. The roof's triangular openings allow abundant natural light into the building, while their orientation shades the building from the harshest sun. The market has been designed to be as permeable as possible to maximise natural ventilation and minimise the need for air conditioning. The design intends to utilize the roof's geometry for potential energy production by incorporating photovoltaic cells, as well as rainwater collection and recycling.

The new Sydney Fish Market aims to be more than a fish market and will be a gathering place for Sydneysiders and visitors alike.

0.0 Executive Summary

This Design Excellence Design Report addresses requirements outlined in the SEARs. A summary of the issues addressed can be found on the following table.

SSD8924 SEARs REQUIREMENTS	REFERENCE
<p>3. Design excellence</p> <ul style="list-style-type: none"> A design excellence strategy is to be provided which has been prepared in consultation with the NSW Government Architect and the City of Sydney, demonstrating how the Stage 2 proposal will achieve design excellence. 	<p>p6 - 8 3XN's methodology and process outlined</p>
<p>4. Built form and urban design</p> <ul style="list-style-type: none"> Provide an outline of the design process leading to the proposal, including justification of the suitability of the site for the proposed building envelope. Provide an urban design analysis of the proposed development with reference to the building envelope, height, setbacks, bulk and scale in the context of the immediate locality, the wider area, and the desired future character, including development options for the remainder of the BMD. Include justification for the height, bulk and scale of the proposed building envelope within the context of the locality, its impacts on amenity, views and vistas, and how it would successfully relate to the existing and future character of the surrounding area, including development options for the remainder of the BMD. Identify the proposed land uses, including a schedule of gross floor area calculations. 	<p>p12 - 32 Existing conditions and site analysis outlined</p> <p>p39 - 53 Indicative massing and envelope</p>
<p>6. Public Domain and public access</p> <ul style="list-style-type: none"> Demonstrate how the proposed development will achieve enhanced public access to the site during operation. Identify the proposed public domain areas and linkages, including key vehicular, bicycle and pedestrian access points and links to other public domain spaces, including integration with Wentworth Park, Sydney CBD and the existing and future harbour foreshore. 	<p>p76 - 85 Public Domain Chapter</p>
<p>7. Amenity</p> <ul style="list-style-type: none"> Provide a solar access analysis and shadow diagrams outlining impacts on adjoining developments and spaces (including Wentworth Park). Identify and assess potential overshadowing, privacy and view impacts. Provide a wind impact report that includes the following detail: <ul style="list-style-type: none"> demonstrate existing wind characteristics of the precinct advice on measures to ensure the suitability of areas for their intended use with regard to the impact of wind on comfort and safety, in particular this is to focus on outdoor public space areas advise on placement, orientation, shape and external design of the building envelope and future wind mitigation devices identify areas surrounding the development that will be wind affected because of the development. 	<p>p86 - 98 Shadow diagram analysis</p>

1.0 Design Excellence

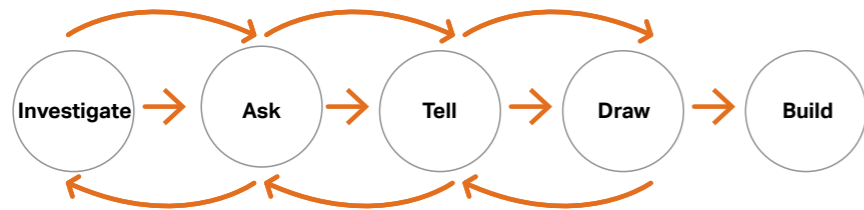
For the design of the new Sydney Fish Market, a Design Excellence Strategy was established by the Government Architect of New South Wales in conjunction with Infrastructure New South Wales (INSW). Part of this process involved the selection of a lead design team through a two stage competitive process, from which 3XN were selected.

Moving forward, the Design Excellence Strategy outlines a process comprising of the following to achieve design excellence for the new Sydney Fish Market:

- Scenario testing to establish the preferred site
- An Urban Design Framework for Blackwattle Bay
- A reference design for the preferred site
- Selection of the lead design team by using design within a competitive process*
- Design review panel*
- Design integrity beyond Development Application*
- Integration with the Blackwattle Bay master planning process*

Note: * denotes collaboration with the City of Sydney.

1.0 Design Excellence



Our Design Process: Investigate, Ask, Tell, Draw, Build.

3XN employs a working method - Investigate, Ask, Tell, Draw, Build – as a way to achieve design excellence but also as a way to communicate our design process with the client and stakeholders. It is a working method and approach where 3XN investigates site, function, and brief; asks community about the project; tells the story of people and place in the conceptual design; draws the functions and details of the project; and finally builds – not just the building, but the building as home and space for a community and its users.

We acknowledge that the new Sydney Fish Market is one the most important redevelopment project for the city; and more importantly, its goals to transform and strengthen the Blackwattle Bay into a landmark area that supports Sydney’s position as a world-class tourist destination and a diverse city with high quality of life. This project is essentially about placemaking as well as it is about placing Sydney on the world map through ambitious architecture.

With our Investigate, Ask, Tell, Draw, Build approach, we will ensure that the project objectives and visions set forward by Infrastructure New South Wales (INSW) are achieved in the final design.

INVESTIGATE

- Understanding the project objectives.
- Understanding the site and project conditions.
- Understanding the operational and functional requirements.
- Understanding the scale and fish market typology.
- Understanding the climatic and cultural context.

Our approach has been to understand the possibilities of the development from a cultural and functional perspective. We've sought to understand how the new development can transform and add value to the cityscape and studied the programmatic and operational needs of a typical fish market building to identify requirements that go beyond function.

At 3XN, we like to say that the architecture springs out from the challenge of each site. It is the site, the context, the community that shapes it. Yet in order to understand these parameters we intend on building a strong partnership with INSW early in the investigation phase.

Furthermore, we will work closely with our sub-consultants team, BVN, Aspect Studios and WallnerWeiss, to ensure that all project considerations and perspectives are covered and investigated.

From the listed investigations, the team has then identified key challenges, potentials and a number of questions to be addressed during the design process. These are about the operation versus leisure, about connectivity, about scale and user experience and last but not least about adaptability and sustainability. What was presented of investigations and challenges at the interim workshop will be adjusted as we progress in our design creation process.

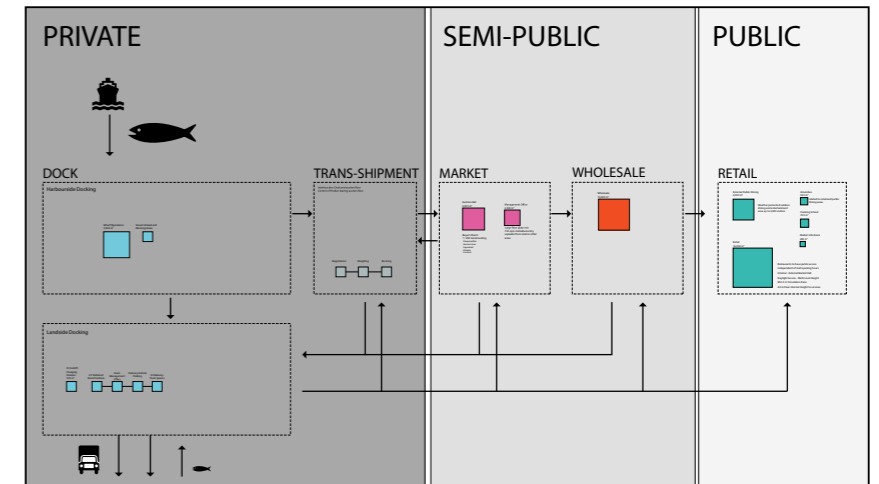


Diagram: Analysis of the spatial and functional requirements of a fish market.

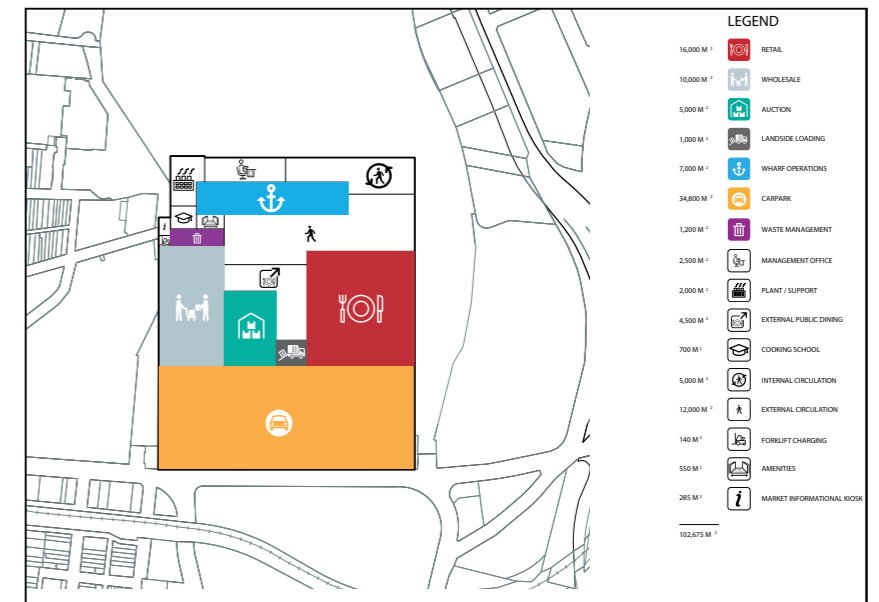


Diagram: Example of our scale comparison for the entire program of the fish market.

1.0 Design Excellence

ASK

- Engaging the community and stakeholders.
- Giving the users ownership of the project.
- Informing the city and neighbourhood.

Over the past 30 years, 3XN has used a variety of methods to effectively make use of client, sub-consultant, stakeholder and user input. We have learned that public consultation extends much further than simply gathering people to voice their opinion – it is about conversations – asking and listening to what people from the community think and aspire. INSW has already started this process and the project has gained majority citywide support from stakeholders and users.

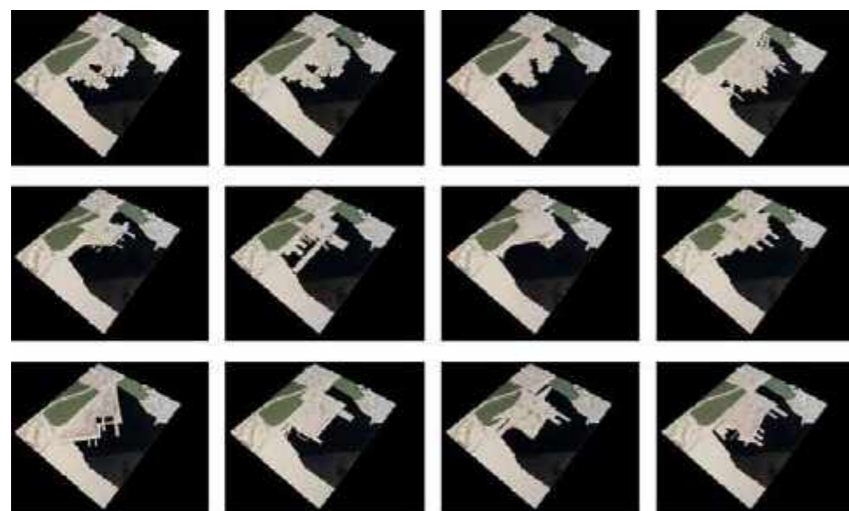


Image: Example of our model making process of design options.

TELL

- Respond to the context.
- Demonstrate sensitivity to user.
- Re-think the fish market experience.

One definition of good architecture is when you can see that the building literally grabs the site upon which it is located – connecting different parts of its urban and natural environment. By investigating and ‘ask’ing we can use the conclusions to form the basis of a ‘story’ that 3XN will shape and tell through architectural expression.

Our ambition is to anchor the project to its context - it will be Sydney’s own story and reflect the unique conditions of the local condition and the client’s vision. Due to the project’s central location in Sydney, we will also strive to create a unique development that positively shapes the behaviour of users by giving them a different and authentic fish market experience.

DRAW

- Communication of design.
- Collaborative spirit between the project team, specialists consultants and client.
- International perspective combined with local knowledge.

How can an architecture firm based in Denmark design a building in Sydney? Over 30 years, 3XN has built up a specialism – one we feel sets us apart from other architecture firms. We see design as a process and a collaborative effort. When ‘draw’ing we work with cardboard models, sketches process log and 3D modelling as they help us to share, discuss and evaluate different spatial solutions and give a sense of the totality of our projects. This way of working has proven successful in many projects and our visionary design concept has been realized without significant modifications. In a sense what you see in the concept is also what you get in the final building. With over 80% of our business outside of Denmark we also appreciate collaborations with a local partner, in this case BVN, as it informs and levitates the design in many ways.

BUILD

- Capability to create distinctive design.
- Track record of delivering innovation.
- Design for buildability.

What has defined 3XN as a firm is our ability to deliver complex and challenging projects on time and on budget (and sometimes under budget). Together with INSW, it is 3XN’s belief that a fruitful partnership with BVN, Aspect Studios and the specialist consultants will set up targets for limiting environmental impact for builders, users, and surroundings pro-actively in all phases; design, planning, construction, and operations. Cultural and public buildings comprising both urban and commercial premises that take account of the context, require planning and project management at several levels. Over the years 3XN has built up expertise in handling complex building projects – and so has BVN. A current collaboration is the 100,000 m² Quay Quarter Tower in Sydney that not only showcase our ability to deliver as a team but also our capability in creating distinctive and innovative design solutions.

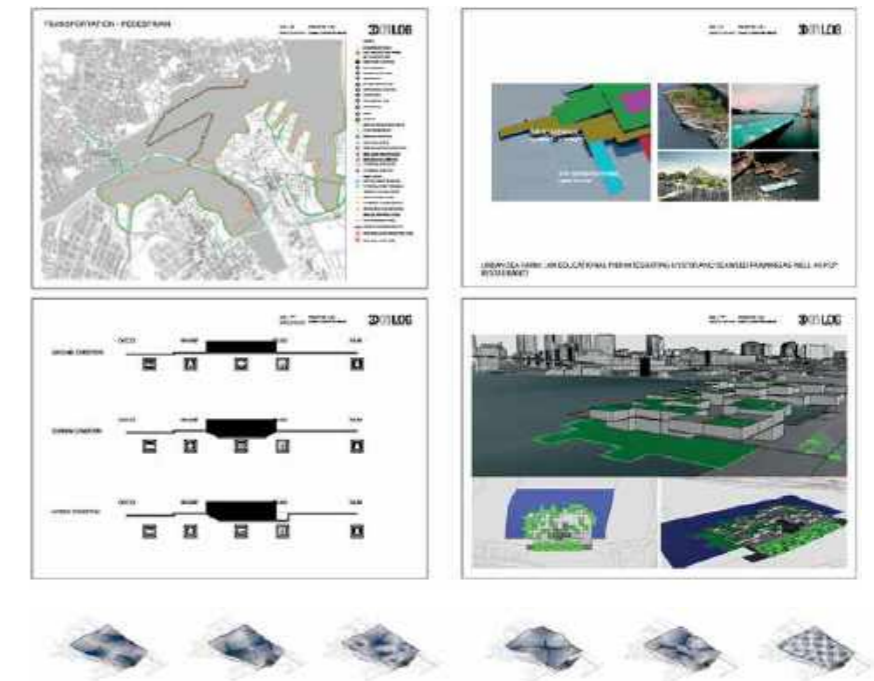


Image: Example of our working methods and rain water collection study.



Indicative view of the new Sydney Fish Market from Blackwattle Bay. Artist's impression only. Not to scale.

2.0 Built Form & Urban Design

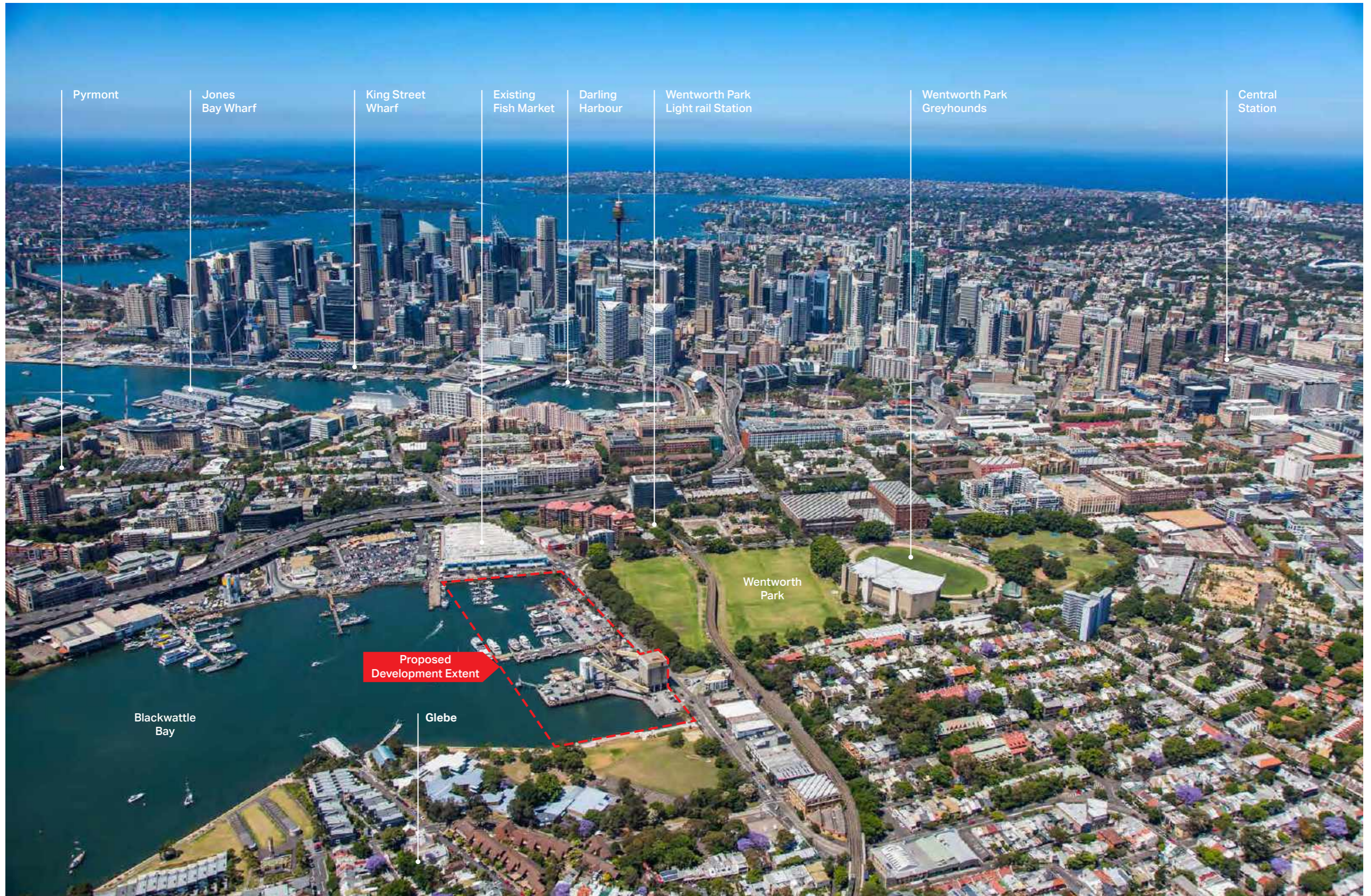
New Sydney Fish Market



Indicative eastern promenade view of the new Sydney Fish Market. Artist's impression only. Not to scale.

2.1 Built Form & Urban Design Analysis

Blackwattle Bay - Existing Character



Existing Context: The proposed development is located at the head of Blackwattle Bay. View looking east to CBD.

2.1 Built Form & Urban Design Analysis

Site Location - Wider Context Proximity to the City

Sydney's harbour foreshore is dotted with landmarks. With its proximity to public transport and the Sydney CBD, the site for the new Sydney Fish Market at the head of Blackwattle Bay will add another destination along the water's edge and extend the foreshore promenade.

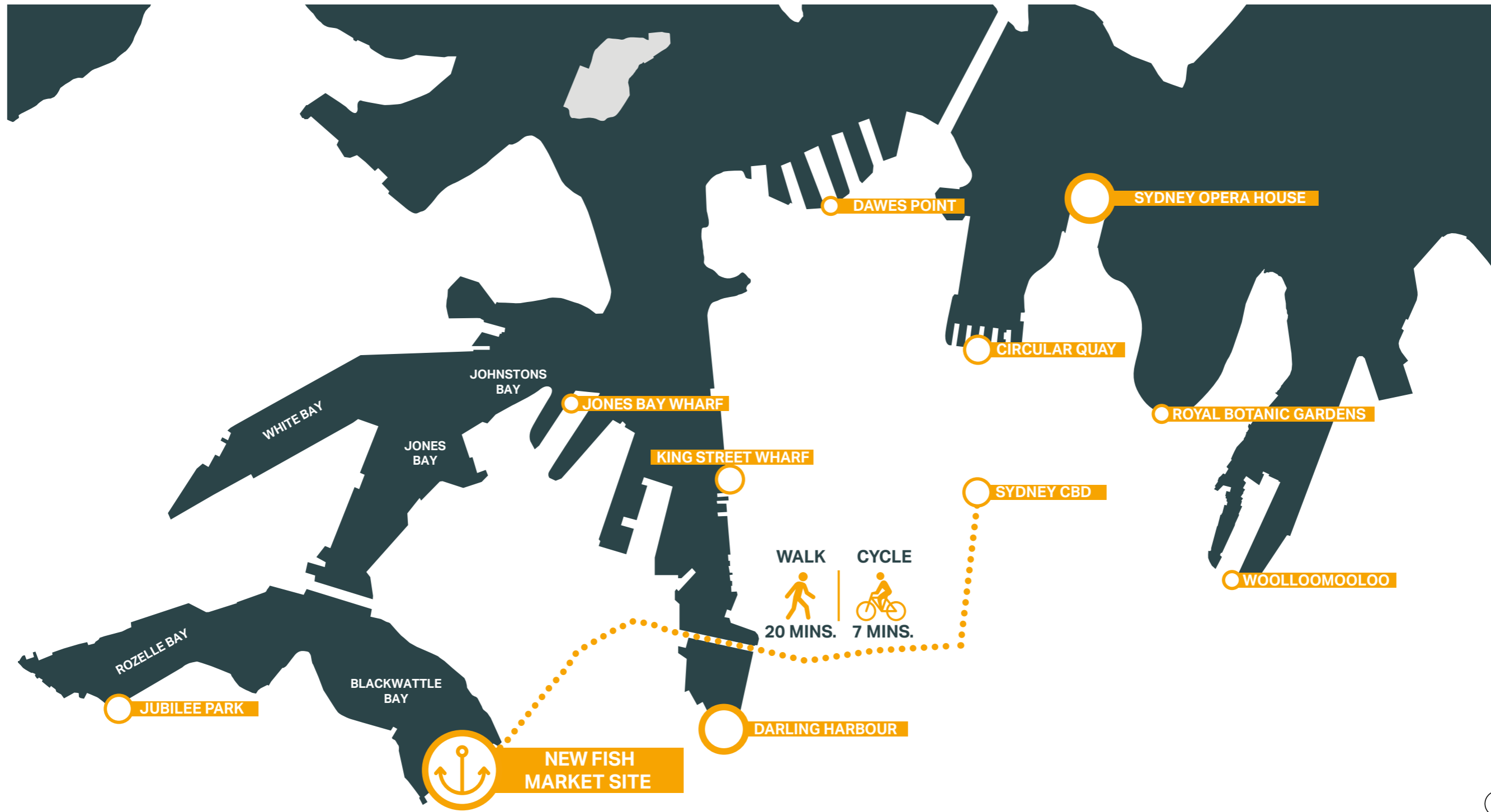


Diagram - The new Sydney Fish Market site location to wider Sydney context.

2.1 Built Form & Urban Design Analysis

Site Location - Public Transport Proximity

The proposed development area is serviced by three Light Rail stations: Glebe, Wentworth Park and Fish Markets stations. The closest bus stops from CBD direction are within walkable distance to site, with high frequency bus routes running down Harris Street (Pymont) and Glebe Point Road (Glebe).

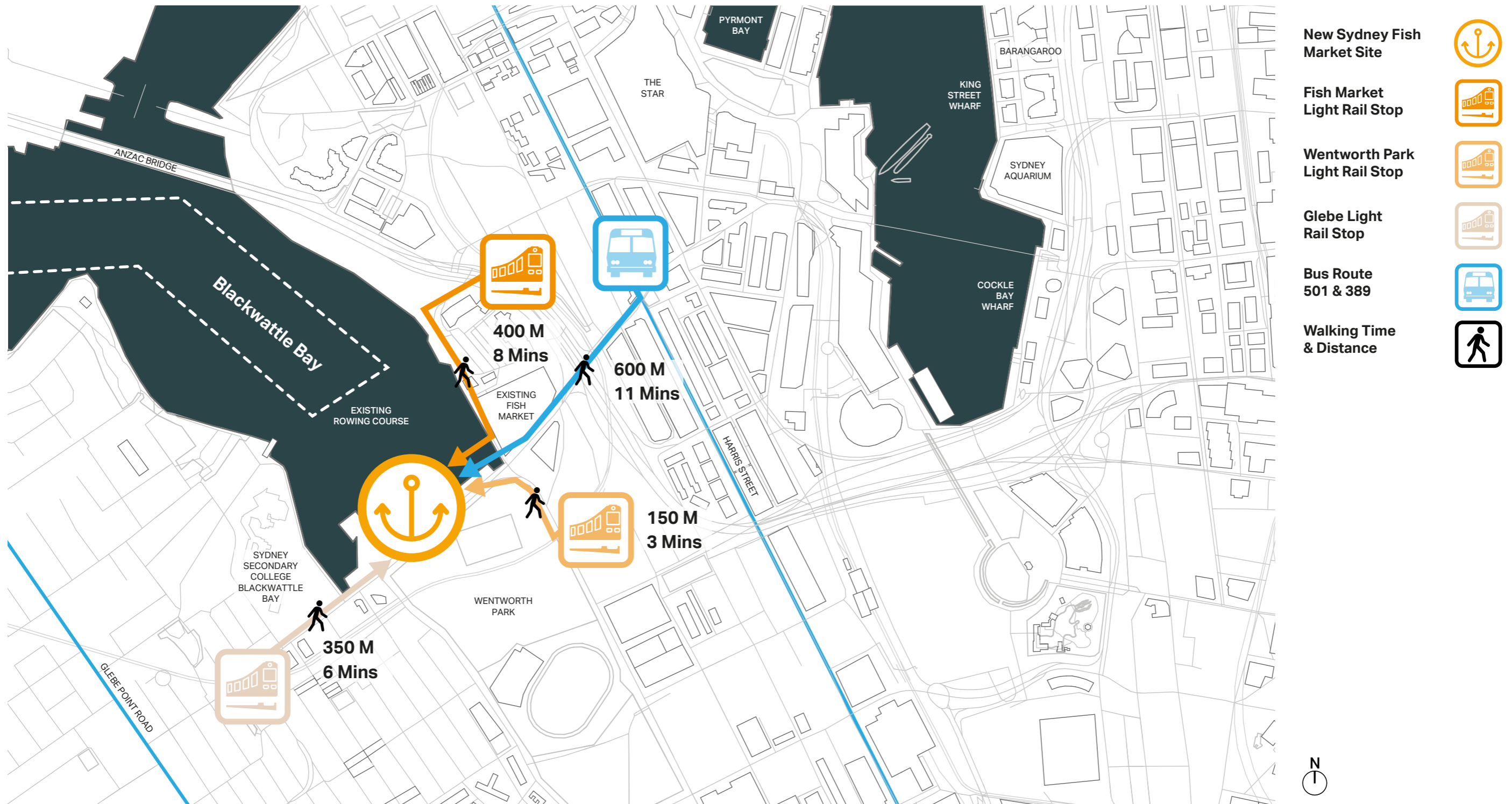


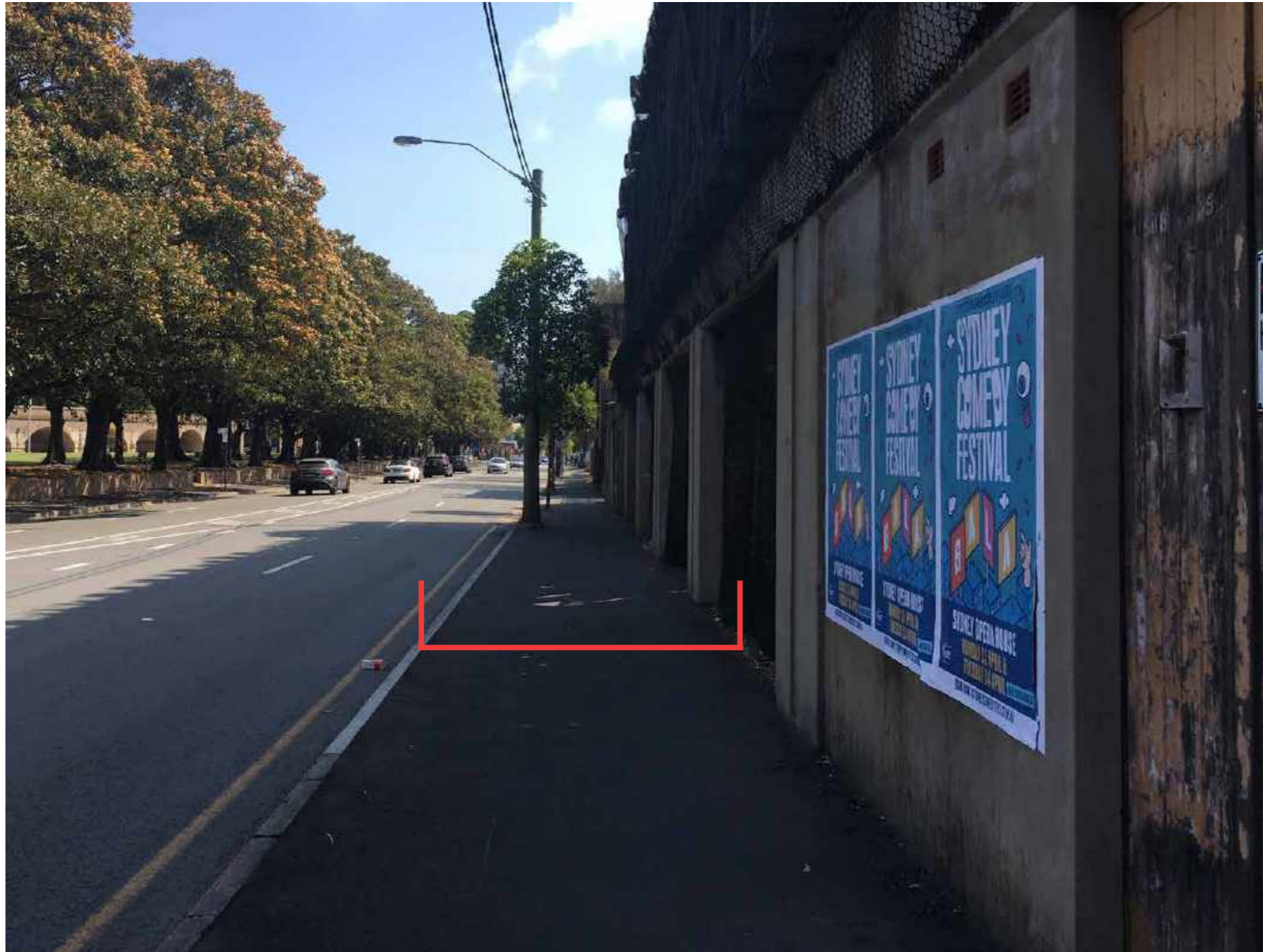
Diagram - The new Sydney Fish Market site location & public transport proximity.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

Existing Context: Bridge Road

The existing Bridge Road footpath width is narrow. The existing distance from road to fence / wall line is between 2.1 and 2.8m. This is insufficient to allow for safe pedestrian movements, cycle lanes, cycle parking and drop-off zones for the new Sydney Fish Market and future proposed development. To promote safe movement between public domain conditions and Bridge Road, the existing footpath will be widened to become a public promenade.



View of existing Bridge Road northern footpath looking west with coal bin loader on right side.

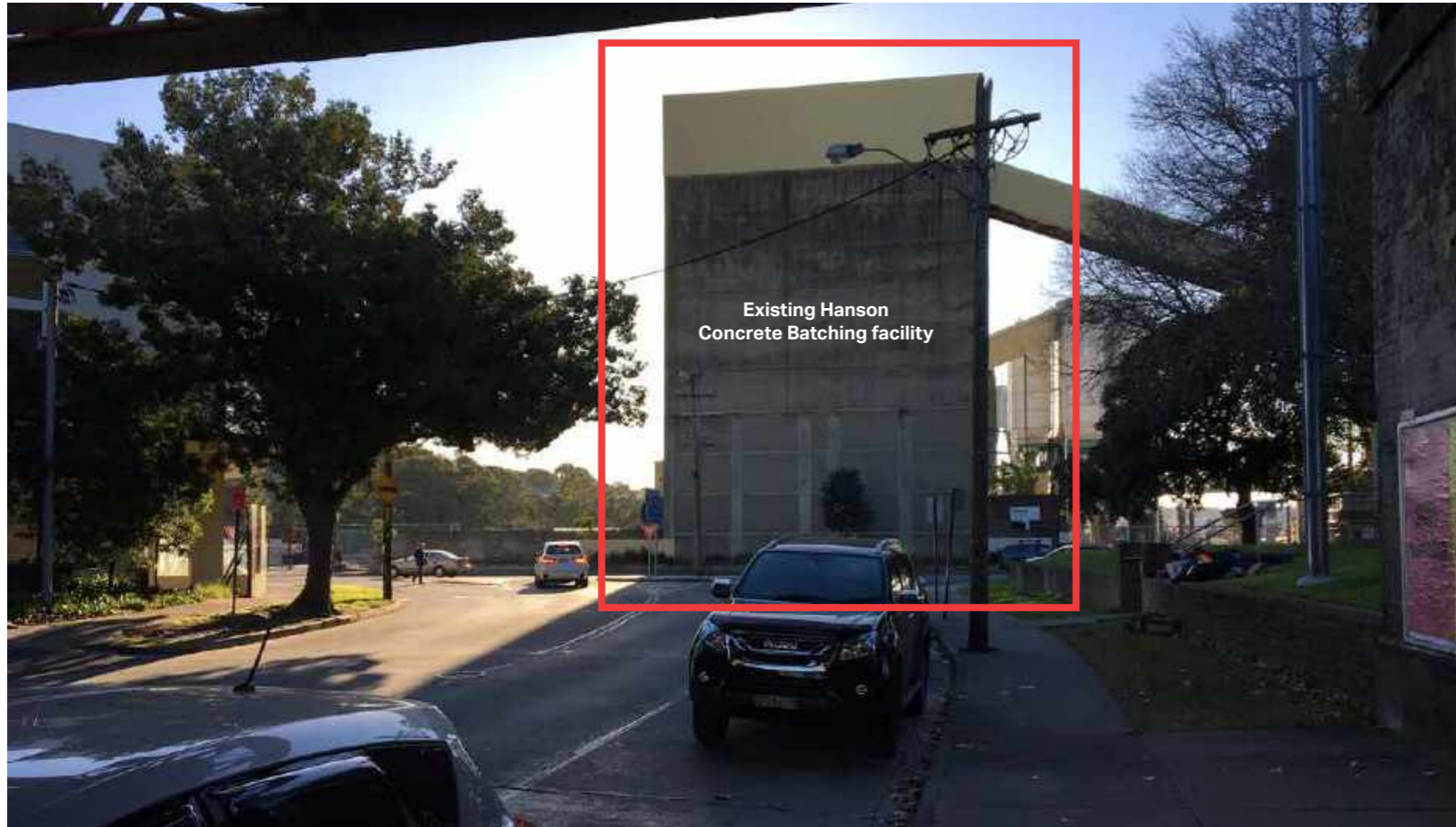


View of existing footpath looking west at concrete batching tower.

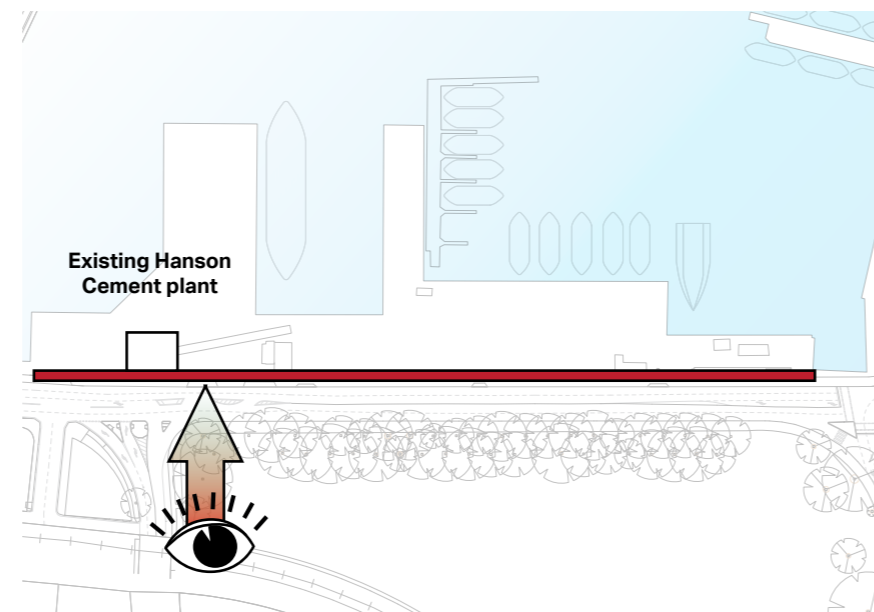
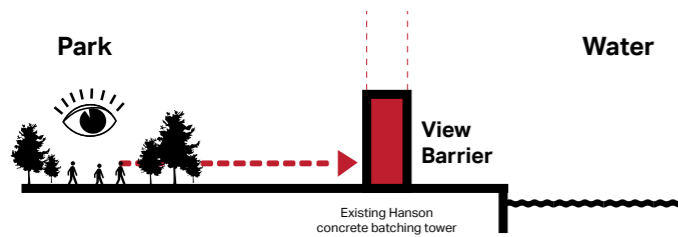
2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

View of existing concrete batching tower from Wentworth Park Road to Blackwattle Bay.



View of existing industrial plant looking east from Sydney Secondary College Blackwattle Bay playground.



Existing Context:
Hanson Concrete Batching facility to be demolished

Current industrial infrastructure on site including the Hanson Concrete Batching facility will be demolished to create desired visual connection between Wentworth Park and Blackwattle Bay. With the concrete batching tower at 28.7 meters high, its large scale adds to the disconnection to the site and surrounding.

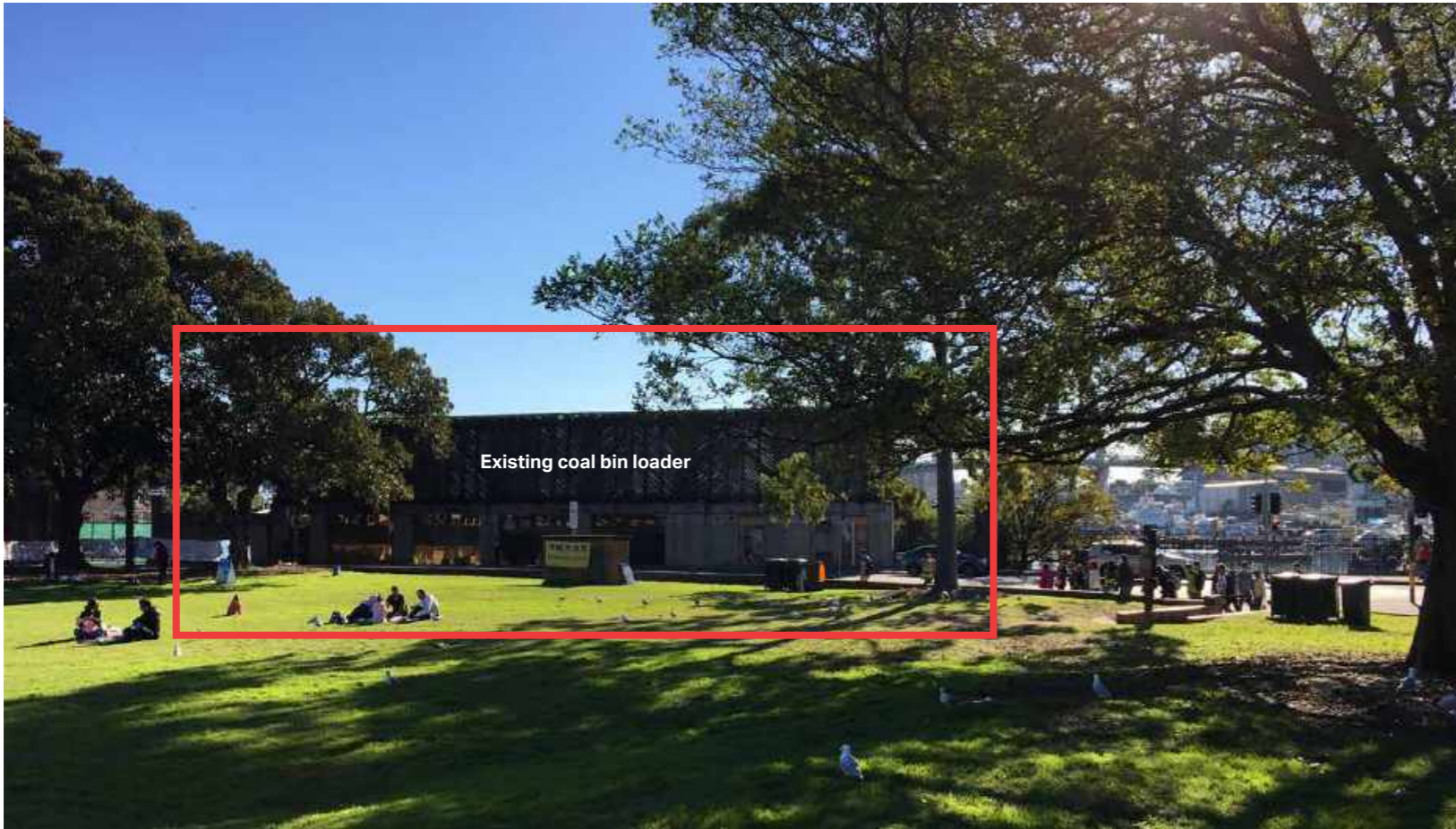
Diagram - Existing Hanson Cement plant limit views to water. Indicative only.

View to existing cement plant looking west from Blackwattle Bay.

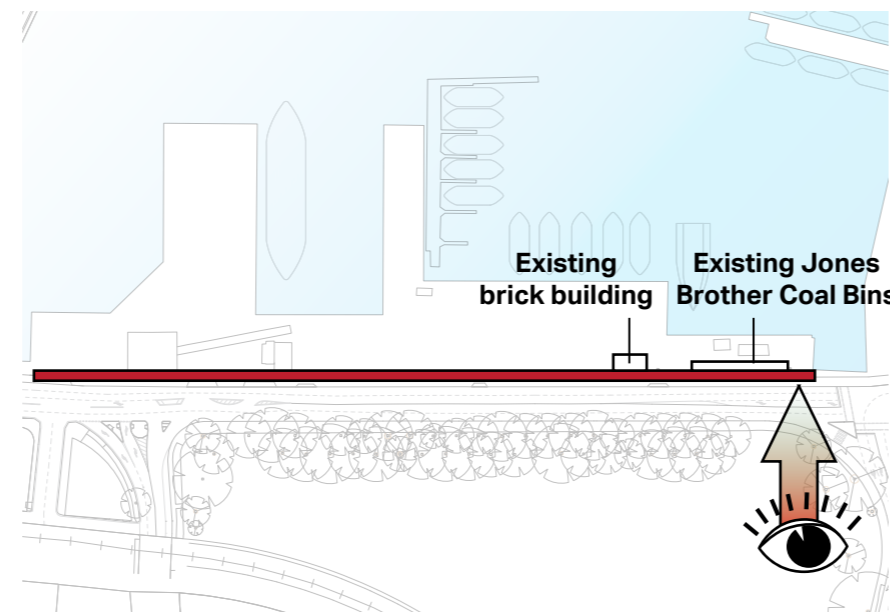
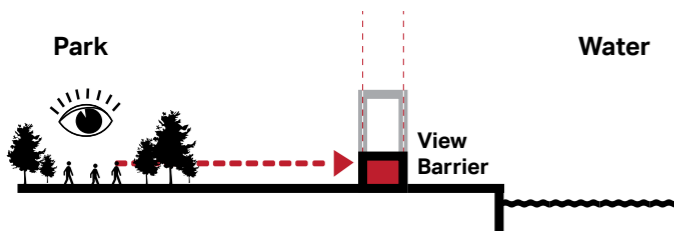
2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

View of existing coal bin loader looking to Blackwattle bay from Wattle Street. The structure is at approximately 9.17 meters high.



Rear view of existing coal bin loader looking east towards the existing Fish Market.



Existing Context:
Jones Brothers Coal Bins and brick building

Current former Jones Brothers coal bin loader and two storey brick building located at the eastern end of the proposed site will be demolished to create views and vistas to the water.

Diagram - Existing coal bin loader limit views to water. Indicative only.

Rear view of existing two storey brick building. Roof pitch at approximately 8.53 meters high.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

View of existing Bridge Road looking west from northern edge footpath of Wentworth Park. Existing brick building and coal bin loader on right.



View of existing significant Moreton Bay fig trees along Bridge Road.



View to west from Bridge Road and Wattle Street traffic intersection.

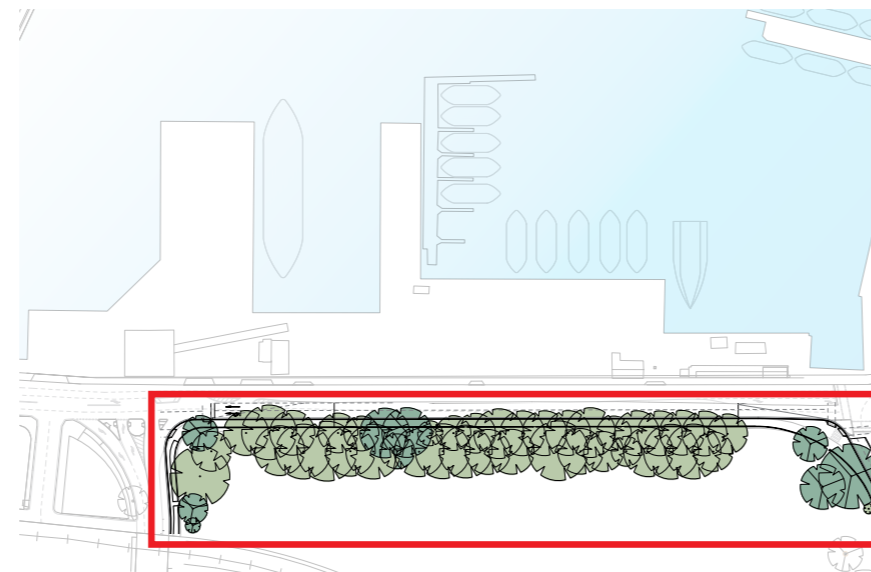
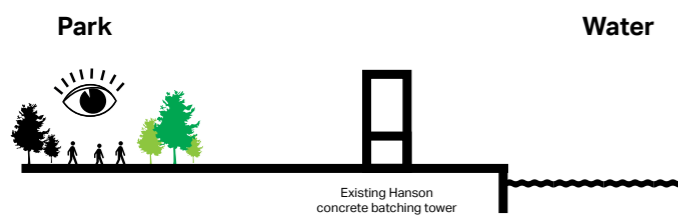


Diagram - Existing Moreton Bay fig trees at northern side of Wentworth Park. Indicative only.

Existing Context: Significant Moreton Bay fig trees

The avenue of Moreton Bay fig trees along the northern edge of Wentworth park besides Bridge Road are significant. The height and view of the trees present as opportunity for the proposed development.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

The following images highlight existing elements located at or within close proximity to the site.



1. Coal Bin Loader



2. Moreton Bay Fig Trees



3. Glebe Viaducts



4. Former Caretaker's Cottage



5. Remnant Sandstone Sea Walls

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

Wentworth Park Road at Wentworth Park Centre & Greyhounds Racecourse

The image above outlines the existing flooding conditions and instance of flood-waters along the wider area of the Wentworth Park Centre & Greyhounds Racecourse. In such events, excess water is not currently discharged into the bay with falls, but rather handled by stormwater drain pipes.



2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

The following diagrams illustrate the current site conditions of the existing Fish Market. The new development seeks to address and improve existing pedestrian safety, accessibility and view issues.

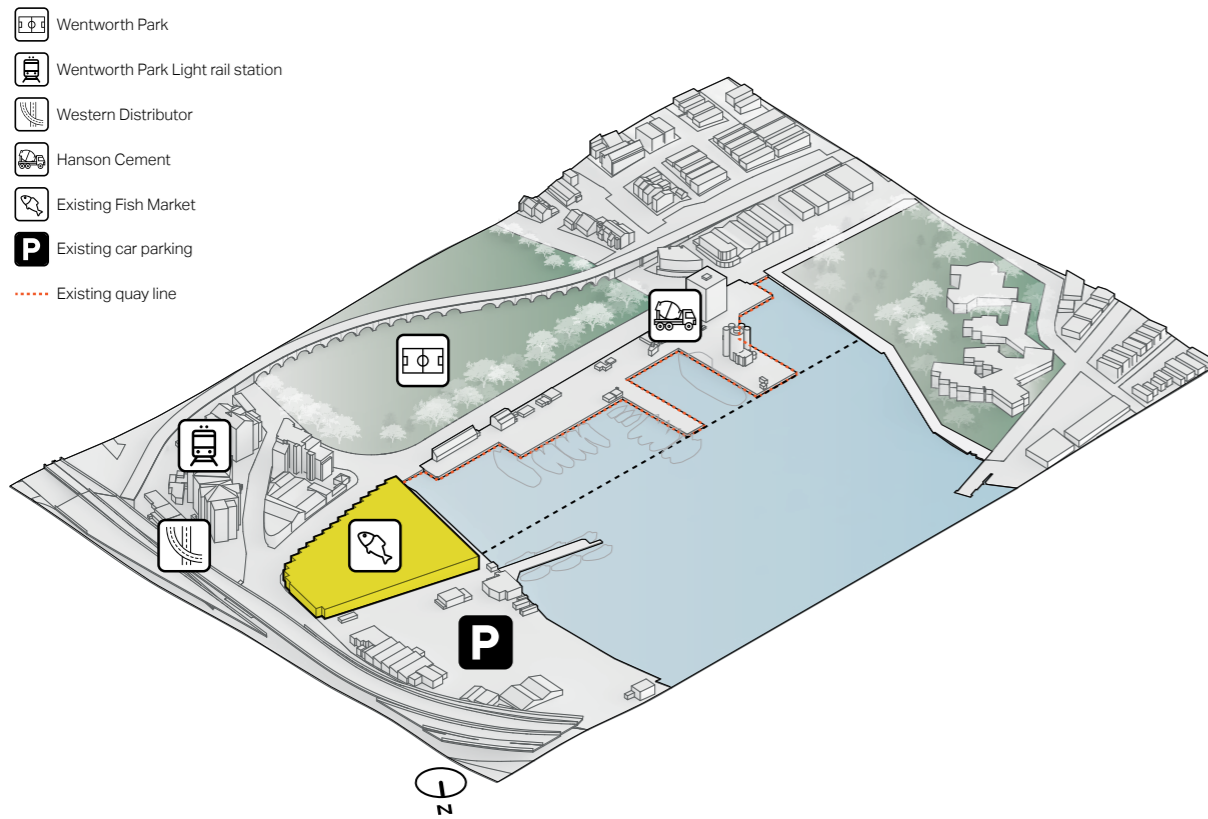


Diagram - Current Site Conditions

The proposed site is flanked by the existing Fish Market facility to the east, Wentworth Park to the south, the Glebe foreshore promenade to the west and Blackwattle Bay to the north. The proposed site has historically been used for industrial purposes such as a commercial marina and concrete batching.

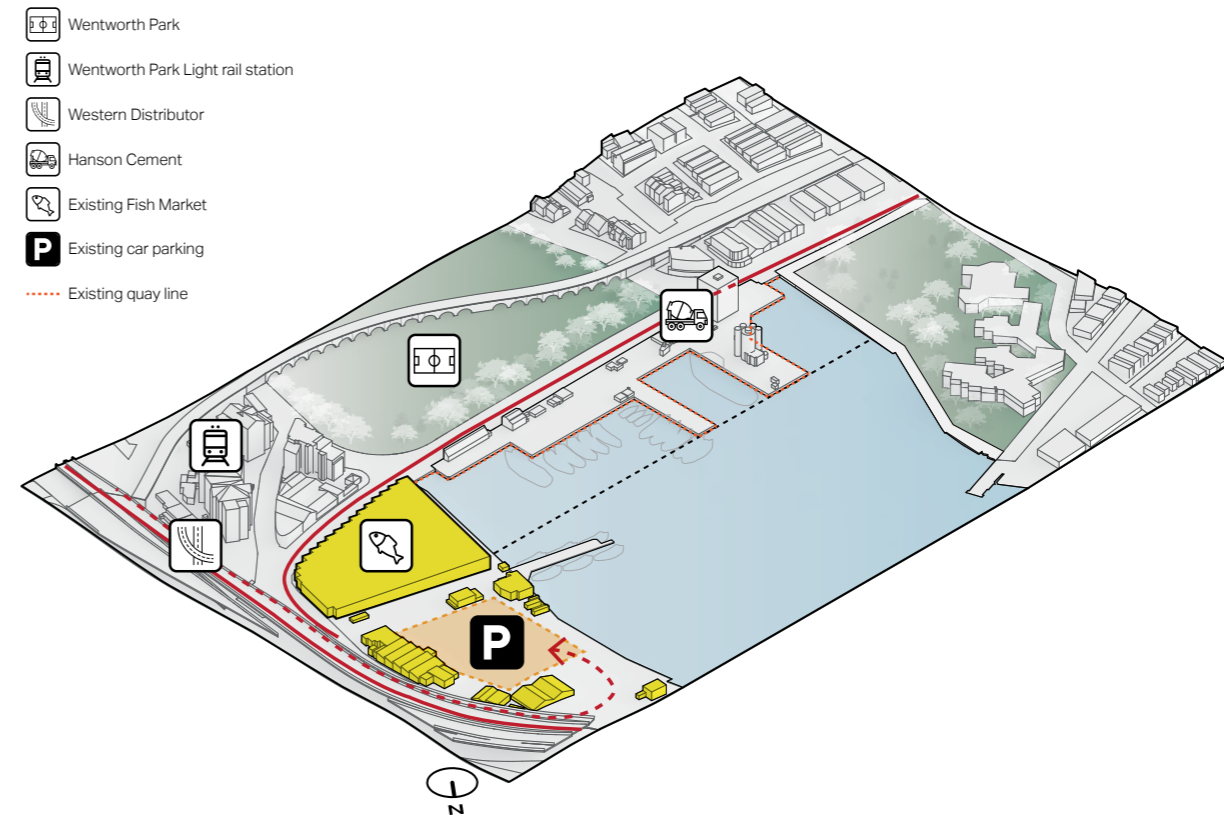


Diagram - Existing Vehicular Access and Parking

There are currently six access points to the site from Bridge Road. None of the access points are signalised making site access dangerous for both pedestrians and vehicles.

The existing Fish Market has approximately 417 car park spaces. The existing Fish Market site is accessed from one signalised intersection at Bank Street and Miller Street.

The primary vehicular access point for the proposed site will occur at a new signalised intersection at Wentworth Park Road and Bridge Road.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

With reference to Bays Market District urban design principles, the following diagrams illustrates why the head of Blackwattle Bay was selected as the site for the new development.

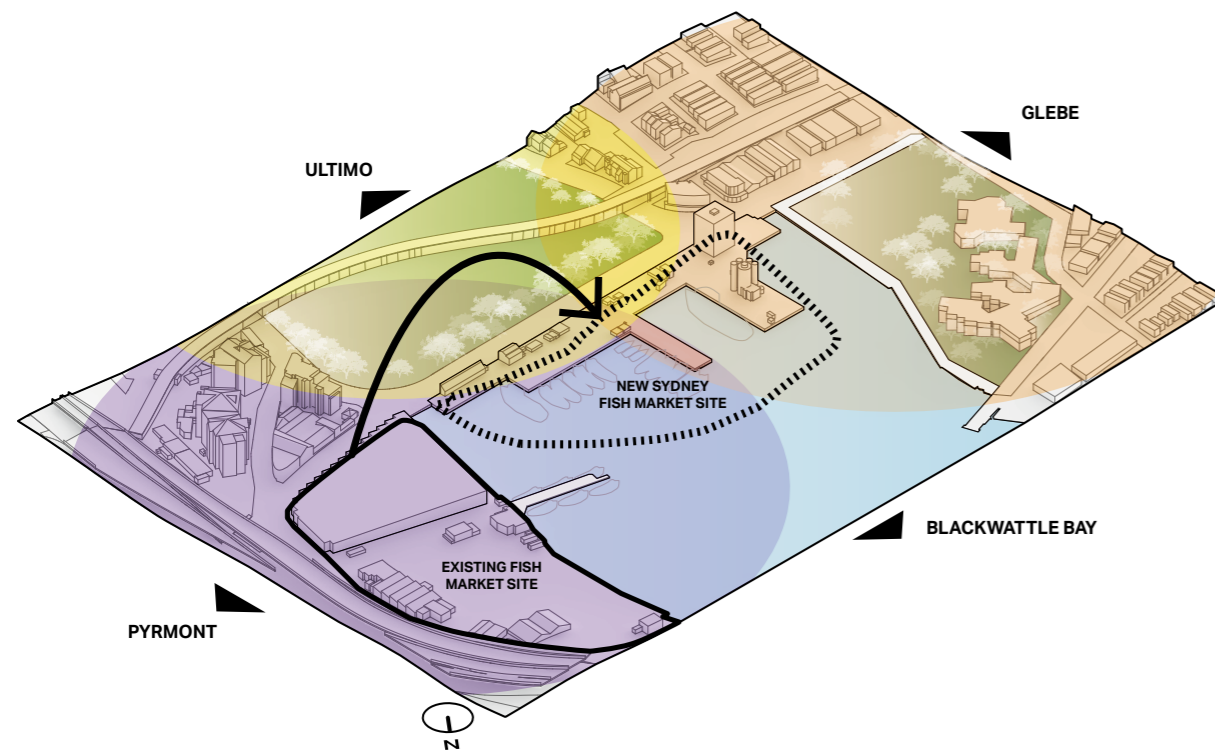


Diagram - Strategic relocation

The current Fish Market is a popular destination for both locals and visitors with approximately three million visitors per year. After decades of continuous operations, the non-purpose-built facility that currently house the market is aging.

With reference to Bays Market District transformation urban design principles, the proposed development location is envisioned as a logical step for inner city urban renewal and civic amenity enhancement. The new Sydney Fish Market will be established as a unique civic destination to rejuvenate surrounding district such as Pyrmont, Broadway and Darling Harbour.

The relocation approach will also minimise impacts on the business operations for the existing Fish Market.

Source: Infrastructure NSW (2016). Bays Market District Urban Design Framework.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

The following diagrams illustrate the existing site conditions at the head of Blackwattle Bay, the new development seeks to address and improves on the views and access conditions.

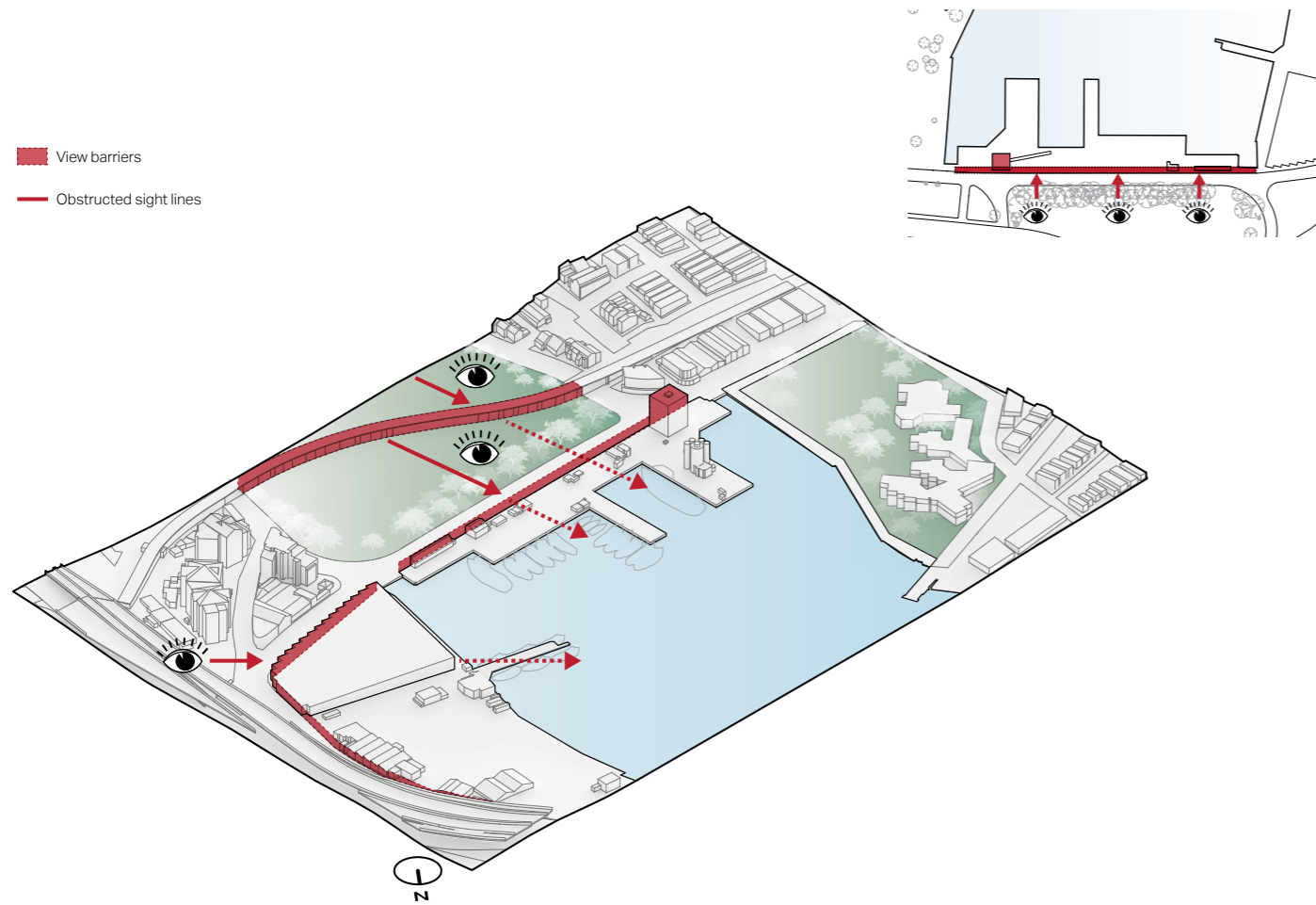


Diagram - Views from Wentworth Park

Views to the bay from the park and surrounding streets are currently blocked by the remnants of Hanson's concrete batching plant and a series of concrete and wire fences around the site, demarcating the prior private property lines. The light rail viaducts present a partial obstruction of views from the south side of Wentworth Park, while framing view corridors from the streets on either side.

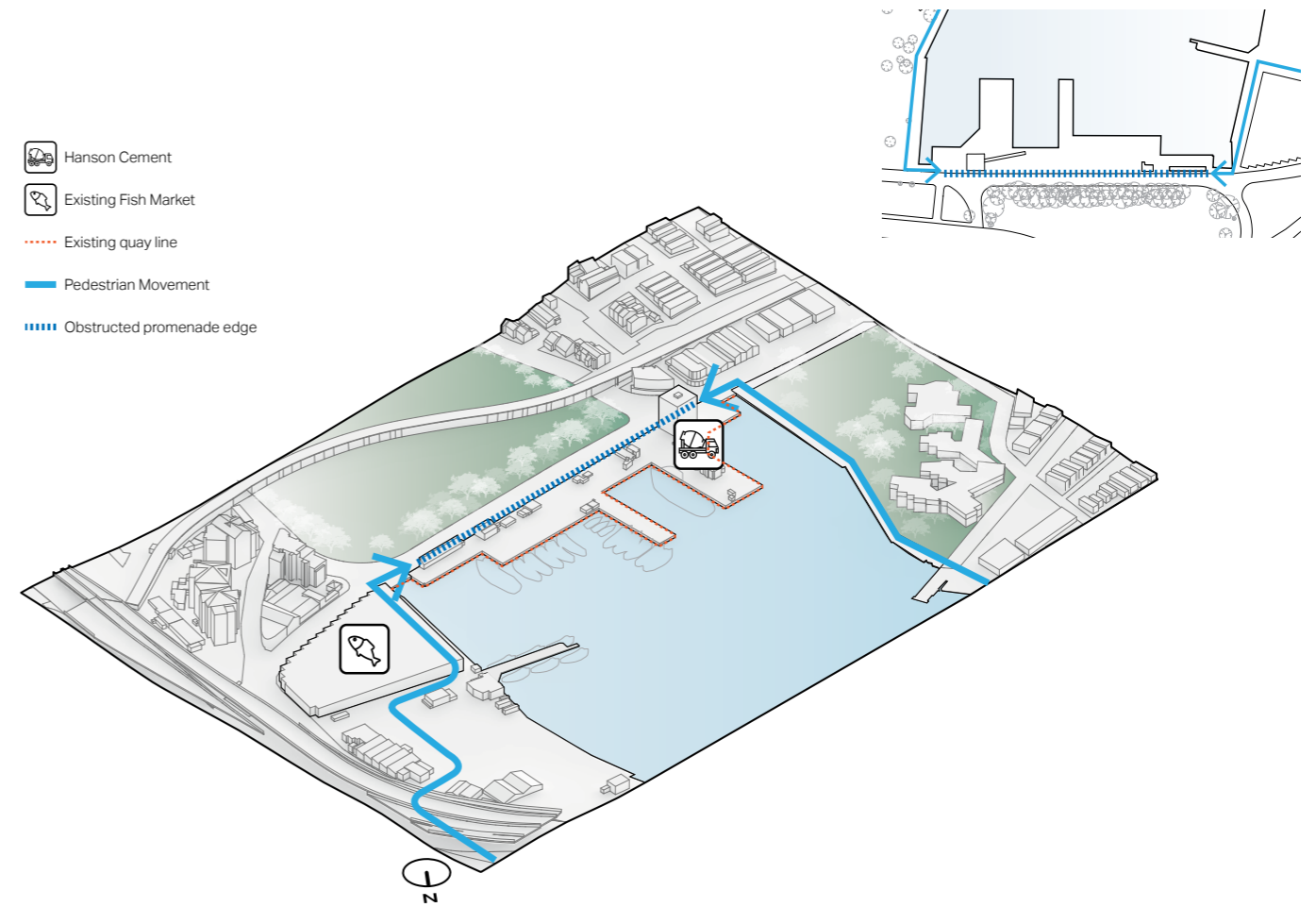


Diagram - Obstructions to Pedestrian Access

Due to the prior uses of the bay current configuration, pedestrian passage is blocked across the face of Blackwattle Bay, where industrial remains and a privately operated marina uses prevent public access to the waterfront.

2.1 Built Form & Urban Design Analysis

Site Conditions - Existing Context

The following diagrams illustrate the existing site conditions at the head of Blackwattle Bay, the new development seeks to address and improves on these conditions.

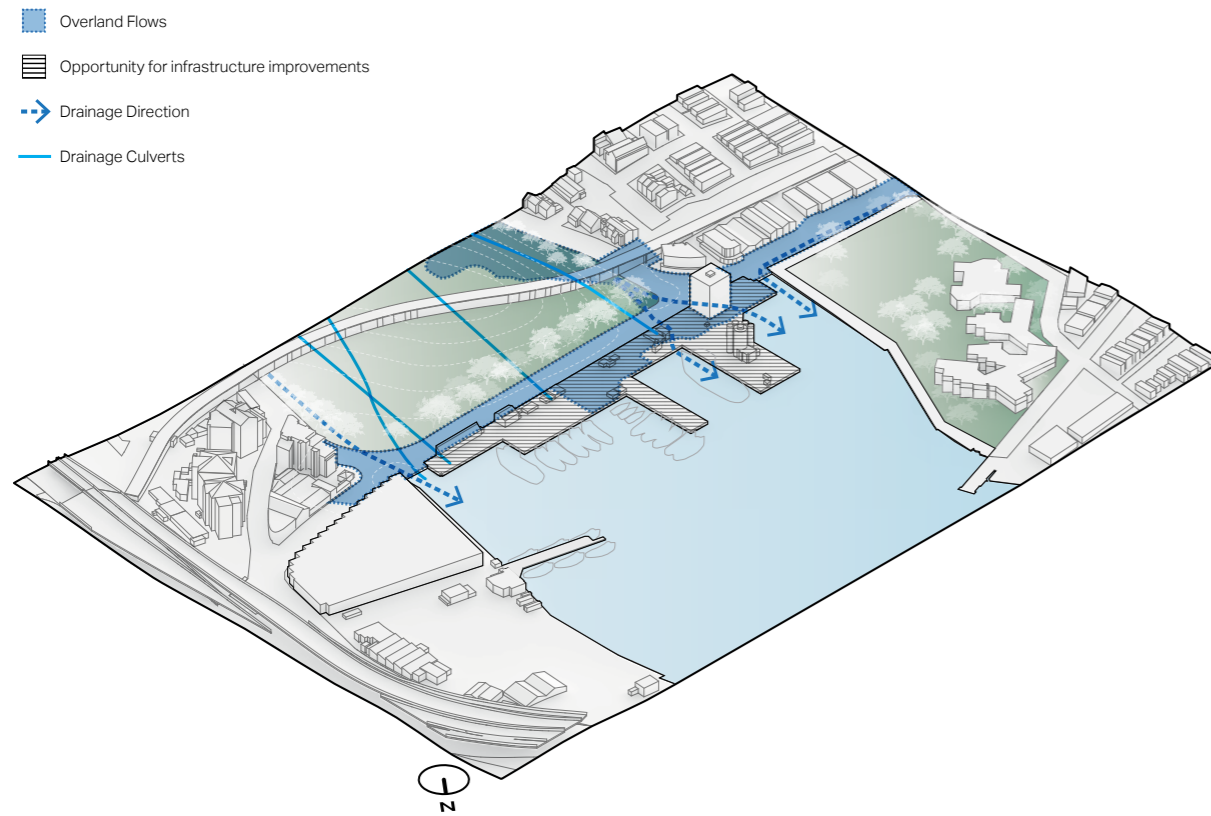


Diagram - Indicative Flood Zones

The diagram above indicates overland flows. At present, flows are dealt with by storm-water culverts on the east side of Wentworth Park that discharge into the bay. Bridge Road and the west side of the park exhibit a propensity for flooding which carries over to the existing piers.

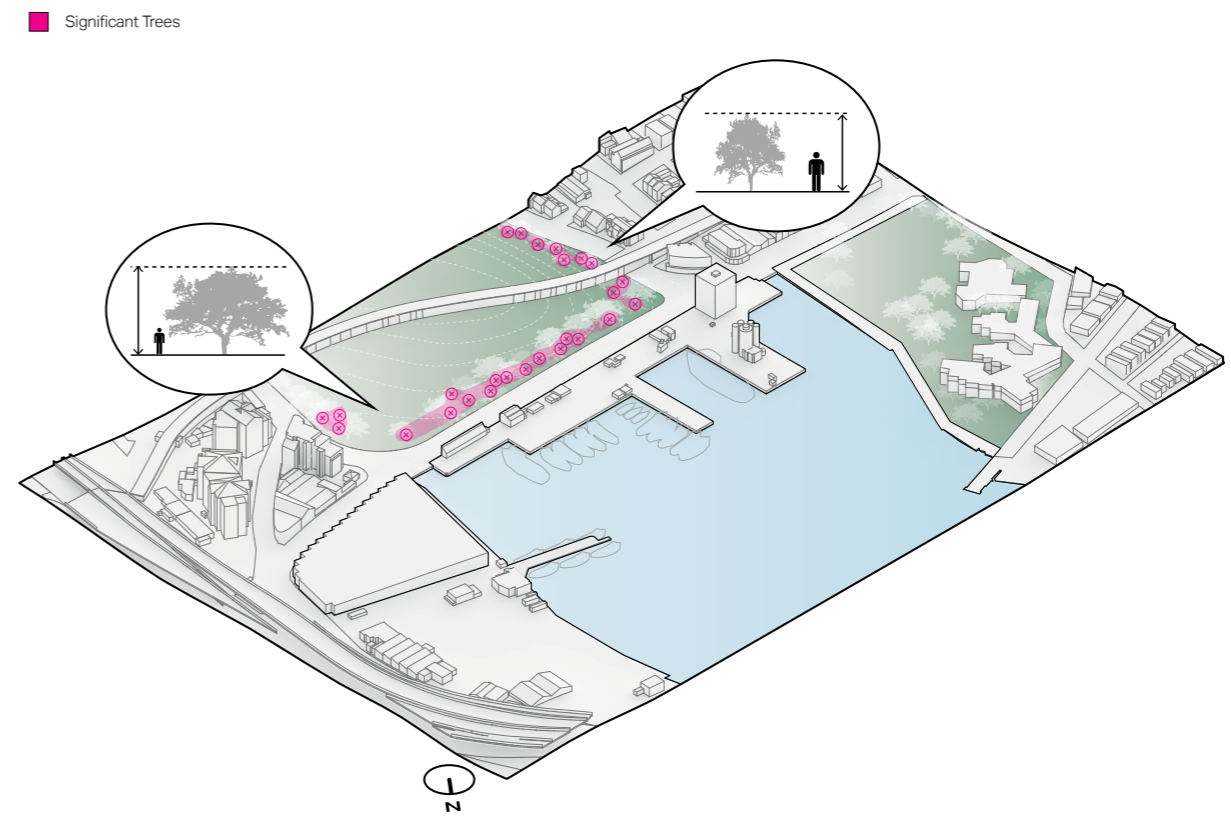


Diagram - Retainment of Wentworth Park Trees

The double row plantation of Moreton Bay Figs are listed as significant trees by the City of Sydney, as they exemplify the stylistic approach and influence of Charles Moore. The trees have been planted to define Wentworth Park's boundary, a technique typical of 1890s. The height of the trees provides an opportunity to conceal the scale of a potential development north of Bridge Road.

2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrates how the site was defined by existing developments at the head of Blackwattle Bay.

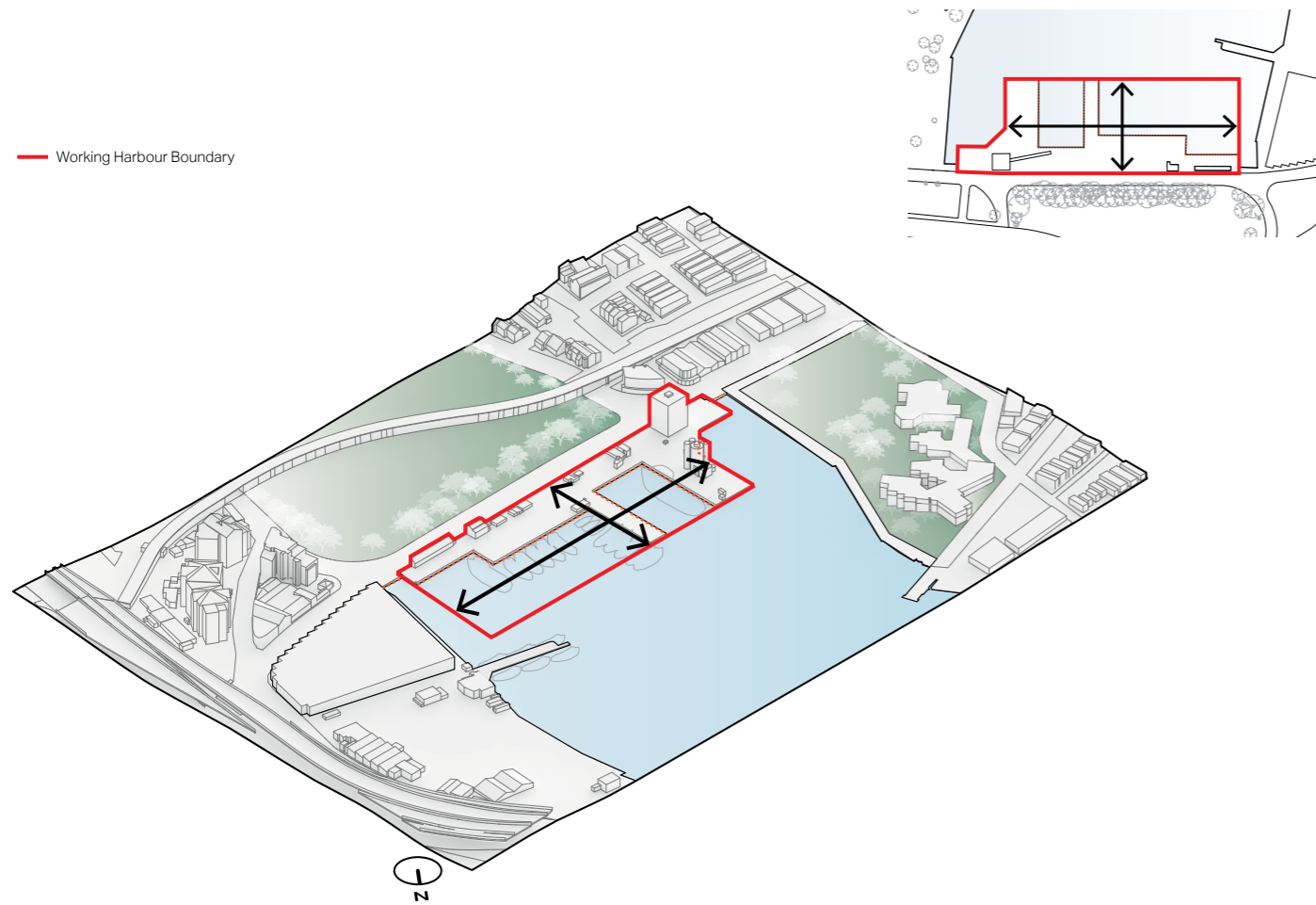


Diagram - Existing Harbour Infrastructure

The proposed site location is determined from the area of existing working harbour infrastructure which currently occurs at the head of Blackwattle Bay.

The Hanson Cement plant is characterised by hard-surfaced industrial wharves, a car-park and appended marina jetties.

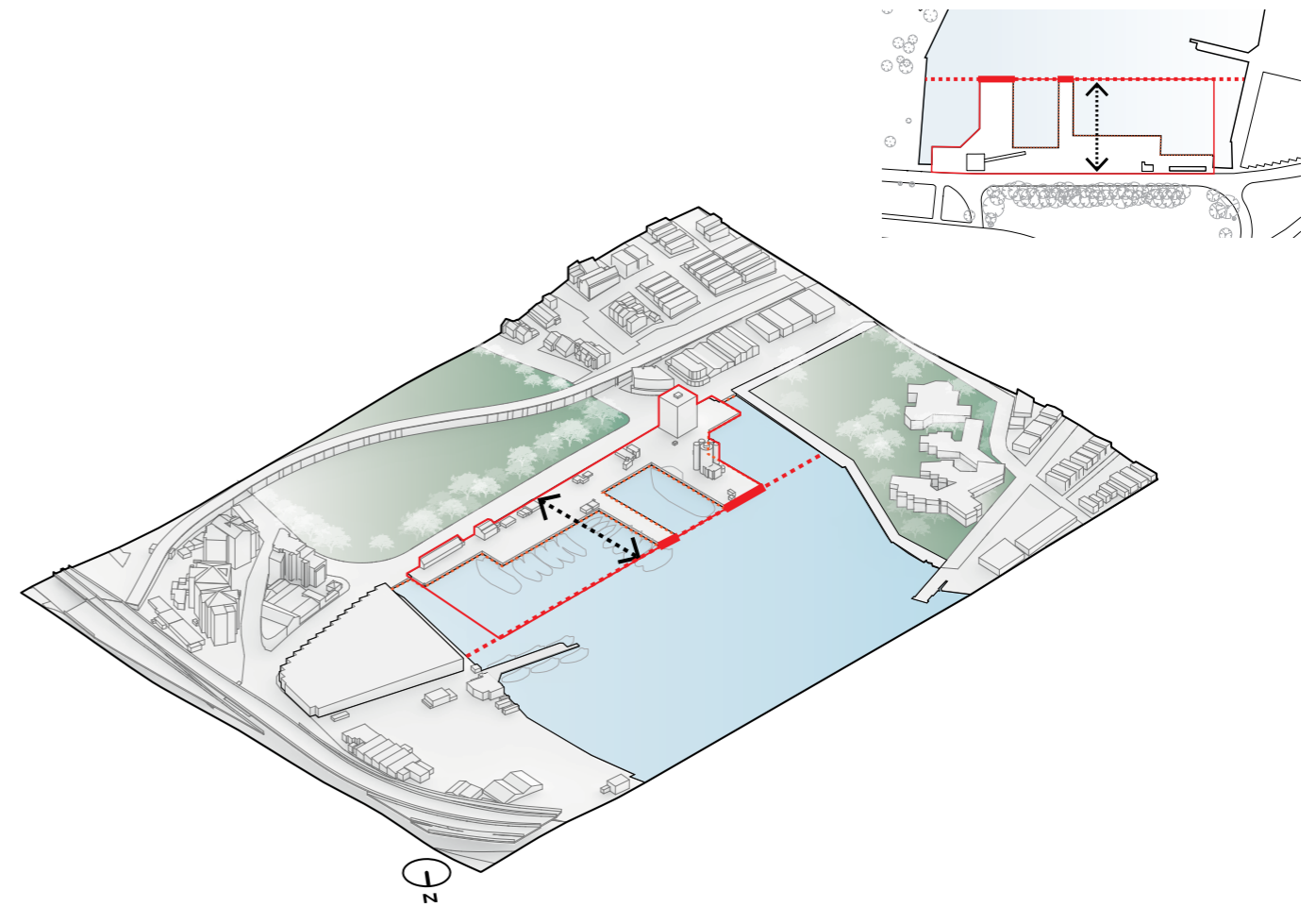


Diagram - Extent of Site

The outer perimeter edge is defined as a distance from the roadside boundary which contains the required programme as compactly as possible. The site attempts to match the lengths of the existing piers.

2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrate how the site envelope was shaped based on considerations regarding program and context.

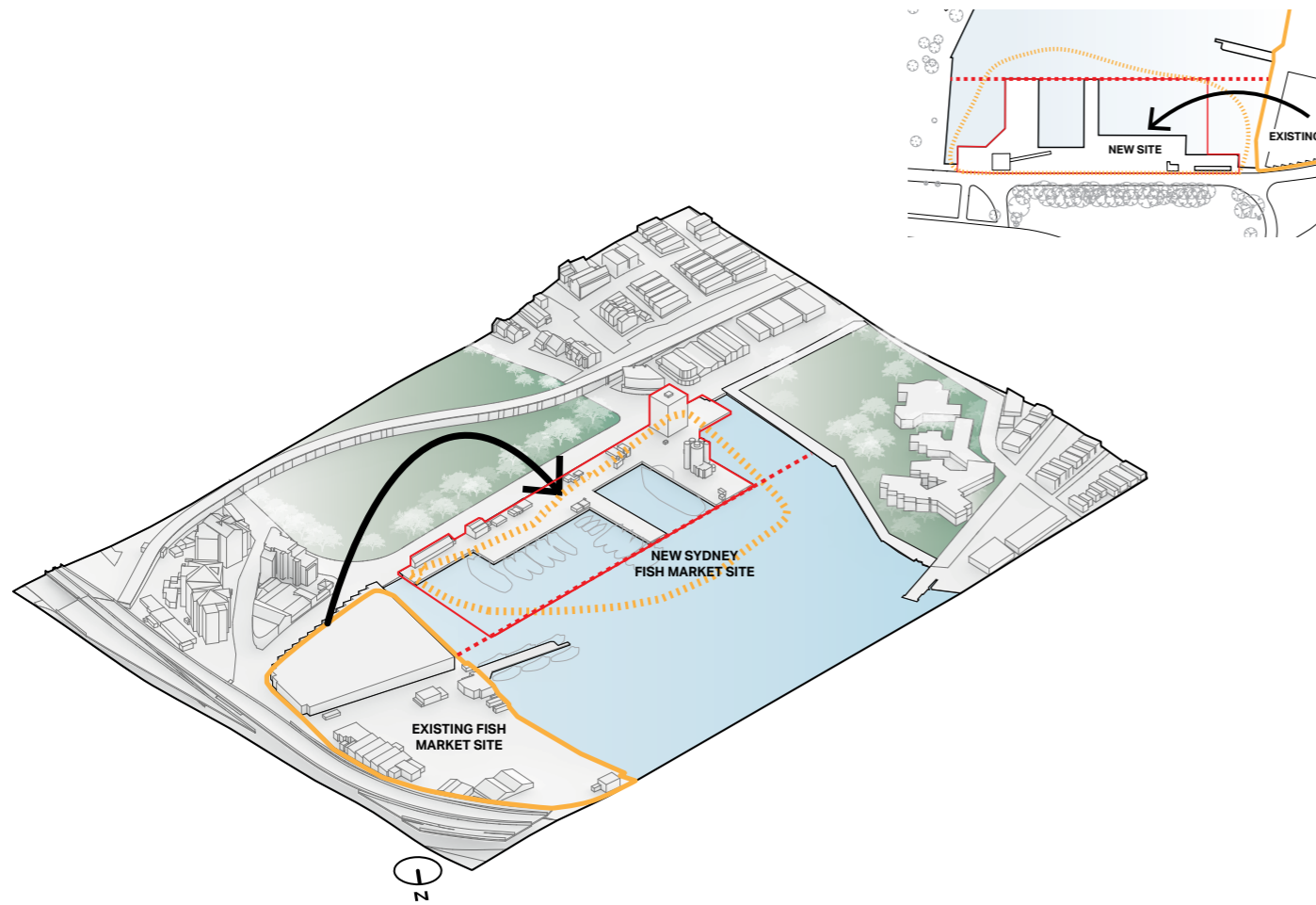
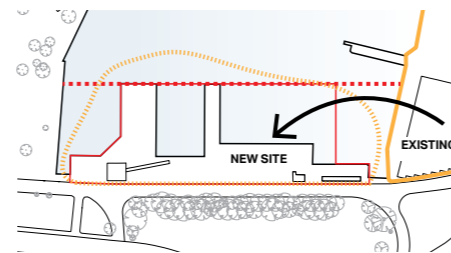


Diagram - Site Equivalency

The transposition of the existing Fish Market site is used as a basis for the new Sydney Fish Market site area located along Bridge Road.



- ① Western edge
- ② Eastern edge

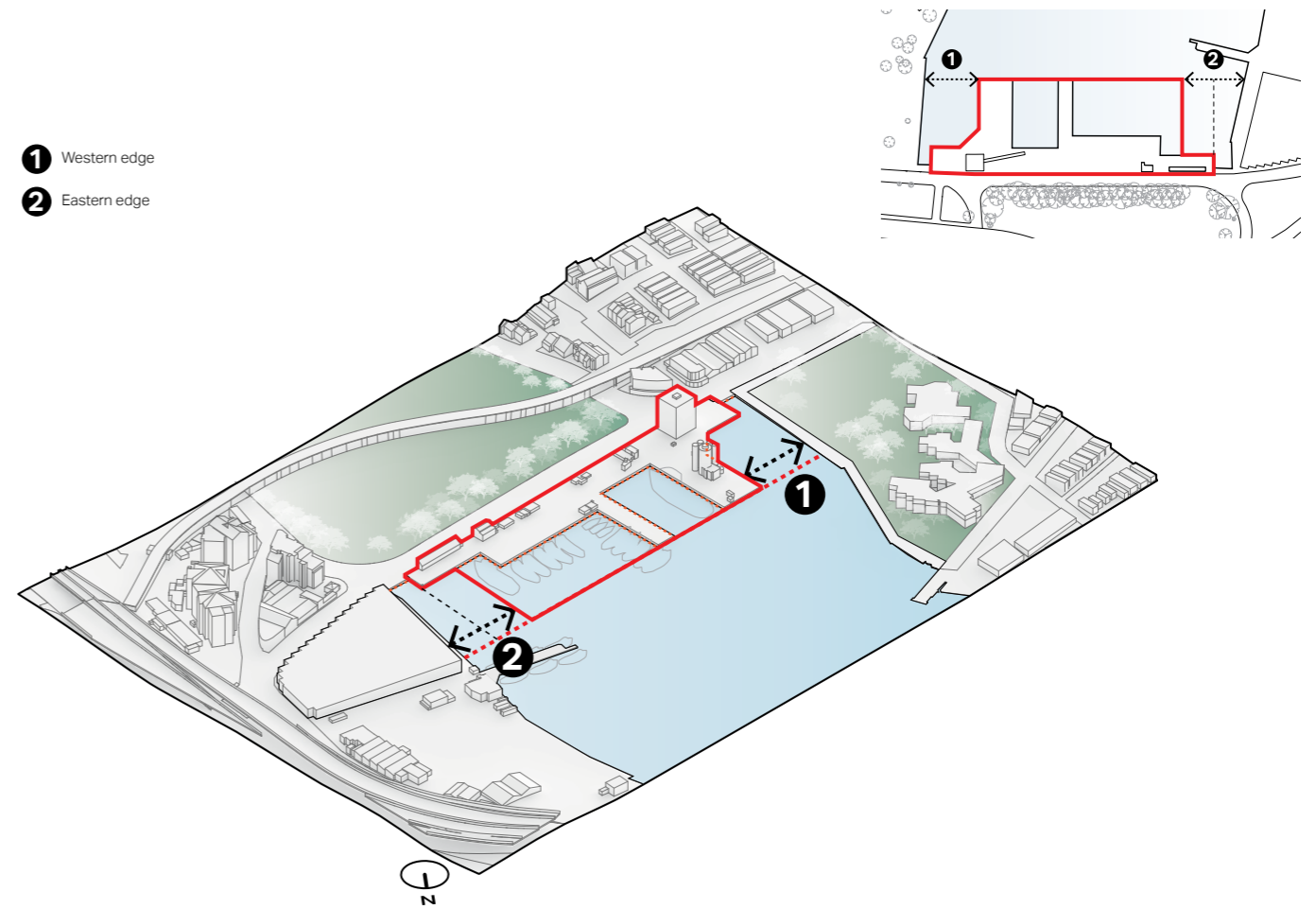
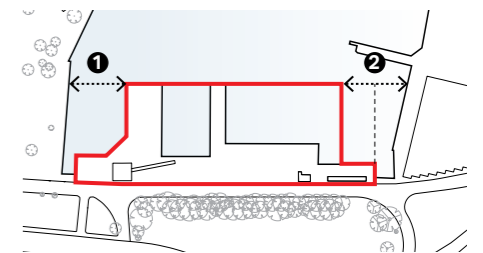


Diagram - Edge Boundaries

To preserve flow and functionality in the bays on either side of the new development, a distance precedent is set for either side of the development based on existing infrastructure. The new strategically placed location provides separation to existing Fish Market, as well as creating linkage north (Blackwattle Bay) and south (Wentworth Park); east (Glebe) and west (Pyrmont).



2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrate the proposed development's response to existing site conditions, and how these have influenced its form. The development seeks to minimise its impact to the site whilst improving upon existing site conditions by creating new view corridors, expanding the public's access to the water's edge,

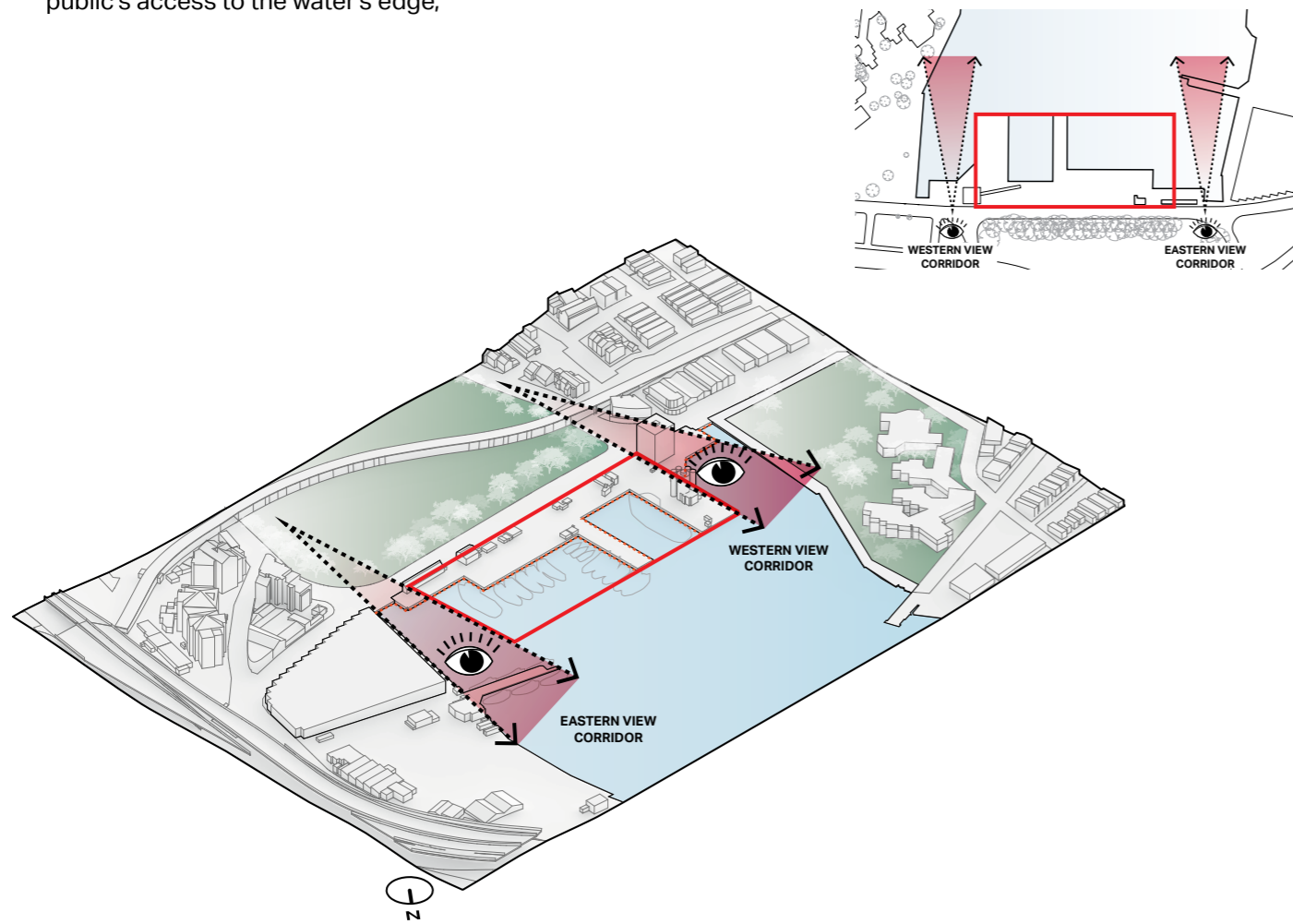


Diagram - Views and vistas to Blackwattle Bay

Preserving boundaries to the east and west side of the new Sydney Fish Market development offers new view corridors from the park and surrounding streets to Blackwattle Bay once the fences and disused Industrial infrastructure is removed.

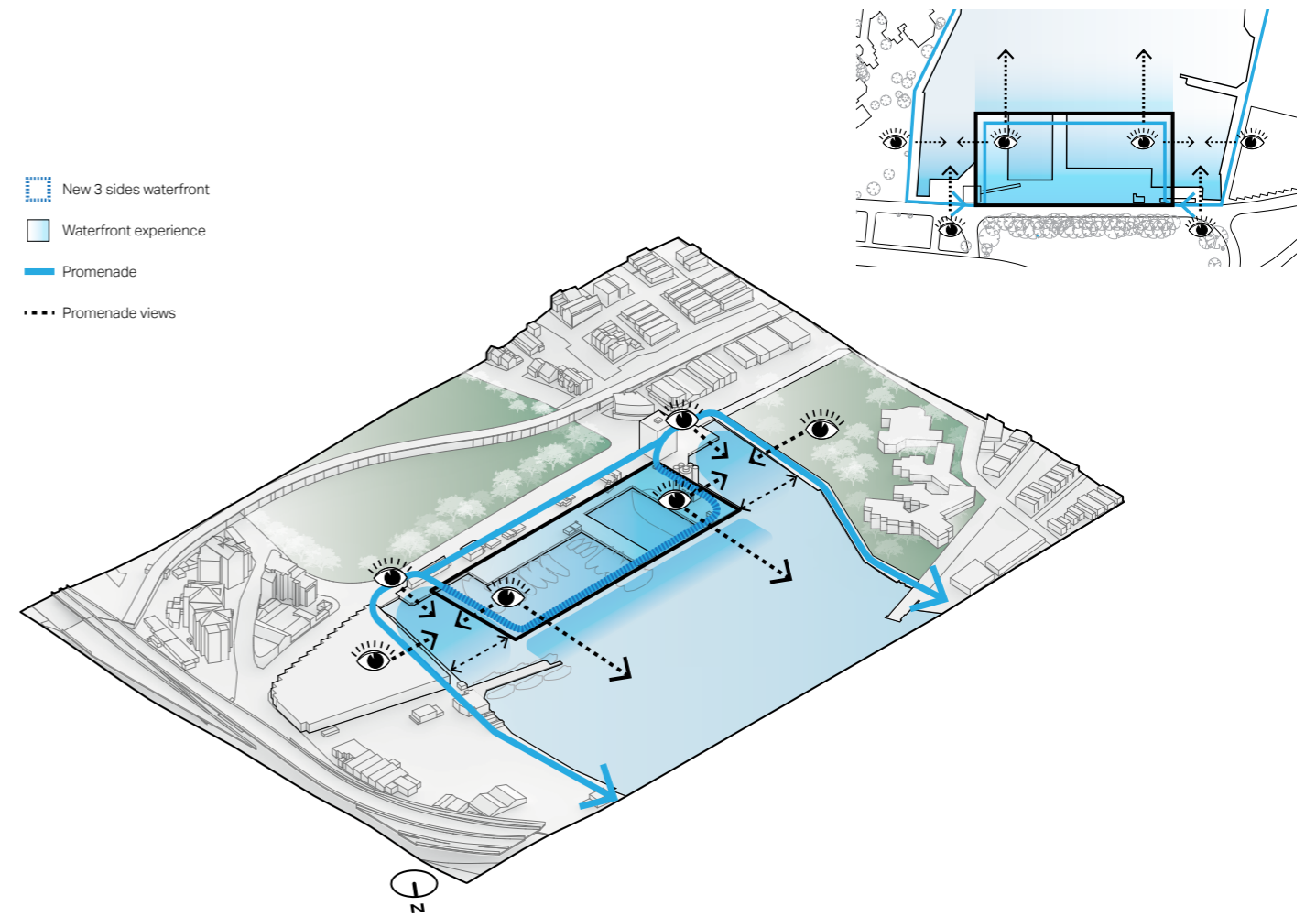
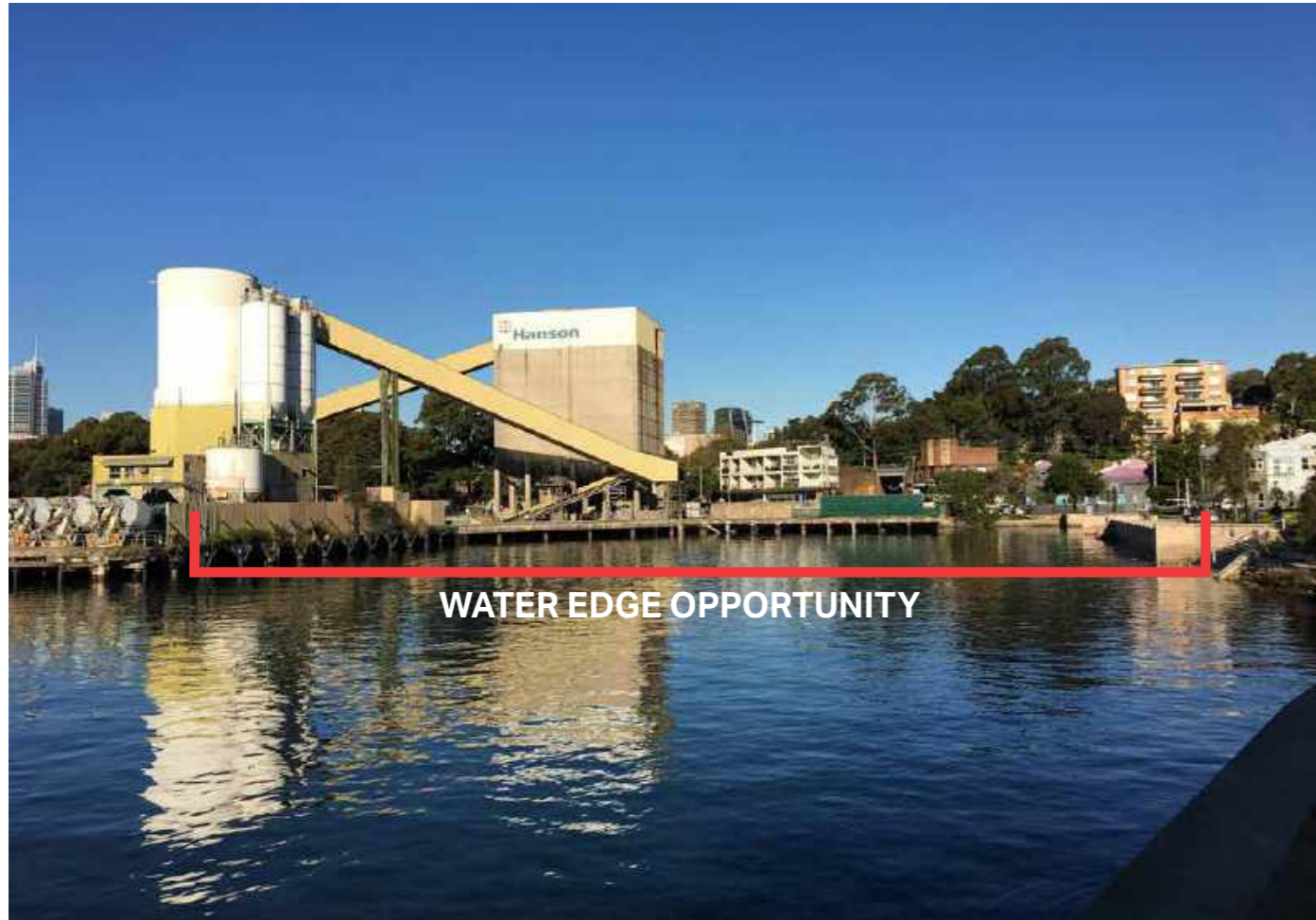


Diagram - Perimeter Circulation

A primary design driver for the new Sydney Fish Market development is public access to the water's edge and the ability to pedestrianise the entire waterfront promenade of Blackwattle Bay. The circuit of public access increases the waterfront edge, offering greater opportunity to connect with the harbour waterfront along the eastern and western edges.

2.1 Built Form & Urban Design Analysis

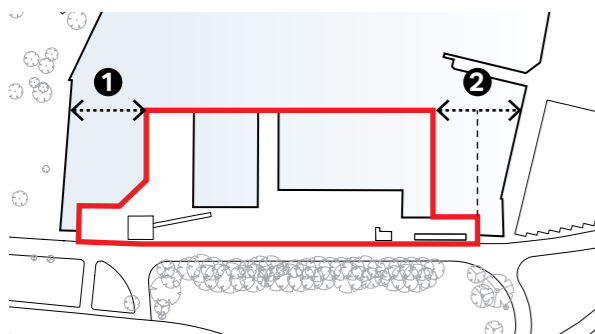
Site Conditions - Existing Distance Between Edge and Pier



1. Existing Distance Between Western Edge and Pier



2. Existing Distance Between Eastern Edge and Pier



Legend Diagram. Indicative Only.

2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrate how the site envelope was setback for public access and activation.

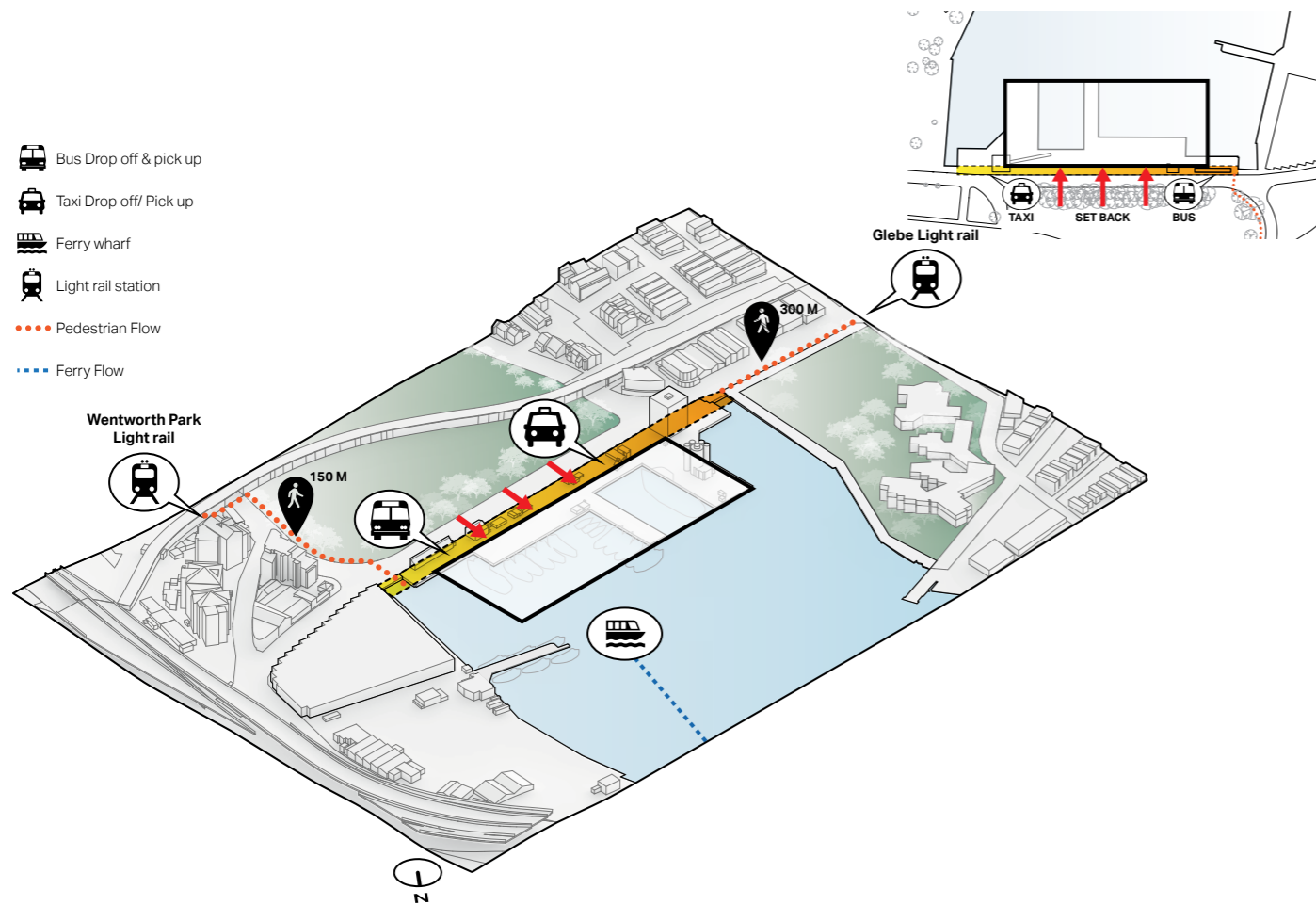


Diagram - Connectivity

The proposed site for the new Sydney Fish Market is foreseen to be a node for connectivity. The design of the new facility will accommodate all modes of transport but will give preference to active transport (walking and cycling) and public transport (light rail, bus, taxi, Uber, and ferry).

Wentworth Park, the Fish Market and Glebe light rail stations are in walkable distance to the proposed site, and the pedestrian movement will encourage movement across park and along water.

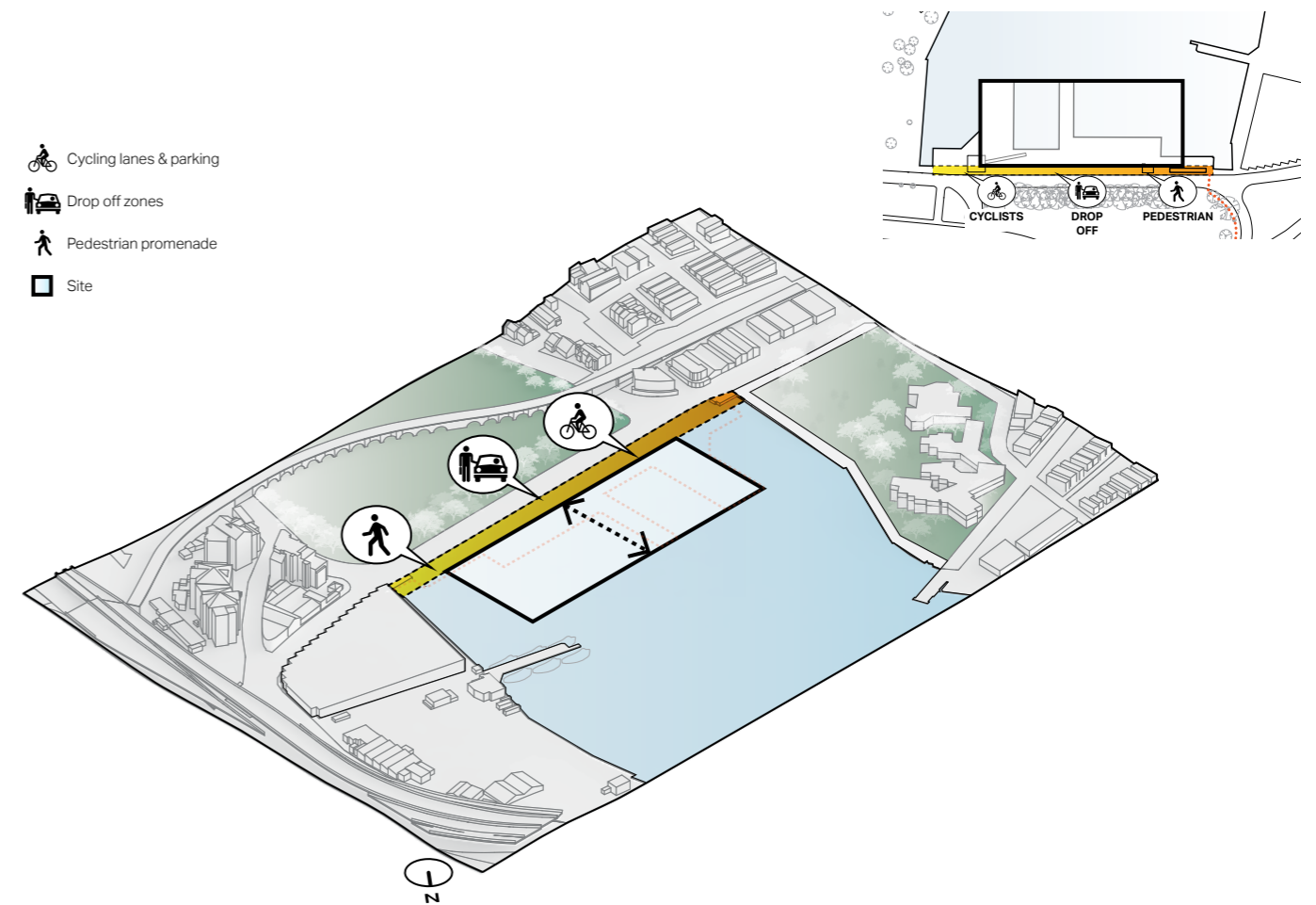


Diagram - Potential Building Setback

Given the anticipated high number of pedestrian and cyclist movements to and around the new Sydney Fish Market, the building will be setback from Bridge Road to accommodate a wider footpath.

2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrates how the site envelope was shaped based on considerations to immediate context and public amenity.

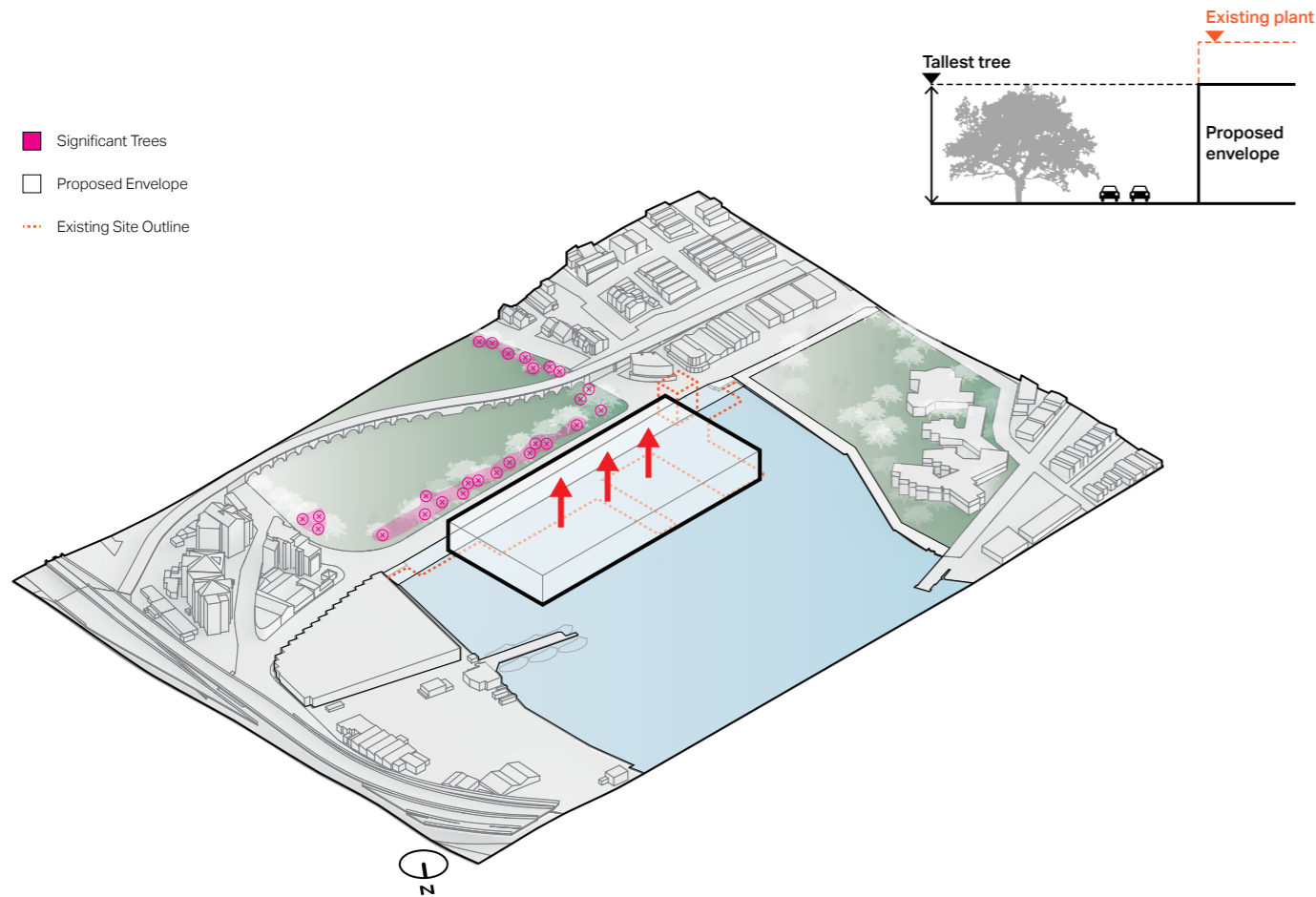


Diagram - Height and scale of envelope

The significant trees in Wentworth Park informed the height of the proposed building envelope with the roof edge seeking to relate to the tree line, and not exceed the height of existing cement batch plant (28.7 meters high) as a reference datum. This also reduces the visual and shadowing impacts on Wentworth Park.

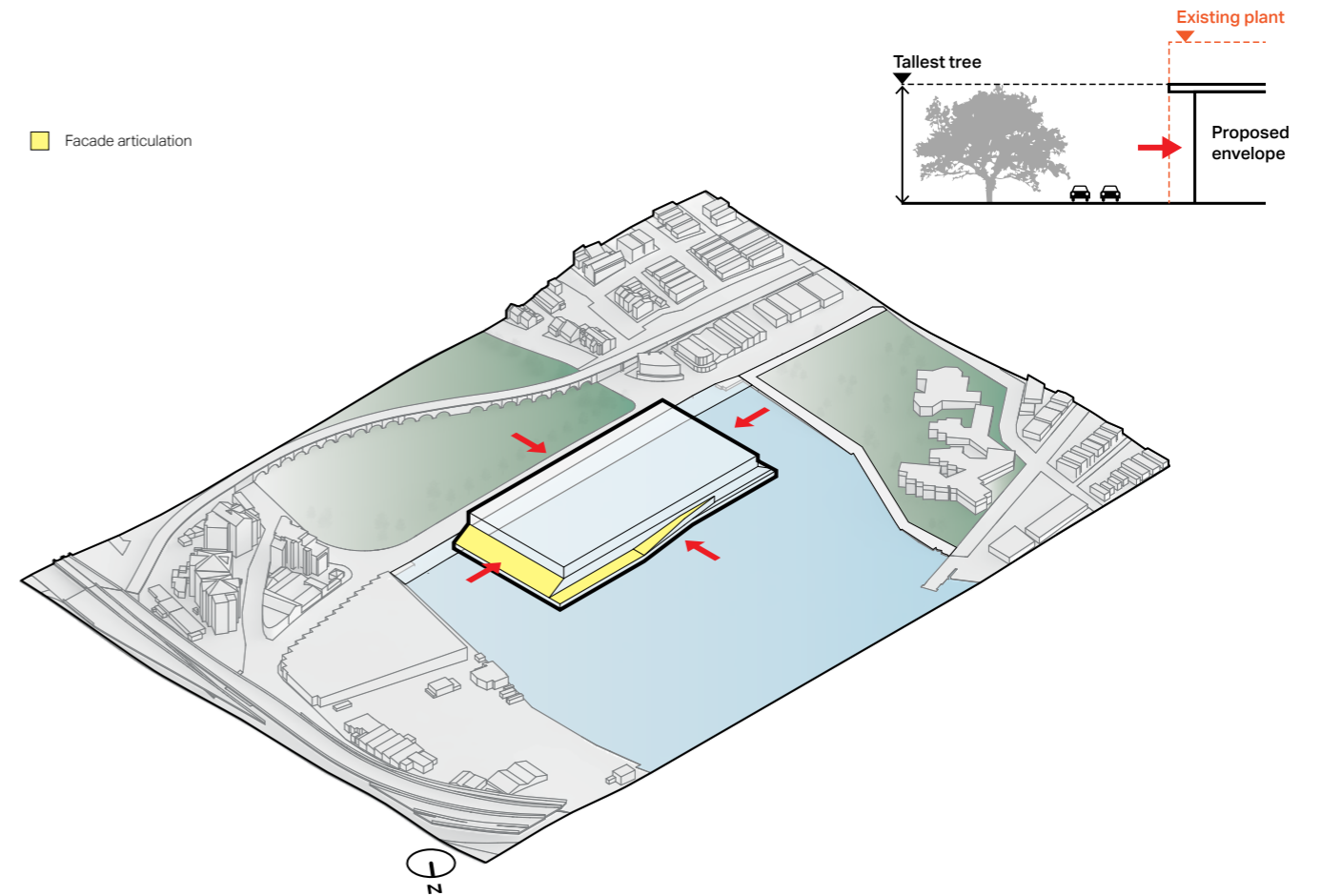


Diagram - Articulation of envelope bulk and scale

The proposed facades are set back to reduce the scale of its massing to Bridge Road. In particular the Bridge Road elevation of the new development will feature a creation of green promenade with new planting references.

Each facade provides an opportunity as a connector through featured landscape stairs in order to relate the promenade and building. This will also break the bulk of the mass to a more human street scale to activate the public realm.

2.1 Built Form & Urban Design Analysis

Site Conditions & Responses

The following diagrams illustrates how the site envelope was shaped based on considerations to immediate context and public amenity.

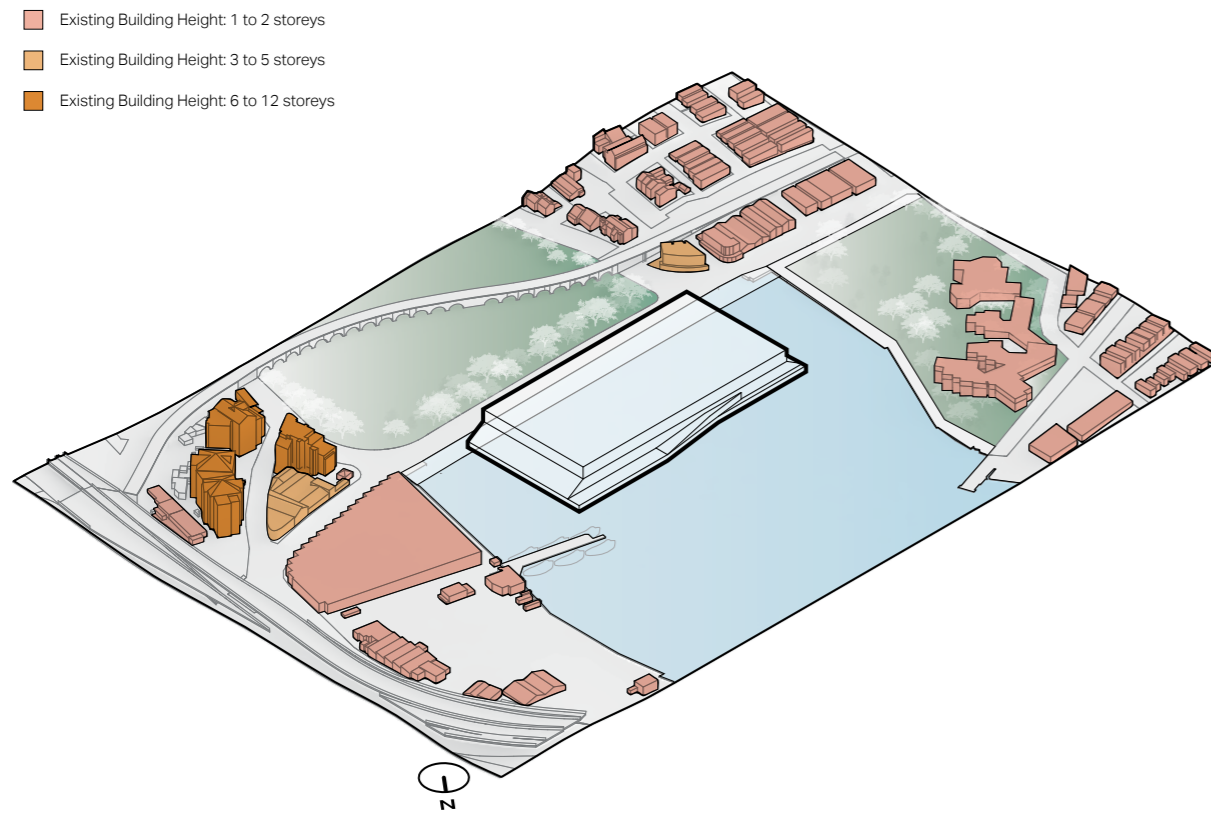


Diagram - Built Form

The built forms to the west of Wentworth Park (Glebe) are made up of small lots with majority of terrace houses at 1 to 2 storeys high with some more recent multi-storey apartment developments. The built form to the east of Wentworth Park (Ultimo and Pyrmont) consist of buildings with larger footprints, mainly in the 3 to 12 storey height range.

The proposed development will consist of 3 levels above ground.

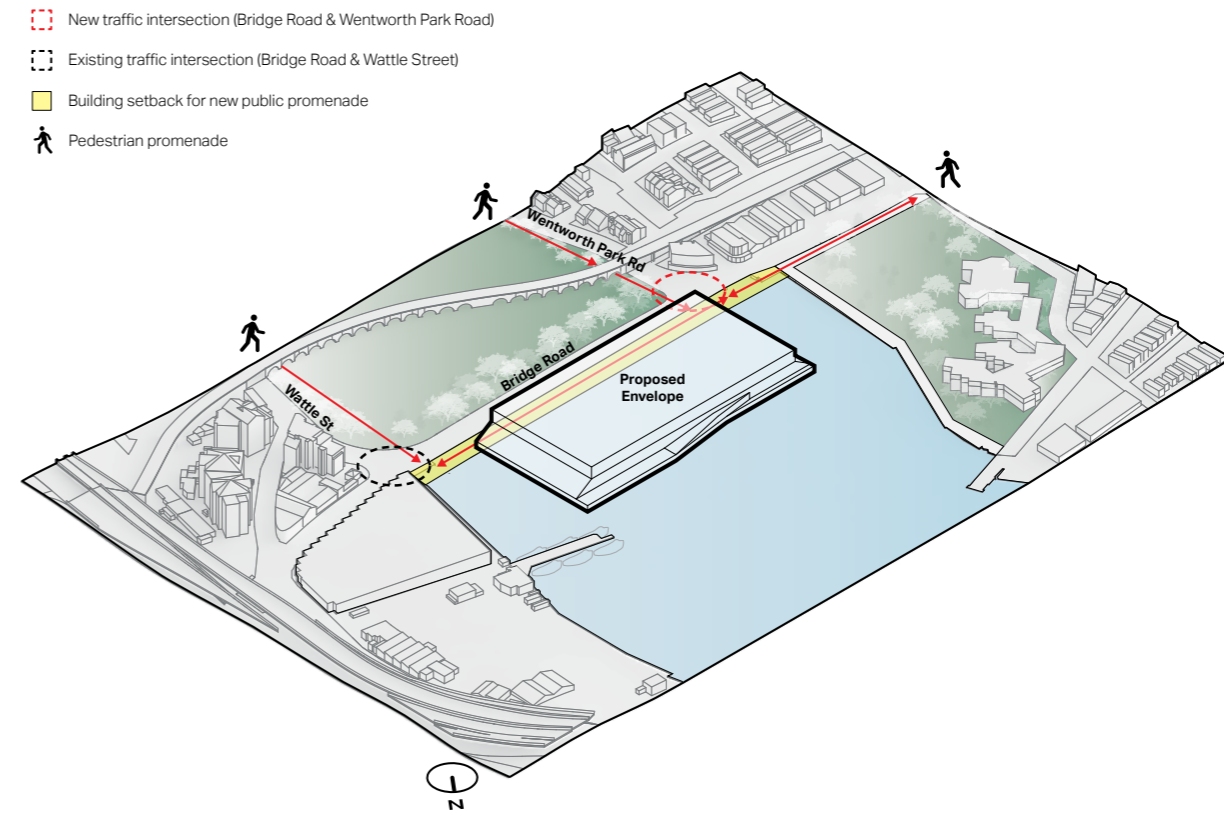


Diagram - Street activation and public accessibility

New signalised crossing at Bridge Road and Wentworth Park Road intersection, and changes to Bridge Road and Wattle Street intersection will be implemented for safe pedestrian crossing and vehicle movements in and out of the proposed development.

2.2 Built Form & Urban Design

Blackwattle Bay - Desired Future Character

2.2 Built Form & Urban Design Analysis

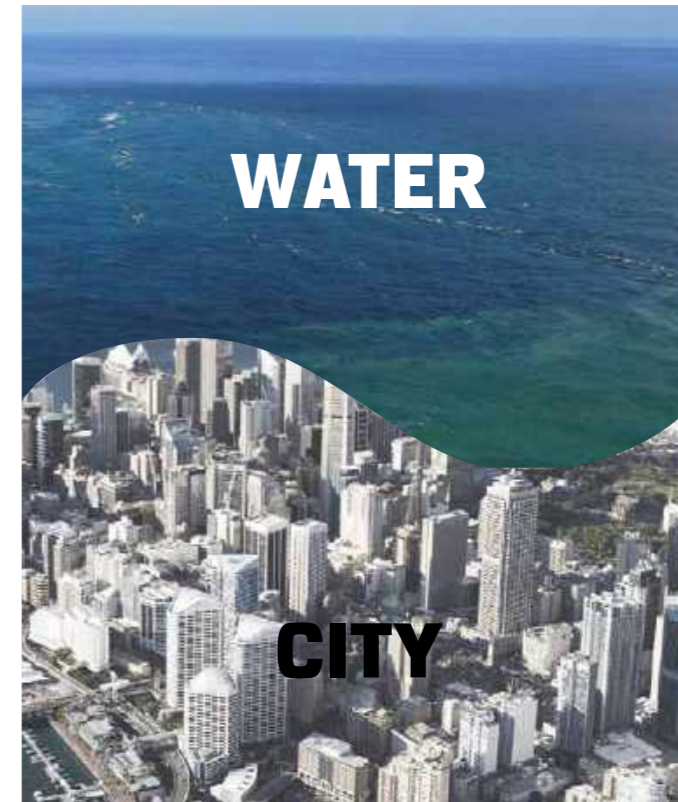
Desired Future Character

The following outlines the desired future character of the proposed development, as a working fish market which also connects people to place and provides a new waterfront destination for the city.



Future oriented, yet authentic Fish Market

A key theme behind creating the new Sydney Fish Market is to allow advancement in design and technology to improve the operability and sustainability of the fish market, while preserving, and even enhancing the essential character of the market itself. Authenticity will be achieved through the sensory and experiential qualities of a bustling industrial fish market. It includes the sounds of competing sellers, the visual connection to the boats hauling their catch, the theatre of the auction in process, the connection to the outdoor environment and the rapid movement of goods.



Continuing Sydney's connection with the water

Sydney is a city celebrated for its connection to the harbour and ocean. A key theme behind the new Sydney Fish Market is to re-establish this connection at Blackwattle Bay, not only visually, but physically in many ways. New sustainability and leisure initiatives offer opportunities for this intersection of land and harbour to educate the public about marine ecology, provide opportunities to contact the water and initiatives to experience an increase in aquatic biodiversity.

2.2 Built Form & Urban Design Analysis

Desired Future Character

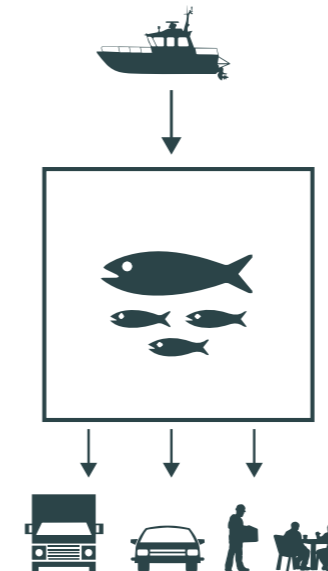
The following outlines the desired future character of the proposed development, as a working fish market which also connects people to place and provides a new waterfront destination for the city.



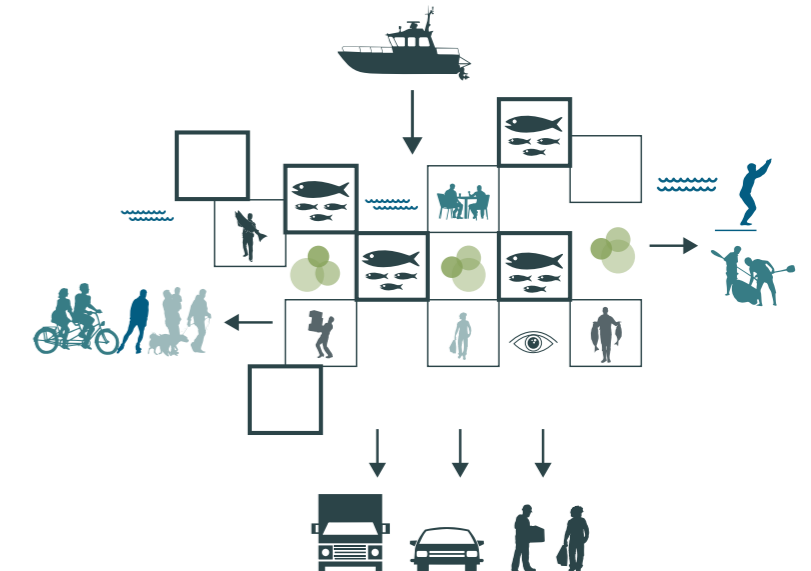
Combining two territories; Operations and public access

The new Sydney Fish Market design will successfully provide public access to the bay while separating them from the dangers of industrial operations and goods handling. Public safety is an essential quality of the design that preserves experiential connectivity between the public and industrial processes while separating their paths.

What is a fish market?



What could a new fish market be?



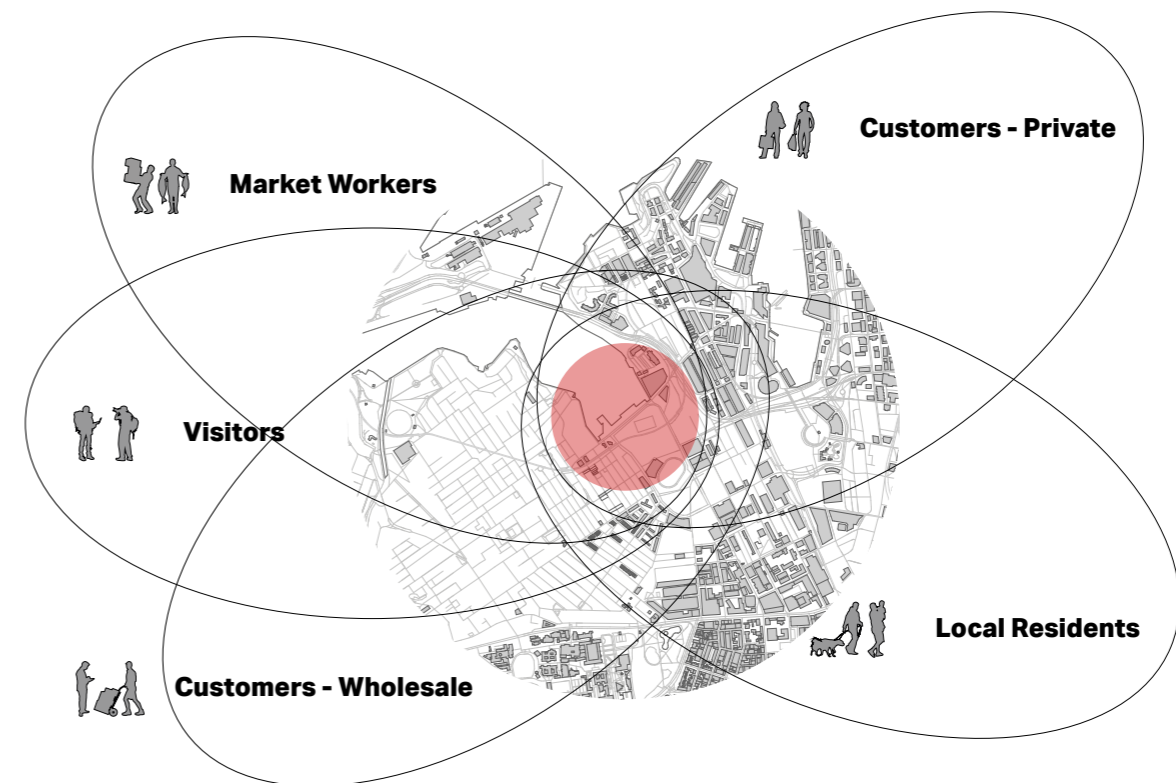
The new Sydney Fish Market as an urban connector

The new Sydney Fish Market is seen as an opportunity to diversify the functions and experiential character of the fish market. The open, flexible structure with injections of nature, education and leisure experiences will allow more visitors to participate in the activities offered by the harbour and fish market.

2.2 Built Form & Urban Design Analysis

Desired Future Character

The following outlines the desired future character of the proposed development, as a working fish market which also connects people to place and provides a new waterfront destination for the city.



A new public anchor on the Sydney harbour front

Identified as the first development in 7 key actions of the " NSW Government's Bays Precinct Sydney: Transformation Plan (October 2015) ", the new Sydney Fish Market will form the primary connective node for Sydney and the Bays District, which includes Roselle Bay, White Bay, and Glebe Island.

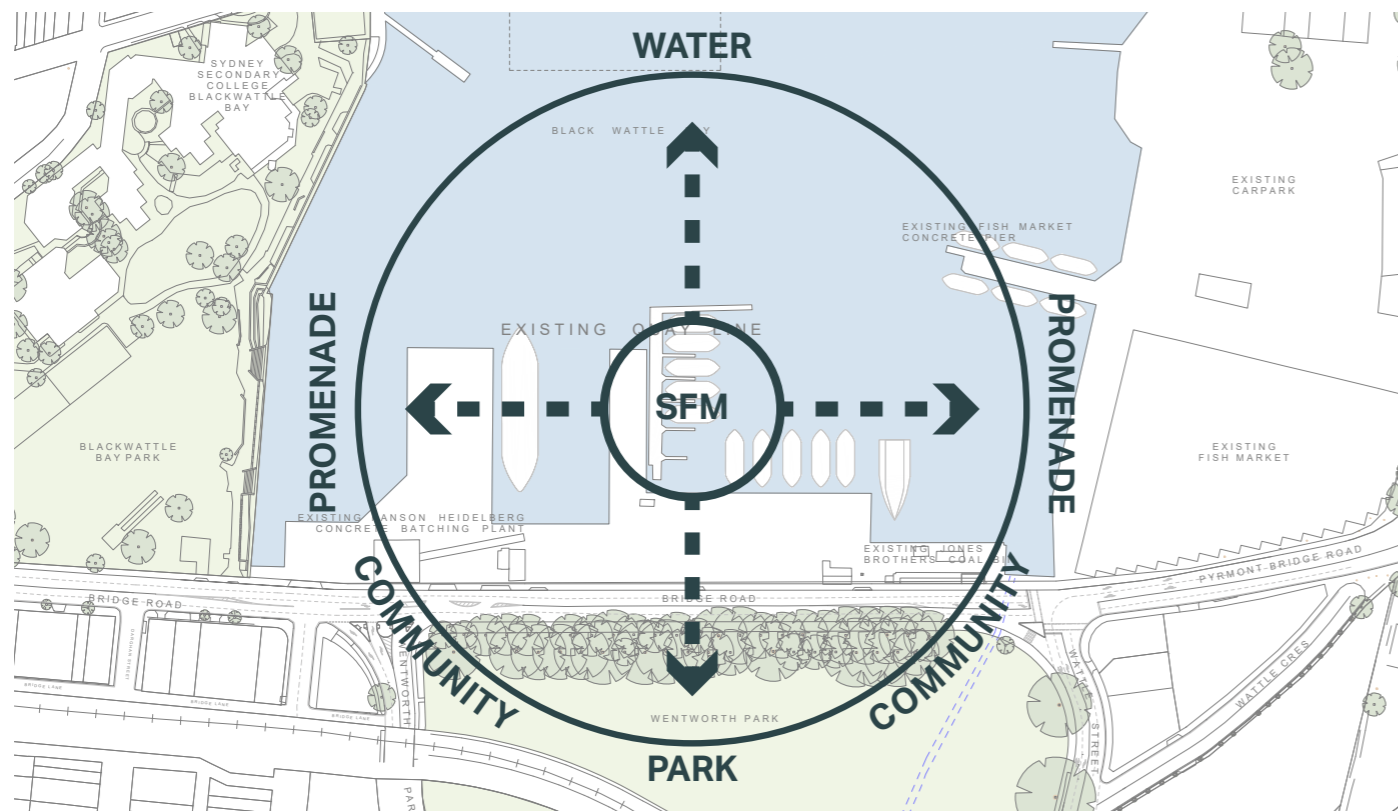
A project that is relevant for different user groups

As an effective anchor, the new Sydney Fish Market design aims to address a variety of user groups, each with specific needs and desires. The open structure of the market design seeks to democratise the space and offer value to each group.

2.2 Built Form & Urban Design Analysis

Desired Future Character

The following outlines the desired future character of the proposed development, as a working fish market which also connects people to place and provides a new waterfront destination for the city.



The new Sydney Fish Market connects the water, park and promenade

A key principle of the new Sydney Fish Market design is to operate as a connective agent, linking the pedestrian promenades developed on either side and linking the park with the water for the benefit of both visitors and the local communities.

Maintain Fish Market authenticity and improve operational efficiency and safety

Various activities such as goods handling, wharf operations, waste handling and food-processing are unfit for public interaction. Other processes such as the auction and wholesale activities may be double programmed or provide some opportunities for crossover. The new Sydney Fish Market design is formulated in such a way as to mediate industrial, semi-public and public activities in a way that is mutually beneficial to all, achieving authenticity through connection and safety through spatial organisation and separation.

2.2 Built Form & Urban Design Analysis

Provide A Variety of Experiences Along The Foreshore

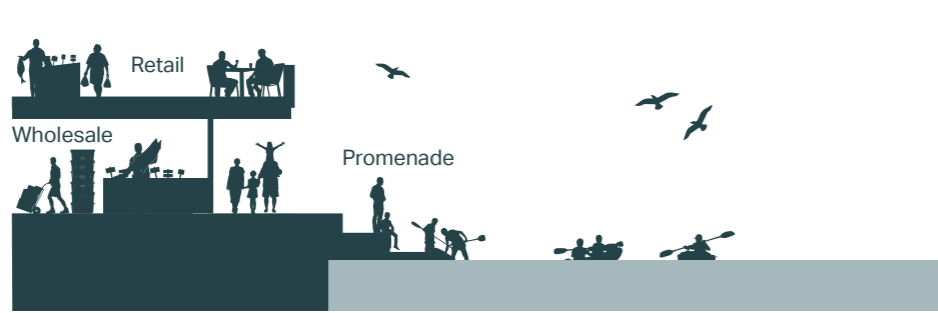


Diagram: Operations and Public - Wholesale and Retail.



Diagram: Operations and Public - Loading Dock and Retail.

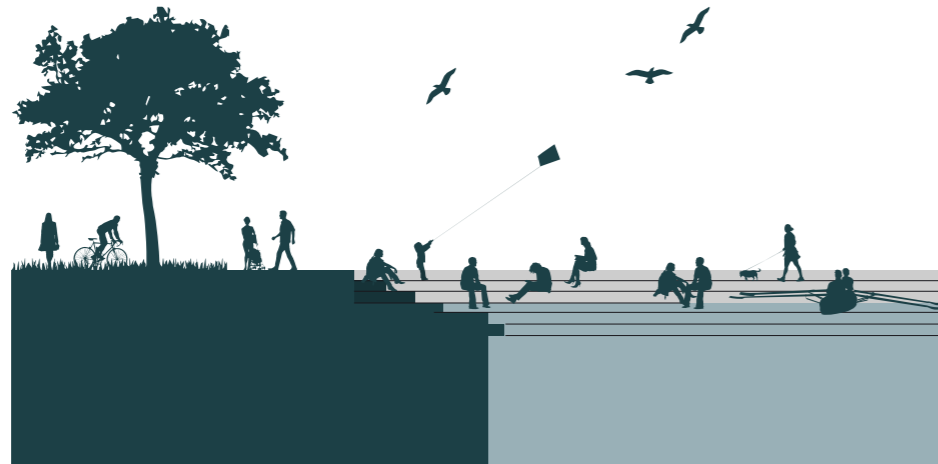


Diagram: Tiered Seating.

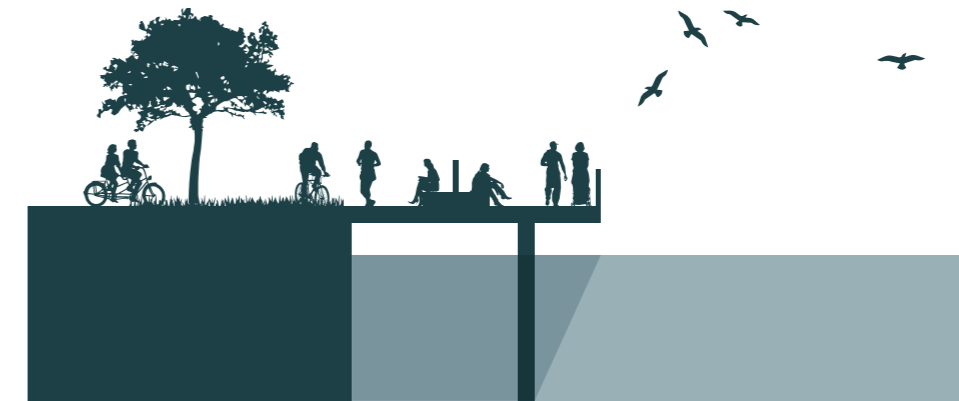


Diagram: Promenade Boardwalk.

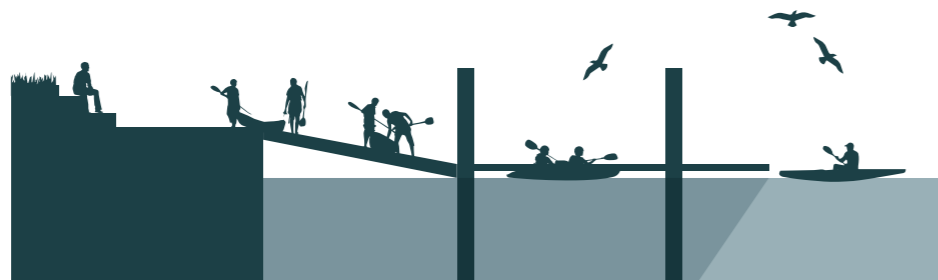


Diagram: Pontoon Platform.

2.3 Built Form & Urban Design

Design Strategy



Indicative western view of the new Sydney Fish Market. Artist's impression only. Not to scale.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site.

The location of the site at the head of Blackwattle Bay allows for the exploration of different conditions at the waters edge and creates new opportunities for the public to engage with the water.

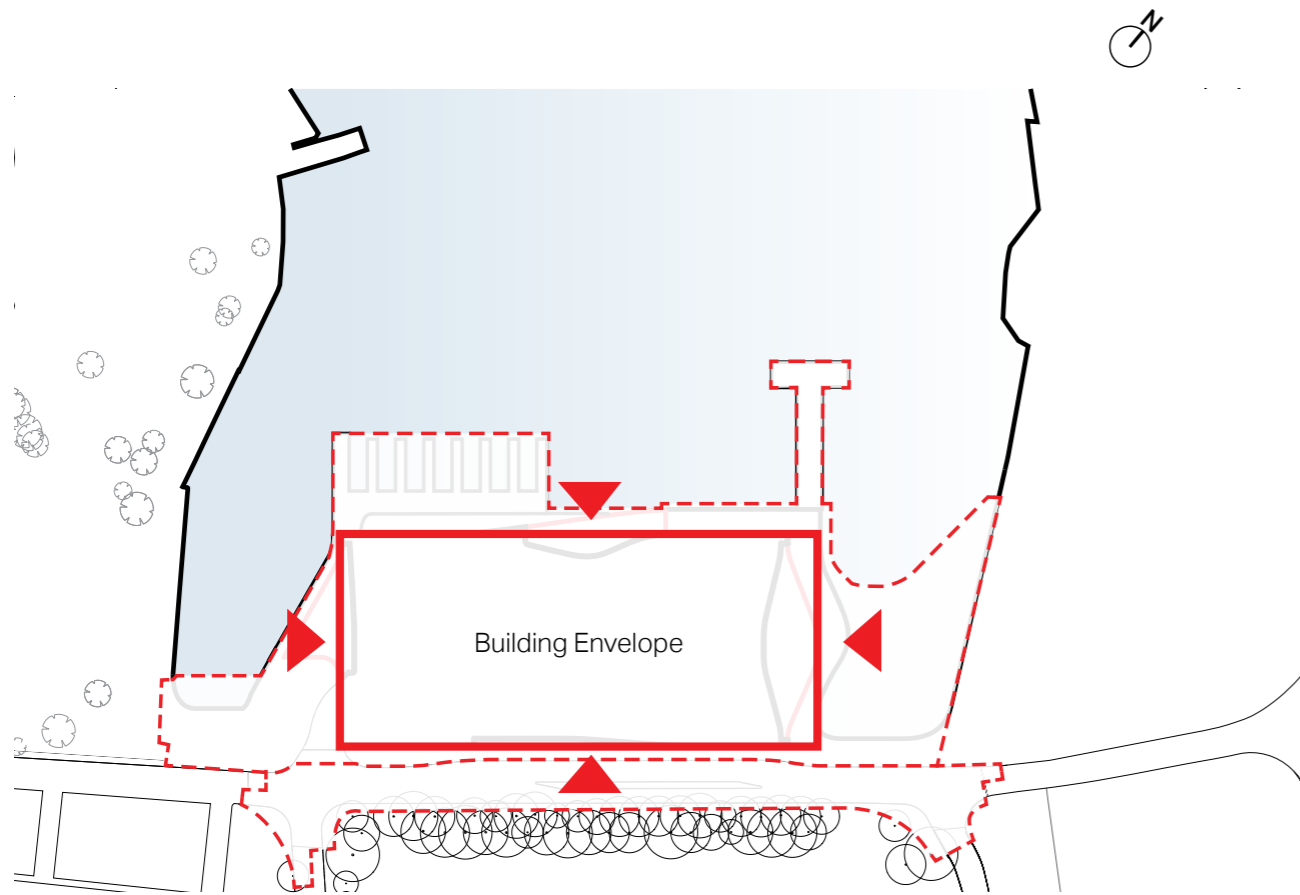


Diagram : Promenade Stairs

The promenade stairs act to define public space and connection to the water, while lifting the public thoroughfare over the industrial activities of the wharves and goods handling of the new Sydney Fish Market.

This maintains the authenticity of the market, allowing the operation functions to be visible along ground floor while separating goods and public movement.

Note* Indicative only. Refer to architectural drawings.

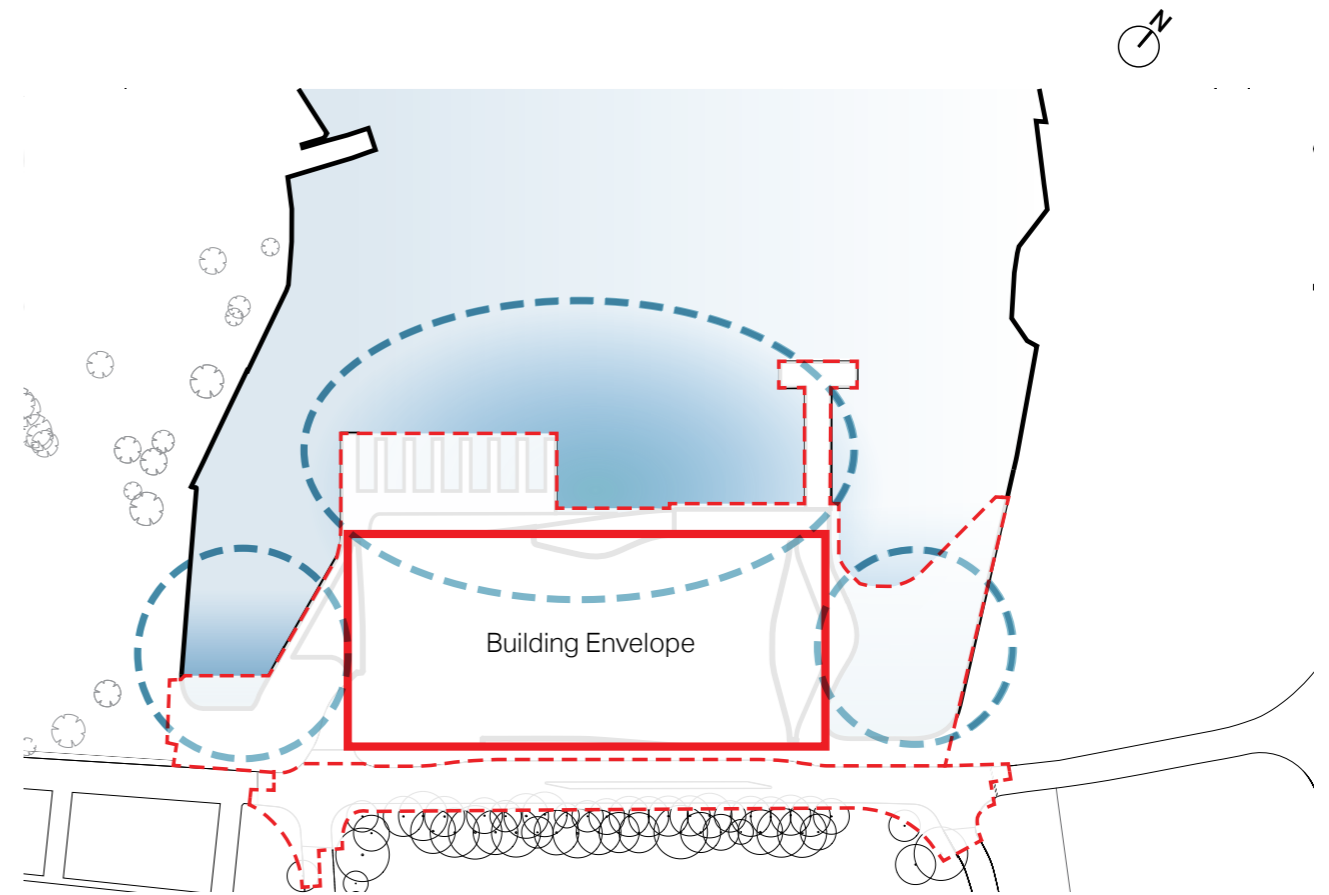


Diagram : Water On Three Sides

Being located at the head of Blackwattle Bay, the public open space formed offered the opportunity to create distinct spaces characterized by different experiences of water and the waters edge.

To the north, a working harbour and ferry zone was located, visible by the public to show case the functions of the fish market. Two plazas to the east and west are new public spaces with differing conditions at the waters edge, and different ecological water treatment systems.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site.

The proposed development has activated frontages on all sides, promoting accessibility and connection around the bay.

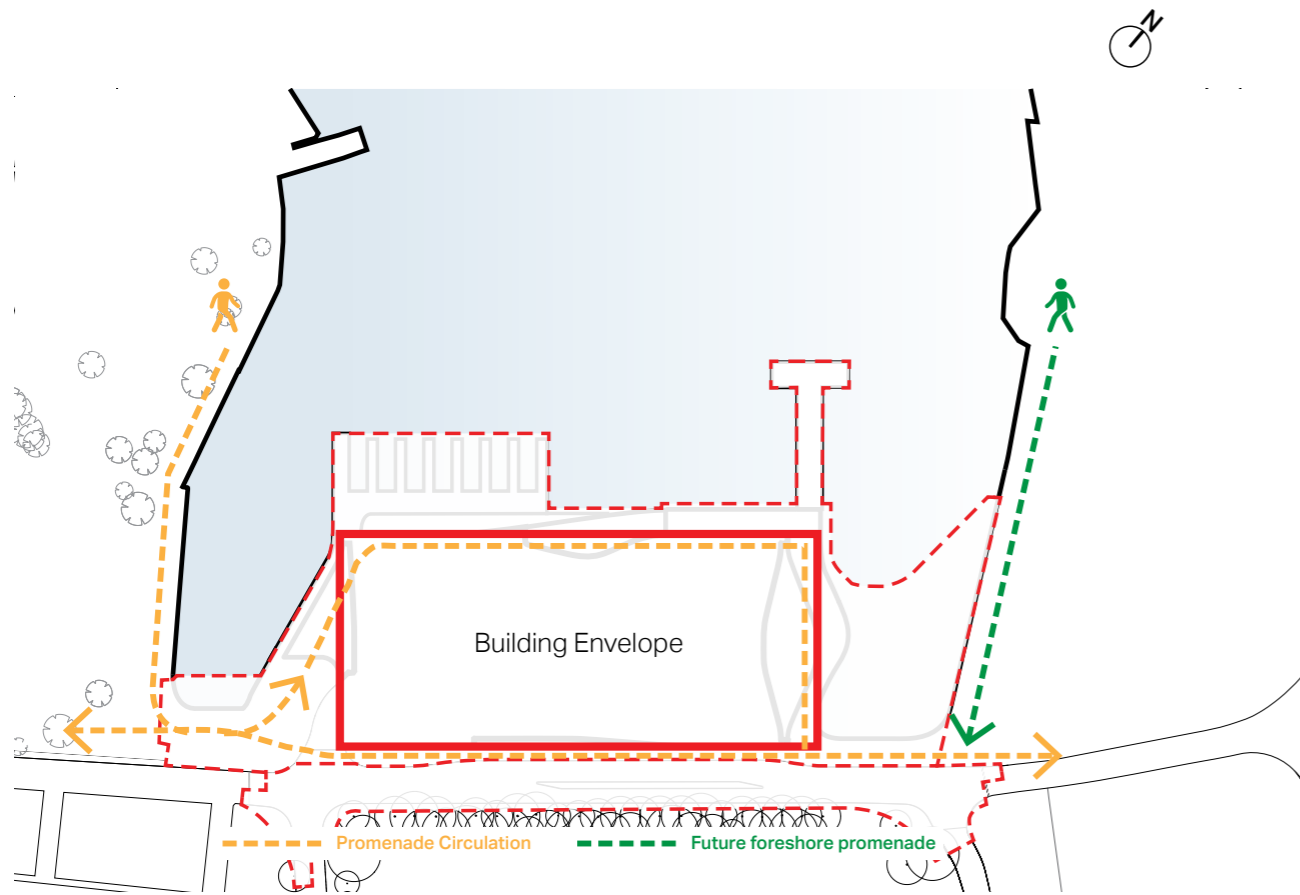


Diagram : Circulation

Circulation paths around the new Sydney Fish Market include a shared promenade connection along Bridge Road, and the establishment of a public pedestrian promenade along the foreshore of Blackwattle Bay.

Note* Indicative only. Refer to architectural drawings.

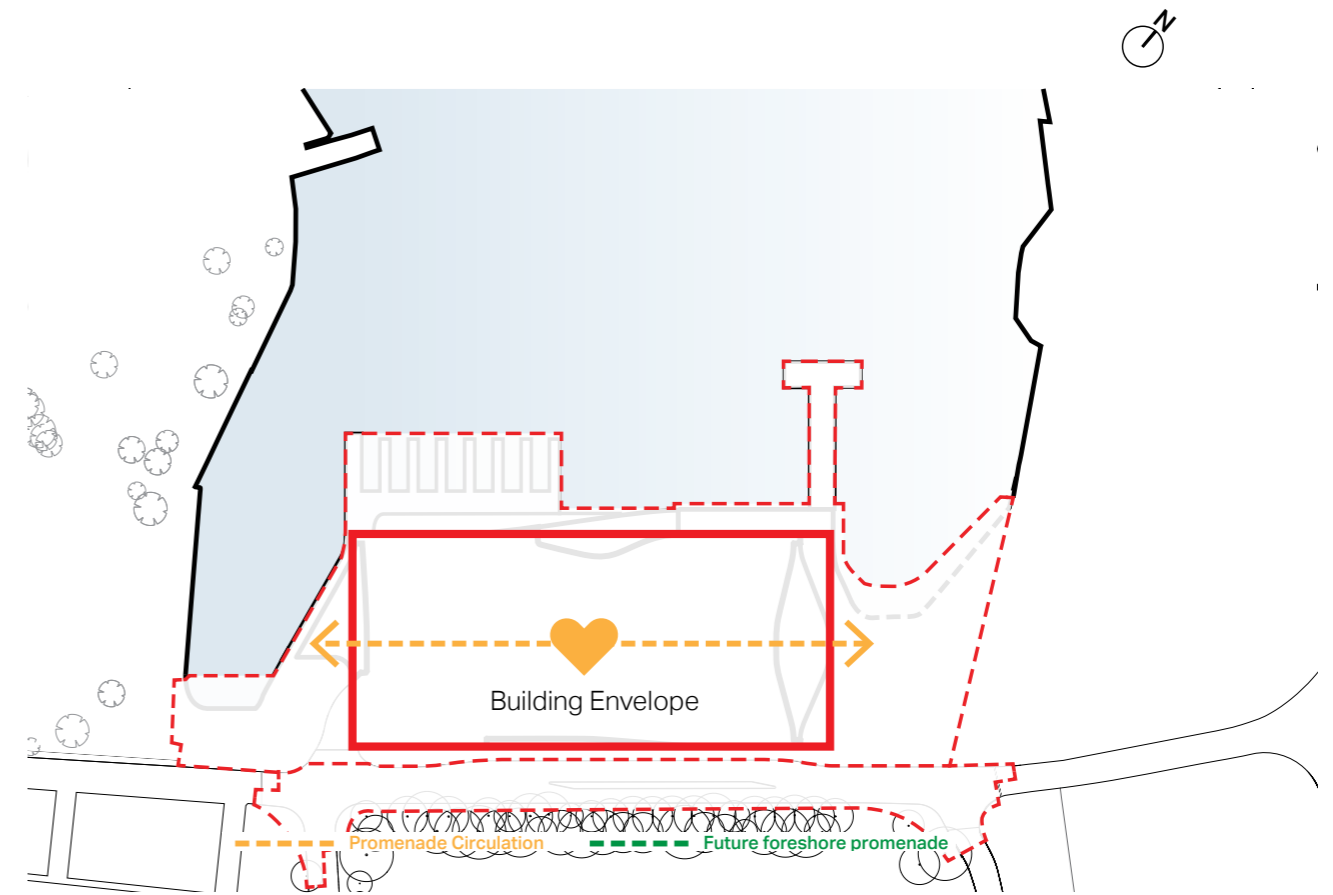


Diagram : Central Boulevard

During opening times, a central boulevard connects the east-west axis of the market and is likewise, treated as a public thoroughfare.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site.

The proposed development has activated frontages on all sides, promoting accessibility and connection around the bay.

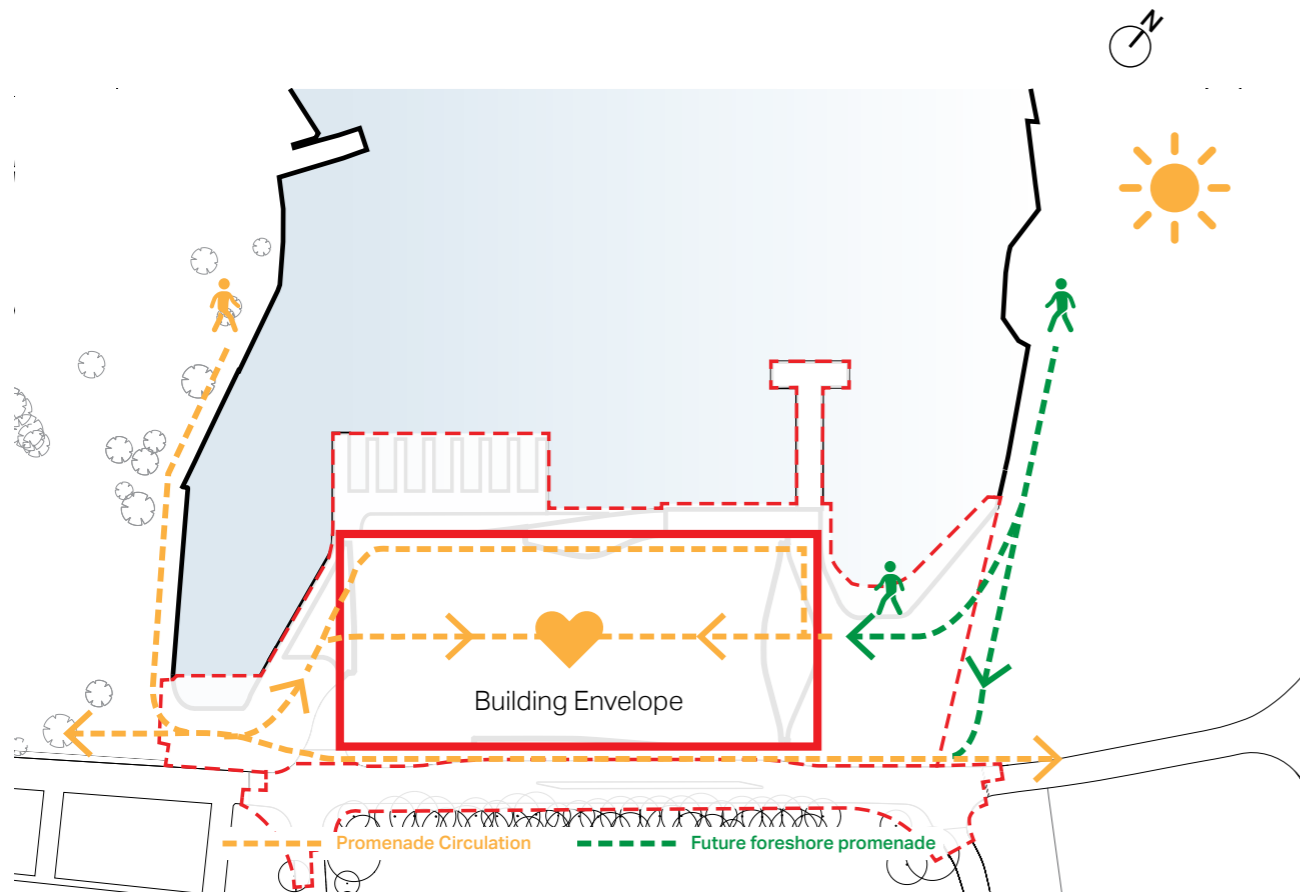


Diagram : New Bridge Connection And Day Time Access

An added bridge has the double purpose of defining a landscaped ecological zone in the eastern inlet, and connecting the central boulevard and harbour promenade of the development.

Note* Indicative only. Refer to architectural drawings.

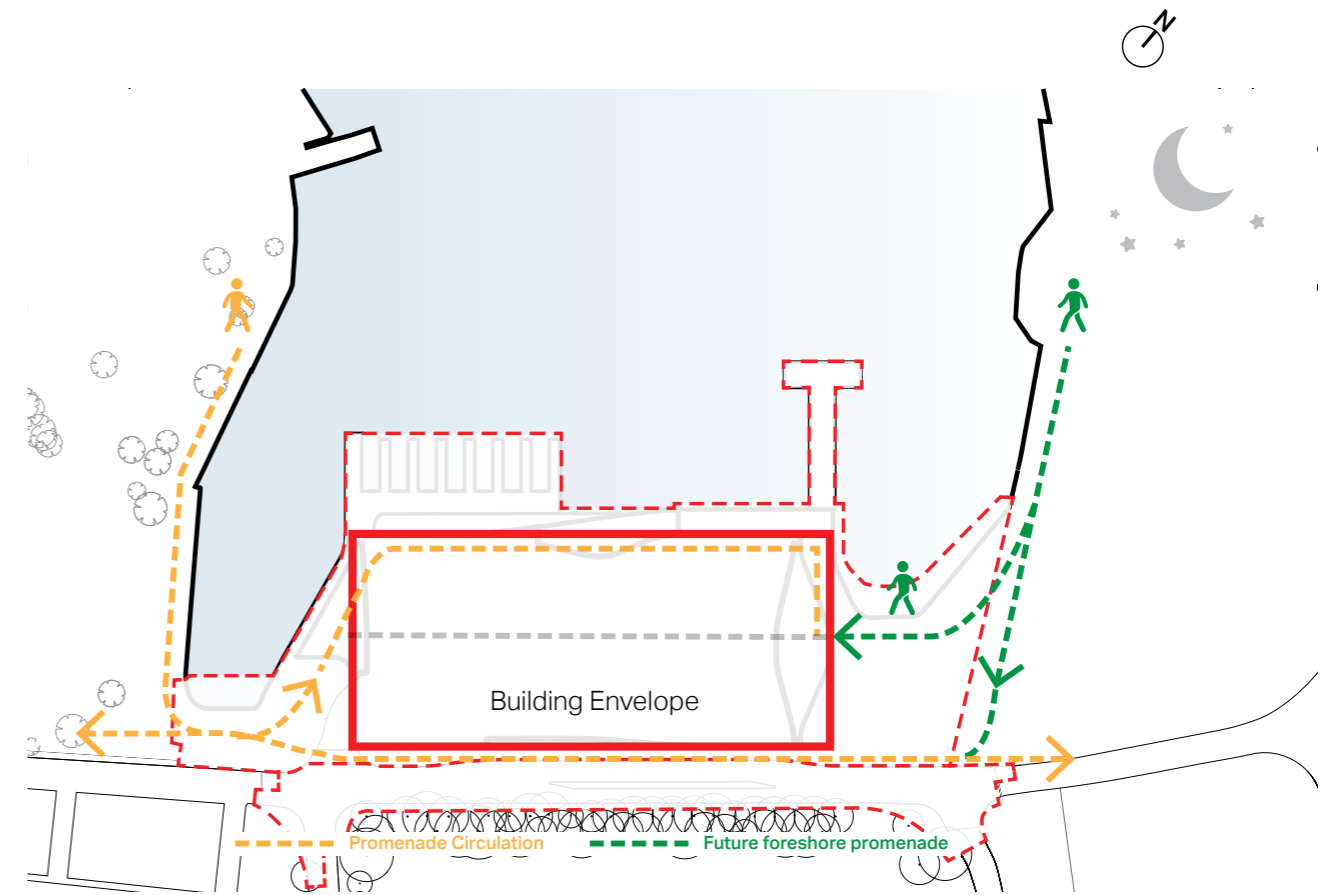


Diagram : Night Time Access

The bridge aids connectivity for the foreshore promenade at all hours.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate the impact of the proposed building on the existing rowing route.

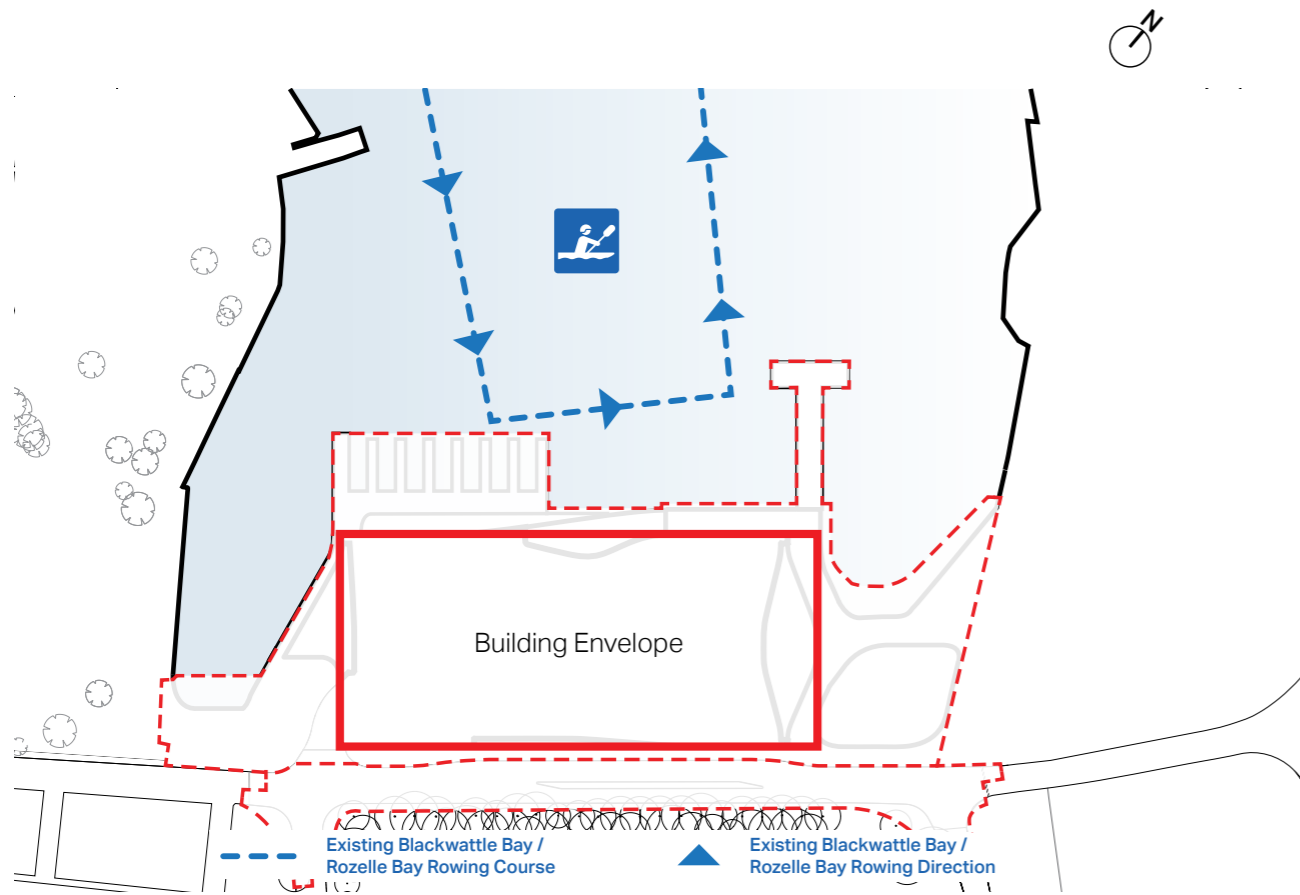


Diagram : Existing Blackwattle Bay / Rozelle Bay Rowing Course

Rowing is a popular activity in the Bays Precinct. Maintaining the existing Blackwattle Bay / Rozelle Bay rowing course ensures the retainment of the Bay's existing recreational activities and identity. (Refer to Navigation Impact Assessment - Royal Haskoning DHV)

Note* Indicative only. Refer to architectural drawings.

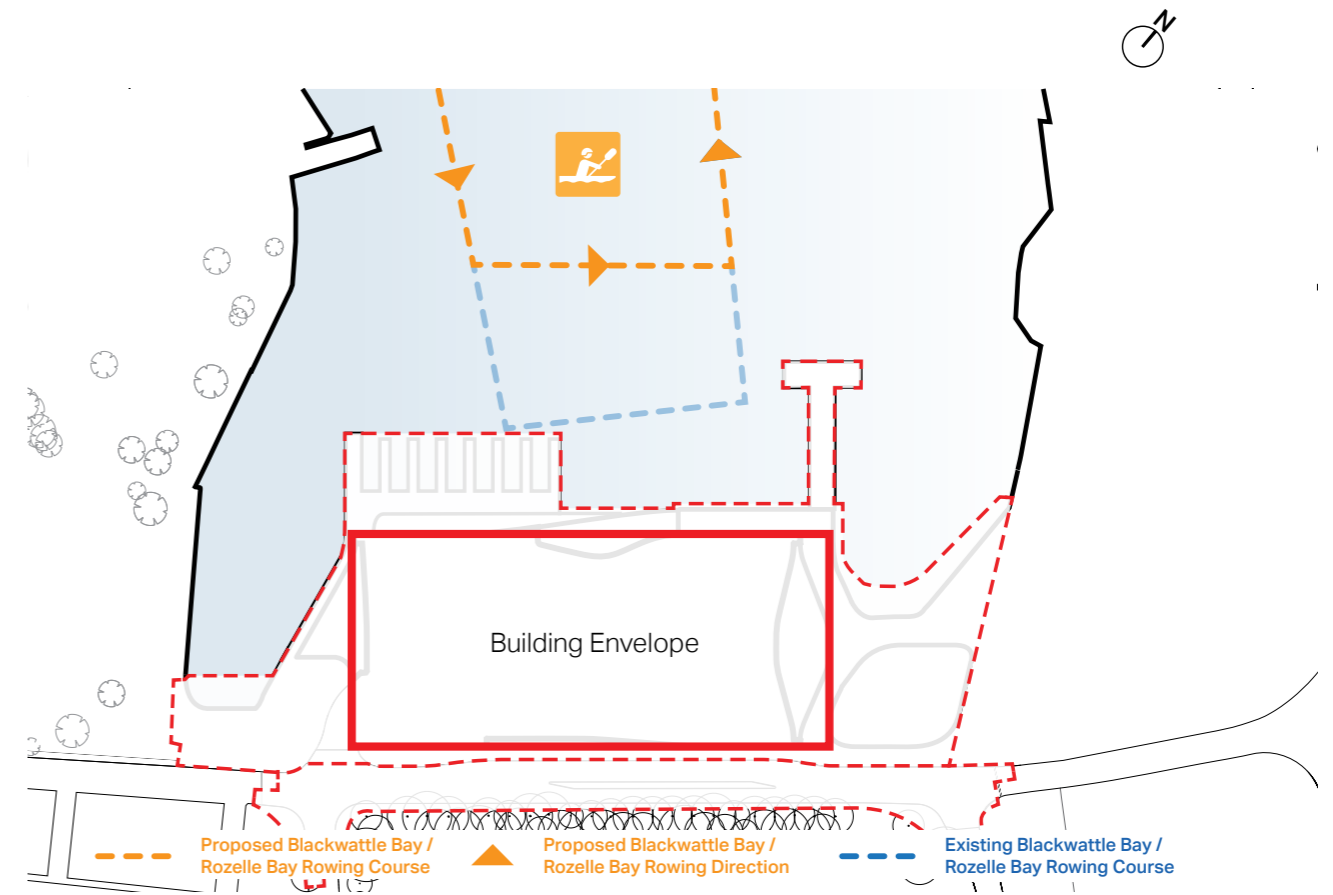


Diagram : Proposed Relocation Of Rowing Route

The proposed relocation of the rowing route ensures that there are no circulative conflicts between rowers and fishing vessels moving to and from the new Sydney Fish Market. (Refer to Navigation Impact Assessment - Royal Haskoning DHV)

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site.

The location of the site at the head of Blackwattle Bay allows for the exploration of different conditions at the waters edge and creates new opportunities for the public to engage with the water.

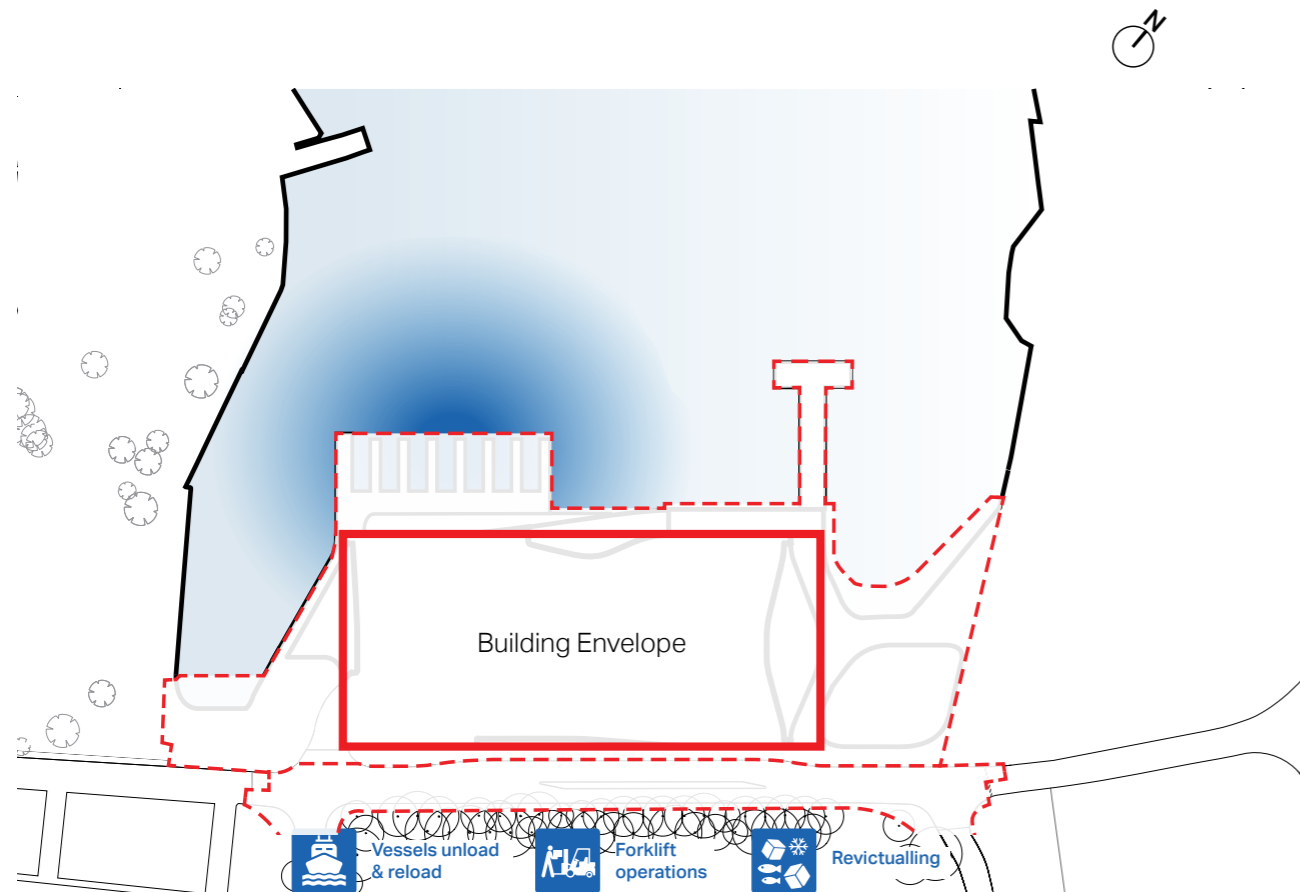


Diagram : Wharves - Operation

The piers of the new Sydney Fish Market are separated in function, with the westerly piers serving commercial and working harbour purposes.

Note* Indicative only. Refer to architectural drawings.

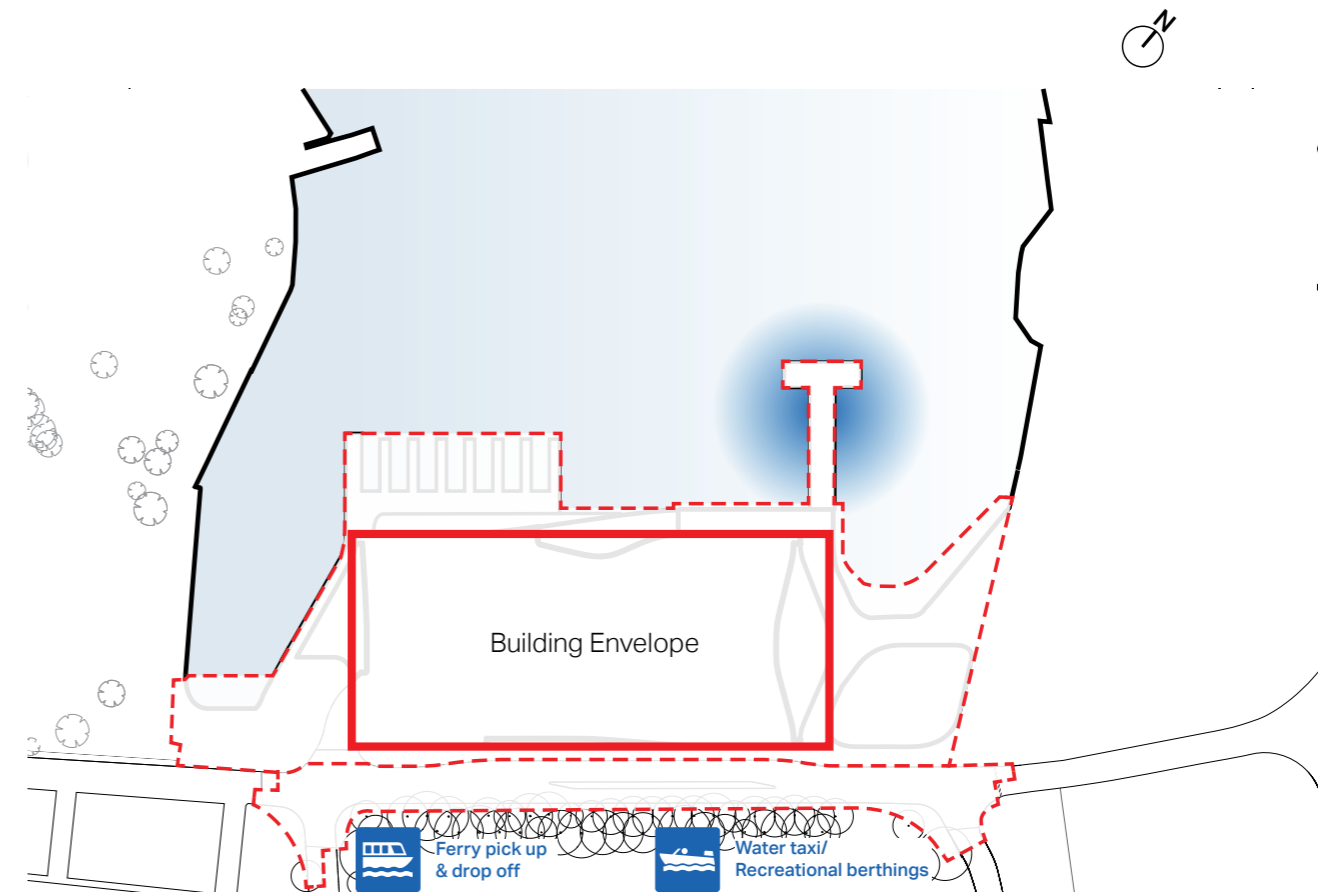


Diagram : Wharf - Recreational And Ferry

Easterly piers serving public purposes including a public ferry station, water taxi services and recreational berthings for day-trippers to the new Sydney Fish Market.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site.

The location of the site at the head of Blackwattle Bay allows for the exploration of different conditions at the waters edge and creates new opportunities for the public to engage with the water.

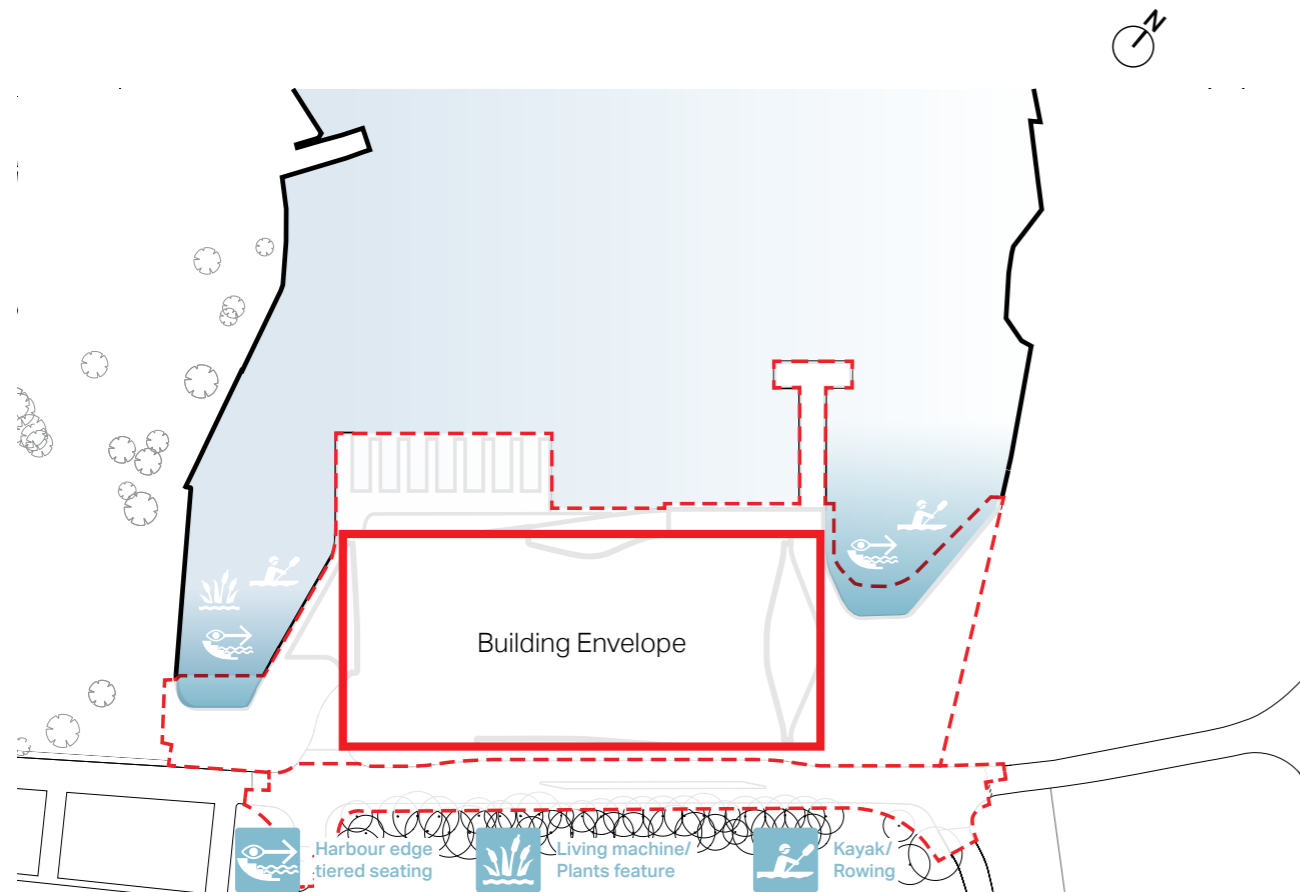


Diagram : Recreational Open Water

Open-water bays are foreseen to accommodate leisure activities, with a local, community and educational focus in the westerly bay in proximity to Sydney Secondary College and a more public leisure focus in the easterly bay.

Note* Indicative only. Refer to architectural drawings.

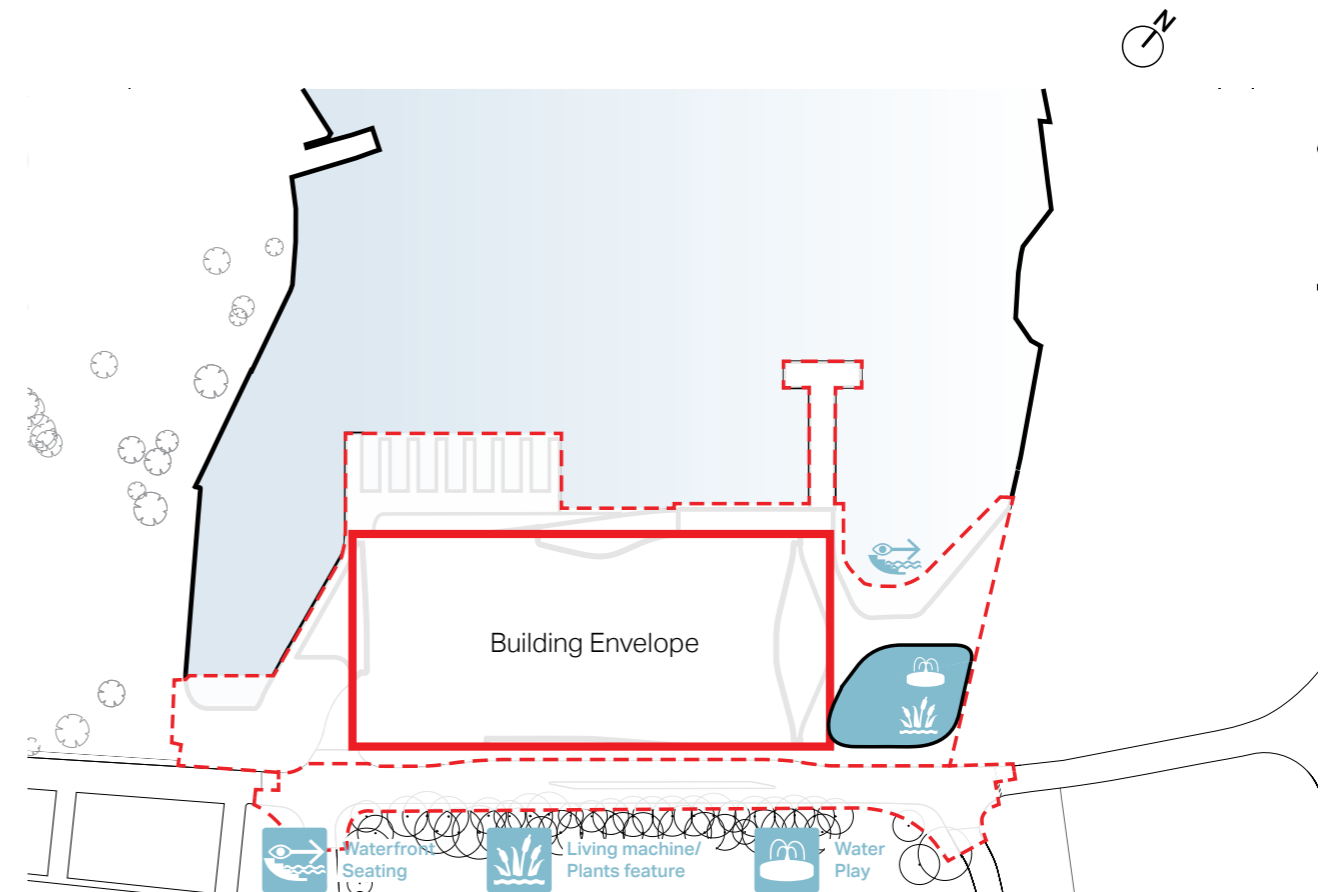


Diagram : Educational Lagoon

The enclosed side of the easterly bay is foreseen to contain a water treatment function (bio-filtration), whereby grey-water is cleaned for recycling or discharge. This provides amenity to the new Sydney Fish Market water cycle and an educational opportunity for public communication and continued research.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Design Strategy

The following diagrams illustrate how the proposal responds to site specific conditions, and achieves an optimal design outcome which provides improved amenity, views, public space and connectivity to the site. The proposed development has activated frontages on all sides, promoting accessibility and connection around the bay.

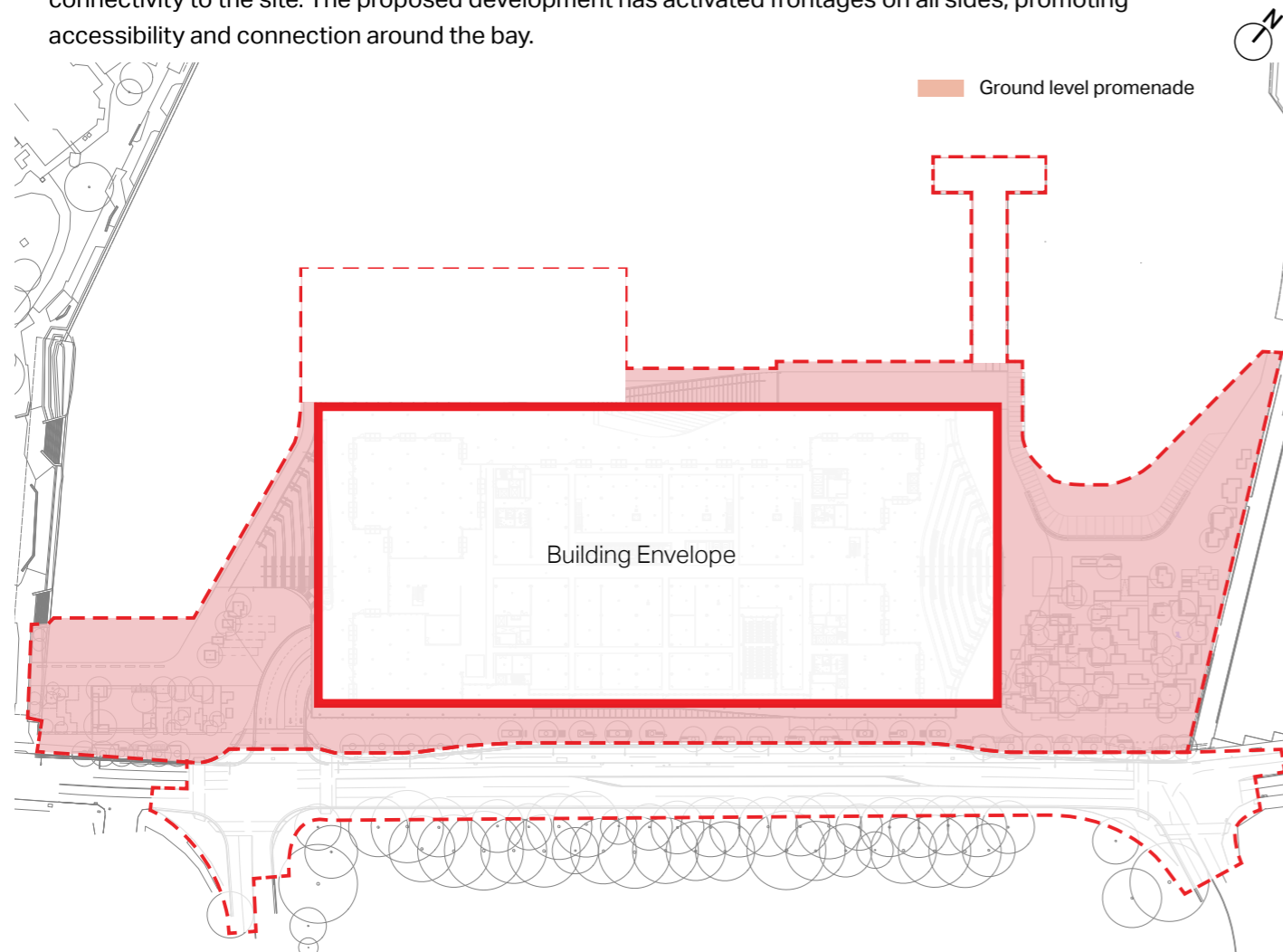


Diagram : Promenade Zones

The new Sydney Fish Market will provide various promenade experiences ranging from a green promenade along Bridge Road to a waterfront promenade along the edge of Blackwattle Bay, including an elevated promenade that transitions visitors from the ground level to the upper ground level.

These different promenades allow for different experiences around the proposed development, and reflects the duality of the site as being one between water and park.

Note* Indicative only. Refer to architectural drawings.

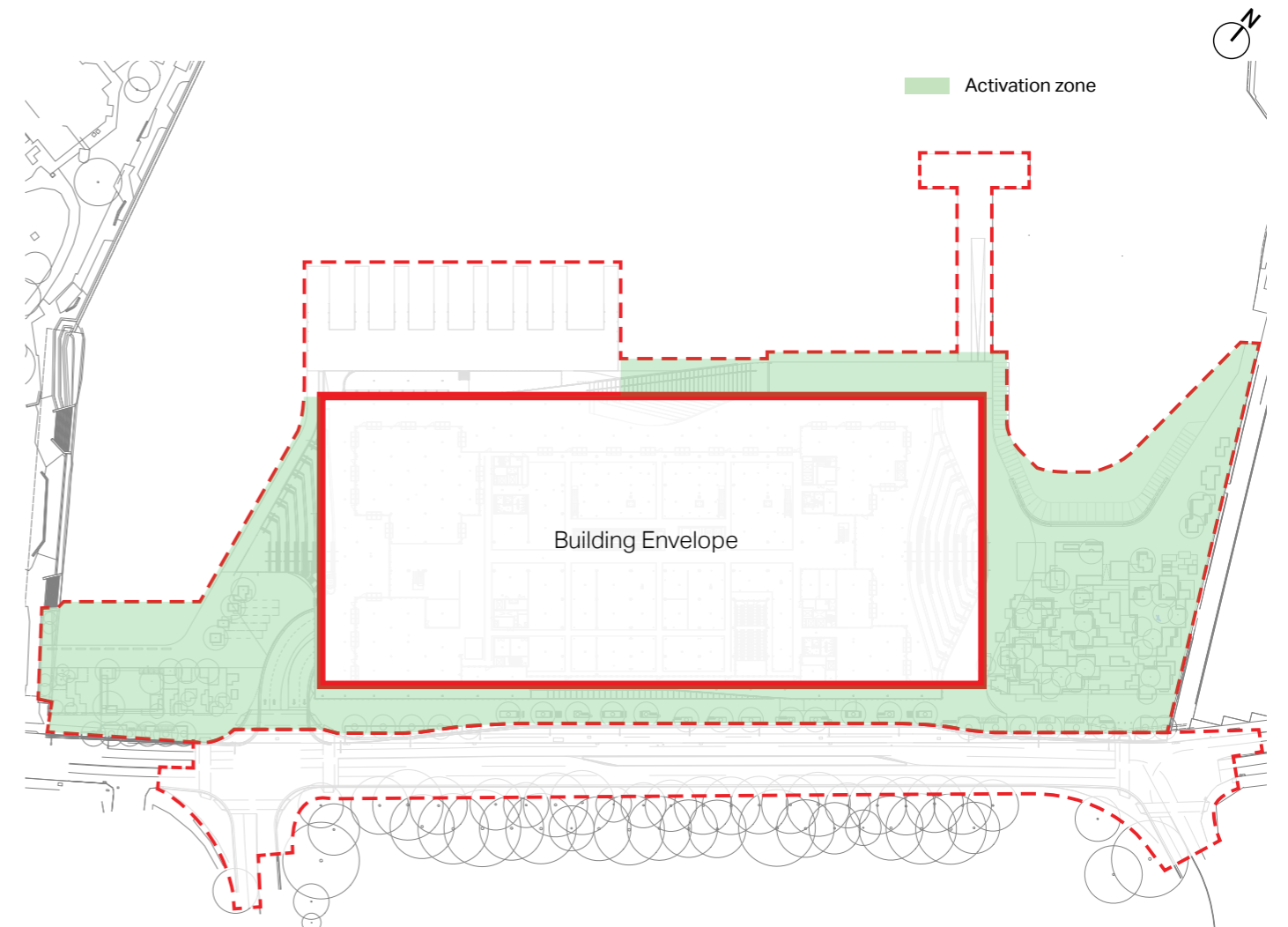


Diagram : Activation Zones

Activation zones of the proposed new Sydney Fish Market ensure that the building and its immediate promenade surroundings provides public benefits and interactions with Blackwattle Bay. Examples include the eastern and western plazas, promenade stairs and common seating experiences on the Upper Ground retail floor.

These spaces have different characteristics informed by the proposed building's scale and context, including the eastern and western plazas, with their different water conditions and harbour edge experiences.

Note* Indicative only. Refer to architectural drawings.

2.3 Built Form & Urban Design Analysis

Key Views & Vistas

The following diagrams illustrate how the new development improves upon the existing conditions and creates views out into Blackwattle Bay and Wentworth Park.

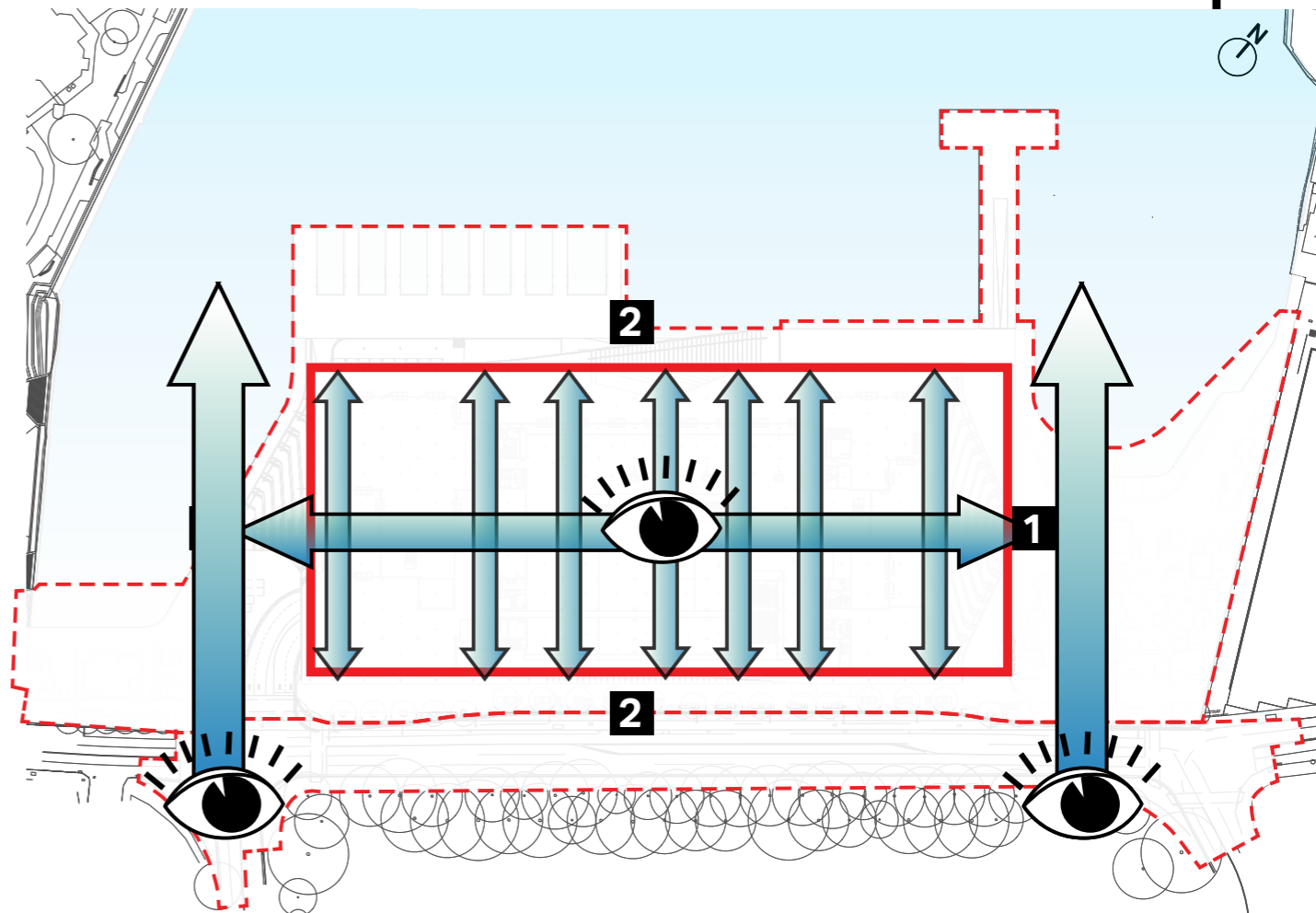
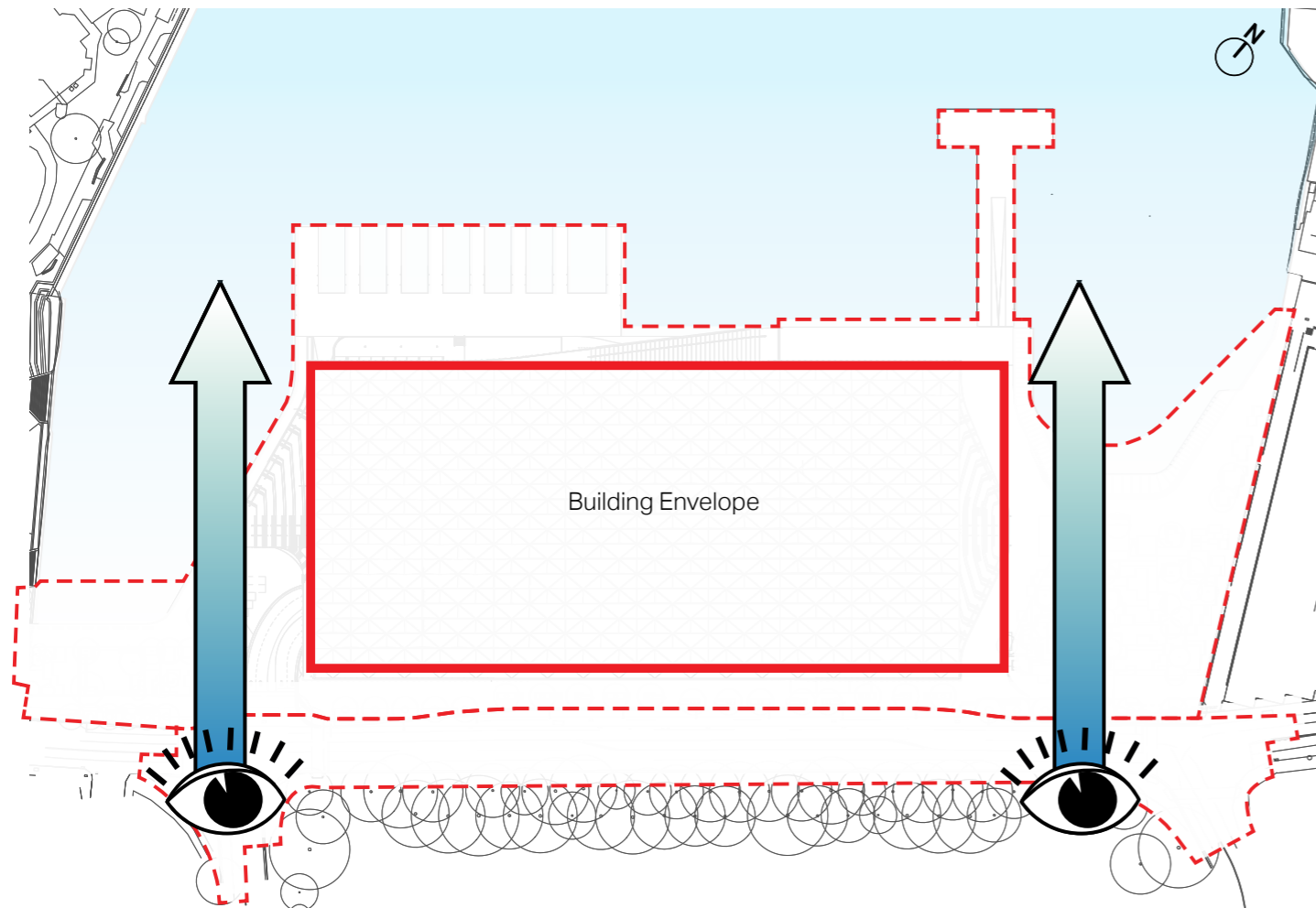
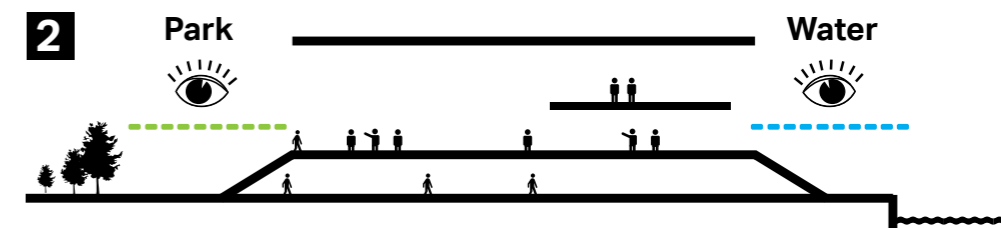
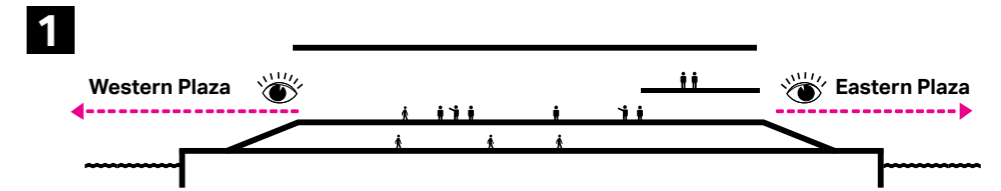
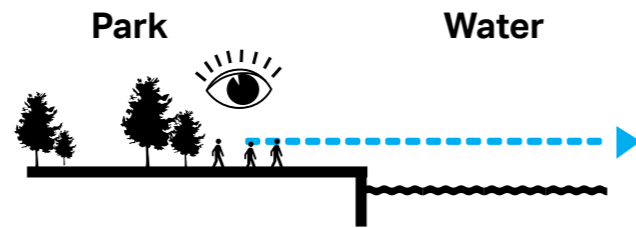


Diagram : Park to Water Views

The removal of obstructions open up view corridors to Blackwattle Bay.

Note* Indicative only. Refer to architectural drawings.

Diagram : East-West Main Boulevard & North-South Laneway Views

The interior layout including service areas and enclosures are aligned according to axes such that both park and water areas are visually connected to the market interior. Principle Axis 1 defines the primary movement corridor from East to West, whilst Axis 2 defines primary viewing corridors between the water and park.

Note* Indicative only. Refer to architectural drawings.

2.4 Built Form & Urban Design

Building Design



Indicative interior view of retail and catering activities. Artist's impression only. Not to scale.

2.4 Built Form & Urban Design Analysis

Building Concept

The following indicative diagrams illustrate how the building was conceived. The proposed development responds to the site and programmatic conditions with elegant moves to the ground plane and roof. Programs and spatial planning arrangements are subject to further design development.

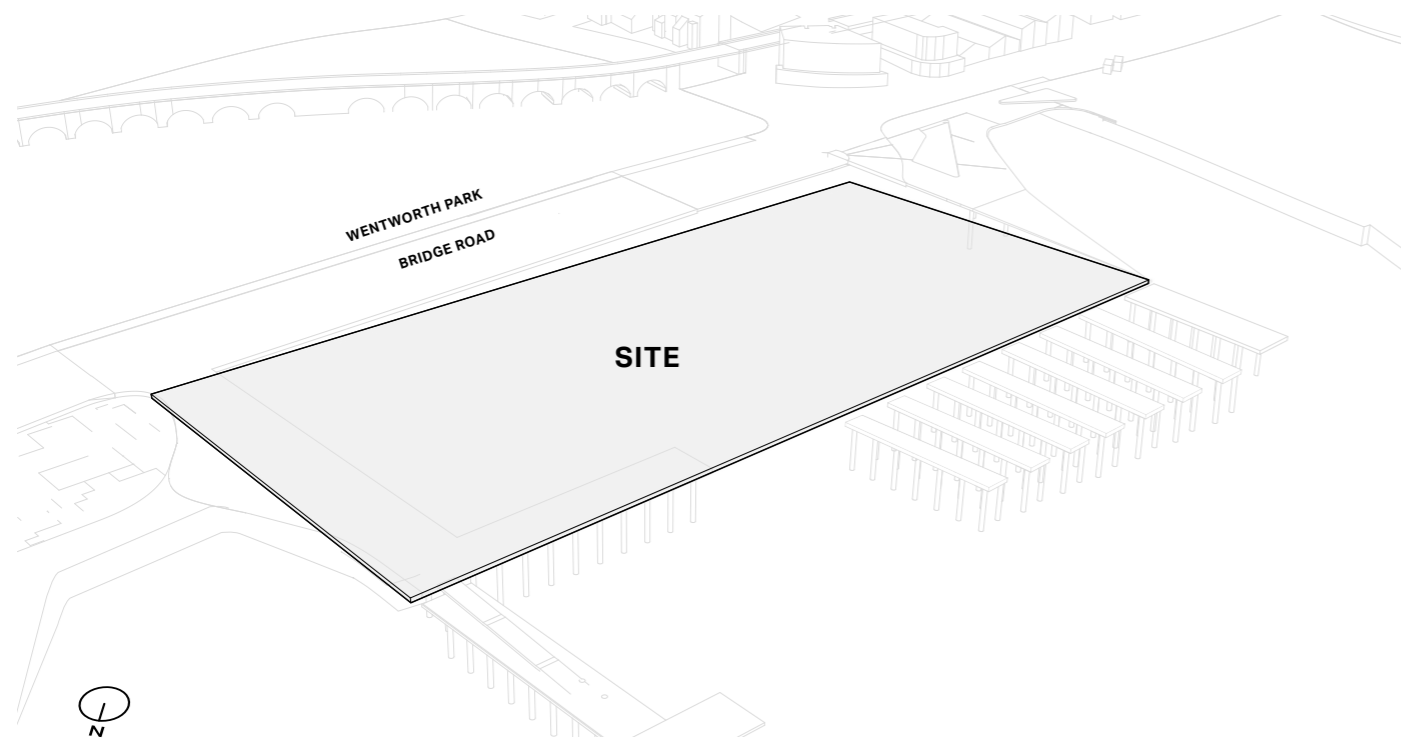


Diagram : Site

As an organisational principle, the site is derived from a forementioned boundaries: the road setback, east and west offsets, and existing wharves.

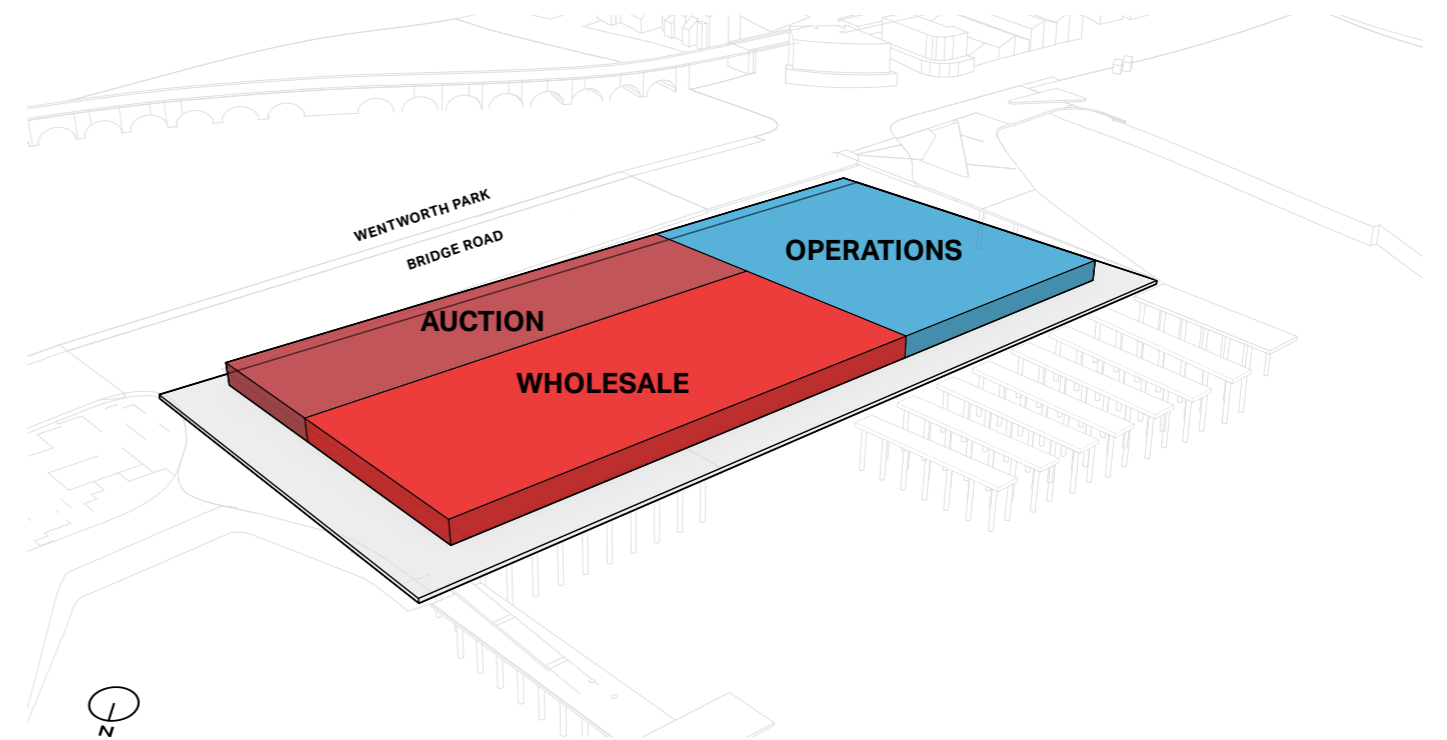


Diagram : Ground Level Program & Height

Operations occupy the west side of the site. Auction and wholesale functions take up the east, with auction and staff functions visible from Bridge Road.

2.4 Built Form & Urban Design Analysis

Building Concept

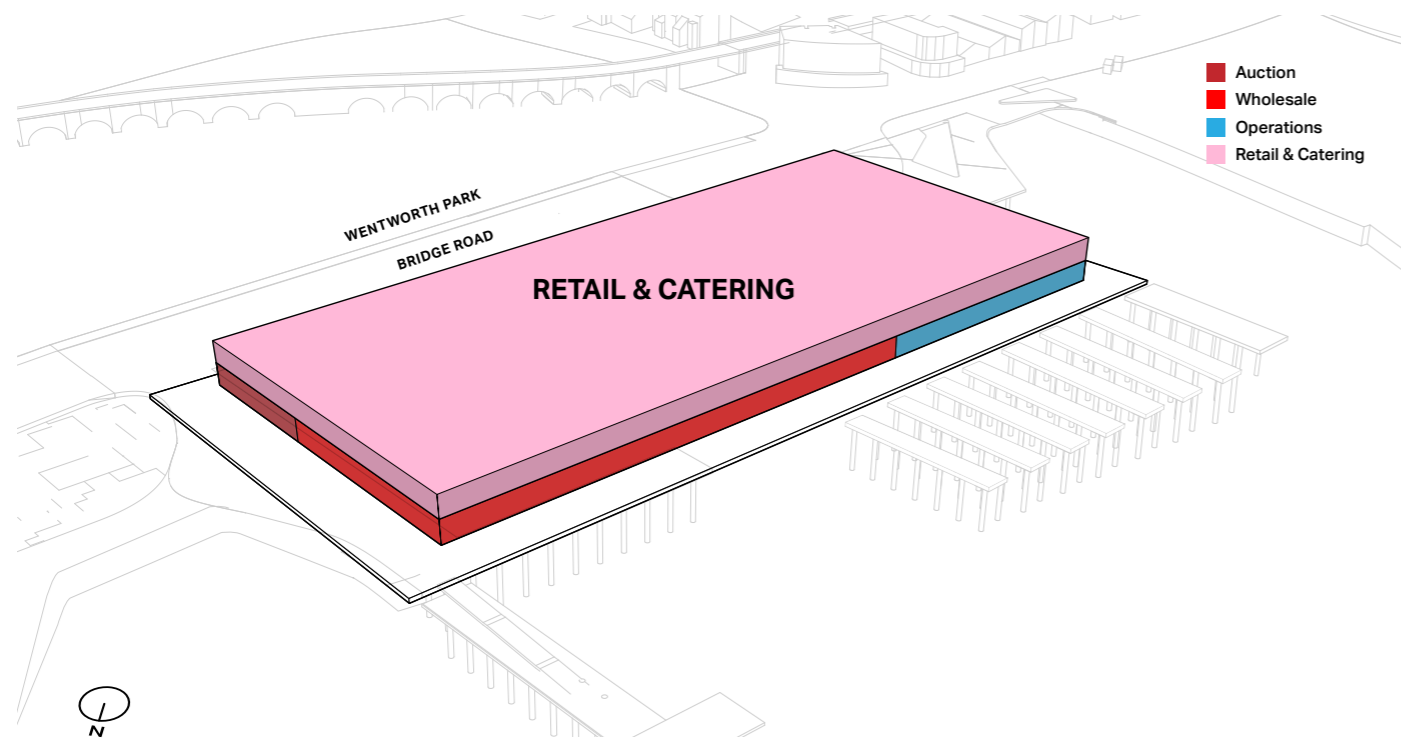


Diagram : Upper Ground Level Indicative Program

Restaurants and retail areas that have the potential to be open according to different operating schedules will be located on the upper ground level.

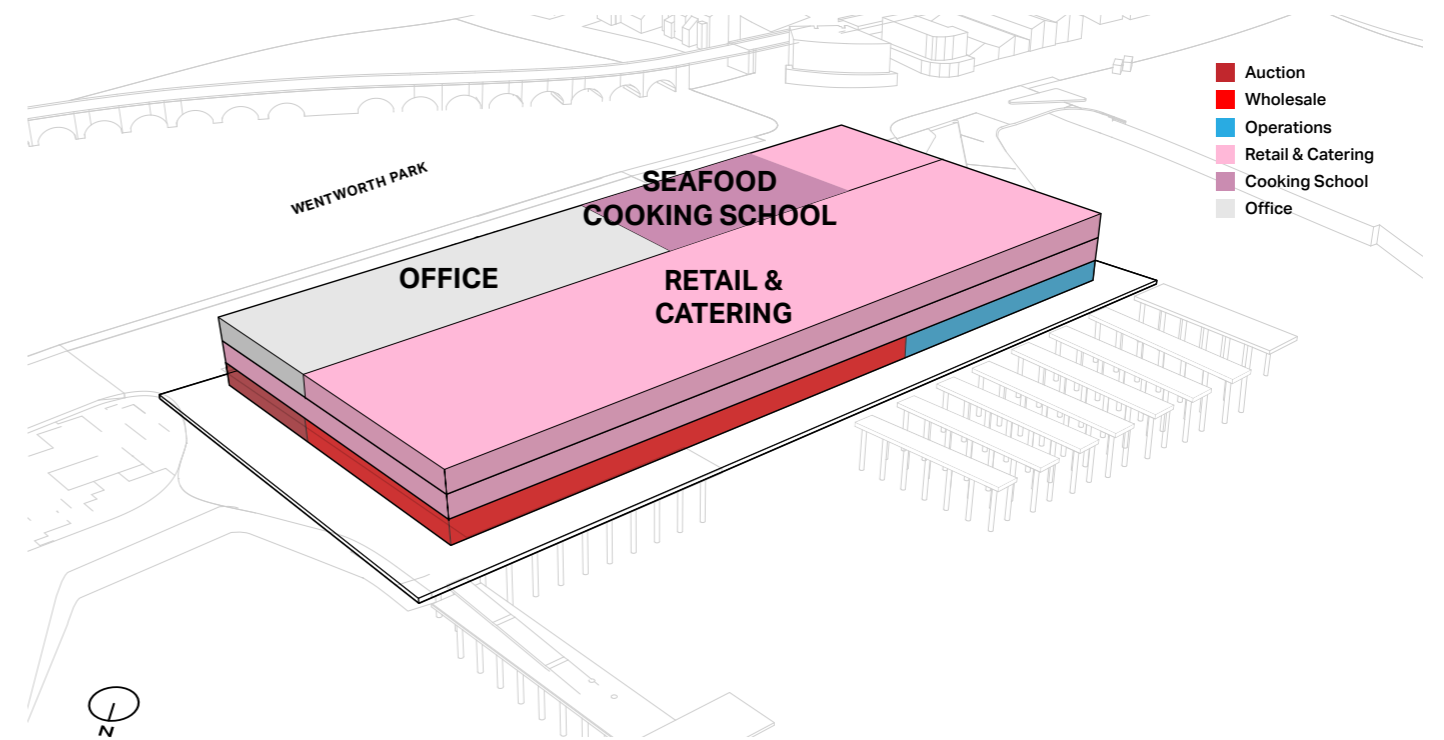


Diagram : Mezzanine Level Indicative Program

Office functions, the Seafood Cooking School and specialist dining areas occupy mezzanine areas above the general retail level.

2.4 Built Form & Urban Design Analysis

Building Concept

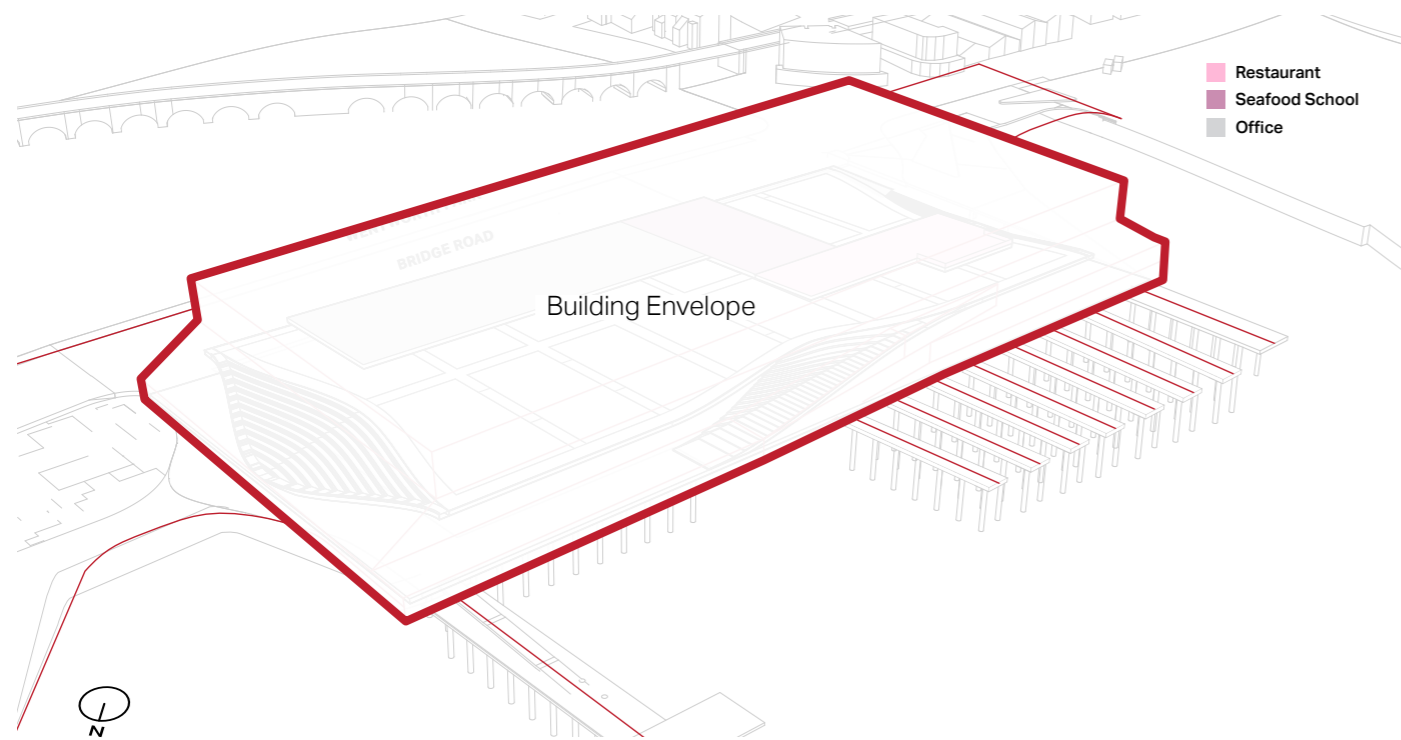
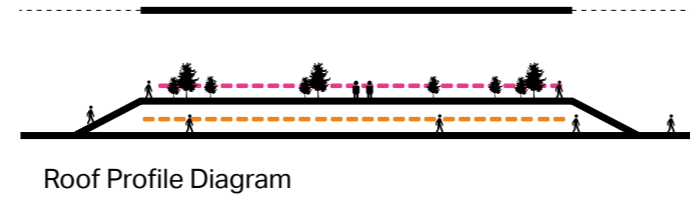


Diagram : Building Envelope

The promenade stairs on all sides of the proposed form allow options for access and egress that connect to the surroundings.

2.5 Built Form & Urban Design

Vehicular Flow

2.5 Built Form & Urban Design Analysis

Vehicular Flow



Vehicular Flow

Both retail and operational vehicles will be entering the new Sydney Fish Market from a new traffic controlled Western intersection (Bridge Road and Wentworth Park Road).

2.6 Built Form & Urban Design

Key Access & Arrival Points

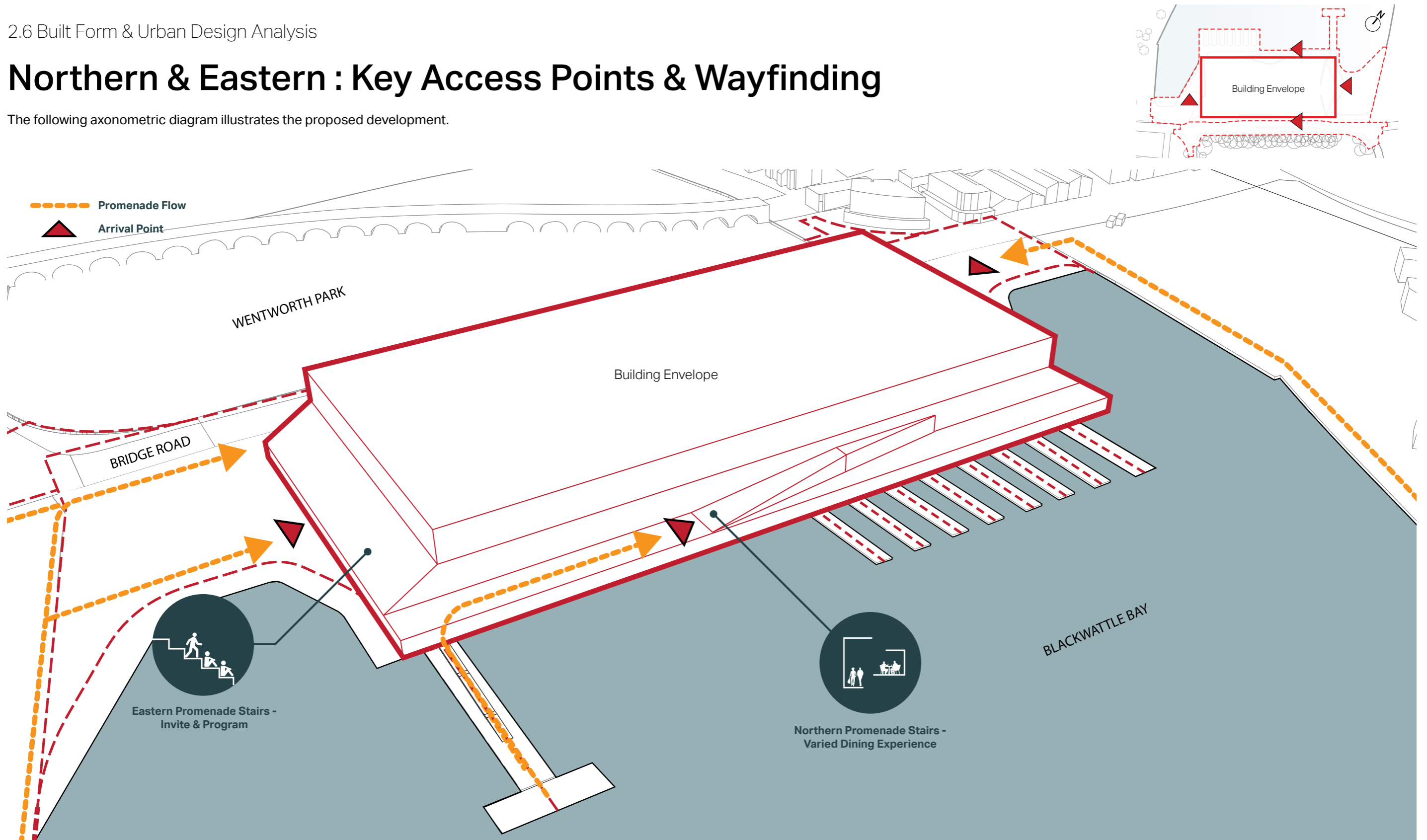


Indicative interior view of retail and catering activities. Artist's impression only. Not to scale.

2.6 Built Form & Urban Design Analysis

Northern & Eastern : Key Access Points & Wayfinding

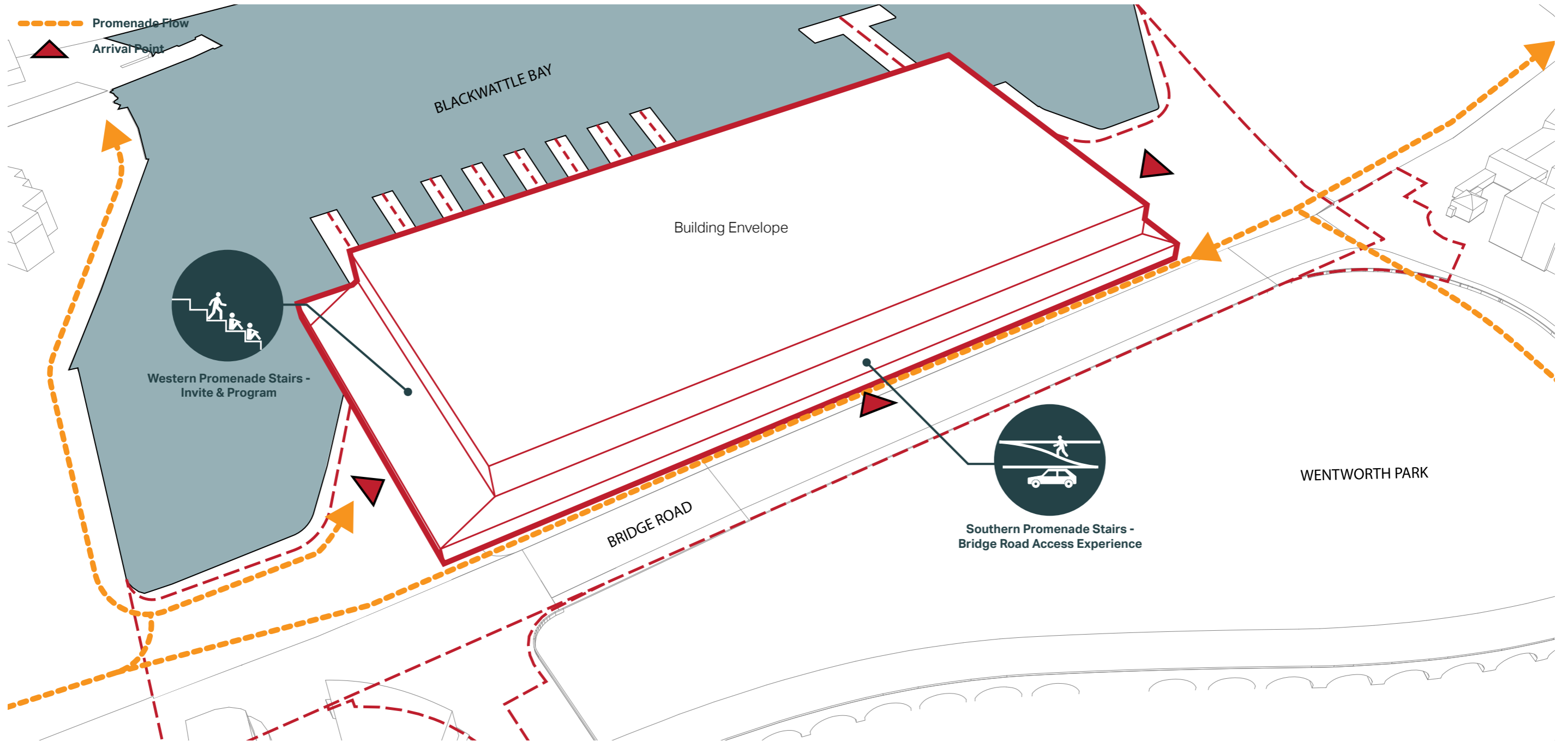
The following axonometric diagram illustrates the proposed development.



2.6 Built Form & Urban Design Analysis

Southern & Western : Key Access Points & Wayfinding

The following axonometric diagram illustrates the proposed development.



2.7 Built Form & Urban Design

Sustainability

2.7 Built Form & Urban Design Analysis

Aspirations

Ecologically Sustainable Development (ESD Study)

RESOURCES

Resources are understood not simply in terms of consumption but also in their capacity to recycle and provide social benefit. Energy, Water and Waste are handled to preserve their quality and use-value throughout their cycle. Every waste product is examined for its potential value in other applications. The social potential of these resources, the enhancement of nature, marine ecology and materiality offer opportunities for social development, education and leisure. The new Sydney Fish Market represents a chance to put experiential quality into architecture, while positively contributing to the environment.

PROFITABILITY

The ambition of this project to deliver a viable and financially sound design that reduces operating costs while optimising health and satisfaction in use. The use of healthy materials, good distribution of daylight and fresh air and a strong connection with the environment will have a higher chance of retaining staff and customers, both lowering long-term risks and promoting a connection with the place.

EXPERIENCE

Sustainability and resource efficiency only becomes relevant to the average user, if it can be experienced as a quality in the architecture. The new Sydney Fish Market will demonstrate its capacity with energy, materials, water and nature, in a tangible way that will not only benefit the environment, but will enhance the user experience through healthy indoor environments, comfortable recreational outdoor areas and perceptible resource management.

FUTURE

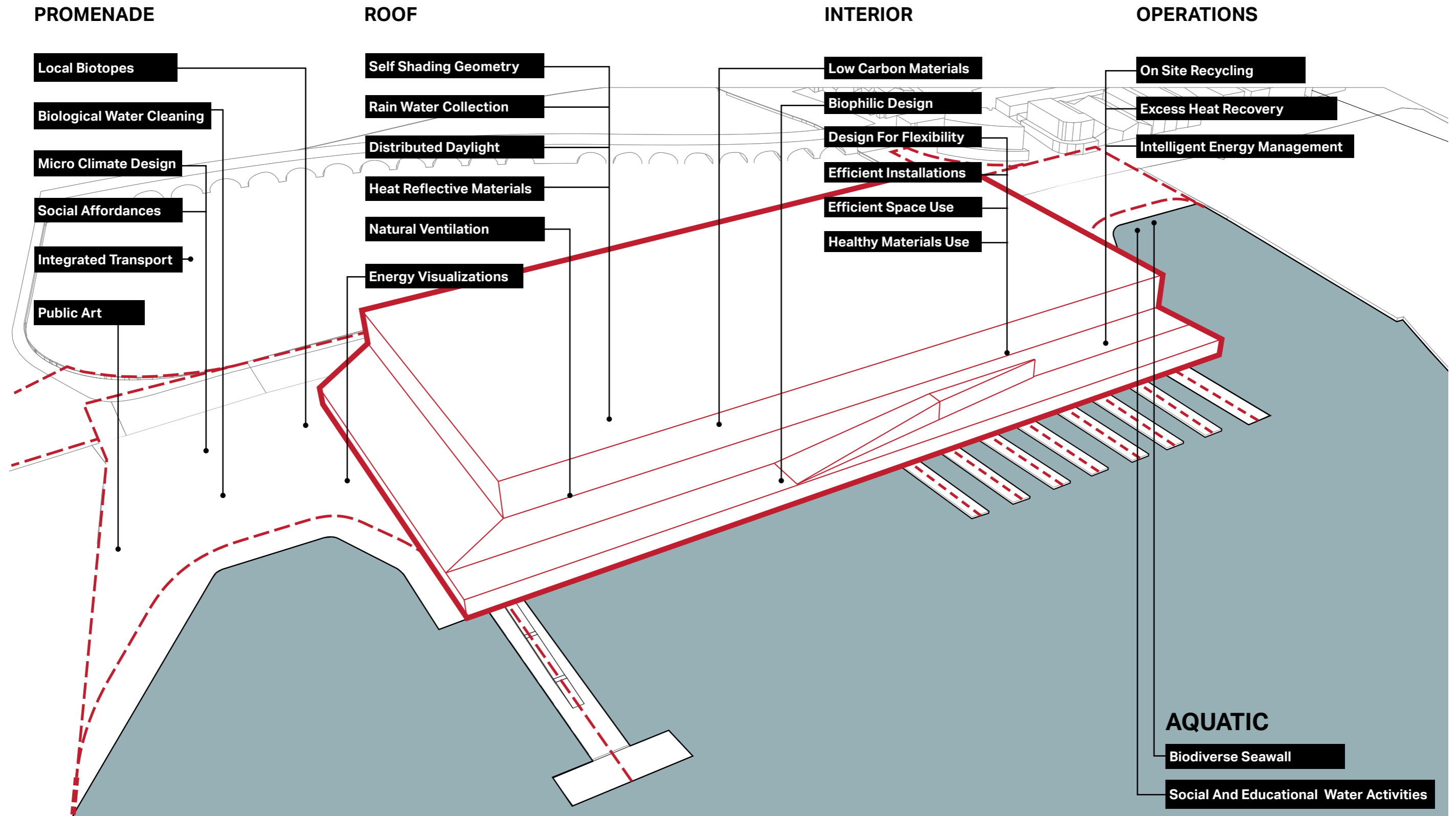
Our ambition is to ensure that this new construction becomes a resource for the future. Adaptability of space, structure and services will allow the new Sydney Fish Market to grow and change with minimal disruption and waste. Investment in natural and biological systems will support our natural heritage and demonstrate a capacity to benefit both economically and experientially from a symbiosis with nature.



2.7 Built Form & Urban Design Analysis

Sustainability Focus Areas

Design applications of sustainability goals



Note: Indicative diagrammatic illustration only and subject to change following design development. Artist's impression only. Not to scale.

2.7 Built Form & Urban Design

Sustainability - Waste

2.7 Built Form & Urban Design Analysis

Waste

Approach

The new Sydney Fish Market will treat waste as a resource.

Baseline data versus Targets

In order to achieve the 50% waste reduction target, the recycling rate for non-fish by-product waste new Sydney Fish Market (nSFM) must reach 59% against current quantities. Fish offal is currently sold as feed-stock however other methods of re-use are under consideration including energy production to achieve the greenhouse emission targets.

Baseline:

MIXED FRACTIONS 5.56 t/day
RECYCLING RATE: 18%

Target:

TOTAL DISPOSED: < 2.29 t/day
 TOTAL RECYCLED: > 2.30 t/day
RECYCLING RATE: 59%+

Overview

As part of the City of Sydney's Waste Management Policy, waste minimisation and resource recovery, easy access to waste systems, pollution prevention associated with waste management practices will be taken into consideration as part of nSFMs waste management strategy.

It has been identified that fish offal comprises the largest contribution of waste generation by nSFM operations, followed by general waste. Current waste practices involve separation into 3 waste streams (recyclables, general waste, organic waste), collection and disposal. This current practice results in some organic waste being mixed with general waste, which is ultimately disposed of to landfill.

The nSFM is committed to increase on-site recycling and resource optimisation through the adoption of the Waste Management Hierarchy with the ultimate goal of reducing waste going to landfill.

Waste Handling

The nSFMs waste reduction strategy for reusing and recycling waste products will include the following initiatives:

- Responsible re-use of organic waste (including fish offal, etc.) preventing the production of methane greenhouse gas (either on-site or off-site energy or fertiliser production). Organic waste can be converted into bio-fuel through the process of dehydration and anaerobic digestion;
- Reticulation of kitchen waste streams to biological treatment
- Managed packaging and container system for a production facility with recycling of insulative, containers, cardboard recycling and crate washing facility. These materials could be converted into strong structural and versatile structural composite panels.
- Managed sorting of waste streams in public areas and retailers.
- Supplier agreements for packaging aligned with waste management policy.

A detailed Operational Waste Management Plan will be developed and implemented for the following five principal areas that generate waste:

- Retailer Space, Cooking School and Restaurants
- Public Areas
- Wholesale Areas
- Auction Hall and Loading Dock
- Wharfs

The waste streams generated from each principal area can be identified to establish appropriate and targeted waste strategies suitable for that area. For example, Public Areas would generate a lot of recyclables, whereas the Wholesale Area would generate more organic waste.

Once primary waste streams from each area are identified, waste handling strategies can be developed to include waste minimisation, treatment and recycling methodologies.

Study Requirements for Bays Market District - SSD

(NSW Dept. Planning & Environment April 2017)

16.4 Identify and implement waste management strategies to achieve NSW Government's Waste Avoidance and Resource Recovery Strategy 2007 (WARR) and compliments the NSW Government's Waste Less, Recycle More initiatives and EPA waste and recycling programs.

Sustainable Sydney 2030

Environmental Action 2016 - 2021 Strategy and Action Plan (March 2017)

Chapter7- Zero waste city

- 70 per cent resource recovery of waste from City managed properties by end June 2021
- 50 per cent resource recovery of waste from City parks, streets and public places by end June 2021

Waste Avoidance and Resource Recovery Strategy (2007) (WARR)

Targets: Increasing recycling rates to

70% for commercial and industrial waste

3.5 Reducing waste generation

3.3 Market development for recycled content products

4.4 Reducing commercial and industrial waste

Green Star Ratings

8A - Operational Waste Performance Pathway

2.7 Built Form & Urban Design Analysis

Waste Baseline and Target

Minimum 50% reduction in waste, 30% reduction in Greenhouse gas emissions

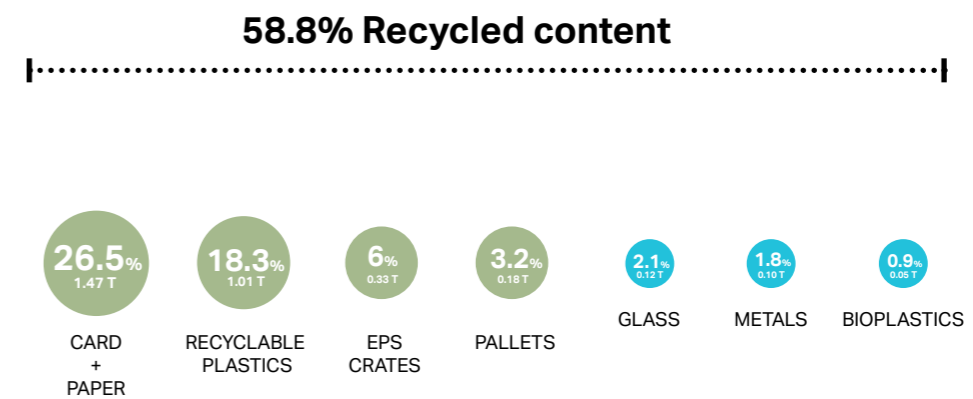
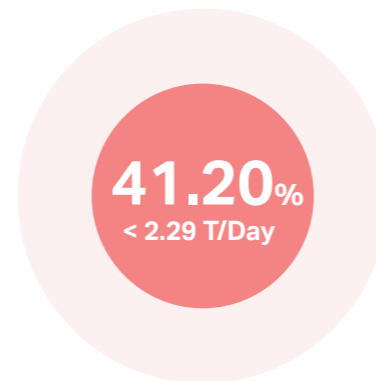
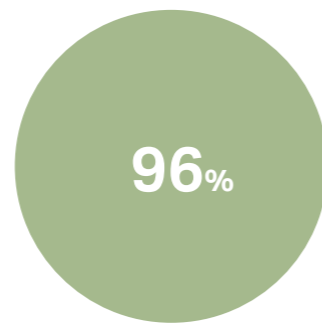
BASELINE: EXISTING SFM

MIXED FRACTIONS 5.56 t/day
 TOTAL DISPOSED: 4.58 t/day
 TOTAL RECYCLED: 0.98 t/day
RECYCLING RATE: 18%



TARGET

MIXED FRACTIONS 5.56 t/day
 TOTAL DISPOSED: < 2.29 t/day
 TOTAL RECYCLED: > 2.30 t/day
RECYCLING RATE: 59%+



Principle diagram of the Fish Market Waste-Streams and Target Recycling Percentages

2.7 Built Form & Urban Design

Sustainability - Life Cycle

2.7 Built Form & Urban Design Analysis

Life Cycle : Ecology

The new Sydney Fish Market project will improve the site's ecological impact for future generations, and responsibly manage construction activities.

Core to the concept of equity for future generations is the preservation of native biodiversity, both on land and in the marine environment. The project aims to go beyond simply conserving the existing biodiversity as outlined in Schedule 2 7 (4) of the Environmental Planning and Assessment Regulation, but to establish a broader range of native species than currently exist on site and to improve the conditions by which they can be maintained.

The concept of Productive Landscapes forms a principle benefiting future generations whereby natural flora and fauna are not simply seen as elements to be protected, but rather as productive features that act in symbiosis with the activities of the market and local area. Native plants will be used in the filtering of water, decontamination of soil and re-establishment of native fauna colonies.

A specially constructed biodiverse sea wall will be designed and implemented under specialist advice in order to encourage the colonisation of native aquatic life.

The resulting biodiversity initiatives will serve as an education space related to local university institutions and be accessible to the public for educational and leisure purposes.

Ecology Improvements

Productive landscape - performative functions:

- Clean water
- Shading
- Recreation
- Regeneration of native flora and fauna
- Phytoremediation of contaminated soils

Productive Aquascape - performative functions:

- Establishment of landscaped sea-wall structures to aid marine biodiversity
- Mussel/Oyster farming
- Tertiary educational space for Marine ecology (west side)

Implementation Measures:

- Development of a Construction Environmental Management Plan
- Cooperation with university departments for marine ecology, biology and horticulture

Study Requirements for Bays Market District - SSD

(NSW Dept. Planning & Environment April 2017)

14. Urban and Marine Ecology

Guiding Principles for Marine Foreshore Developments

(UrbanGrowth NSW Feb 2016)

4.1 Native biodiversity maintenance and restoration

4.7 Provide recreation/education

6.1 Physical enhancements

6.1.1 Increase provision of missing habitats

6.1.2 Increase total surface area

6.2 Biological enhancements

6.2.1 "Plant" or transplantation of native species

Sustainable Sydney 2030

Environmental Action 2016 - 2021 Strategy and Action Plan (March 2017)

Chapter 9 - Urban Ecology: The targets included in this Strategy are for enhancing the urban canopy and urban ecology in the green spaces that the City has responsibility for across our local area. A progressive increase in the number of habitat features for priority fauna species is established along potential habitat linkages by 2023

Urban Ecology Action Plan (March 2014)

Listed as a priority site: Glebe Foreshore Walk East to Orphan School Creek

- Protect, expand and improve condition of naturally occurring locally indigenous vegetation'
- Protect and enhance sites that provide habitat for priority fauna species
- Improve habitat connectivity, particularly between priority sites

Bays Precinct Sydney: Transformation Plan (October 2015)

Key principles: # 15 Introduce environmental and ecological systems to improve water quality, address ongoing sources of water pollution and encourage public recreation.

Key principles: # 13 Plan for future generations by being open to new ideas and embracing emerging trends.

Green Star Ratings

23.0 - Endangered or threatened species

23.1 - Ecological value (Addition to native habitat)

18A / 30 D - Water sensitive urban design

30C / 26.2 - Storm-water pollution targets

26.1 - Storm-water- peak discharge

2.7 Built Form & Urban Design Analysis

Baseline: Landscape

Proposed new Sydney Fish Market site



Existing Conditions

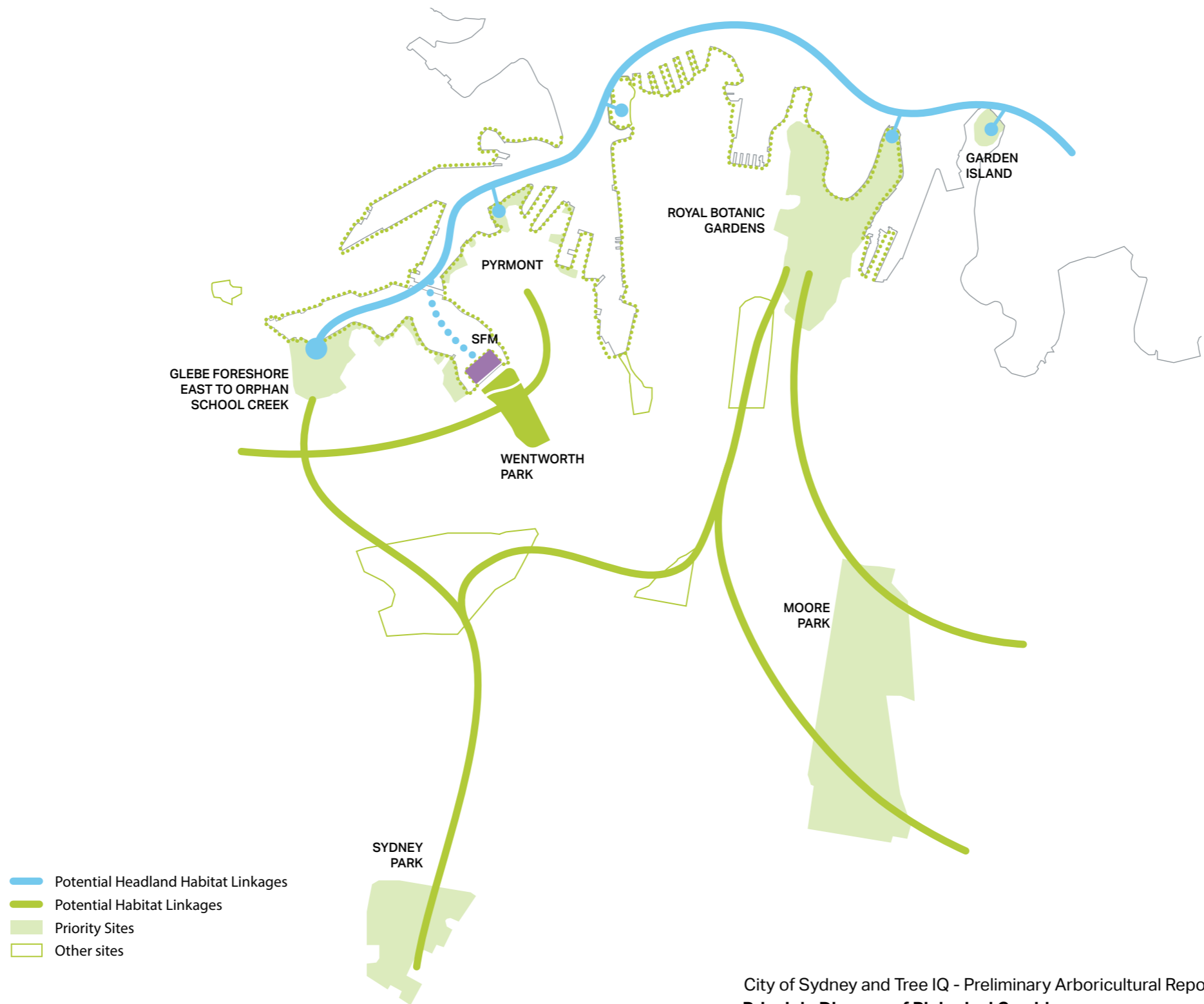
The existing Sydney Fish Market site is currently divided by an unbroken fence line and concrete wall that houses the remnants of abandoned industrial infrastructure and Blackwattle Bay Marina. Approximately 97 percent of the area of the existing site is surfaced by bitumen or concrete, and there is limited opportunity for local flora or fauna to take hold.



2.7 Built Form & Urban Design Analysis

Enhancing Natural Corridors

C.O.S. Urban Ecology Strategic Action Plan



City of Sydney and Tree IQ - Preliminary Arboricultural Report
Principle Diagram of Biological Corridors

WENTWORTH PARK FLORA



Celtis sinensis



Argyrodendron actinophyllum



Lophostemon confertus



Acacia dealbata



Ficus macrophylla



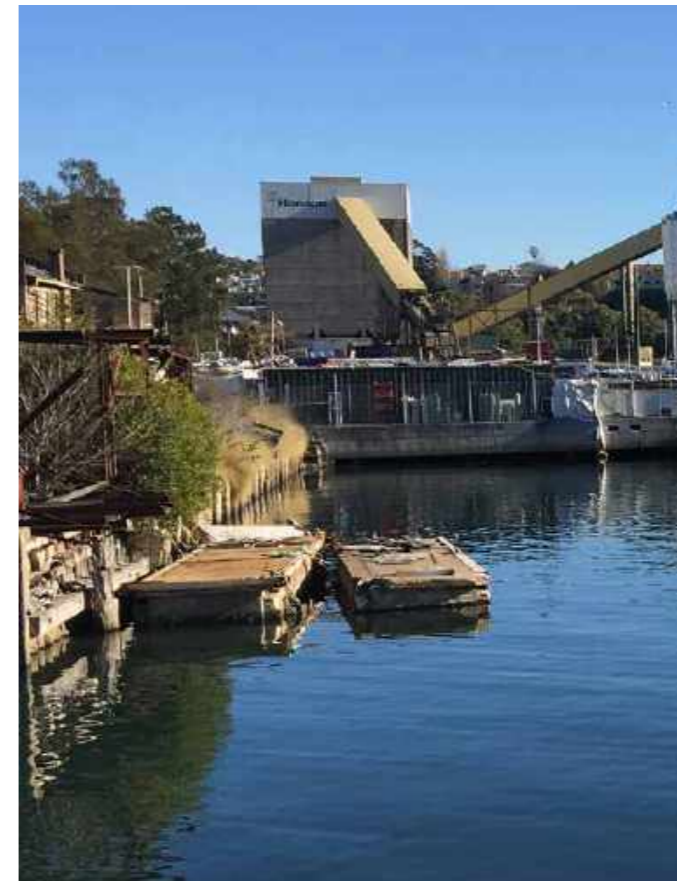
Corymbia citriodora



Eucalyptus microcorys

2.7 Built Form & Urban Design Analysis

Baseline: Aquascape



Baseline data versus Targets

Storm-water runoff, marina activities and featureless seawalls pose a significant threat to the establishment of native marine life in Blackwattle bay. Following peak periods of rainfall, plastics, toxic materials, debris and animal corpses are flushed by the culvert into the bay. Due to the topology of the bay seawater circulation is minimal. Intermittent discharge from the culvert changes the salinity and quality of the water rapidly. Featureless concrete seawalls hinder the establishment of small fish and invertebrate colonies, leading to a less biodiverse aquatic environment than other parts of the harbour.



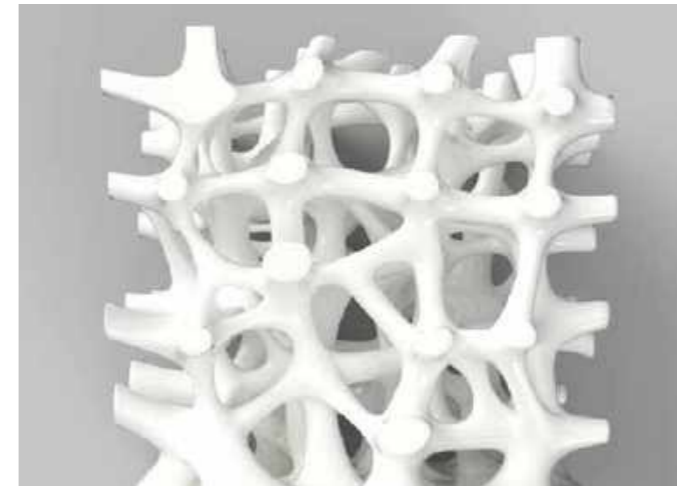
2.7 Built Form & Urban Design Analysis

Artificial Seawall: Case Studies

Sydney Institute of Marine Science (SIMS)



More than 50% of the Sydney Harbour foreshore is armoured by seawalls for land reclamation and coastal protection purposes. Seawalls are generally flat, featureless structures in comparison to rocky shores. The implementation of various contoured and porous structures assists in the re-establishment of aquatic biodiversity. A diverse topography offers protection for molluscs and small fish. Studies have been conducted on behalf of the NSW Office of Environment and Heritage.



Artificial Seawalls

Complex tiles retrofitted to seawalls to mimic important micro-habitats of rocky shores which are missing or rare in existing seawall designs of Sydney Harbour.

Images show tile before implementation and after 12 months of submersion



3D printed Seawall by Reef Design Lab before and after installation - Project by SIMS

2.7 Built Form & Urban Design

Sustainability - Transport

2.7 Built Form & Urban Design Analysis

Transport

Overview

The new Sydney Fish Market incorporates a number of sustainable transport solutions to aid occupants in making low carbon intensive travel decisions.

A protective roof overlaps publicly accessible pathways offering protected pedestrian transit through Blackwattle Bay even after hours.

Proposed Infrastructure

In the proposed new Sydney Fish Market design, footpaths will be widened, pedestrian pathways link to Wentworth park and the light-rail stations to the waterfront ferry terminal and bus drop off.

Planned cycling routes, cycle parking and recreational walking paths enhance methods of travel to and from the CBD and surrounding areas.

Connectivity

- Designed to encourage alternate transport modes, such as walking, cycling, public transport.
- Bicycle Parking infrastructure, with quality end of trip facility (EoTF) for the staff.
- Connection to tramway Wentworth park
- Connection to dedicated ferry station at the new Sydney Fish Market
- Dedicated Coach drop-off

Management

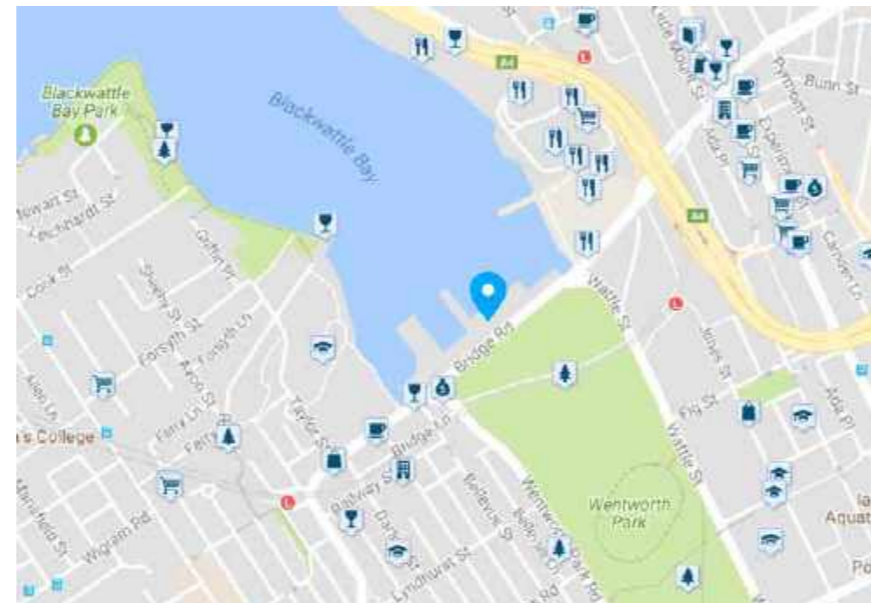
- Managed commercial traffic intersection
- On-site car parking limited to basement level

Walk Score

Walkscore: 91

Transit Score: 79*

*Transit score likely to increase post construction to >90



Study Requirements for Bays Market District - SSD

(NSW Dept. Planning & Environment April 2017)

Provide recommendations for car, car share and bicycles parking rates within the capacity of the existing road network, to reduce private vehicle travel demand and promote travel by walking, cycling and public transport

Sustainable Sydney 2030

Environmental Action 2016 - 2021 Strategy and Action Plan (March 2017)

Chapter 8 - Active and connected City:

- Encourage walking and cycling to minimise traffic congestion caused by major infrastructure projects in the city centre
- Complete the ten high-priority regional cycling routes
- Develop policies to encourage uptake of electric vehicles in the city
- Encourage walking and cycling and public transport use to reduce emissions from transport

Better Placed: An integrated design Policy (May 2017)

1.4 NSW Priorities Objective 3 - Better communities

Healthy Urban Development Checklist (NSW Dept. of Health 2009)

Chapter 10 - Physical connectivity TC1-3

Bays Precinct Sydney: Transformation Plan (October 2015)

Key principles: # 7

Establish a whole-of-precinct transport infrastructure plan early, based on connectivity, accessibility and active transport.

Key principles: # 11 Build the capacity for The Bays Precinct to be a place that contributes to healthy, prosperous and resilient lifestyles.

Green Star Ratings

17A.1 -Green travel plan

Option:

17B.1 - Access by public transport

17B.3 - Low emission Vehicle Infrastructure

17B.5 - Walkable neighbourhoods

2.7 Built Form & Urban Design Analysis

Concluding Summary

New Sydney Fish Market Sustainability Initiatives

Ecologically Sustainable Design continues to be a driving factor in the ongoing design and development of the new Sydney Fish Market. The new Sydney Fish Market will incorporate a number of ESD initiatives from a self-assessed Green Star Design and As Built v1.2 Rating to complement the initiatives undertaken to reduce the greenhouse gas emissions, potable water consumption and material resources of the site.

These have been developed around a response to the Secretary's Environmental Assessment Requirements by Department of Planning and Environment.

The ESD initiatives outlined in this report are intended to be used as a design guide for the new Sydney Fish Market. The specific initiatives that will be installed across the precinct will be determined throughout the development application stage for each individual building and will be subject to feasibility analysis, including that of the final use and layout. The initiatives will comply with the guidelines set out by the relevant authorities.

The development's commitment to reducing the overall environmental impact is evident of the holistic approach taken to long-term sustainability. Documented initiatives cover a range of categories including:

- Energy & greenhouse gas emissions
- Potable water reduction
- Minimising waste to landfill
- The indoor environment
- Occupant amenity and comfort
- Land use & ecology
- Emissions
- Building management

We trust this report provides sufficient overview of the project commitment to environmentally sustainable design and the sustainability vision for the new Sydney Fish Market.



Indicative interior view of retail and catering activities. Artist's impression only. Not to scale.

3.0 Public Domain & Public Access

New Sydney Fish Market

3.0 Public Domain & Public Access

Contents

Site Analysis

Connectivity and Key Links	78
Context Plan	79
Connecting the Harbour	80
Transport and Intermodal Connections	81
The Changing Heart of Blackwattle Bay	82

Design Approach

Key Civic Spaces	83
The Three Promenades	84
The Green Heart	
Access and Arrival	85
Cycling Strategy	

3.0 Public Domain & Public Access

Site Analysis

Connectivity Key Links

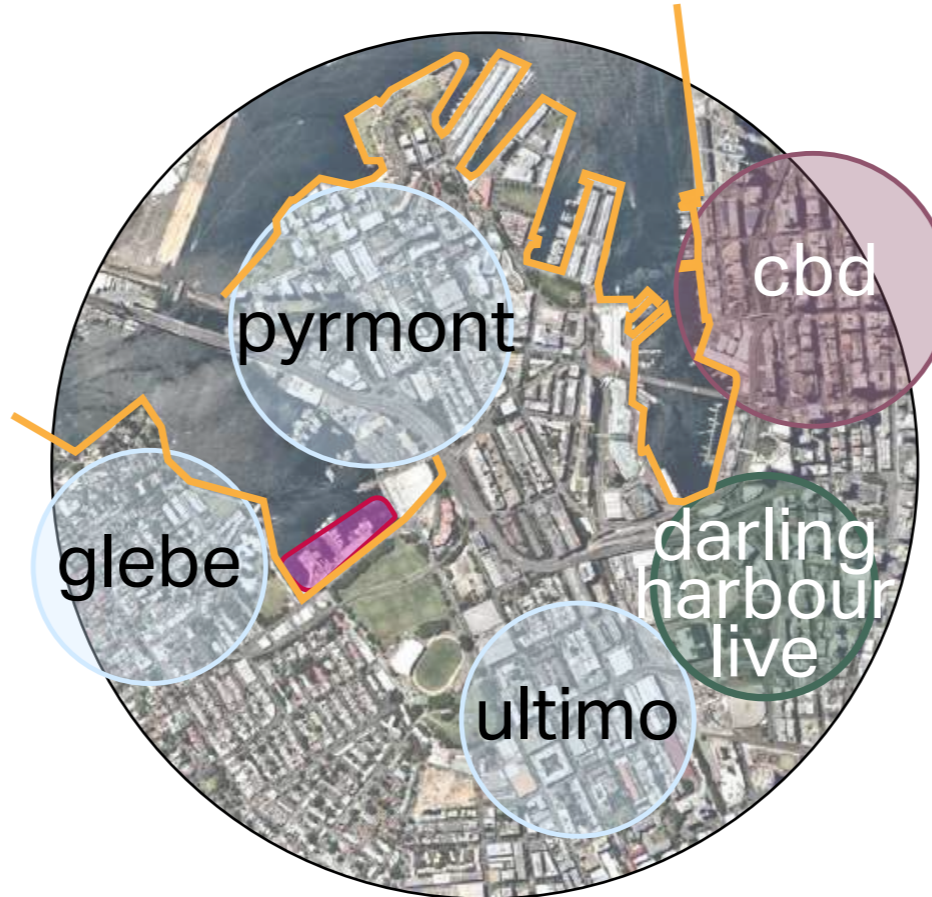
Green Spaces



Legend

- Site
- Existing parks
- Proposed/ under construction public domain

Connecting Local Communities



Legend

- Site
- Foreshore Walk

Linking Key Site Connections



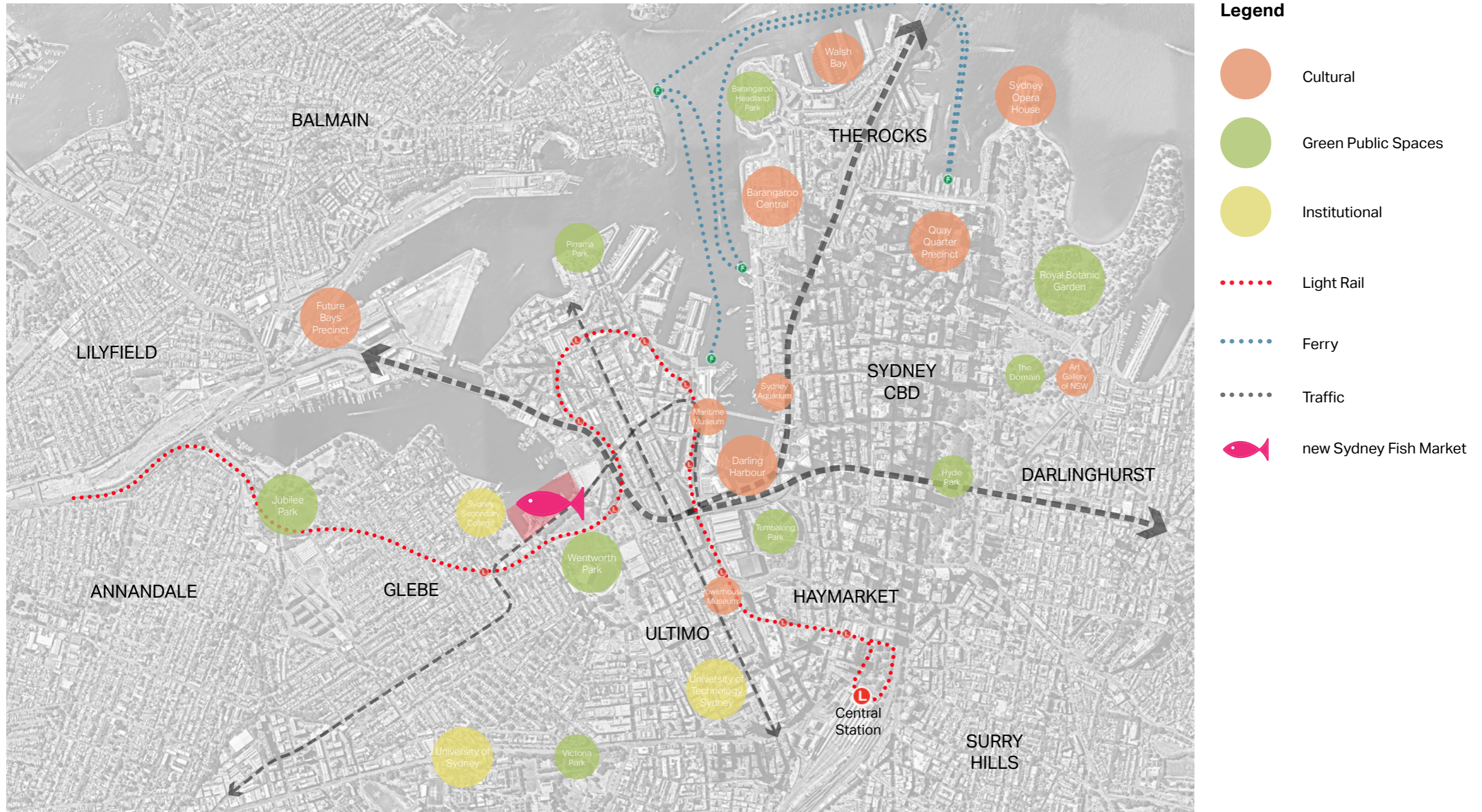
Legend

- Site
- ➔ Major public access link
- ➔ Minor public access link
- ➔ Connecting circulation

3.0 Public Domain & Public Access

Site Analysis

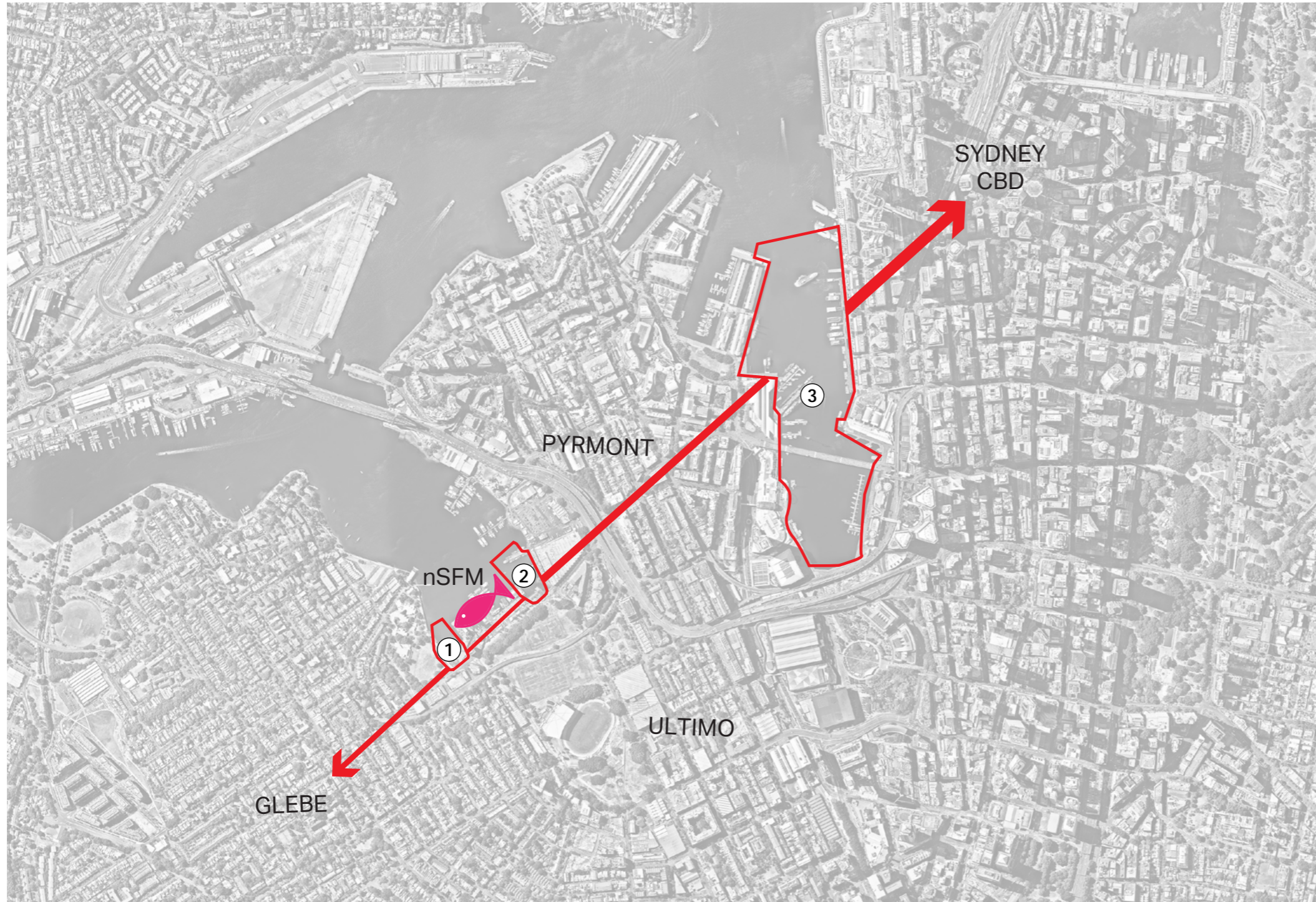
Context Plan



3.0 Public Domain & Public Access

Site Analysis

Connecting the Harbour

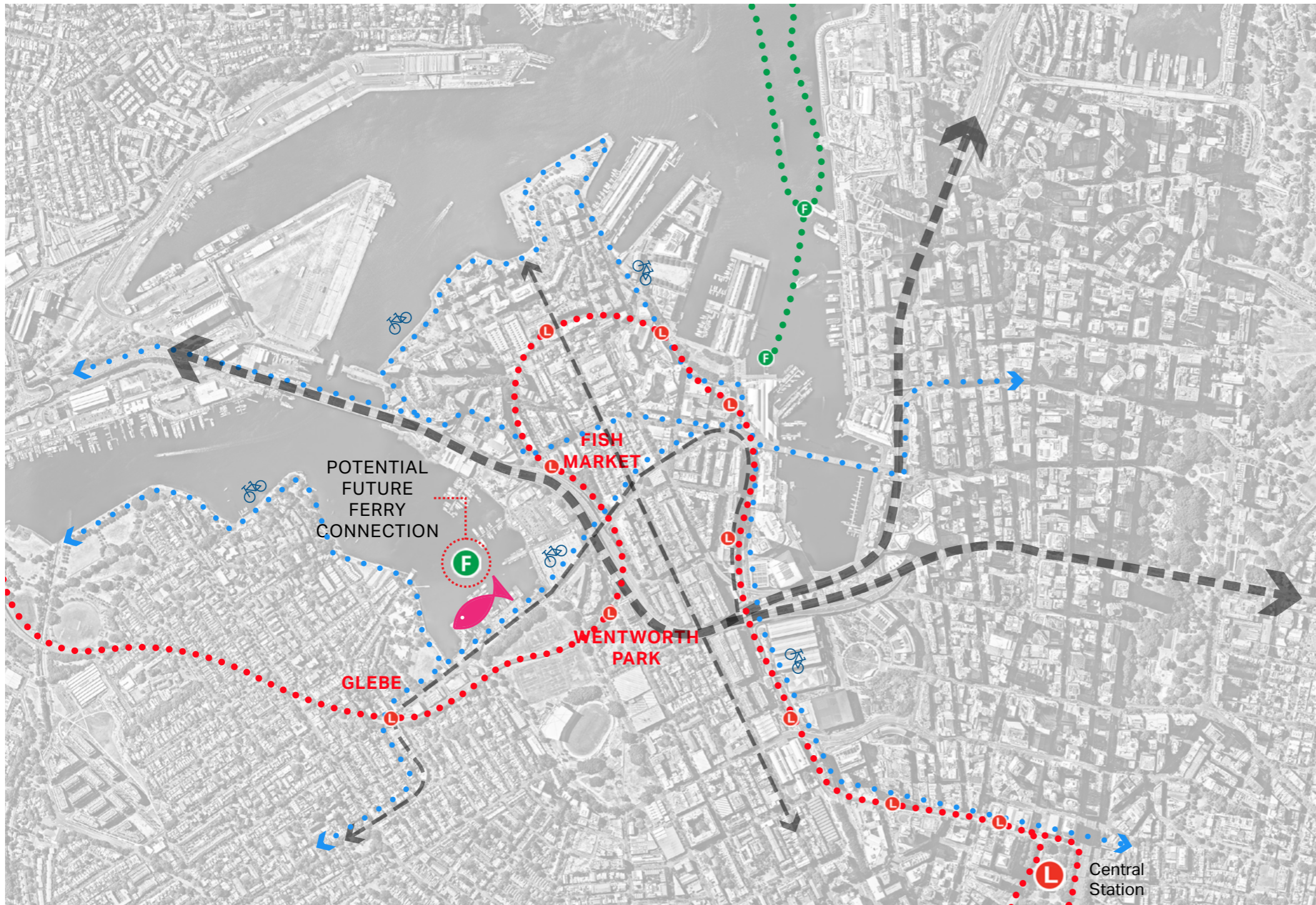


- ① **LOCAL PARK**
Connectivity
Park / Recreational
Local Amenities
Informal Play
- ② **URBAN PARK**
Programmed Events
Educational
Public Plaza and Building
Forecourt
- ③ **DARLING HARBOUR**
Events / Festivals
Cultural Offering
Tourist Attraction

3.0 Public Domain & Public Access

Site Analysis

Transport and Intermodal Connections



- LIGHT RAIL
- CYCLE PATHS
- VEHICLES
- 🐟 NEW SYDNEY FISH MARKET



Light Rail Connections



Major Roads



Cycleways

3.0 Public Domain & Public Access

Site Analysis

The Changing Heart of Blackwattle Bay



Recreational Open Space, Wentworth Park



Significant Fig Trees, Wentworth Park

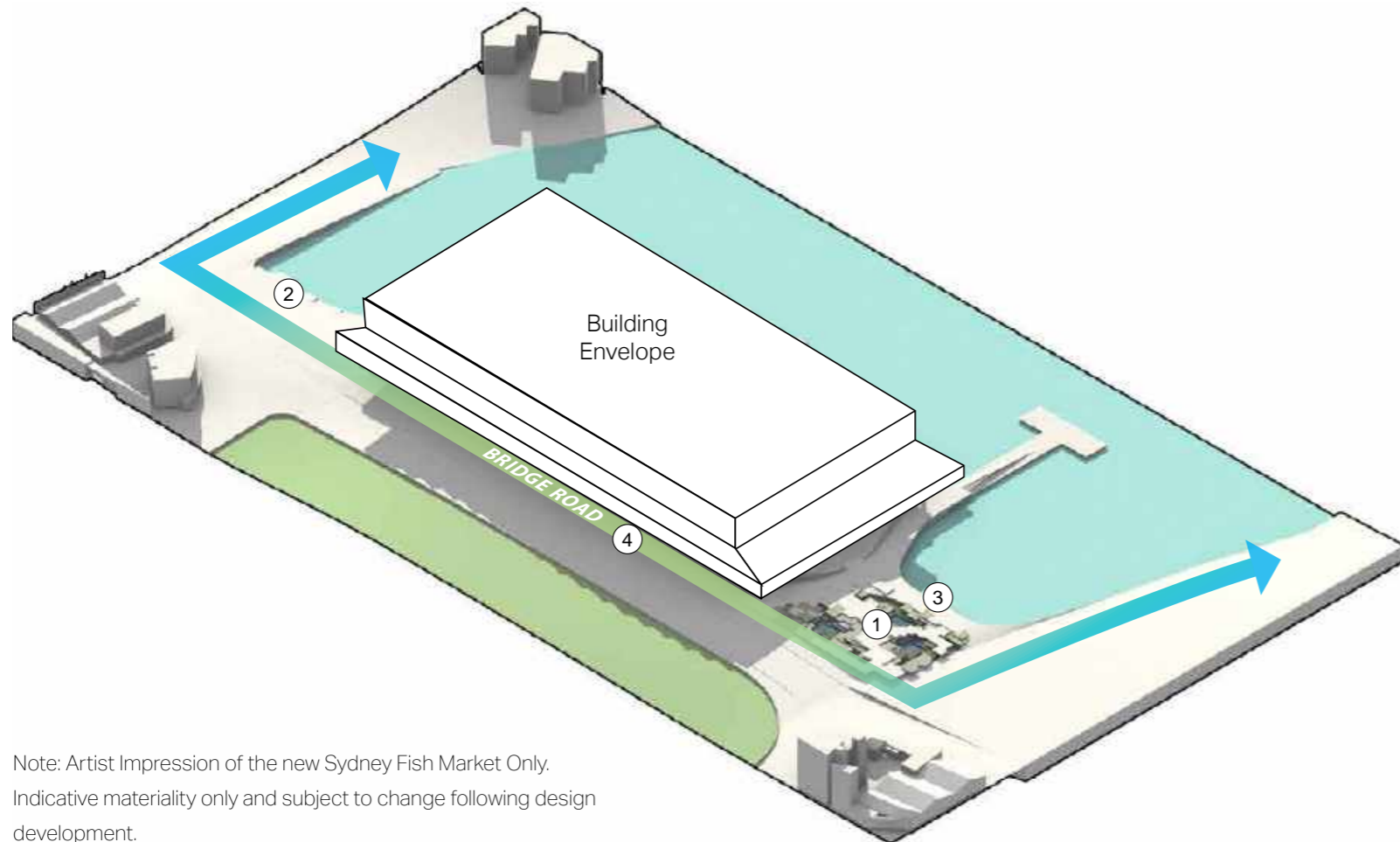


Wentworth Park to Blackwattle Bay

3.0 Public Domain & Public Access

Design Approach

Key Civic Spaces



Note: Artist Impression of the new Sydney Fish Market Only.
Indicative materiality only and subject to change following design development.

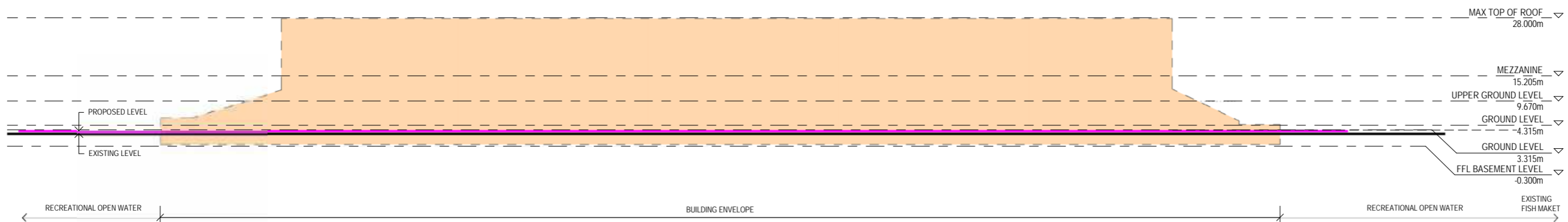
This proposal is guided by the following objectives;

- Maintain the structure for event overlays whilst providing a smaller intimate scale public domain for everyday use.
- Improve public amenities and provide a public domain with social and green infrastructure for human comfort.
- Integrate the development into the local network of streets and connections.
- Address the public domain entrances.
- Provide a thriving public domain that interacts and improves the connectivity with the harbour edge.

The proposed design strategy involves the formation of four consolidated public open space components; activated through the inclusion of social and green infrastructure and the interface between one and another.

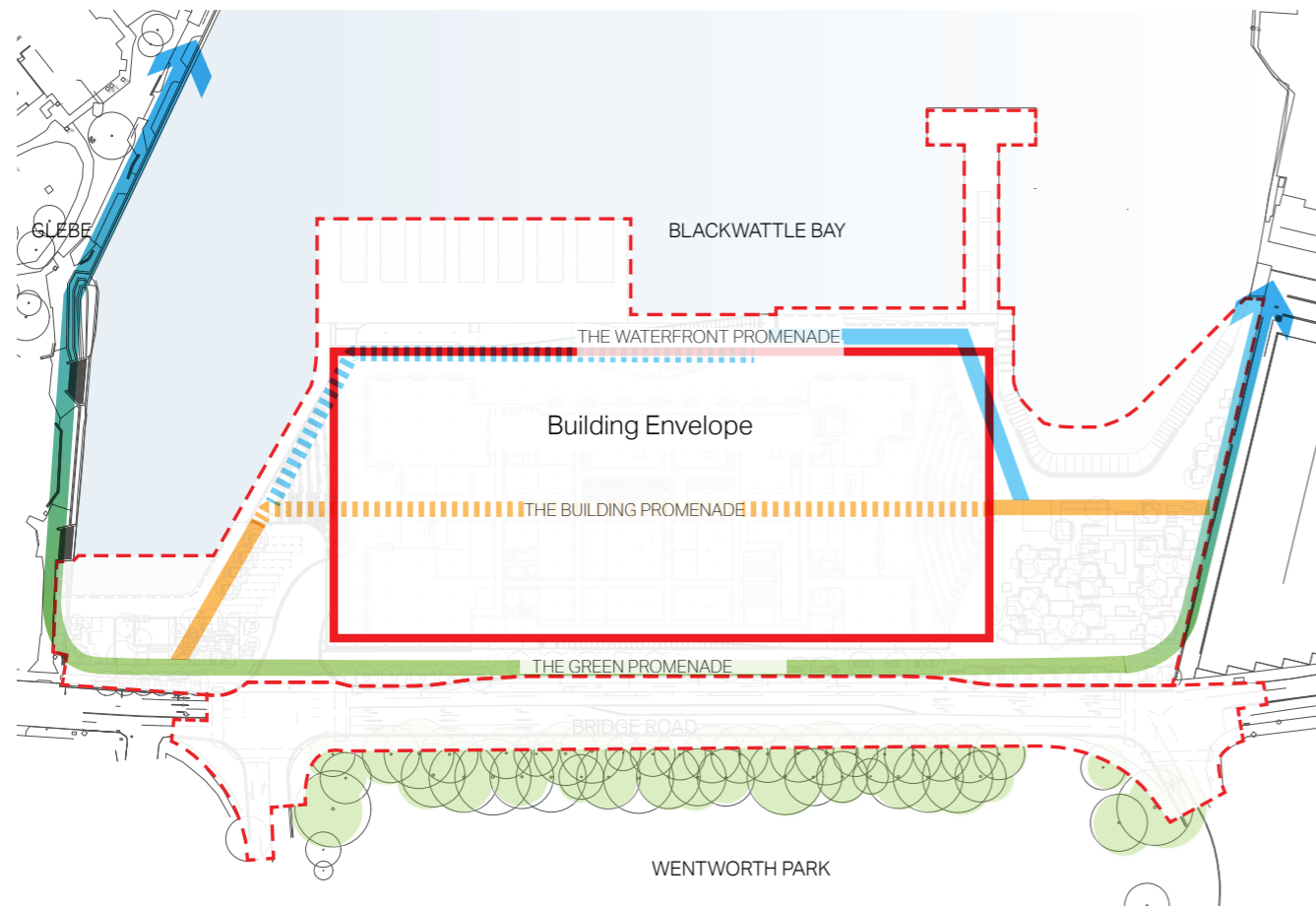
Public Domain Constructed Works

1. The Urban Park - The main public plaza and harbourside entry
2. The Local Park - The extension of the existing Glebe Foreshore
3. The Harbours Edge - The lowered public promenade connecting the public domain to the harbour's edge
4. Bridge Road - The new major boulevard and green link

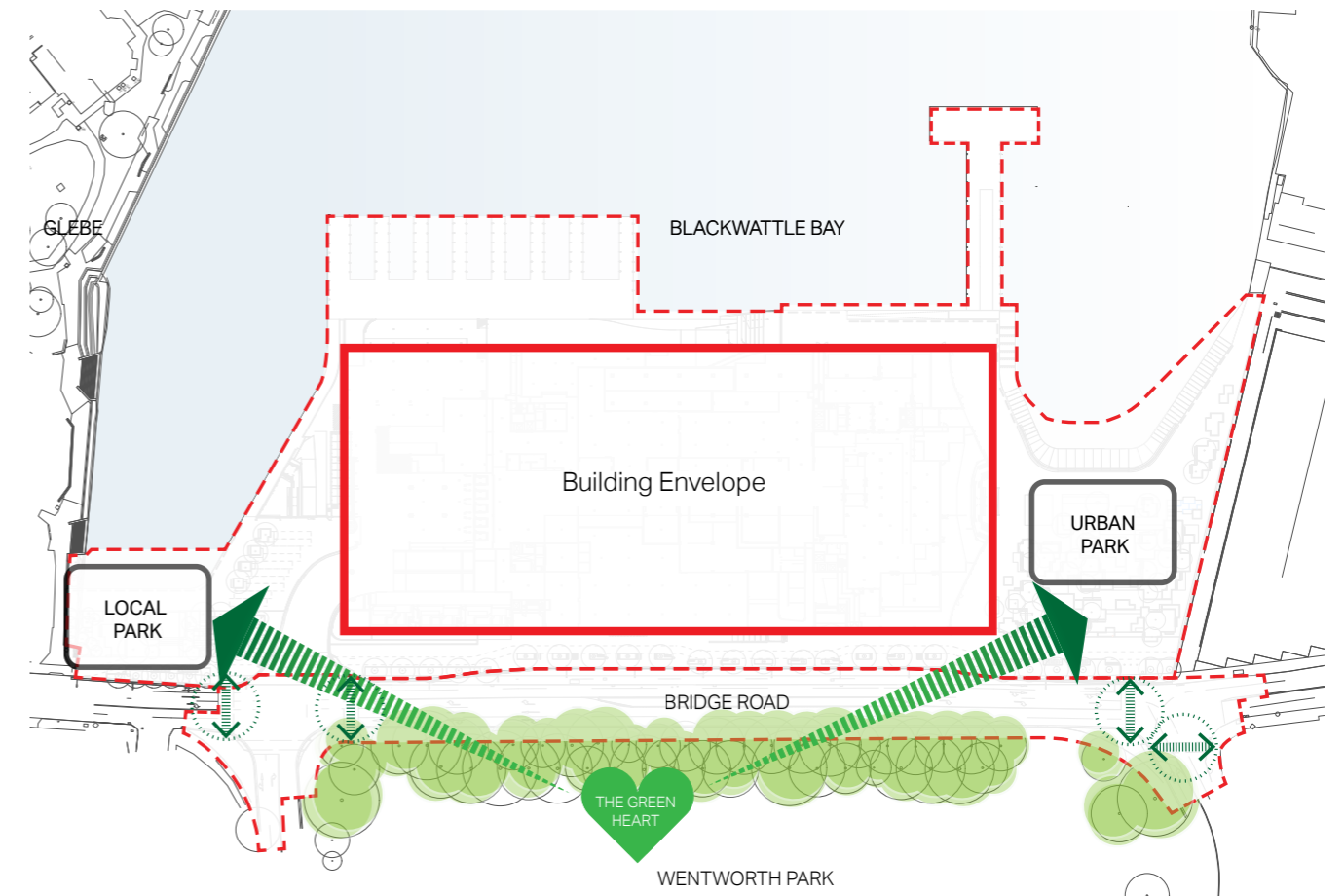


3.0 Public Domain & Public Access

Design Approach



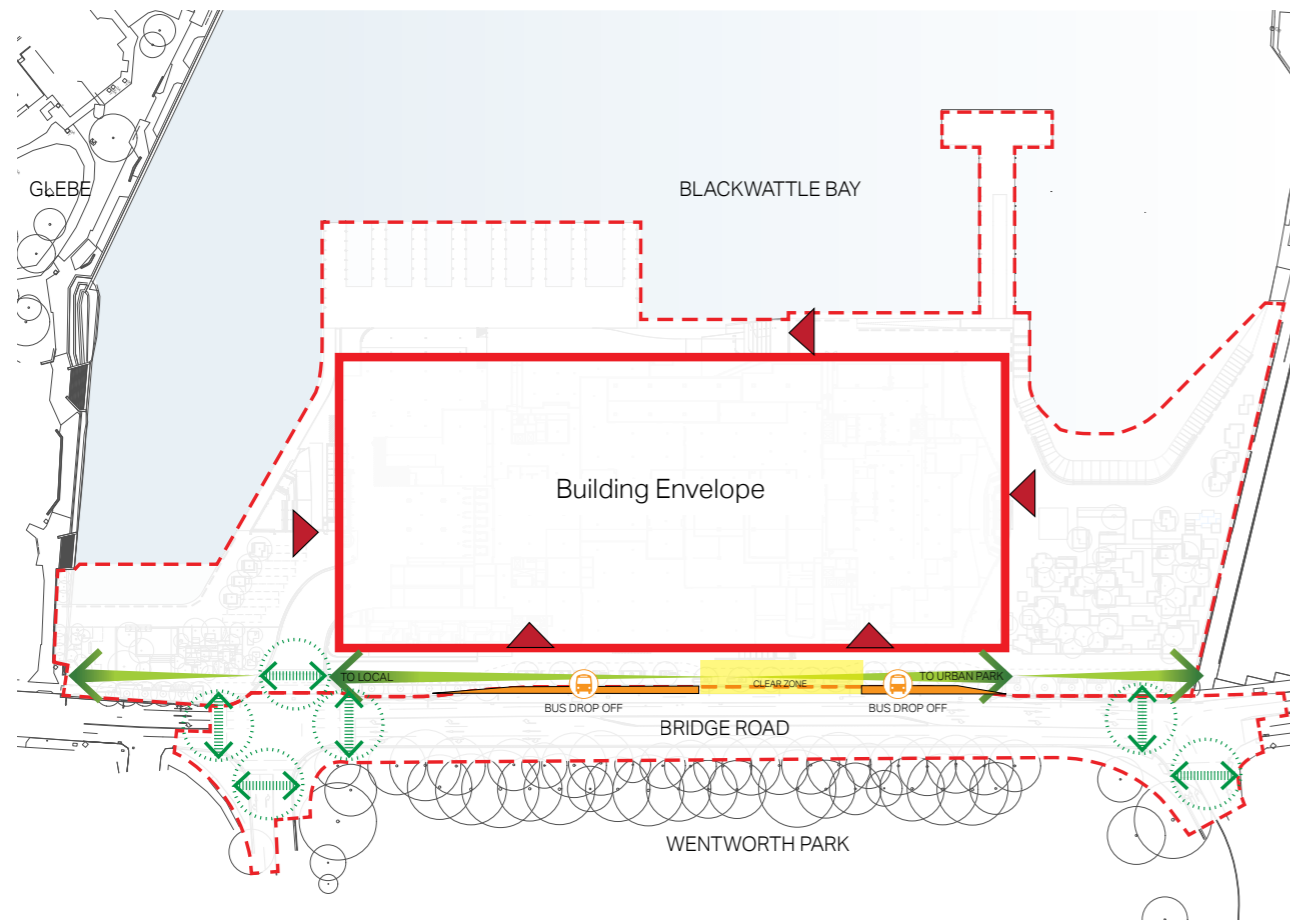
The Three Promenades



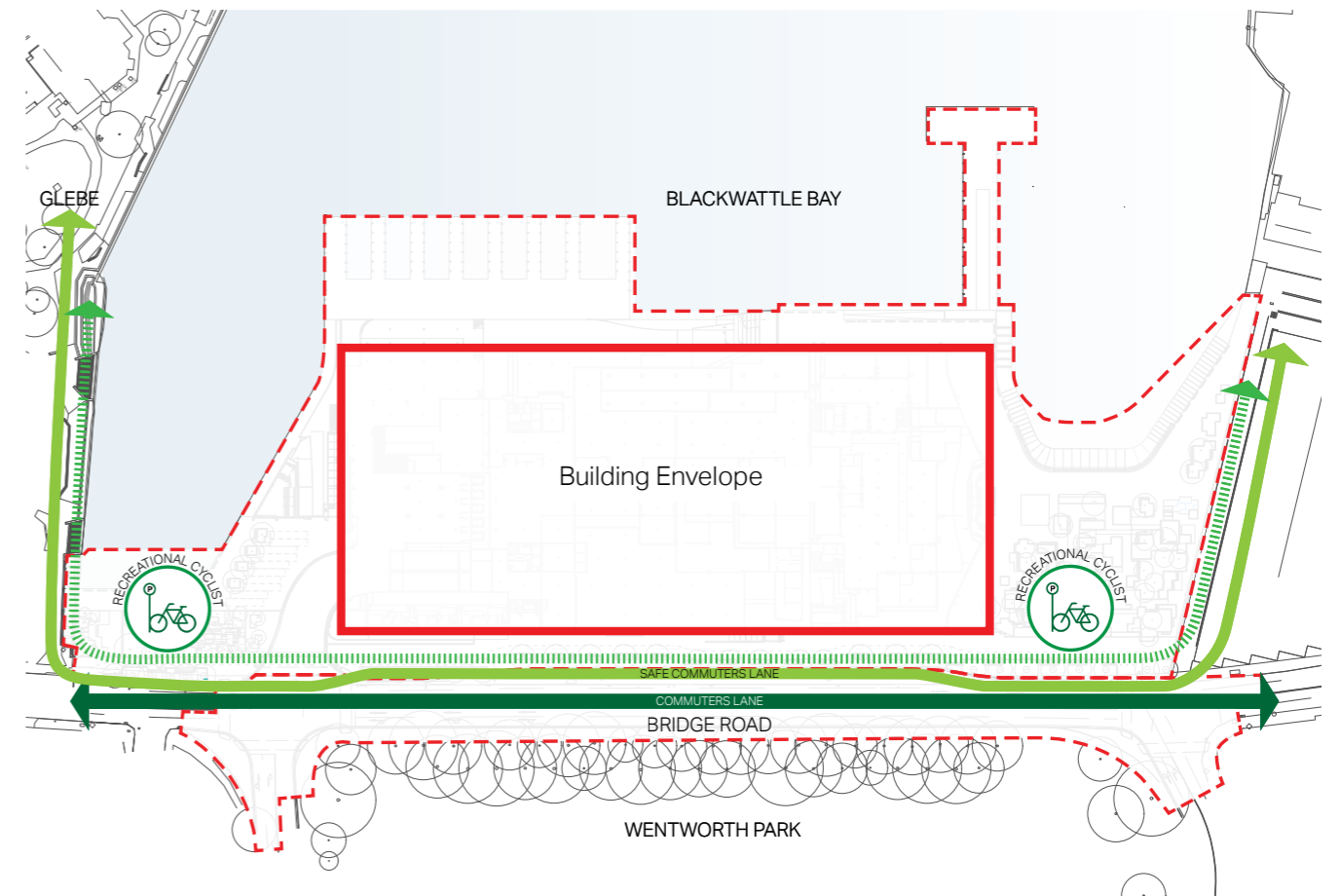
The Green Heart

3.0 Public Domain & Public Access

Design Approach



Access and Arrival



Cycling Strategy

4.0 Amenity

New Sydney Fish Market



Indicative view from eastern plaza looking towards Blackwattle Bay. Artist's impression only. Not to scale.

4.0 Amenity

Shaded & Unshaded Zones

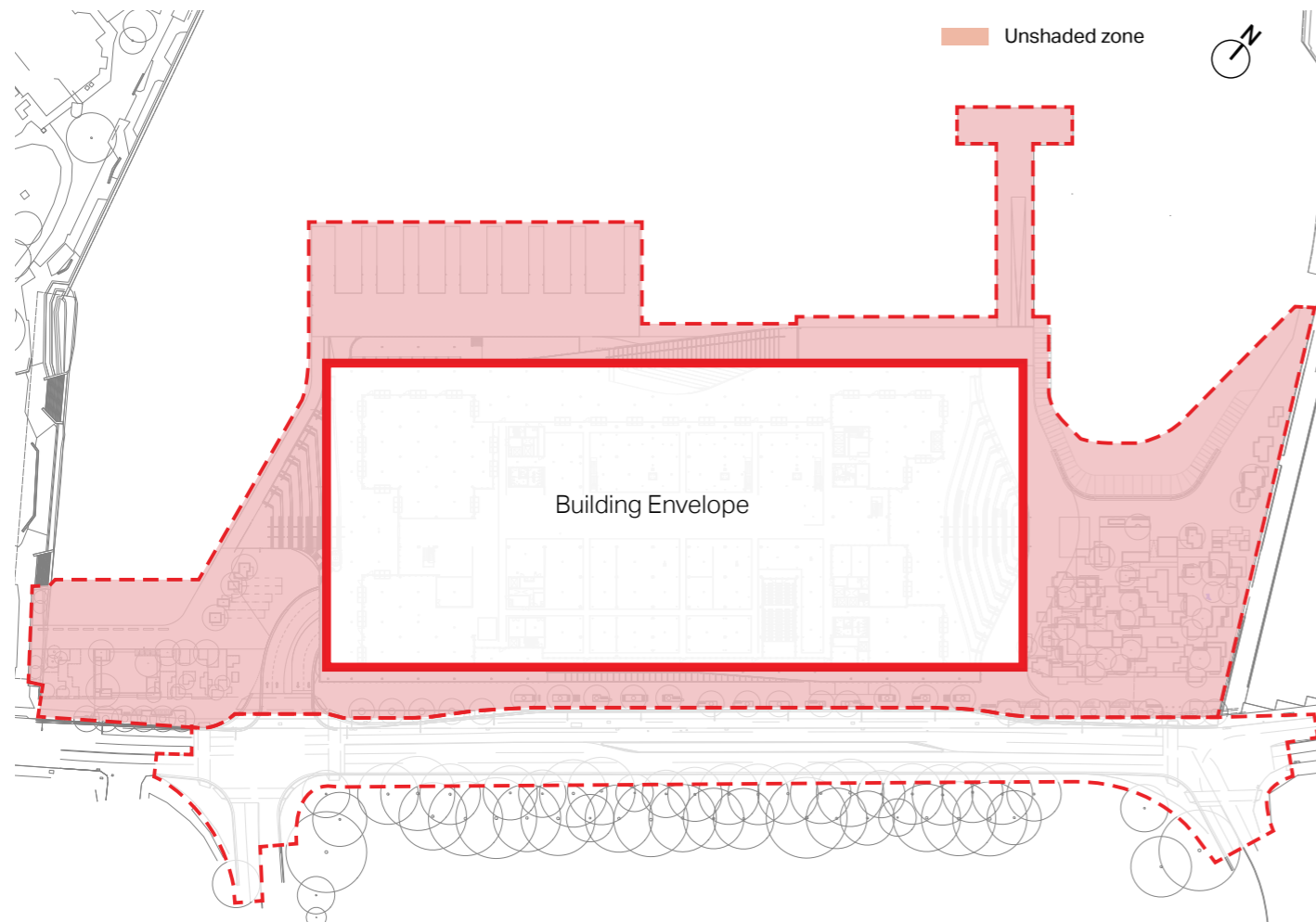


Diagram : New Sydney Fish Market Shaded and Unshaded Zones

The new Sydney Fish Market roof represents the primary shading feature on the site, with plantings and temporary structures offering supplementary shading. Material choices for unshaded areas will comply with Green Star energy and visual comfort aims, designed to limit the urban heat island effect and limit the storage of heat using insulative treatments.

Note* Indicative only. Refer to architectural drawings.

Sunlight Access & Opportunities

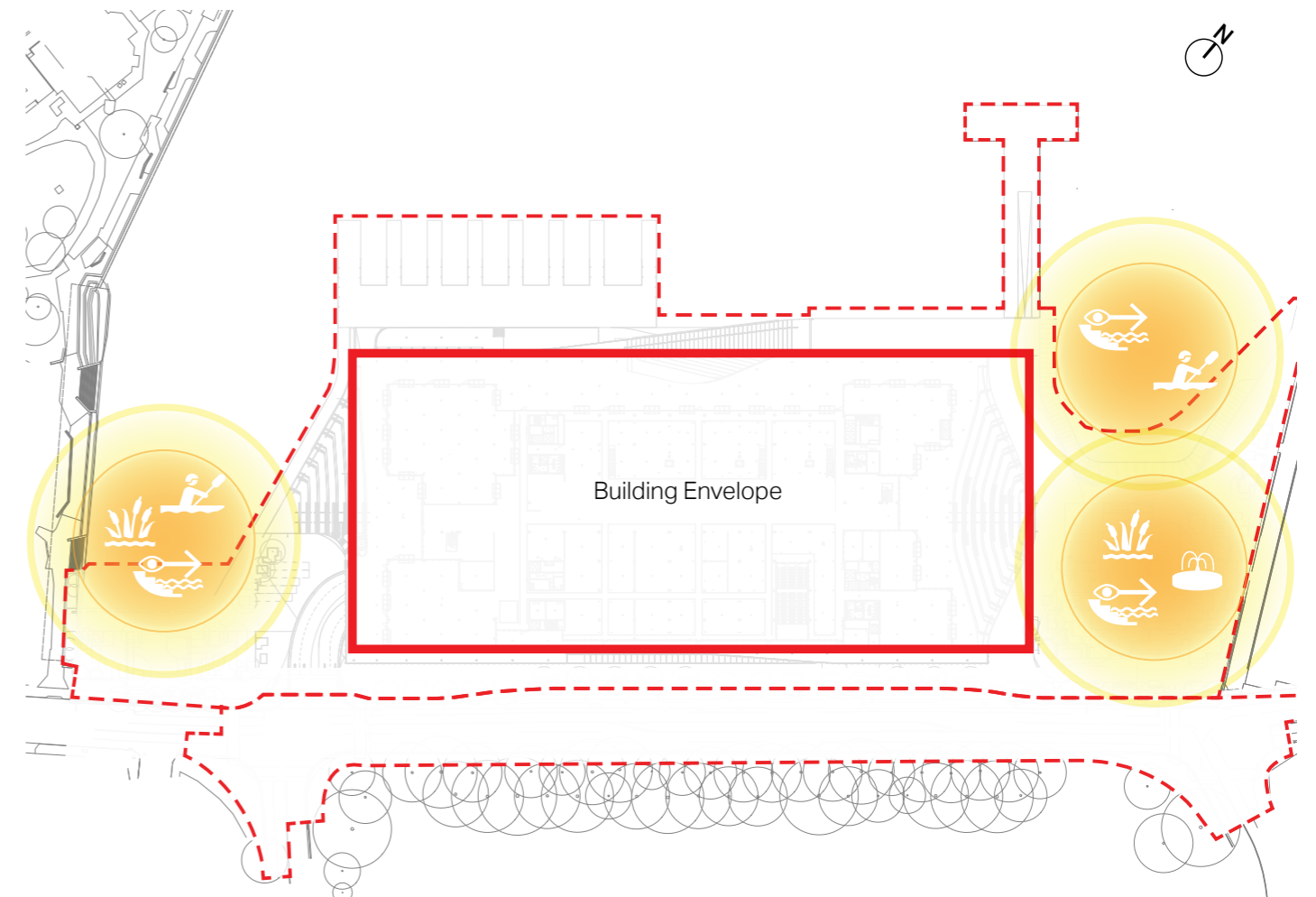


Diagram : New Sydney Fish Market Sunlight Access & Opportunities

Exposed areas will capitalise on the benefits of sunlight, in particular, with the implementation and fostering of appropriate flora, fauna and aquaculture.

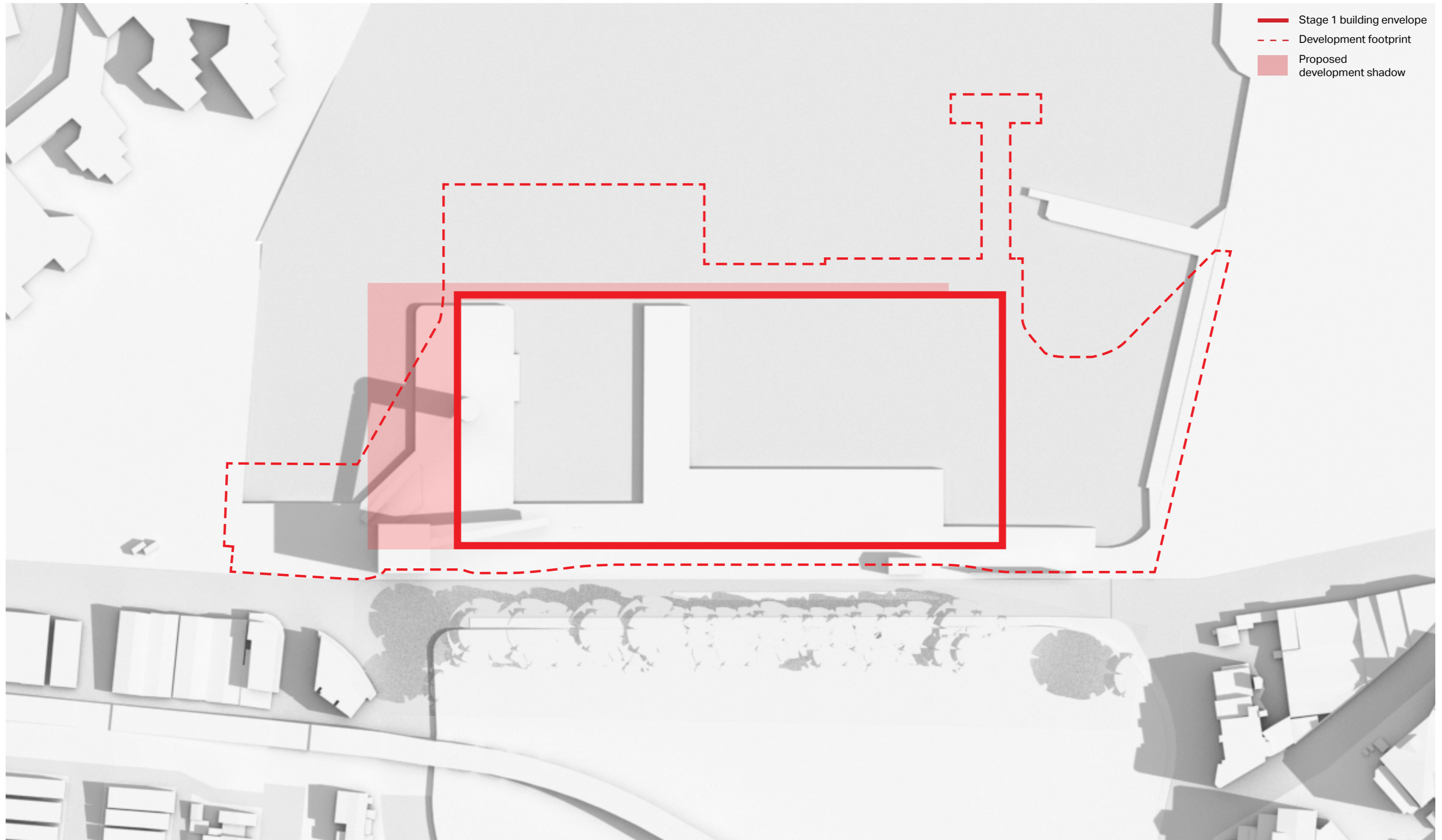
Note* Indicative only. Refer to architectural drawings.

4.0 Amenity

Shadow Analysis : 21 March & 23 September (Equinox) 9 AM



Diagram: Proposed building shadow and existing shadows differentiated.

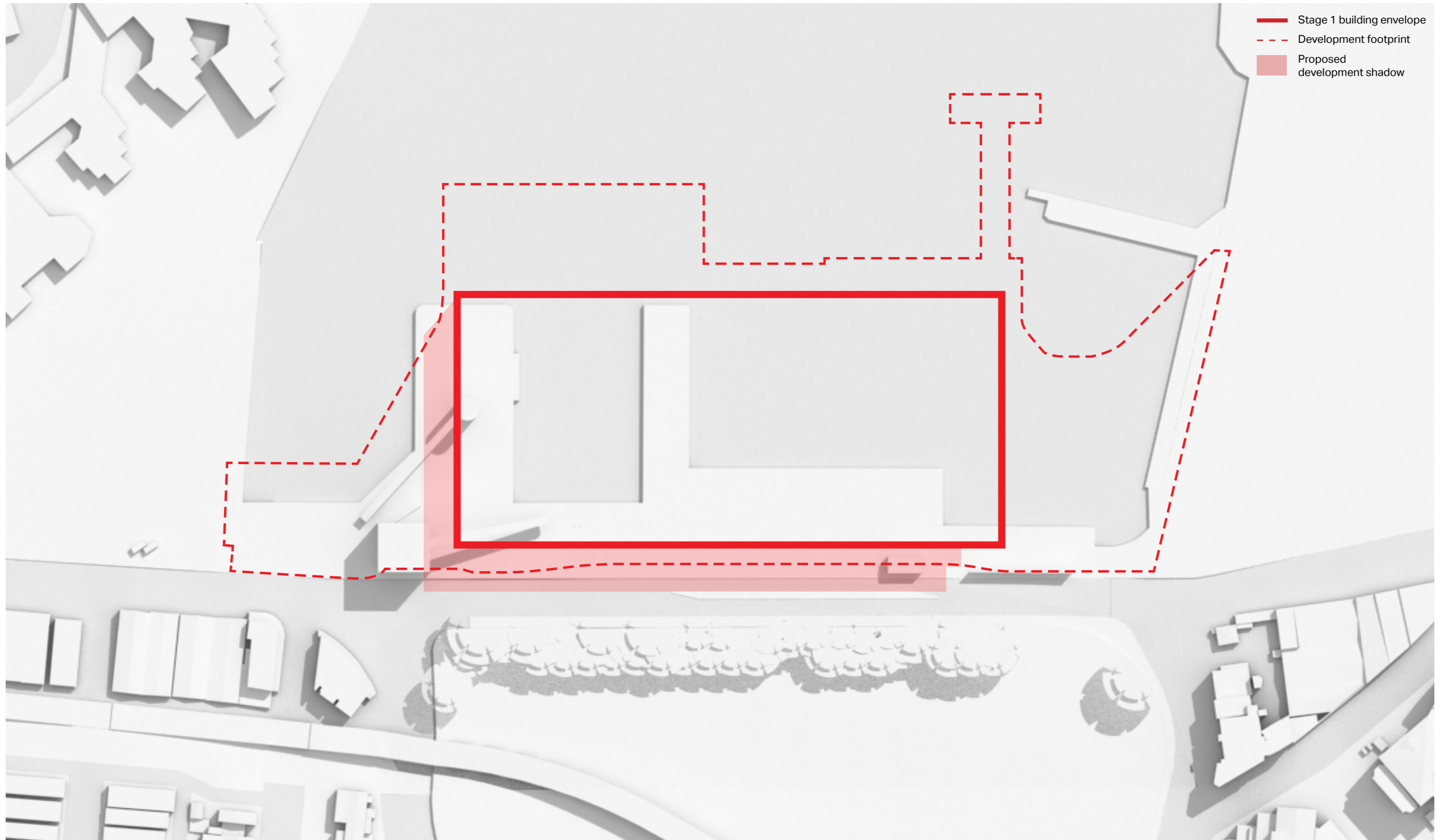


4.0 Amenity

Shadow Analysis : 21 March & 23 September (Equinox) 12 PM



Diagram: Proposed building shadow and existing shadows differentiated.



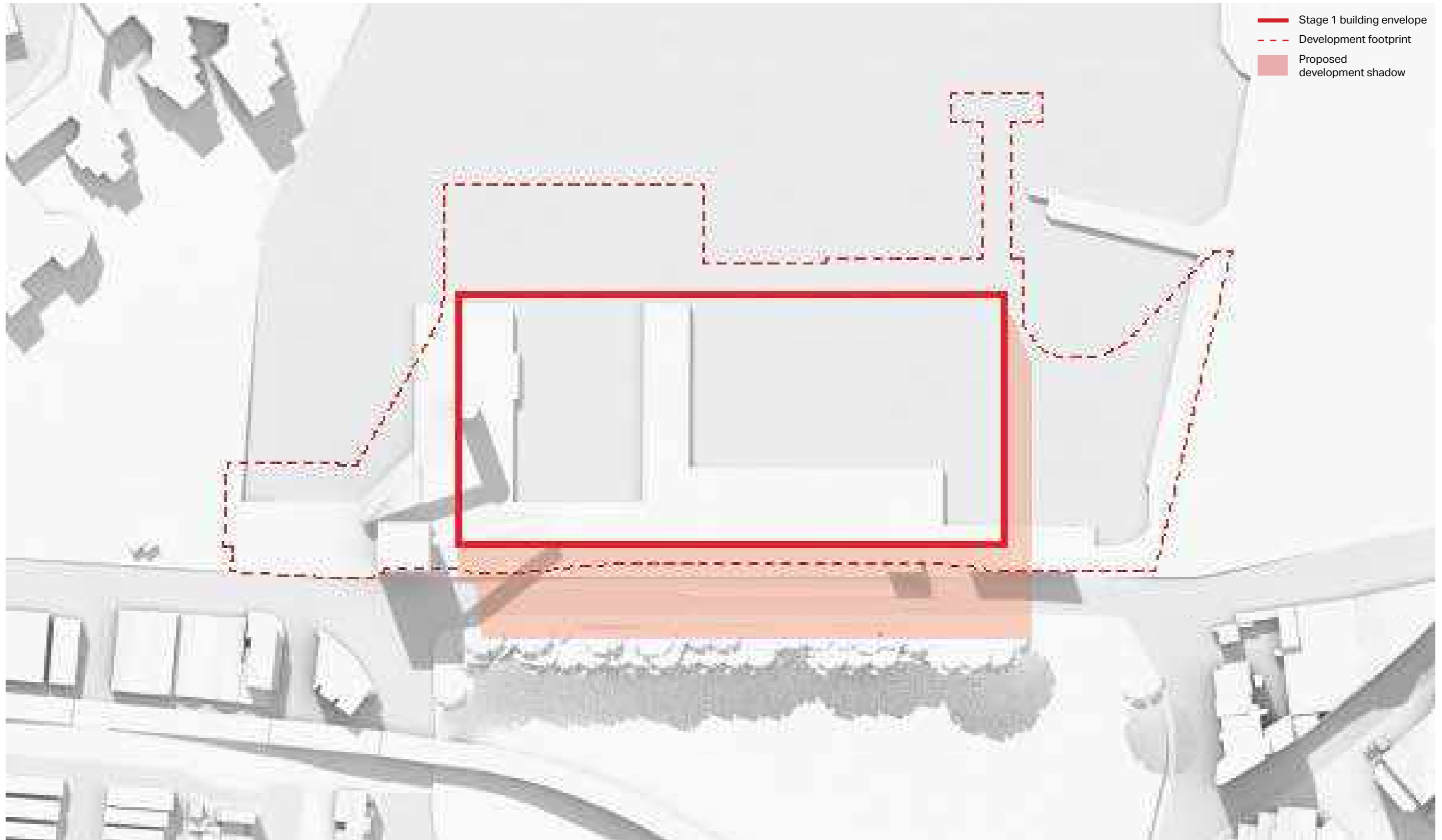
- Stage 1 building envelope
- - - Development footprint
- Proposed development shadow

4.0 Amenity

Shadow Analysis : 21 March & 23 September (Equinox) 3 PM



Diagram: Proposed building shadow and existing shadows differentiated.

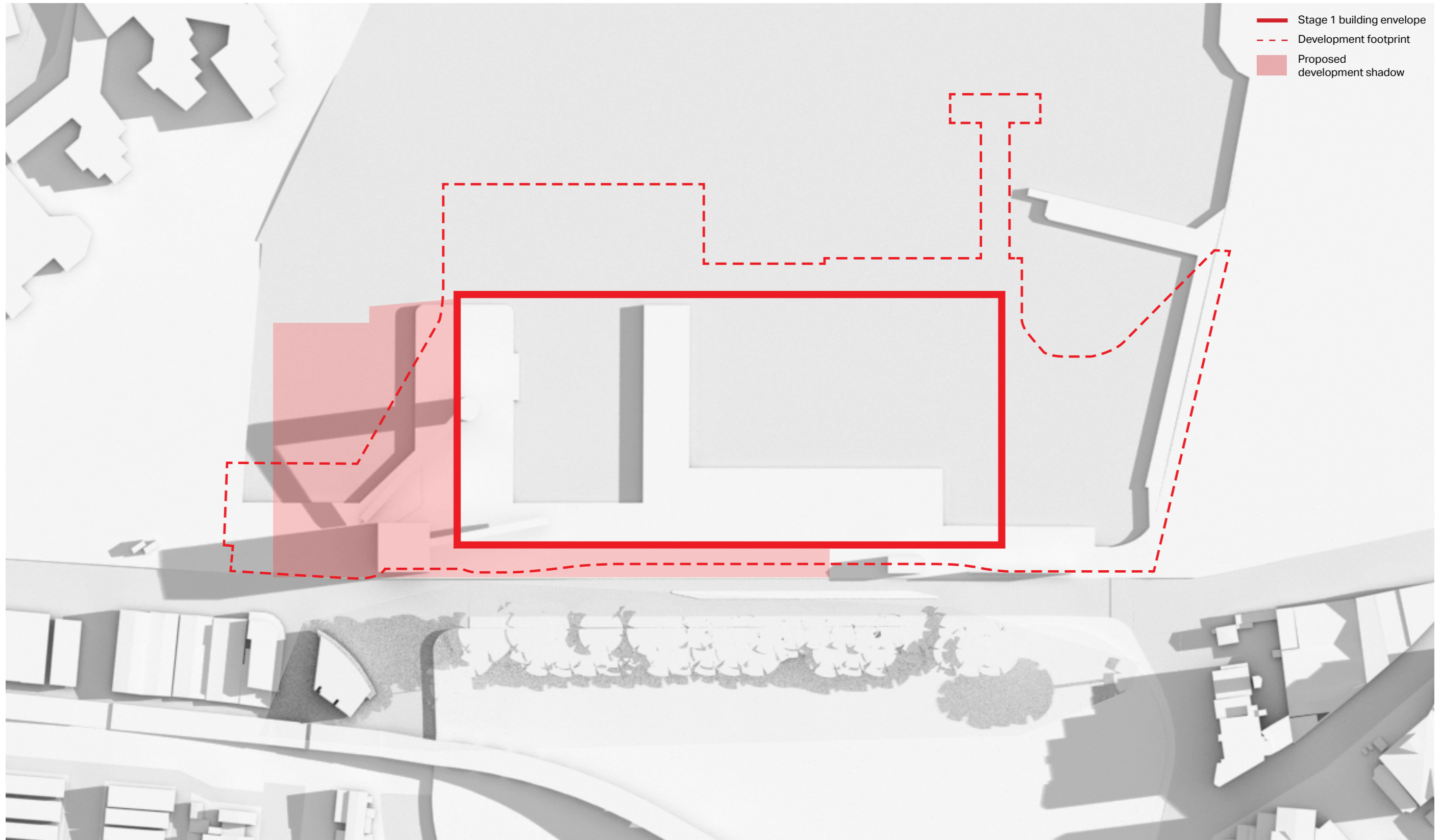


4.0 Amenity

Shadow Analysis : 21 June (Winter Solstice) 9 AM



Diagram: Proposed building shadow and existing shadows differentiated.

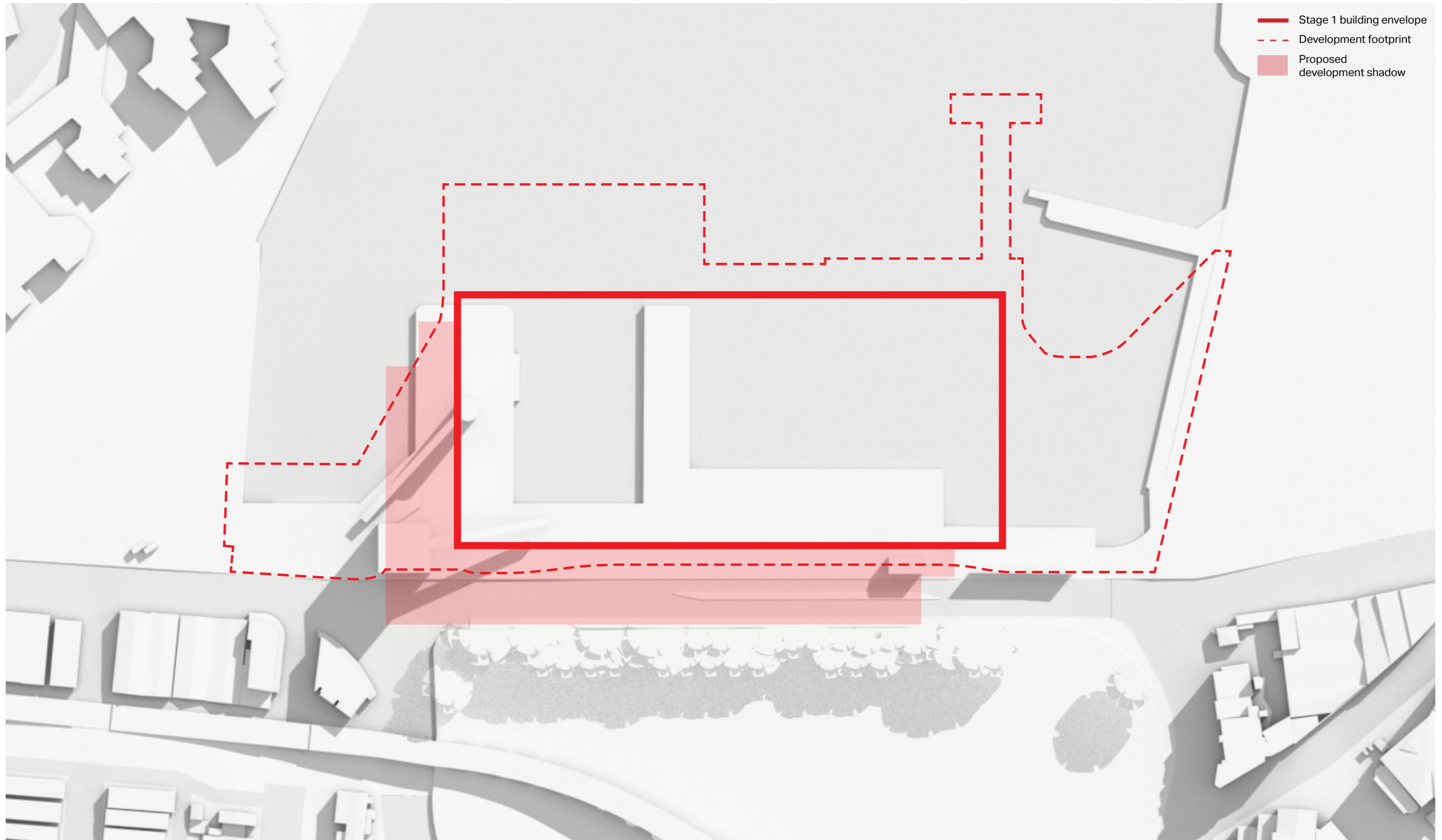


4.0 Amenity

Shadow Analysis : 21 June (Winter Solstice) 12 PM



Diagram: Proposed building shadow and existing shadows differentiated.

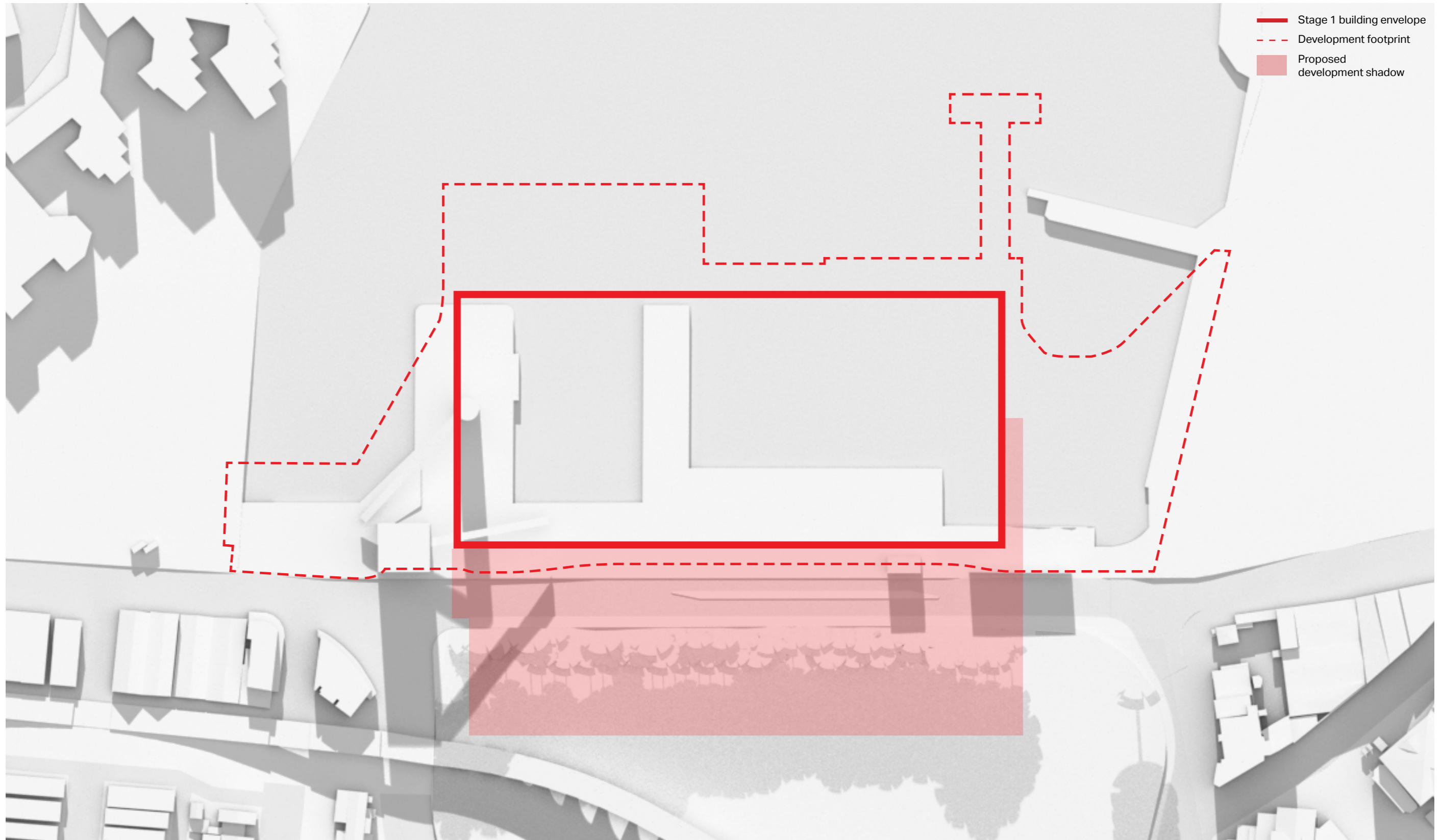


4.0 Amenity

Shadow Analysis : 21 June (Winter Solstice) 3 PM



Diagram: Proposed building shadow and existing shadows differentiated.

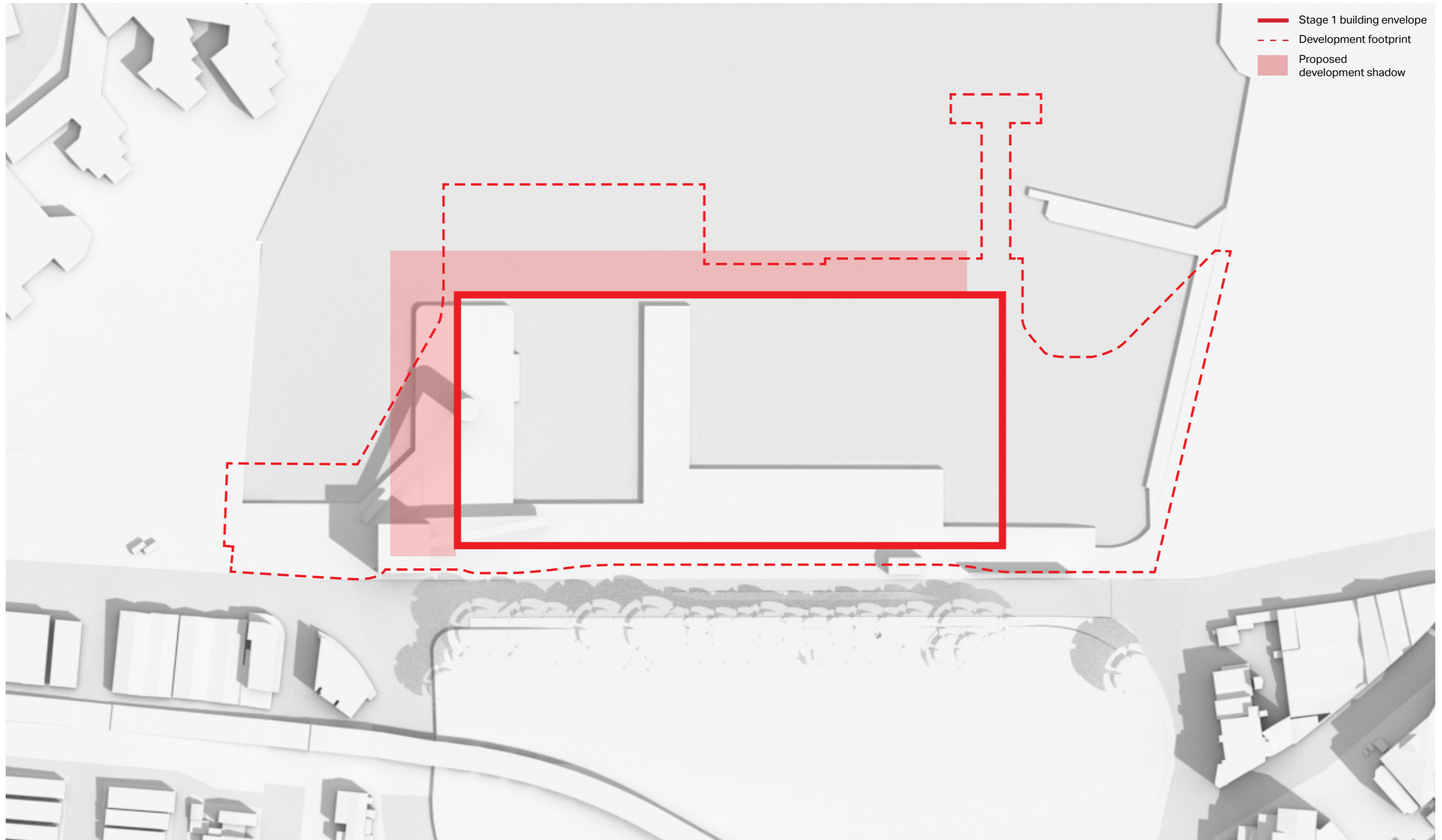


4.0 Amenity

Shadow Analysis : 22 December (Summer Solstice) 9 AM



Diagram: Proposed building shadow and existing shadows differentiated.

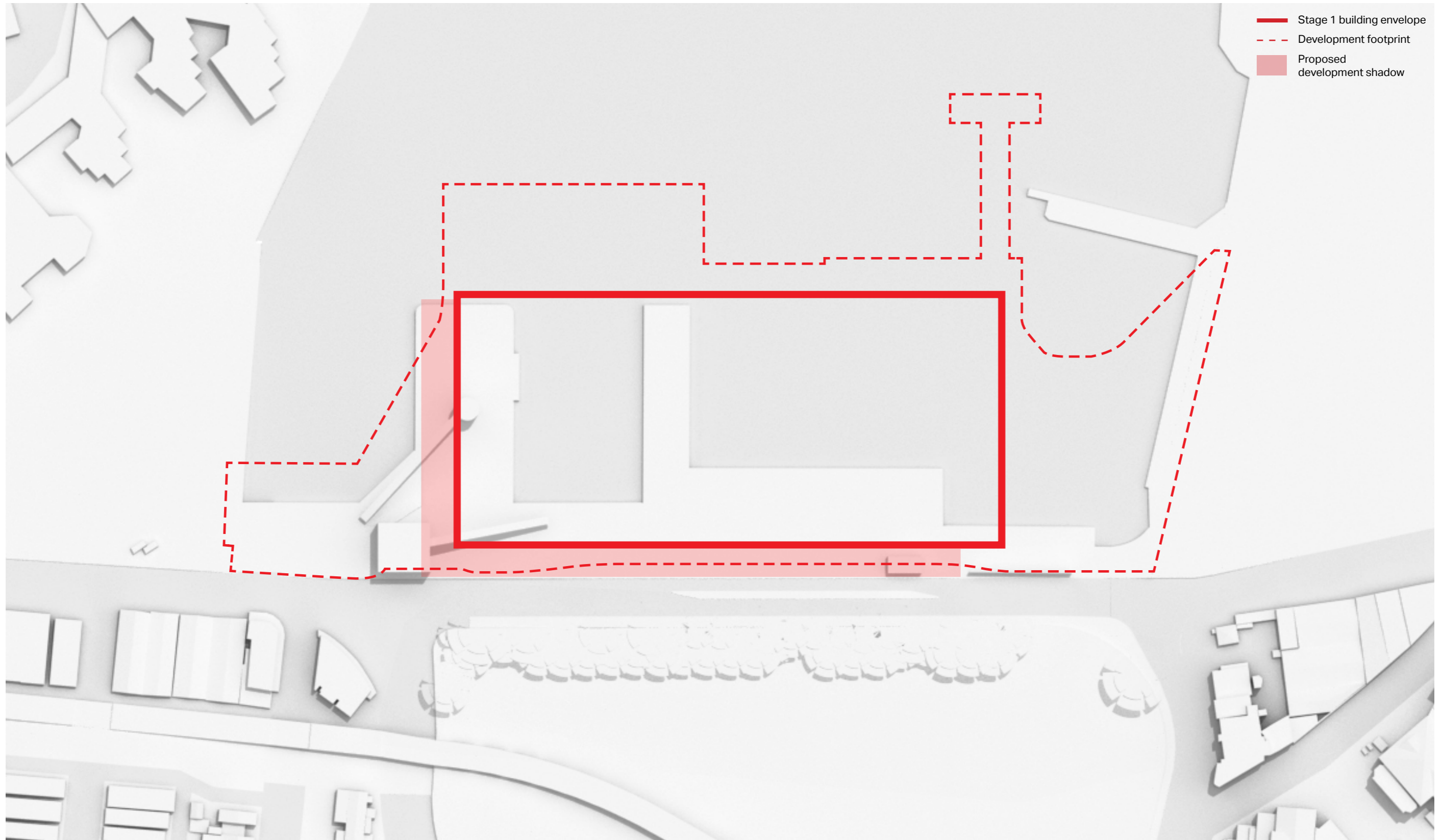


4.0 Amenity

Shadow Analysis : 22 December (Summer Solstice) 12 PM



Diagram: Proposed building shadow and existing shadows differentiated.

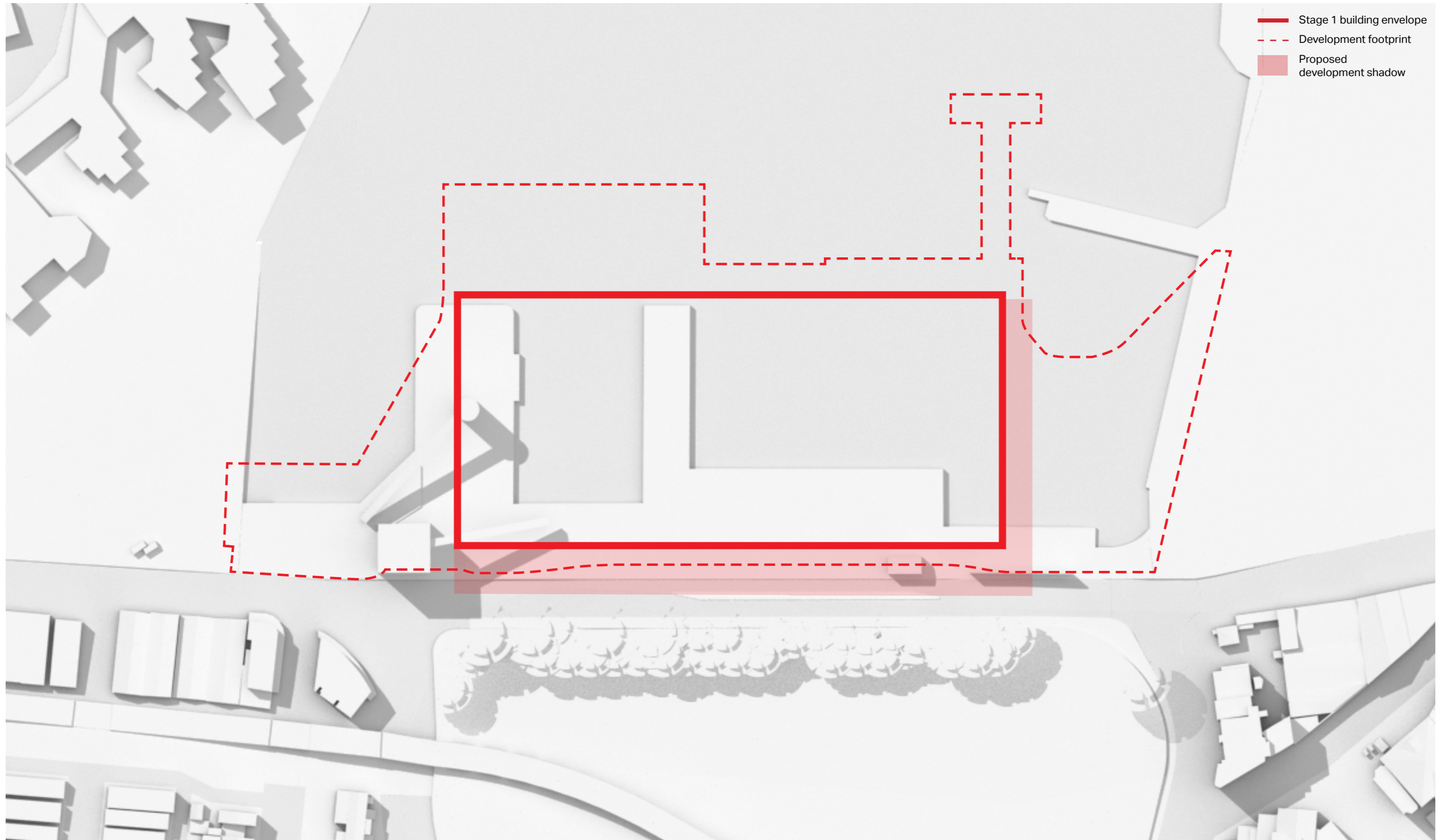


4.0 Amenity

Shadow Analysis : 22 December (Summer Solstice) 3 PM



Diagram: Proposed building shadow and existing shadows differentiated.



4.0 Amenity

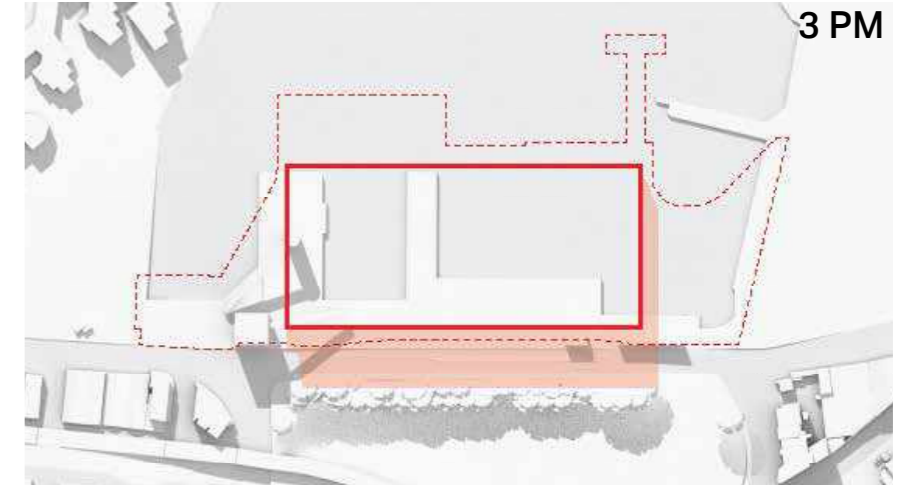
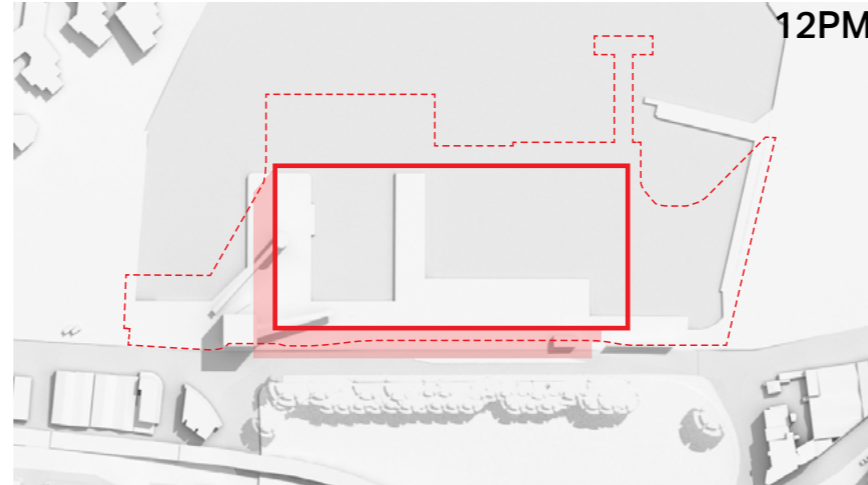
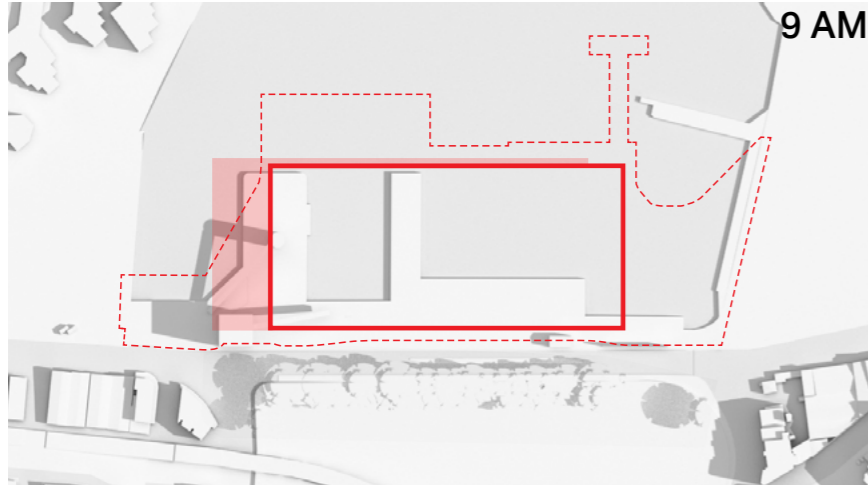
Shadow Analysis : Plan Summary

Diagram: Proposed building shadow and existing shadows differentiated.

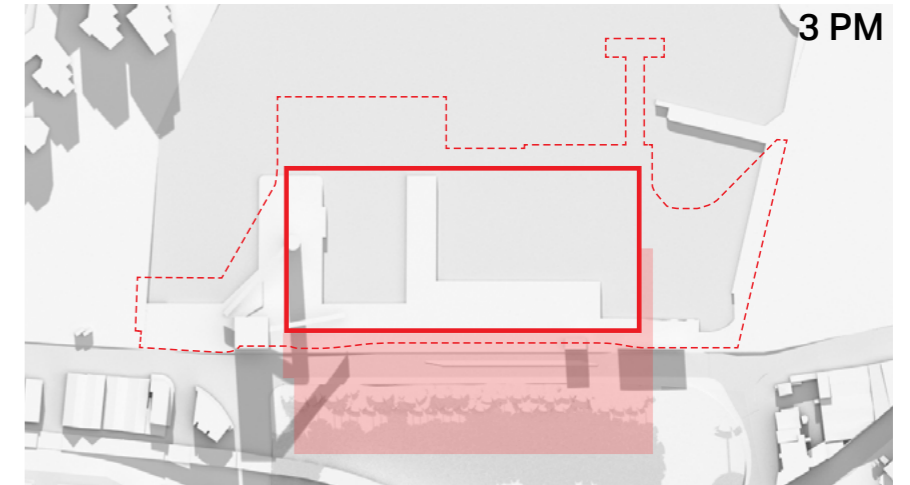
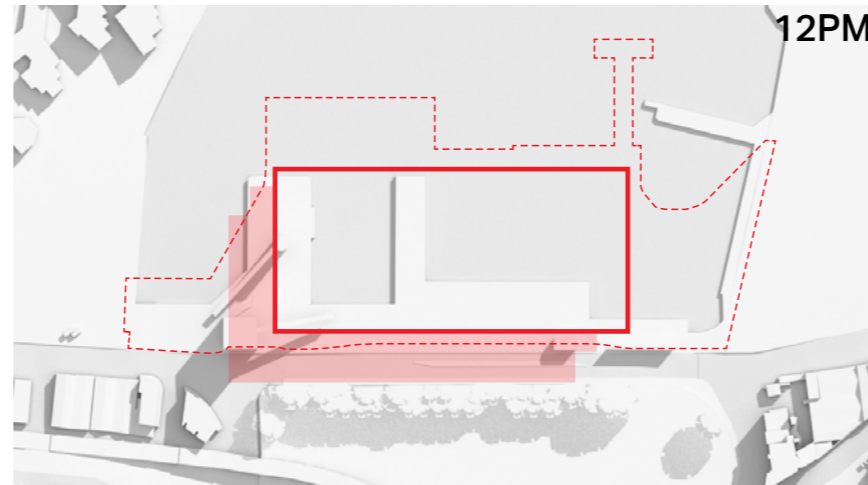
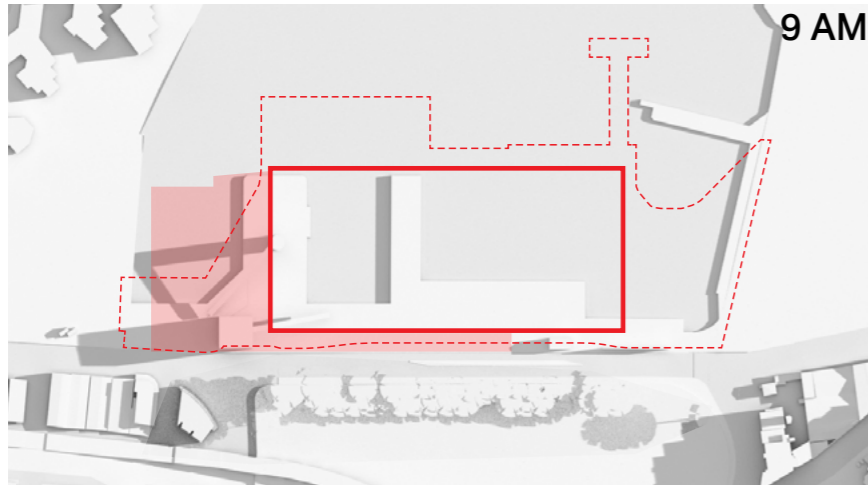
- Stage 1 building envelope
- - - Development footprint
- Proposed development shadow



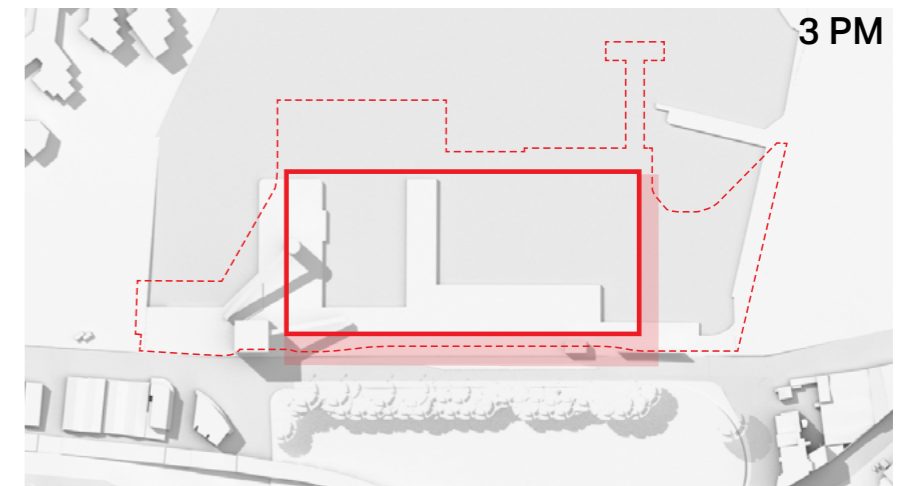
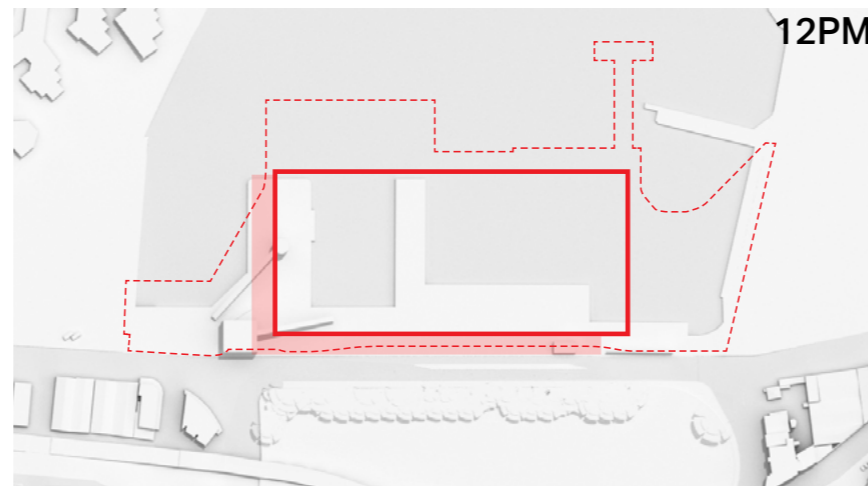
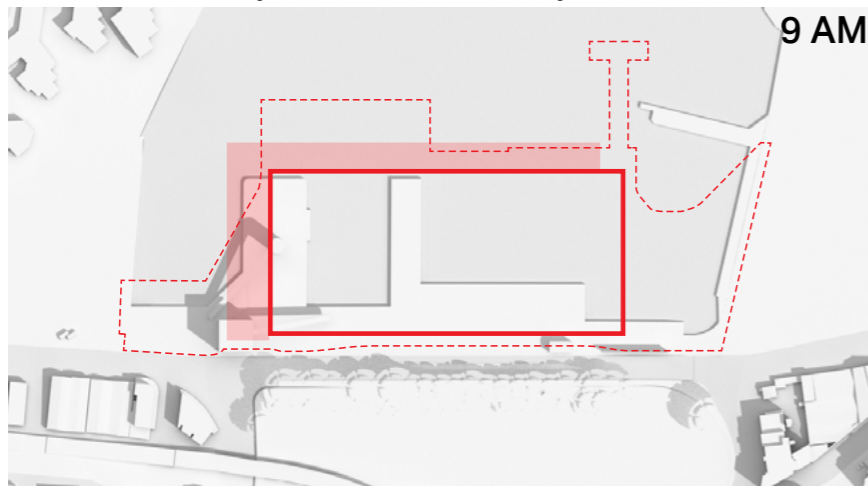
21 March & 23 September (Equinox)



21 June (Winter Solstice)



22 December (Summer Solstice)





Indicative aerial view of the new Sydney Fish Market towards Wentworth Park. Artist's impression only. Not to scale.