



POWERHOUSE ULTIMO REVITALISATION

Architectural
and Urban
Design Report

SSDA

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INTRODUCTION

1.2 Powerhouse Ultimo Revitalisation

This report has been prepared on behalf of Infrastructure NSW to support a State Significant Development (SSD) Development Application (DA) for alterations and additions to Powerhouse Ultimo at 500 Harris Street, Ultimo.

The Powerhouse Ultimo Revitalisation is a transformative investment by the NSW Government to establish a world-class museum that will significantly contribute to an important and developing part of Sydney. The renewed Powerhouse Museum in Ultimo will deliver a dynamic applied arts and applied science program, presenting exhibitions that showcase the Powerhouse collection, international exclusive exhibitions and programs that support the creative industries.

The objectives of the development are to:

- Deliver an international standard museum on the site of the existing Powerhouse Ultimo that operates in conjunction with Powerhouse Parramatta, Powerhouse Castle Hill and the Sydney Observatory.
- Provide exhibition spaces that are flexible and adaptable to ensure that the museum is capable of showcasing the Powerhouse's significant collection and attracting internationally significant exhibitions that are aligned with the Powerhouse's curatorial aims.
- Ensure exhibition spaces have significant internal programmable volumes to meet requirements of present and future exhibitions, maintaining the relevance of the museum to future communities.
- Create additional opportunities for large-volume presentation spaces, including a space that is capable of use in an auditorium configuration.
- Allow for the efficient operation of the museum by providing clear separation between front-of-house and back-of-house spaces, providing sufficient spaces for the administration and operation of the museum, and efficient circulation networks within and through the museum spaces.
- Support the objectives of the Pyrmont Peninsula Place Strategy and supporting strategies to revitalise Harris Street and reinforce its position as the high street of the peninsula, with better pedestrian amenity, local character, and economic activity with highly active frontages.
- Improve the relationship between the museum and the Goods Line and reorient the museum towards the city, including by refocusing the entrance to the museum towards this significant public space
- Integrate the museum with the surrounding public domain and create new publicly accessible green space, including a new terrace at the northern end of The Goods Line to welcome visitors to the new museum entrance.
- Leverage the industrial heritage and history of the area through the adaptive reuse and conservation of heritage buildings, including by reinstating the volume of the interiors of the Boiler Hall and Turbine Hall, and the conservation of the fabric of the Power Station, with adaptation to provide for the ongoing requirements of a contemporary museum.
- Retain the Boulton and Watt Steam Engine, Catalina and Locomotive No.1 within suitable spaces in the revitalised museum.
- Establish space for new creative industries that operate in synergy with the Powerhouse and which can enhance activation and passive surveillance of Harris Street. These spaces should provide for a range of creative industries that support both the operations of the Powerhouse as well as the wider creative industries precinct throughout Ultimo-Pyrmont.
- Complement the development of other significant urban renewal precincts and projects within the vicinity of the site, including Darling Harbour, Central Precinct, Blackwattle Bay and Pyrmont Metro Station, by delivering a new cultural centrepiece within the Pyrmont Peninsula.



1.3 Site Description

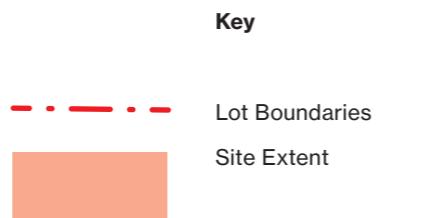
Powerhouse Ultimo is situated upon the lands of the Gadigal people of the Eora Nation. It is located within the City of Sydney Local Government Area and its primary address is 500 Harris Street, Ultimo. The site comprises part Lot 1 DP 631345; Lot 3 DP 631345; Lot 1 DP 770031; Lot 1 DP 781732; and Lot 37 DP 822345.

The site contains two State heritage-listed buildings, being the 'Ultimo Power House' (c.1899-1905) and the 'Former Ultimo Post Office including interior' (c.1901), both of which are listed on the State Heritage Register under the Heritage Act 1997.

Other buildings within the site include the 1988 museum building fronting Harris Street (Wran Building). A café building has been constructed immediately to the south of the Power House at the northern end of The Goods Line. Located at the corner of Harris Street and Macarthur Street is a forecourt that acts as the main public entrance to the site, but provides limited activation and is disconnected from higher-quality urban spaces including The Goods Line.

The primary focus of the Powerhouse Ultimo Revitalisation project is the museum to the north of Macarthur Street and bounded by Harris Street, Pier Street and the light rail corridor.

The Harwood Building does not form part of this Development Application but its use by the Powerhouse and adjacency to new Public Domain spaces have been considered.



Key

- Lot Boundaries
- Site Extent

Lot Boundaries

1. Lot 1 DP 770031
2. Lot 1 DP 781732
3. Lot 1 DP 631345
4. Lot 3 DP 631345
5. Lot 37 DP 822345



Aerial imagery sourced from SIX Maps, NSW Spatial Services.

1.4 Overview of Proposed Development

This DA seeks consent for the design, construction and operation of the proposed Powerhouse Ultimo Revitalisation. Specifically, approval is sought for the following:

- Site preparation works, including site services and infrastructure works, tree removal, earthworks, remediation and the erection of site protection hoardings and fencing.
- Demolition of existing structures on the site, including:
 - Harris Street forecourt.
 - Structures in the forecourt entrance at the Goods Line, including the café.
 - Internal demolition of non-heritage elements of the Ultimo Power House building
- Construction and use of a new museum spaces along the Harris Street frontage, including the following uses:
 - Loading dock and other back of house spaces.
 - Creative commercial spaces.
- Conservation and adaptive reuse of the existing Ultimo Power House and Ultimo Post Office heritage items for museum display and museum back of house functions, community spaces, and staff support purposes.
- Alterations to the Wran Building spaces to upgrade the auditorium and exhibition spaces.
- Construction of new public open spaces

including:

- At the south-eastern corner of the site to connect with the Ultimo Goods Line.
- An internal courtyard garden wrapped by the building fronting Harris Street.
- A creative courtyard between the Post Office and Wran Buildings.

Full details of the proposed development are set out in the Architectural Drawings and Landscape and Public Domain Drawings accompanying the DA.



1.5 Assessment Requirements

The Department of Planning and Environment (DPE) has issued Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement (EIS) for the proposed development. This report has been prepared having regard to the SEARs as follows:

Assessment Requirements	Where addressed in this report
Environmental Assessment Requirement	
4. Built form and urban design	
Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach.	Site Context- 2.3 Built form and urban design approach- sections 2 and 3
Demonstrate how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality.	Section 4
Demonstrate how the building design will deliver a high-quality development, including consideration of façade design, articulation, activation, roof design, materials, finishes, colours, any signage and integration of services.	Section 4
5. Environmental Amenity	
Address how good internal and external environmental amenity is achieved, including access to natural daylight and ventilation, pedestrian movement throughout the site, access to landscape and outdoor spaces.	Sections 2 and 4.3
Assess amenity impacts on the surrounding locality, including lighting impacts, solar access, visual privacy, visual amenity, view loss and view sharing, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated.	Sections 4.2, 4.3 View Loss and wind impacts addressed in separate reports
Provide a solar access analysis of the overshadowing impacts of the development within the site, on surrounding properties and public spaces (during summer and winter solstice and spring and autumn equinox) at hourly intervals between 9am and 3pm, when compared to the existing situation and a compliant development (if relevant).	Section 4.2

DESIGN INTENT

2.1 Connecting with Country

The Powerhouse Ultimo Revitalisation acknowledges Country as its inspiration and narrator, restoring a natural, and intuitive experience of the city, walking with, rather than on country.

One of the design inspirations is the beautiful Angophora Costata, to again see her dance on the sandstone ridges, outcrops, and terraces, next to the creek with her kin.

As a young tree she finds her way into the sandstone, tracing the paths of water as it falls from the sky permeating the earth. A path of water from the sandstone ridges, collecting in the freshwater, flowing to the saltwater. Her roots reach deep into Country, her branches stretching to embrace the sun, the moon, the stars, dancing in the wind.

Her form is both reflective and connected, where the harder the stone, the more intricate and diverse her roots, the more animated and elaborate her branches become. This has inspired us, to walk together, with Country.

This place has at one time consumed Country and then at another time collected Country, the design seeks to amplify the voice of the Gadigal as Welcome and provide an opportunity for everyone to acknowledge our Mother, in connecting to Country.

The Powerhouse Ultimo Revitalisation honours and is framed by the landscape, a cultural topography, that operates at the largest scale of geological and hydrological systems. Organising the public domain and buildings into an experience that is clear and legible for

all who visit and use the Museum, as the ridgeline, the outcrop and the creek terraces.

Creating an accessible experience of the complex relational systems that connect and permeate Gadigal Country. Learning from and exploring Country, as made up of a series of interconnected elements of Deep Country, Water Country, Wind Country, refuge for our non-human kin and Sky Country.

Moving with Country is acknowledging these elements and allowing us to share a custodial role in a living database where knowledge is placed, accessed, and shared, as a codex into the oldest environmental knowledge system in the world.

This has inspired us to see beyond the immediate site, embracing ancient paths of water, reimagining the Powerhouse as the rocky terrace rising from the waterline that flows through the goods line and Harris St as the Sandstone ridge that embraces it.

The new building holds the street edges, stepping with the contours between the terrace and the ridge, with its own set of terraces and outcrops that create refuges for ourselves and our non-human kin, reflecting the interstitial spaces in its form. The topographic clarity of Country re-emerges, creating an intuitive experience of the site and the Country that surrounds it.

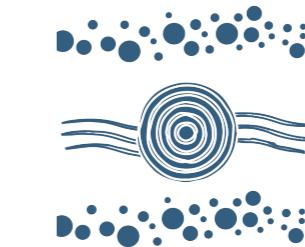
The building sits within Country as a stratigraphy of memory, of knowledge, of restoration, as the middens did across the land of the Gadigal as a library. Reusing,

restoring, and reimagining a future guided by millennia of environmental wisdom, as an inspiration for innovation and adaptation.

The Gathering Terrace speaks and sings to the city—an extroverted edge for people to gather, to perform, to again see the shadows of people sharing stories, song, and dancing around the light of the flame. This place is reunited with the beautiful Angophora Costata along the terrace edge of the goods line to also dance in the light of the flame with her kin, replacing the colonial landscape of the Plane trees.

This space uses the ecology of fire as an invitation to Country at a landscape rather than event scale, and to keep the space in a creative seasonal cycle of change. A contemplative sandstone heath garden, transforming into a ceremonial threshold for events, as a space for expressing the emotions of Country through art and returning as a terrace once again, to inhabit and be inhabited by Country. Fire will be the element used to travel in time, to create drama, to cleanse, to regenerate and to unite.

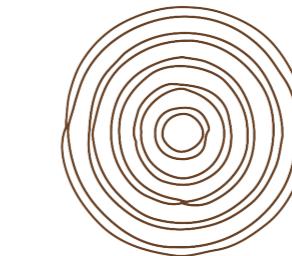
The vision is the Powerhouse as an element of Country, moving with her, allowing visitors to not only experience, but engage with this extraordinary biocultural database, this place of experience and practice. Connecting the knowledge, it has to share, in the context of its place as part of Country, by reciprocating with Country so we can all flourish.



Water Country is the connective tissue, the circulatory system, the confluences and paths within and between Country. It is the meeting of salt and fresh water, where one drop forms setting a path through Country, connecting with story and landscape.



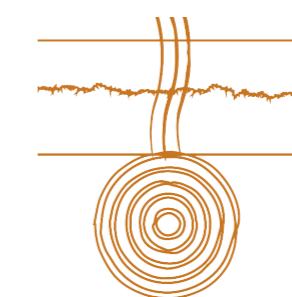
Sky Country is a place of spirits and the ancestors and includes knowledge about navigation, the seasons, time and Songlines. It is also an important component of ceremony as it allows engagement with our ancestors and spiritual beings.



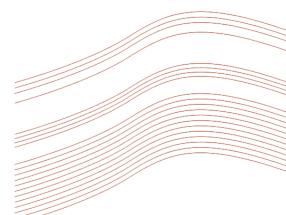
Move with Country. At the heart of Country is people and community, where our spirituality is embedded in environmental consciousness. To Move with Country is to be a Custodian of Country. It is where we record and share our knowledge through story, song, dance and art.



Non-Human Kin Country fills the senses with colour, smells and sounds. On Country we are surrounded by our kin the animals and plants. This is where we learn about the connection of all living things and our responsibilities and roles within this web of connections.



Deep Country is the most Ancient of connections and one that we honour for the many gifts it shares, such as the greenstone axe and the ochres that we paint with. When we dance we are celebrating and honouring the spiritual beings below our feet and their kin in Sky Country, representing the extent and connection of Country.



Wind Country carries the messages of seasonal change, the songs and words of our ancestors across Country. It is where the landscape and light vibrates to a rhythm, be it the trees and the grass, or the clouds racing across the sky.

2.2 Design Principles

Powerhouse has developed a principles to assist in guiding the design of Powerhouse Ultimo Revitalisation. These principles include:

Heritage Revitalisation

The design should continue the legacy of Powerhouse Ultimo and form an exemplar of adaptive heritage reuse to deliver new and expanded spaces enabling the Powerhouse to present exhibitions showcasing the museum's significant collection, international exclusive exhibitions, expanded education programs and programs that support the applied arts, applied sciences and creative industries. The design should:

- Reinstate the volume of the interiors of the heritage Boiler Hall and Turbine Hall spaces through the removal of mezzanine and interstitial spaces.
- Conserve and repair the heritage fabric of the Power Station.
- Reveal and activate the heritage façade of the Power Station and Switch House
- Adapt spaces to provide for ongoing development of contemporary museum practice to ensure the Powerhouse can present exhibitions and programs remains relevant and connected to its communities.

International Standard Museum

The design should create flexible international standard exhibition spaces that can support and adapt to new and dynamic programs to facilitate direct connection with the Powerhouse collection. The design should:

- Deliver a new 1,500 sqm international standard exhibition space.
- Allow for increased international curatorial partnership opportunities for the museum.
- Improve environmental conditioning for collection exhibition.
- Provide spaces that allow presentation of high quality, international museum exhibitions across the applied arts and applied sciences.
- Retain iconic collections items at Ultimo, including Boulton and Watt Steam Engine, Catalina, and Locomotive No. 1.
- Separate museum circulation from exhibition spaces to improve visitor amenity exhibition experience and museum operations.

Public Domain, Activation and Connectivity

The design should create a dynamic porous and connected precinct that is responsive to the changing city and communities around Powerhouse Ultimo. It should enable a welcoming and visually coherent place which can function across many modes. The design should incorporate new built form whilst providing increased public domain with improved amenity and increased connectivity to Harris Street. The design should:

- Create a major public square that connects Powerhouse Ultimo with The Goods Line, creating legible connections to adjacent precincts.
- Embed Caring for Country and sustainability.
- Prioritise the visitor experience.
- Reorientate the museum entrance.
- Create new public domain spaces for programming and utilisation.
- Support the activation of Harris Street

Visitor Circulation and Experience

Confusion caused by the lack of separation between visitor circulation and back-of-house operations coupled with the legibility of spaces impacts museum operations and the visitor experience. The design should address this by:

- Reorientating the museum entrance to The Goods Line.
- Establishing one central, intuitive, and accessible visitor circulation system to access exhibition, program, and education spaces to support the visitor experience.
- Separating front-of-house and back-of-house operations from exhibition and circulation spaces.

2.2 Design Principles

Design Response:

The design team recognise the Powerhouse museum's collection and approaches to the display of that collection have changed over the course of its time at the current location in Ultimo. Some of the changes are reflected in the alternate uses of spaces within the building as well as the numerous renovations to the building that have occurred over that period.

Similarly, the area surrounding the museum has undergone significant growth and change including the consolidation of UTS, the extension of the CBD and subsequent changes to Darling Harbour and Haymarket, the introduction of The Goods Line, Central Park development, creative industries and Tech Central.

The design team further recognise that the Australian and Sydney cultural environment has also changed significantly from a celebration of European settlement in 1988 to a much more inclusive and diverse perspective on what it is to be Australian and what elements of Australia are to be celebrated.

While the legacy of the museum's adaptive re-use of a former power station should be reinforced, the interiors of those spaces require renewal and change. In some places this will include the stripping back and removal of interstitial mezzanines and revealing of heritage fabric and in others it will include consolidating, completing and improving spaces currently underutilised or inaccessible.

The result is a museum flexible enough to present its collection in a multitude of ways unencumbered by peculiarities of the building while acknowledging the unique heritage and contemporary spaces it contains.

The design seeks to respond to the changed context by reorientation of the museum to The Goods Line, reinstating a major elevation as the primary face of the building. Intrusive external circulation, shade structures and building additions are removed to reveal the Power House heritage facades. A new public garden terrace celebrates the end of The Good Line and the newly revealed heritage edges.

The proposal includes the removal of existing mezzanines in the heritage halls of the museum. This allows the grandeur and scale of these rooms to be read and understood, more in keeping with their original forms prior to 1988 and suited to the scale of the Powerhouse Collection, particularly, its very large objects.

Mezzanines and columns will be removed from the Wran Building to create new exhibition spaces. Its blacked out glazed condition is replaced with creative industry spaces lining and activating Harris Street.

The design simplifies and centralises the museum's circulation following the reorientation to the Goods Line Terrace and realignment of the Wran to the Heritage Halls. Through views and an entrance at Harris Street, encourage intuitive way finding. The new courtyard at level 1 connects easily to the mid-level of Macarthur Street, while revealing the full two-story façade of the Switch House, providing light and air to this previously buried edge.

Overlapping of levels and views through the suite of buildings are retained, within this new clarified circulation.



2.3 Site Context

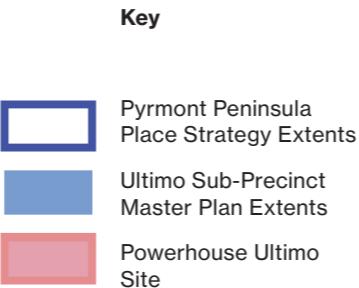
Overview

Powerhouse Ultimo is located within the Pyrmont Peninsula on Gadigal and Wangal lands east of the Sydney CBD, adjacent to Darling Harbour and north of Central train station.

The project is informed by the Cultural Infrastructure Plan 2025+, which is the NSW governments guide or planning and delivery of cultural infrastructure across the state. It further supports the vision outlined in the Pyrmont Peninsula Place Strategy for an innovation corridor and transformation across the Pyrmont Peninsula.

The key strategic planning documents that inform and guide the parameters for the project are:

- Pyrmont Peninsula Place Strategy
- Greater Sydney Region Plan
- Eastern City District Plan
- Ultimo Sub-Precinct Master Plan (Draft)
- Cultural Infrastructure Plan 2025+
- Local Strategic Planning Statement – City Plan 2036 (City of Sydney)
- Better Places – GANSW
- Greener Places – GANSW
- Design Guide for Heritage – GANSW
- Connecting with Country – GANSW



All diagrams and information on pages 13-17 is sourced from the John Wardle and Aspect Studios reference Scheme; Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1.



Source: Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1

2.3 Site Context

Access and Movement - Public Transport

The Powerhouse Ultimo precinct is well serviced by public transport with close proximity to Central Station, Inner West Light Rail via Haymarket and Exhibition stops, as well as 501 buses along Harris Street. Light Rail on George Street and the future Metro West broaden the public transport servicing the site into the future. This is enhanced by the well-connected pedestrian network in Chinatown, Darling Square and Darling Harbour.

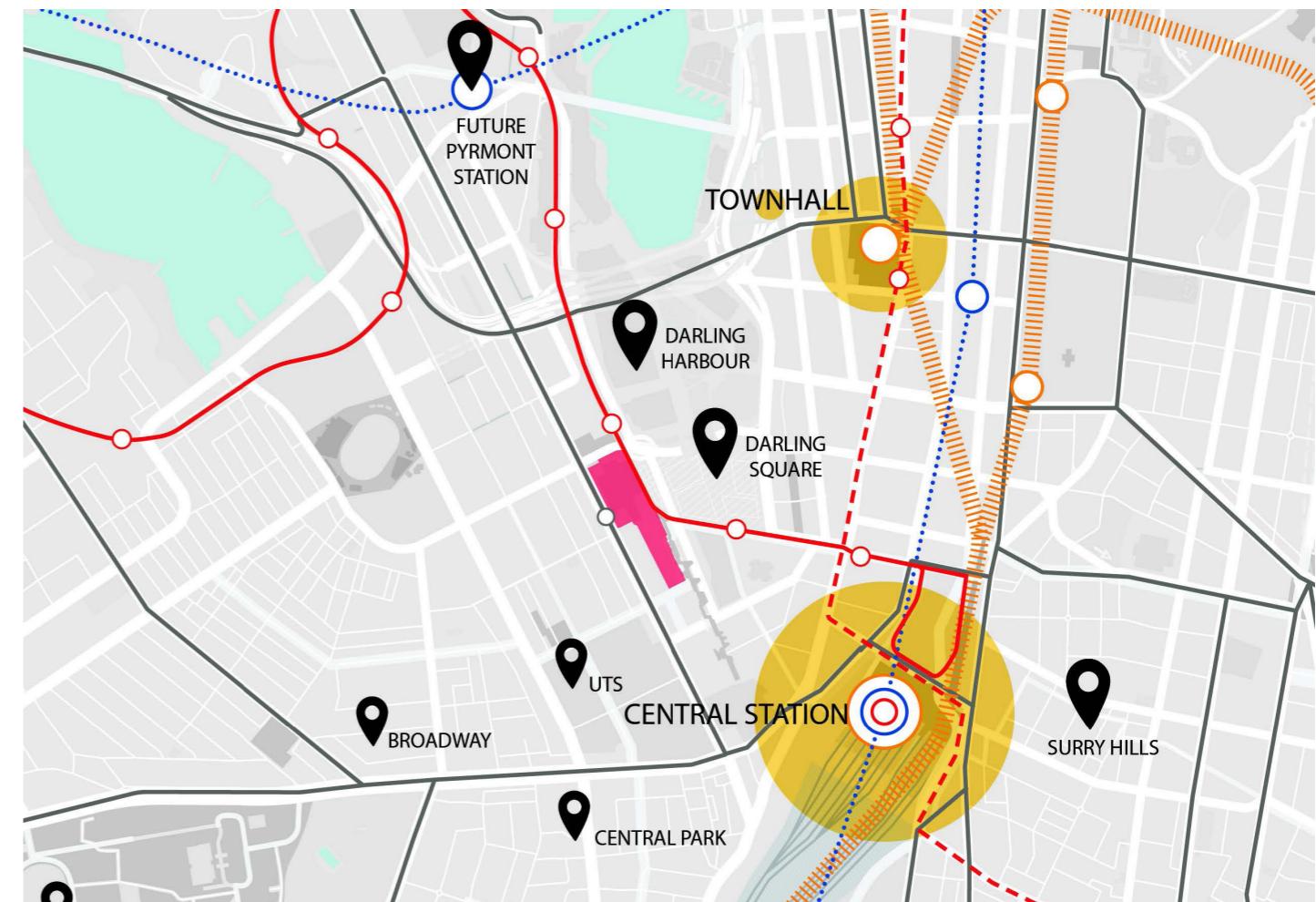
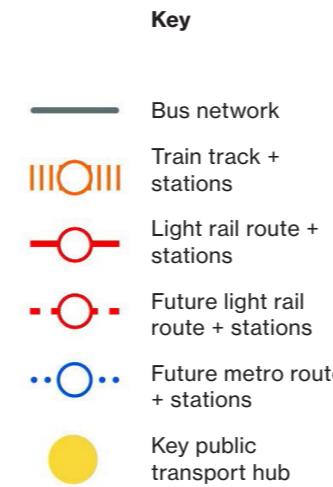
Future Infrastructure

Sydney Central Metro lines will interchange with Sydney Trains T1, T2, T3, T4 & T8 lines.

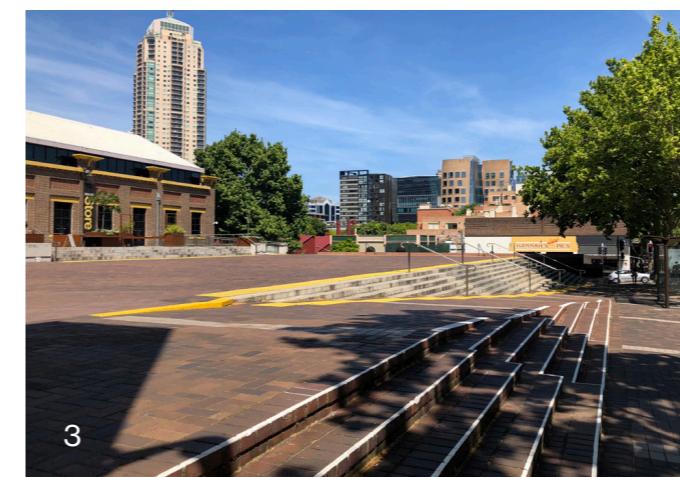
Ultimo Precinct Projected Modal Splits

Modal split for residents living in Haymarket (based on 2016 Census Data) – indicates only 8% of residents are car drivers.

The close proximity of Ultimo to major public transport nodes (particularly Central Station) and the Sydney CBD dictates that car dependency for future residents of Ultimo is anticipated to be low based on current modal splits



1. Future Pyrmont Metro West Station
2. Exhibition Centre Light Rail Stop <Google Maps - street view image>
3. Powerhouse Ultimo Bus Stop + Plaza
4. Powerhouse Ultimo Bus Stop <Google Maps, street view image>



Source all images: Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1

2.3 Site Context

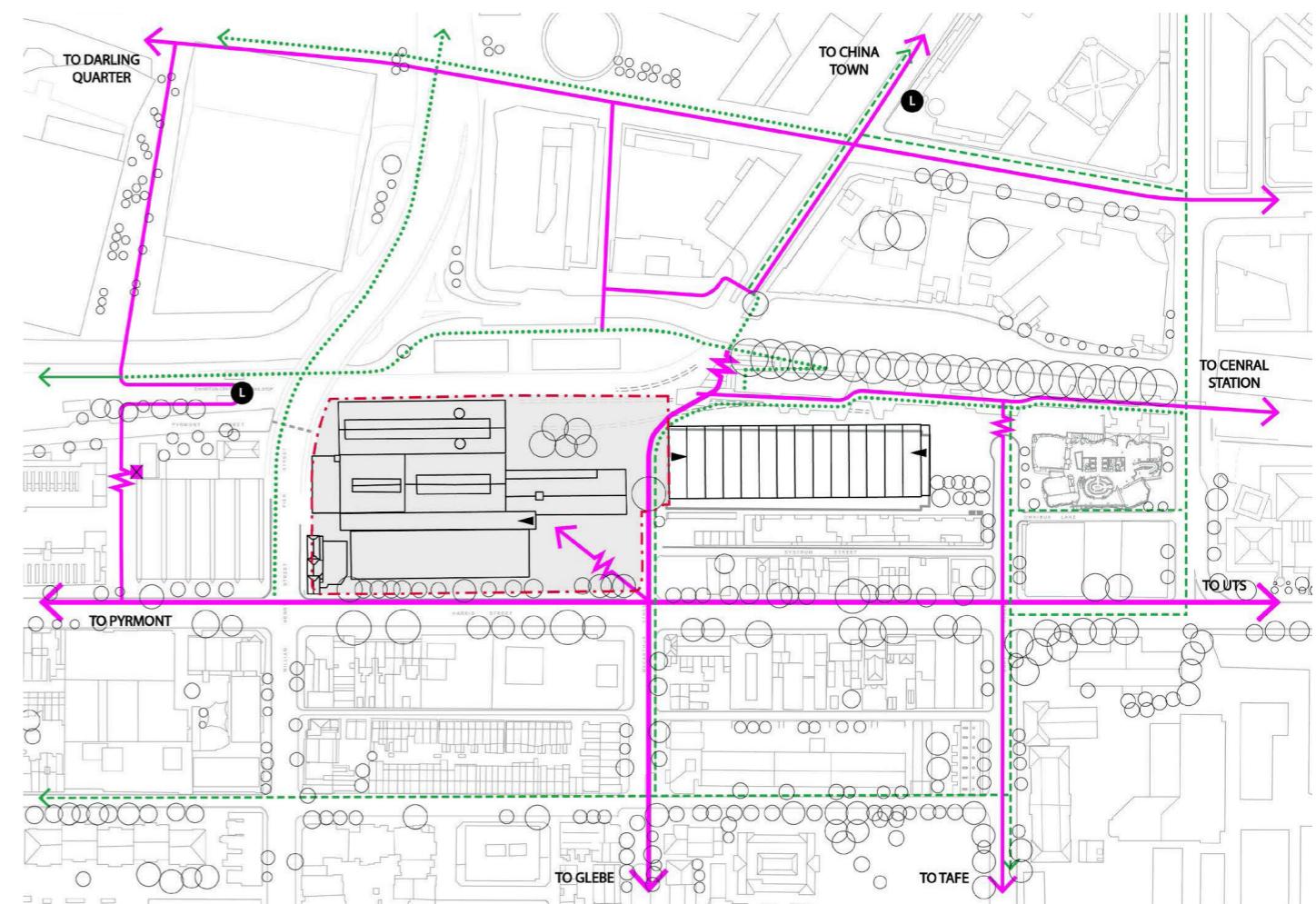
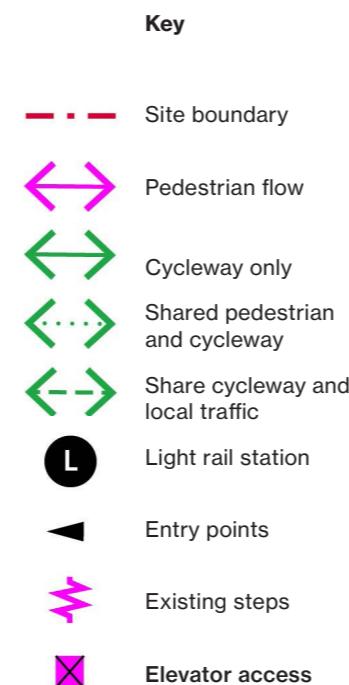
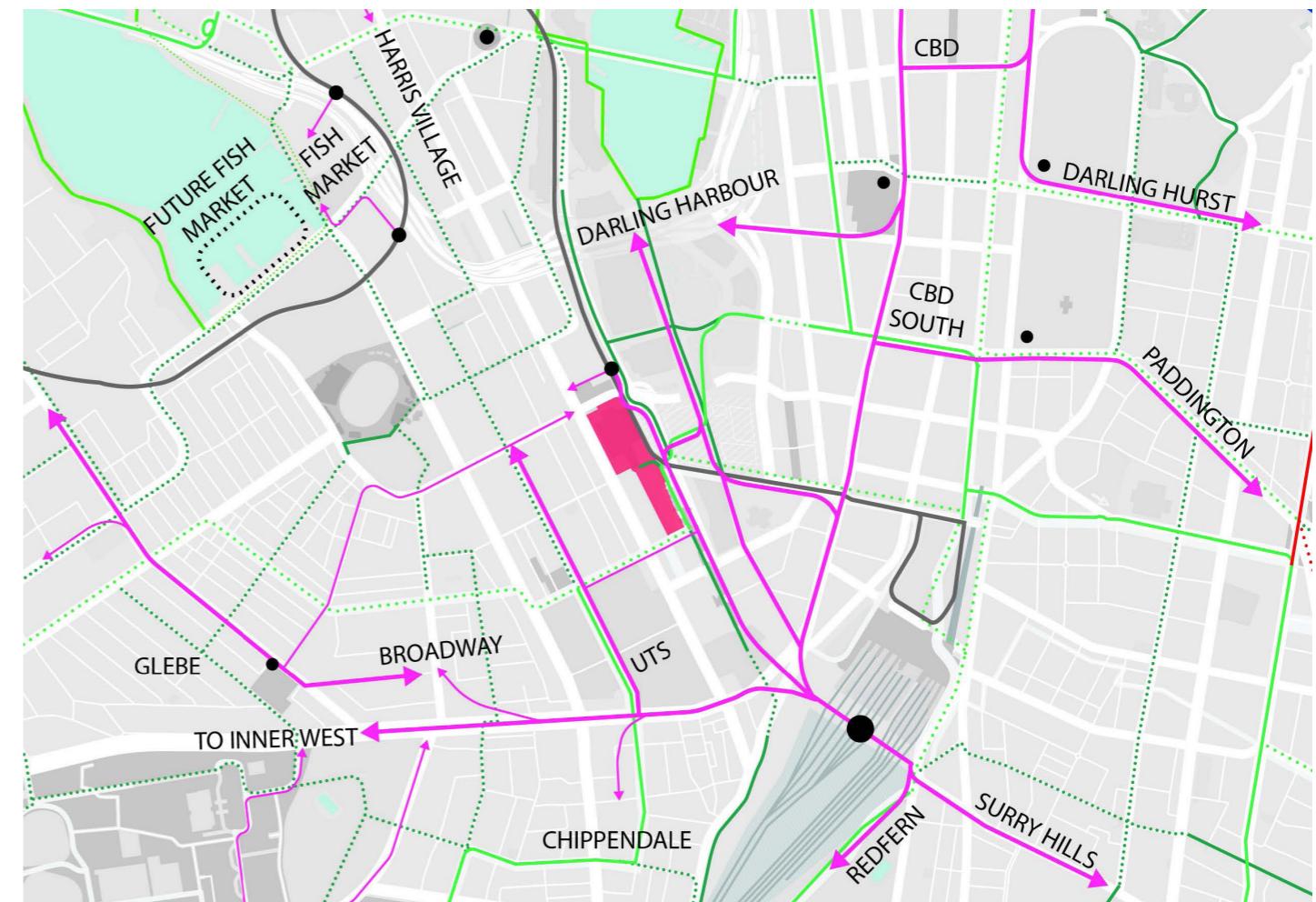
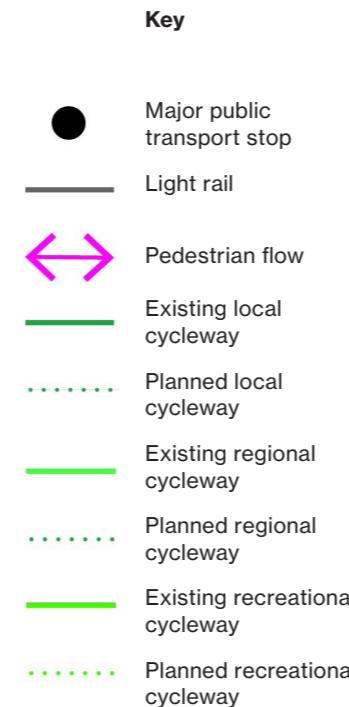
Access and Movement - Pedestrian and Cycle Movement

Excellent public transport linkages to heavy rail, light rail, buses and, the new Metro line, all intersect with the primary north-south axis of Harris Street. This confluence of the public transport network dovetails with the pedestrian and bicycle network to ensure a highly accessible and connected precinct.

As outlined in the City of Sydney DRAFT Cycling Strategy and Action Plan 2018-2030, the precinct presents a significant role in the regional and local cycling network, providing great connections for cyclists from Central Station to Pyrmont and Darling Harbour.

The precinct is bounded by a well established pedestrian network that connects to major public transport hubs. It provides plentiful car-free pedestrian friendly connections. With abundant public transport, the site is extremely well connected. However, while being considered as part of the Ultimo community, the precinct has a lack of pedestrian friendly streets that might stitch into the wider neighbourhood. Improving east-west connections and overcoming large falls across the site pose challenges for accessibility to consider going forward.

Despite having good pedestrian connections to the south and east, the local topography creates major constraints for accessibility, particularly with steep footpaths on Macarthur Street. The light rail corridor that runs along the east of the site presents as a fenced barrier and allows minimal crossings. The existing museum forecourt has poor interface with Harris Street, presenting stairs with tactile indicators. Careful consideration will be needed to provide permeable movement on site and seamless pedestrian focused connections to its surroundings.



Source all images: Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1

2.3 Site Context

Open Spaces

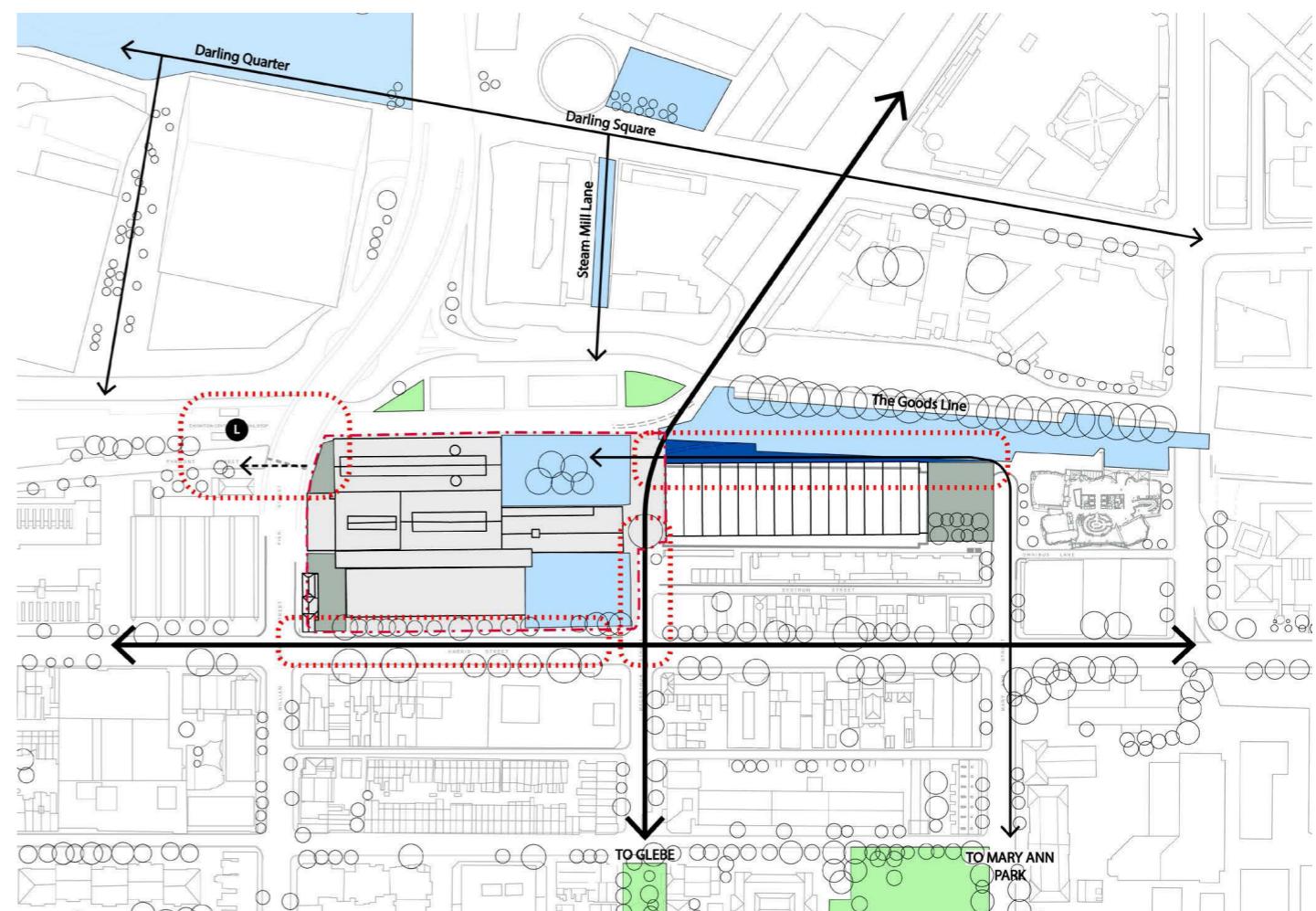
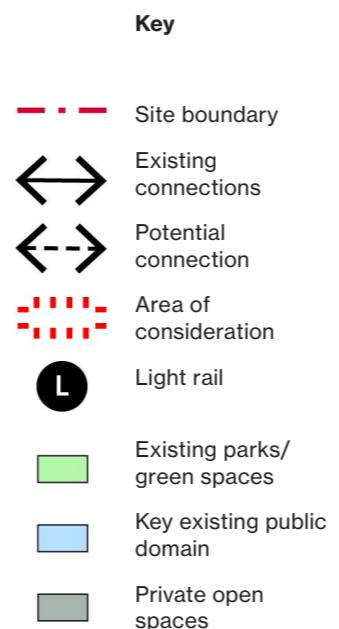
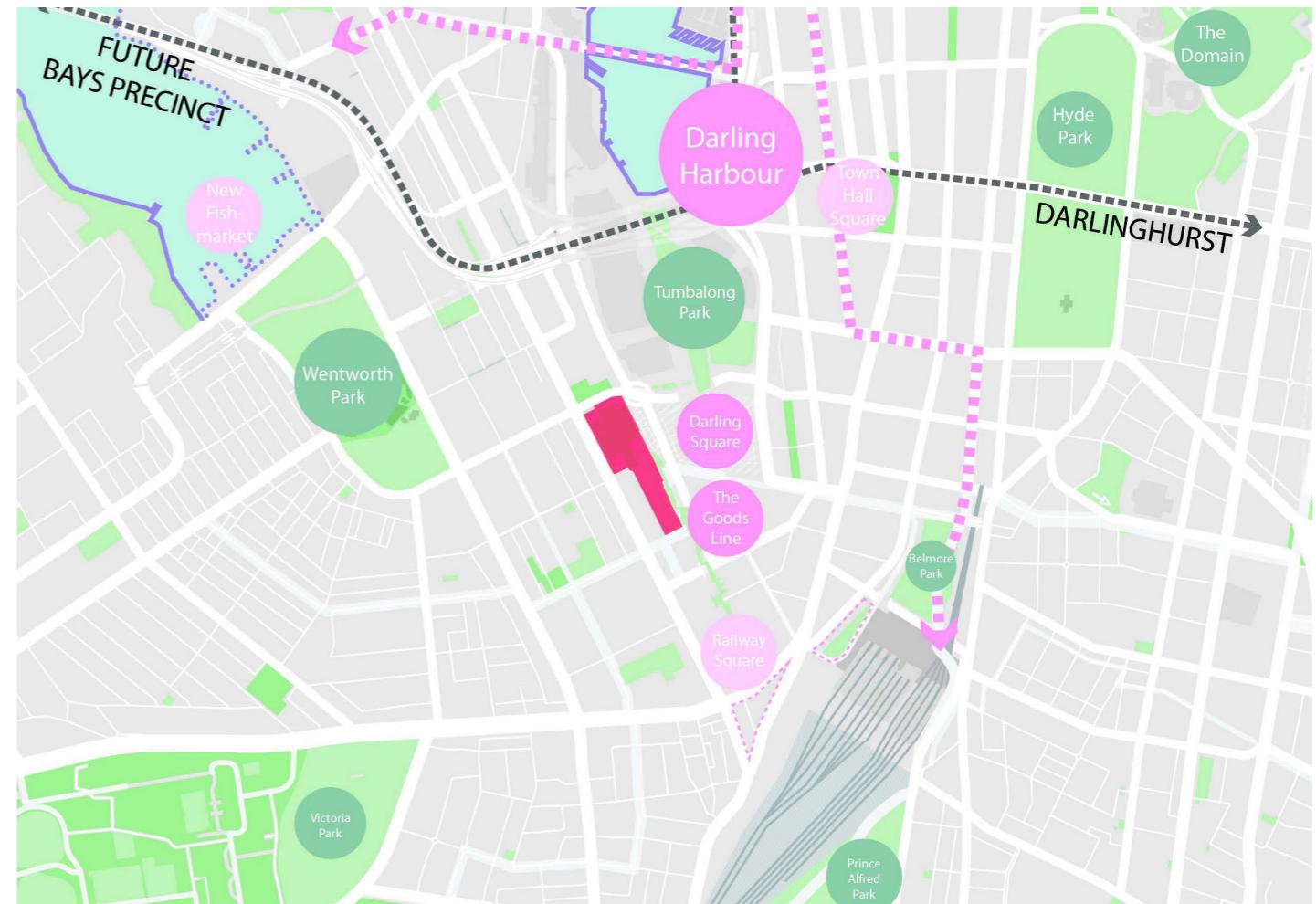
While large open spaces are distributed along the foreshore line, the site sits adjacent to a cluster of public spaces with significant cultural value. The completion of George Street Light Rail has reinforced a strong and connected North - South civic spine.

Existing and proposed open spaces, public domain projects in the area include:

- Darling Harbour
- The Goods Line
- Darling Square
- Chinatown
- Mary Ann Street Park
- Wentworth Park
- Blackwattle Bay

The buildings within the site terminate the axis of Hay Street to the east, Macarthur Street flows down hill from the west, dropping dramatically as it crosses Harris Street to terminate at the Powerhouse forecourt and light rail.

Current site conditions create constraints to intuitive public movement north-south given the heavily trafficked William Henry Street - Pier Street link and the adjacent light rail corridor. The site presents significant opportunities to improve the interface with, and activation of, The Goods Line, and to improve linkages to the Darling Harbour/Darling Square precinct and its newly established boulevard – particularly along an extension of Macarthur Street.



Source all images: Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1

2.3 Site Context

Topography

There is up to nine metres variance in the ground level between Harris Street and The Goods Line, with the existing buildings cut into the slope to form several different floor levels and platforms throughout the site.

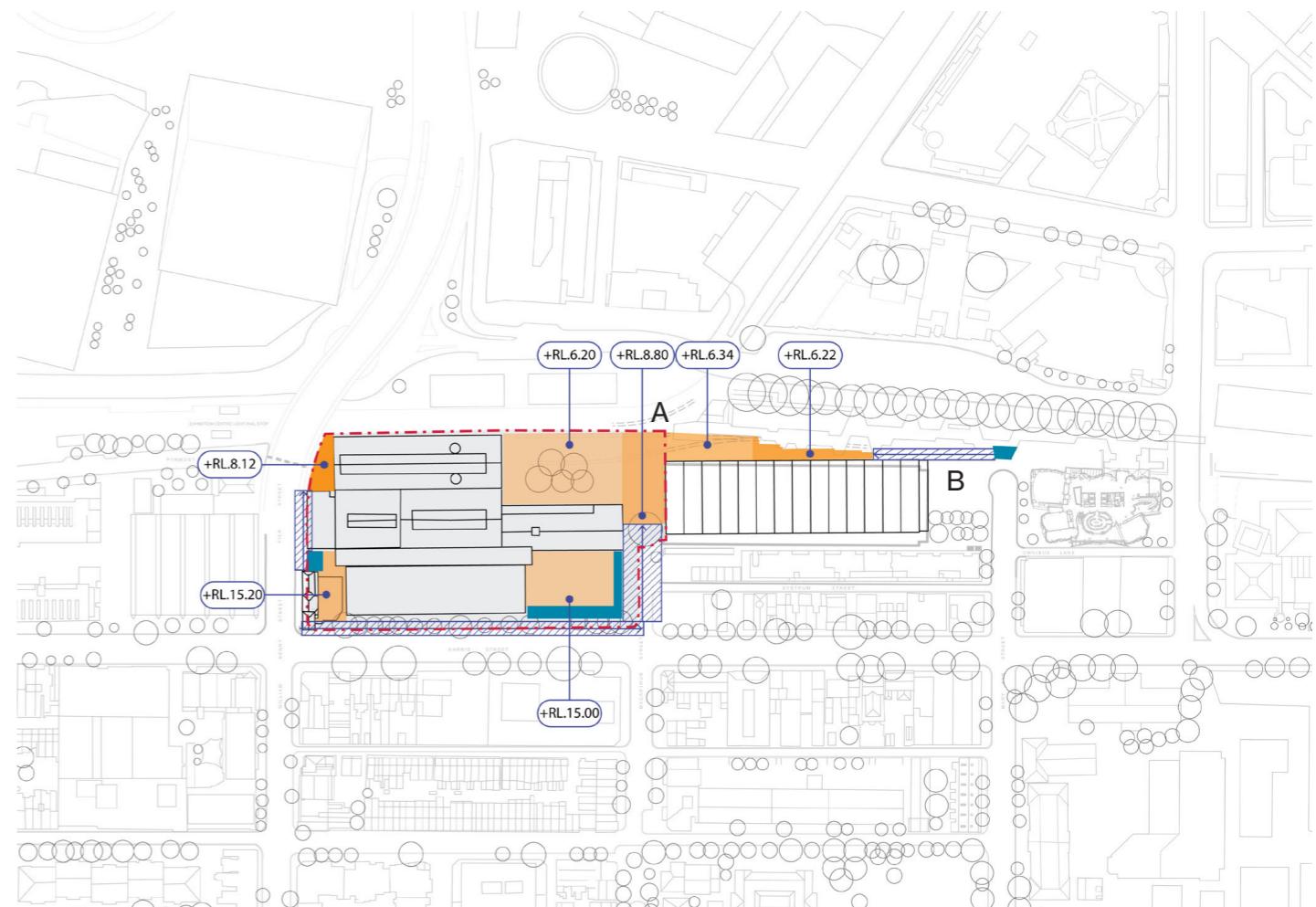
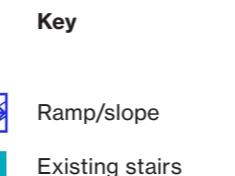
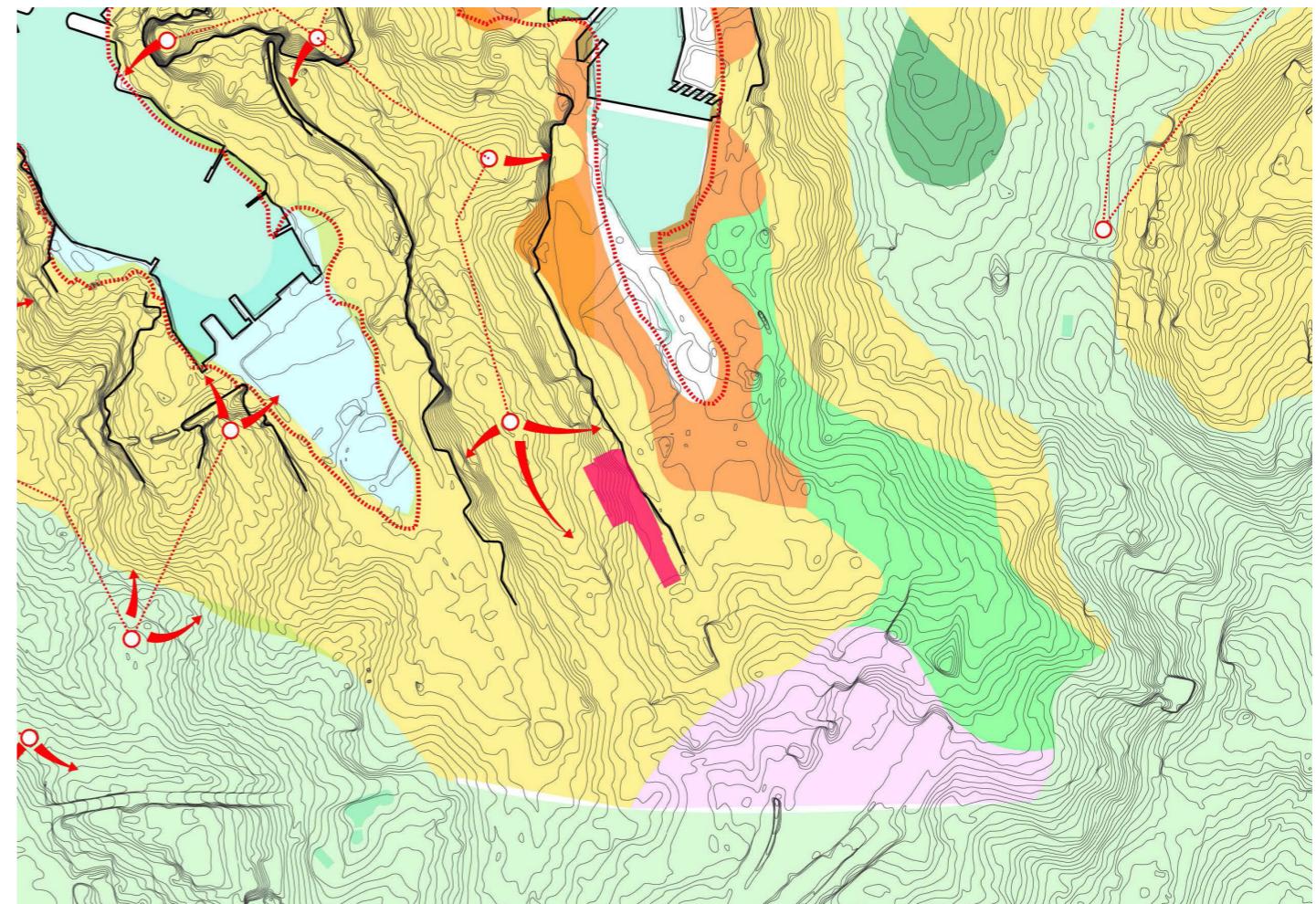
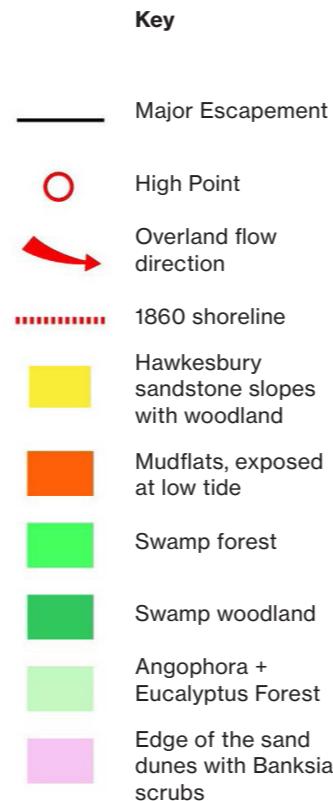
The dominant original vegetation community of the area was sandstone woodland and mudflats.

Site Thresholds

The site is characterised by a complex ground plane, in terms of topographic level changes and also the physical encumbrances created by road infrastructure.

Significant changes in gradient and levels occur in these locations:

- Between Hay Street (east) and The Goods Line, stairs and ramp rise from RL3.3 to RL6.6, a change of level of approximately 3.3m.
- Between Mary Ann Street (South) and The Goods Line, stairs and street transition from RL4.8 – RL 8.1, a change of level of approximately 3.2m.



Source all images: Appendix B - Urban Design Report for the Powerhouse Ultimo Renewal SSDA Stage 1

CONCEPT AND URBAN DESIGN

3.1 Concept

The renewed Powerhouse Museum at Ultimo. The revitalised Powerhouse Museum begins with valuable elements of heritage continuity that are re-calibrated to a new powerful present.

Adding to this existing composition including the refurbished Wran building, a modest new building to complement and invigorate the buildings relationship with the surrounding streets and neighbourhood.

Respectful and immediate, the new building lives alongside the historic Powerhouse core, creating a precinct of unified brick buildings.

The new building lines Harris Street and is activated by Powerhouse program and creative industries for its full length.

A courtyard and street entry to creative industry spaces sits adjacent to the Post Office and Wran building. Harris Street is activated by creative uses, lining the Wran building Exhibition space. To the south of the new entry, a colonnade follows the grade of the street, with entry to a makers' space and views into a new program space.

The northern portion of the site holds the major exhibition spaces of the Museum. Approximately five thousand square metres of exhibition spaces are located at The Goods Line level. Rectangular and divisible, they are occupiable in an open-ended format. Exhibition Space 3 can be utilised as a large auditorium with retractable seating.

The southern portion of the building is dynamic and interlocked, flexible and free, available for a multitude of uses in time and over time.

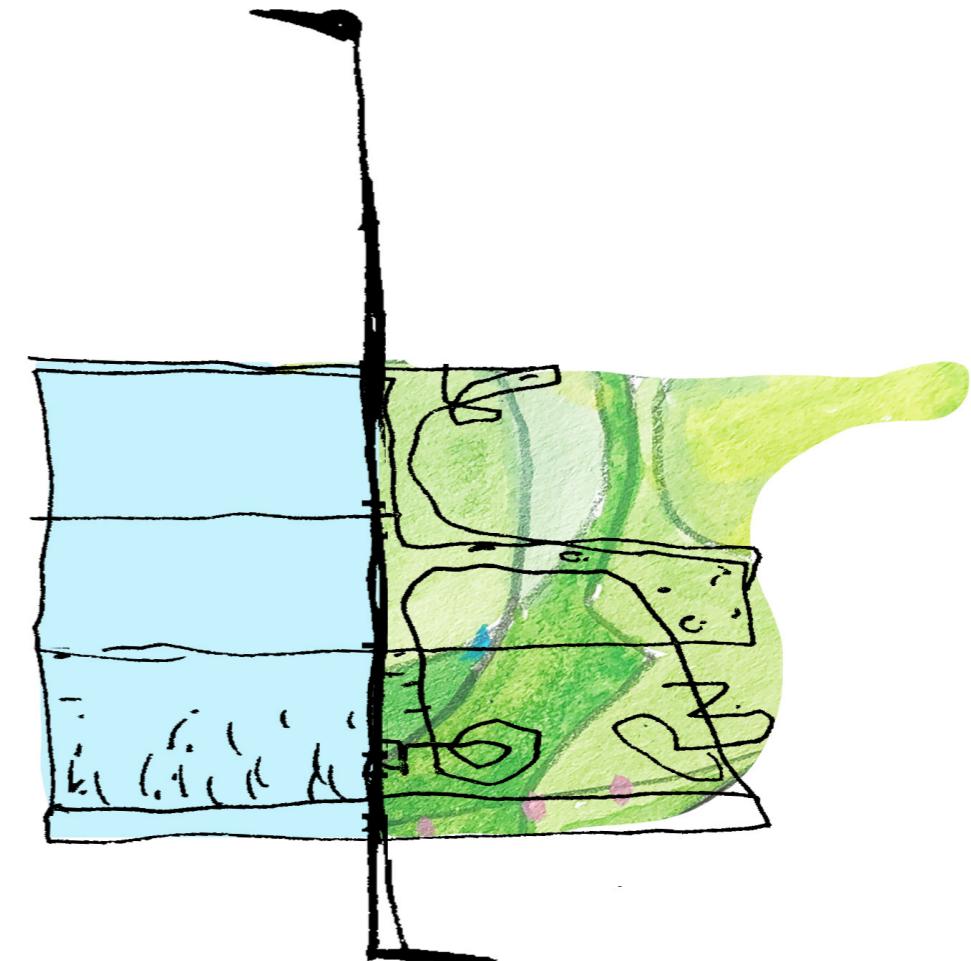
The new program space to the south opens to a paved and planted courtyard. Positioned at a

mid level between The Goods Line and Harris street, direct access to Macarthur Street is provided through both a level entry and wide landscape stairs. The new courtyard reveals the full two story heritage façade of the Switch House, reinstating openings to provide light and ventilation to rooms within.

A range of flexible spaces for community usage, administration, academy, and roof terrace are located in the Switch House. Removal of the administration roof addition returns the Switch House to its original profile.

Direct access between these major museum levels is provided by escalators, stairs and lifts. Wide stairs emulate topography and allow for impromptu gathering and events.

Made from materials collected, recycled and new, the fabric of the facades is both archaic and layered, articulating the continuity of time. Brick becomes the palette of the campus, a unifying material of longevity and familiarity.



3.1 Concept

Key Moves

A new museum entry at The Goods Line Terrace, connecting to the city beyond.

Renewal of heritage halls - returned to their integral form, allowing the volume and scale of the spaces to be legible and programmed for exhibitions.

Repurposing of the Switch House, including revealing the full two storey façade to the west.

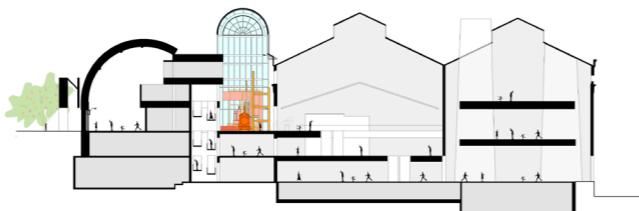
Clarified and centralised circulation, with clear visual and physical connections.

Additional entry points at Harris and Macarthur Streets connect the museum into its surrounds.

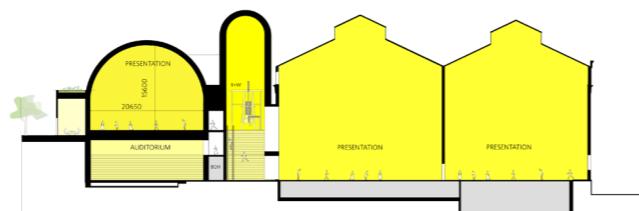
New secure loading and museum handling areas to protect and conserve the Powerhouse collection during exhibition installations.

Transforming the Wran interior into exhibition space with generous and connected circulation.

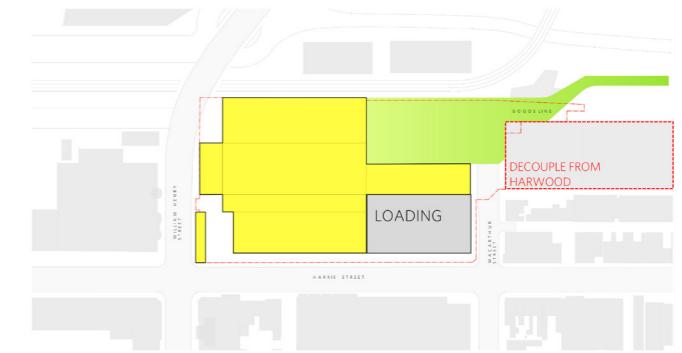
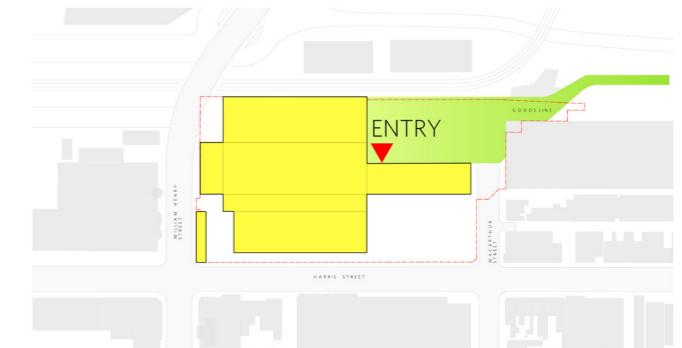
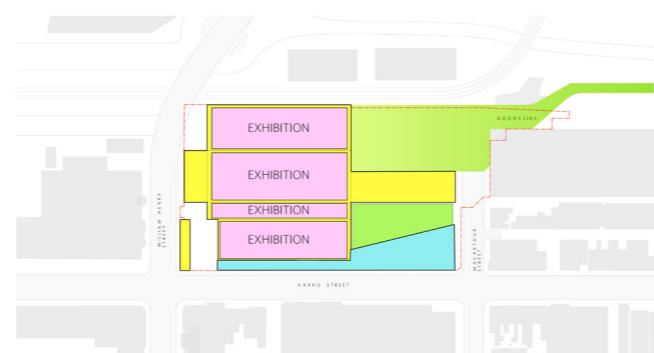
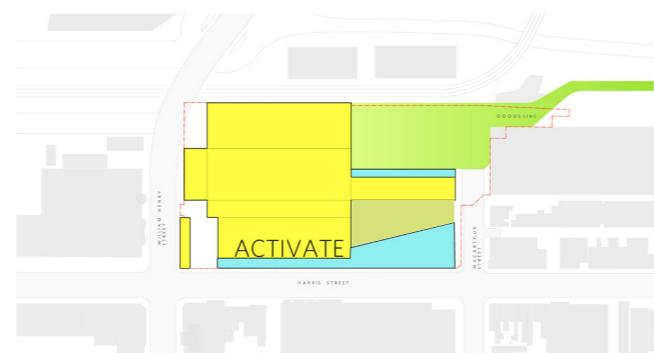
A modest addition, the new building relines Harris Street with activated creative industry spaces, a new museum entry at Harris Street and a visible and active program space and courtyard.



Existing



Proposed



3.1 Concept

Exhibition Spaces

The Revitalisation will create greater emphasis on "front of house" by providing large scale, flexible exhibition spaces with efficient support infrastructure, removing the myriad of mezzanines, back of house rooms and complex circulation pathways within the volume of these large buildings.

Exhibition spaces are designed to present a diverse and broad range of exhibitions, performance and events with infrastructure to respond to contemporary museum practices and utilisation.

Dedicated Back of House pathways provide a direct connection to the loading dock, collections and goods lift to support separated, flexible and efficient operations.

The technical systems and acoustics functionality enable operational flexibility in balance with high performance and flexibility to transition efficiently and dynamically between exhibition and program environments.

The infrastructure lends itself to a 'kit of parts' approach to enable equipment to be transferred between spaces utilising the efficient Back of House paths that is embedded within the design. The approach will enable museum operational equipment to be shared across the spaces.

- All exhibition spaces have a distinct and memorable entry point for the public, forming an intuitive circulation to create a legible navigation of the Museum
- All exhibition spaces can be autonomously programmed

Public Spaces

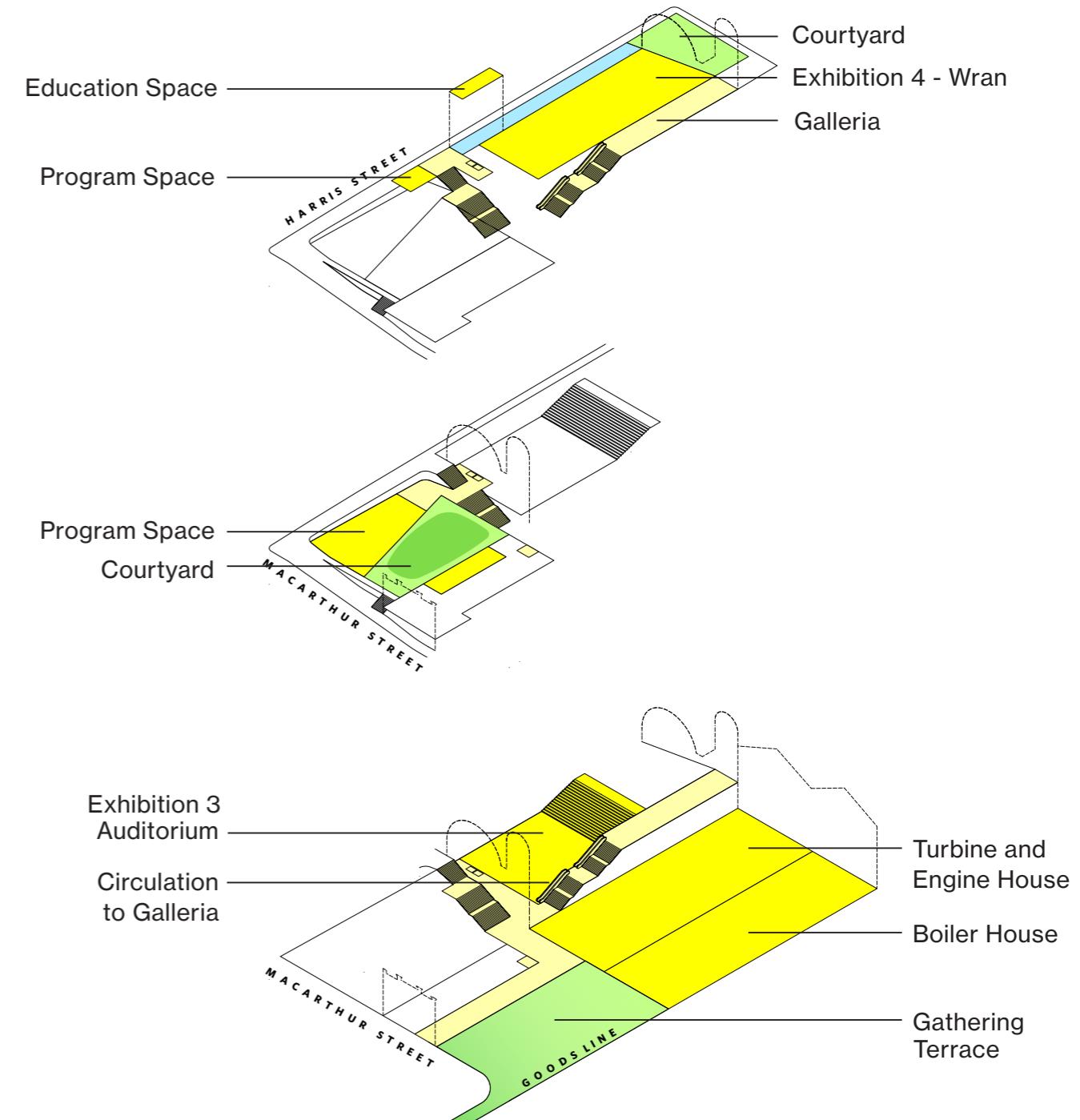
Public Spaces inside the museum are defined as areas open to the public during museum operational hours, they provide opportunities for temporary programming and engagement. The spaces are designed to provide safe, accessible environments for people and visitors to gather.

The capability to deliver a diverse range of programming is supported by sensitively embedded infrastructure across multiple surfaces. The physical form and landscape will provide learning environments to respond to evolving education programs and pedagogy. The spaces play a key role in supporting visitors navigate the museum and provide an anchor point and compass to explore the city at large.

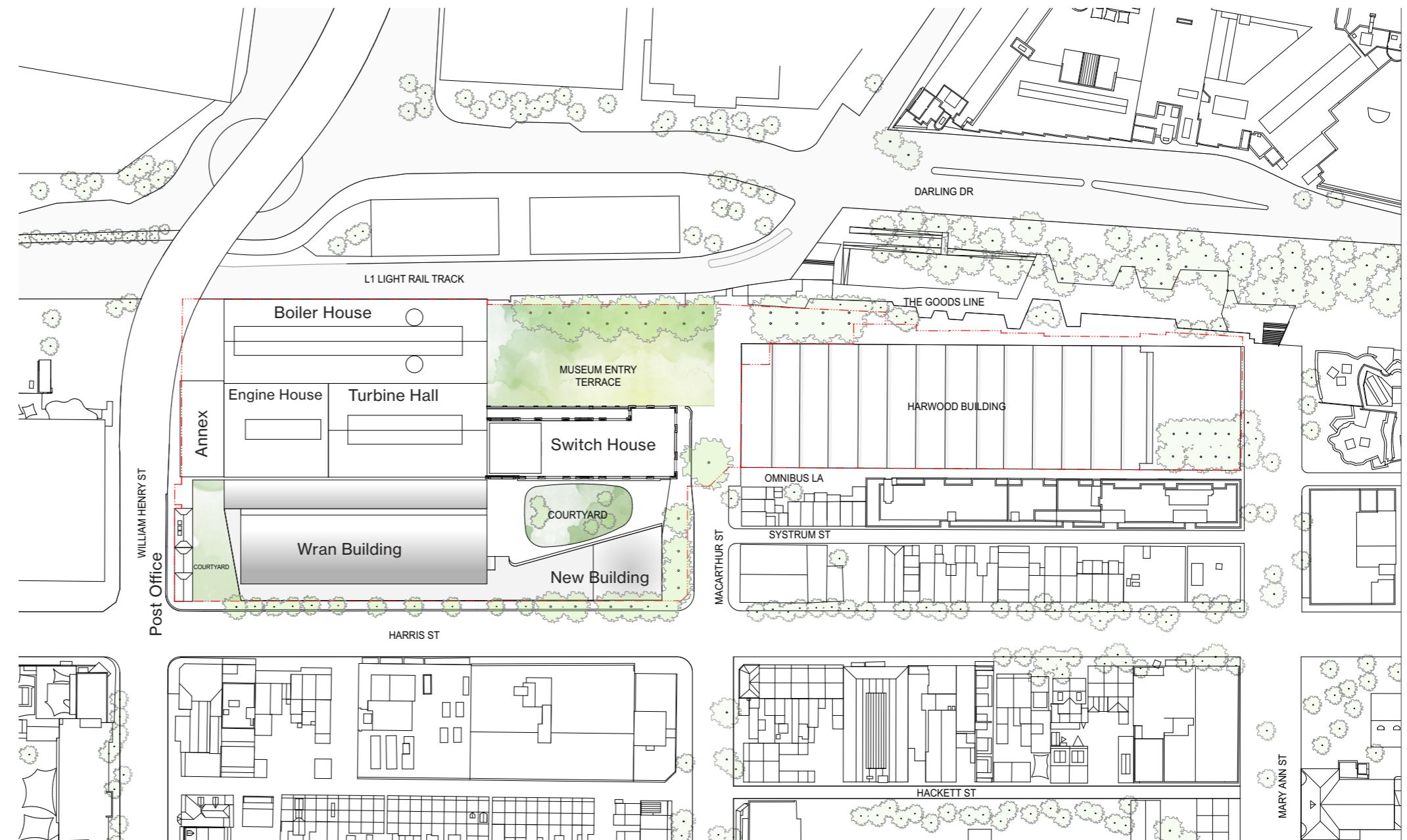
Learning and Community Spaces

The location of learning and community spaces within the Switch House provide a welcoming and accessible gateway to a safe and inclusive learning environment, gathered around the courtyard garden. The spaces are activated and highly flexible. Each space is well ventilated, provides an abundance of natural daylight, acoustic signature and technology to enable an active and engaging environment for a broad and diverse range of learners.

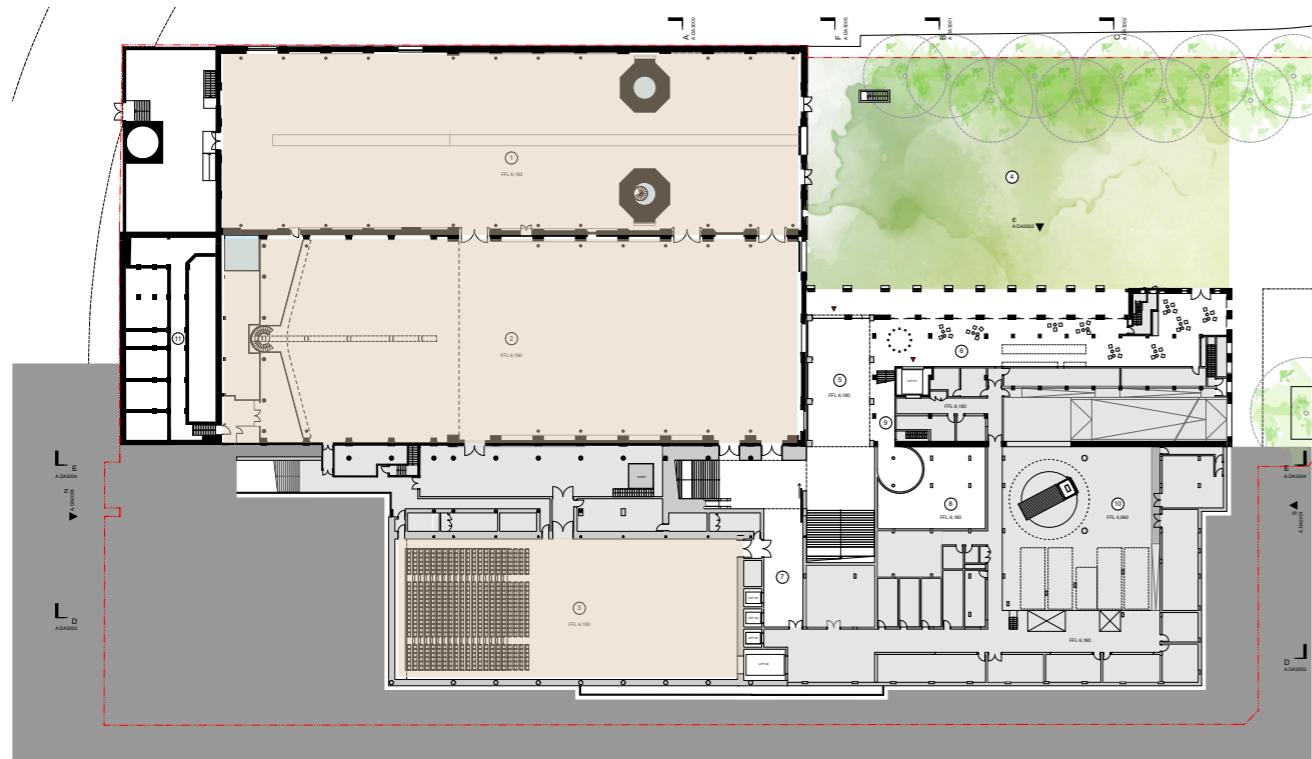
The location allows the spaces to be used autonomously from the rest of the museum whilst maintaining a connection to extend the learning environment directly to the Exhibition spaces. Secure connections to back of house provide a link to support spaces to support efficient transition between programs whilst decoupling them broader museum operations



3.1 Concept

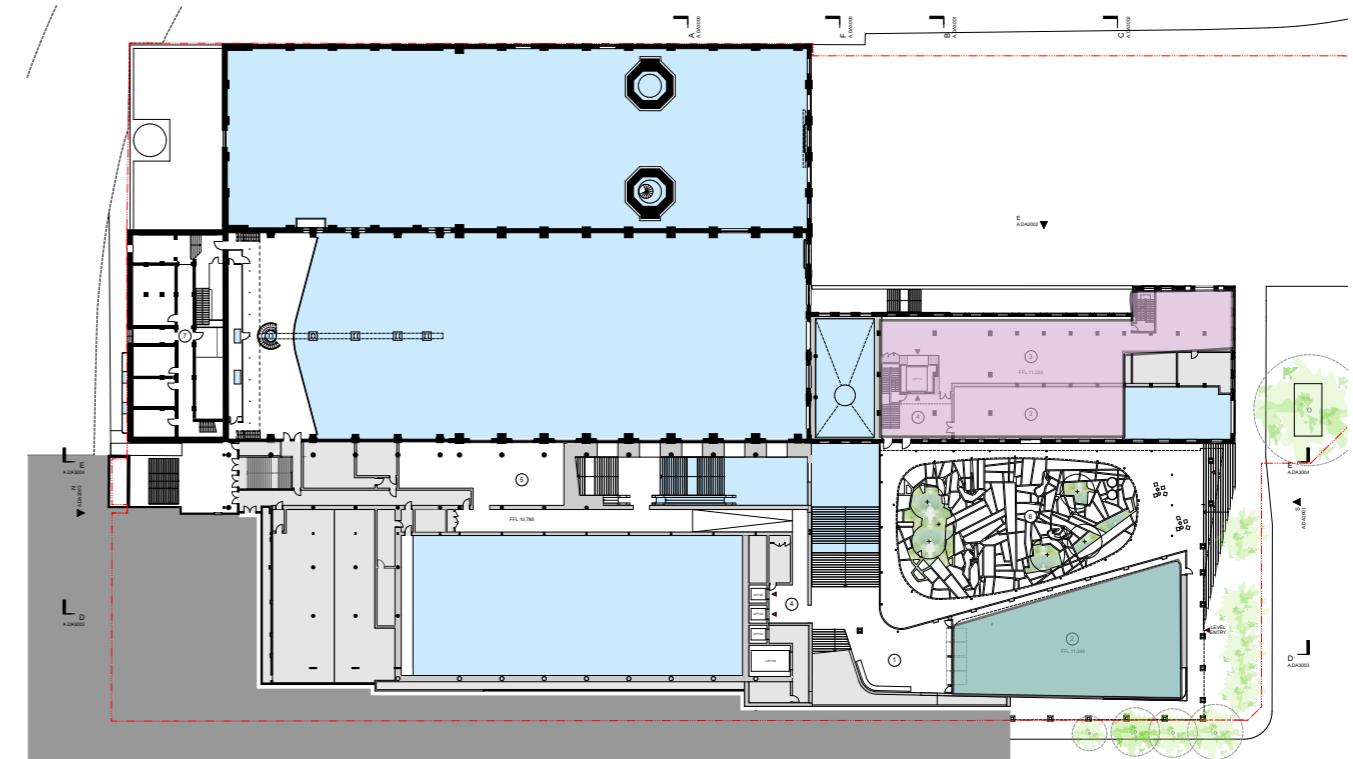


3.1 Concept

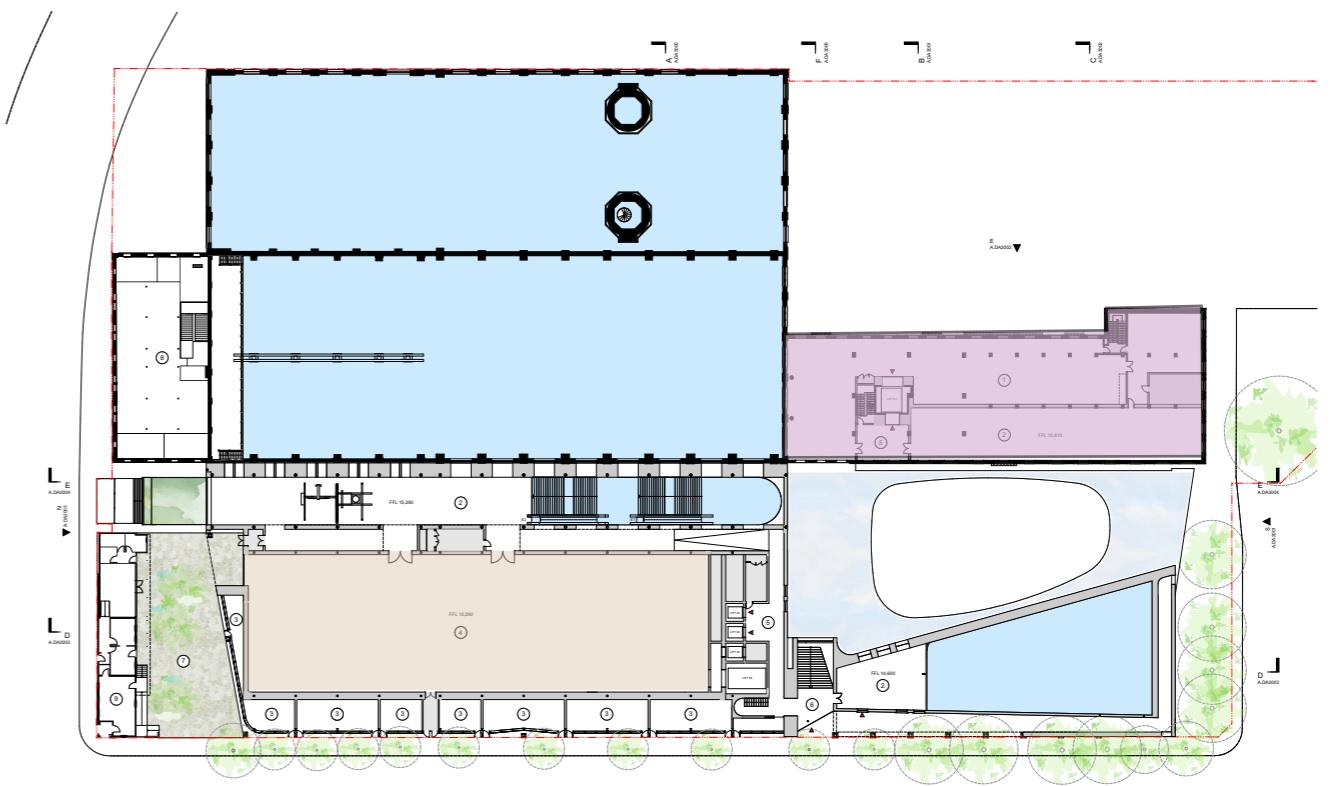


Ground Level

- Exhibition
- Program
- Support
- Void

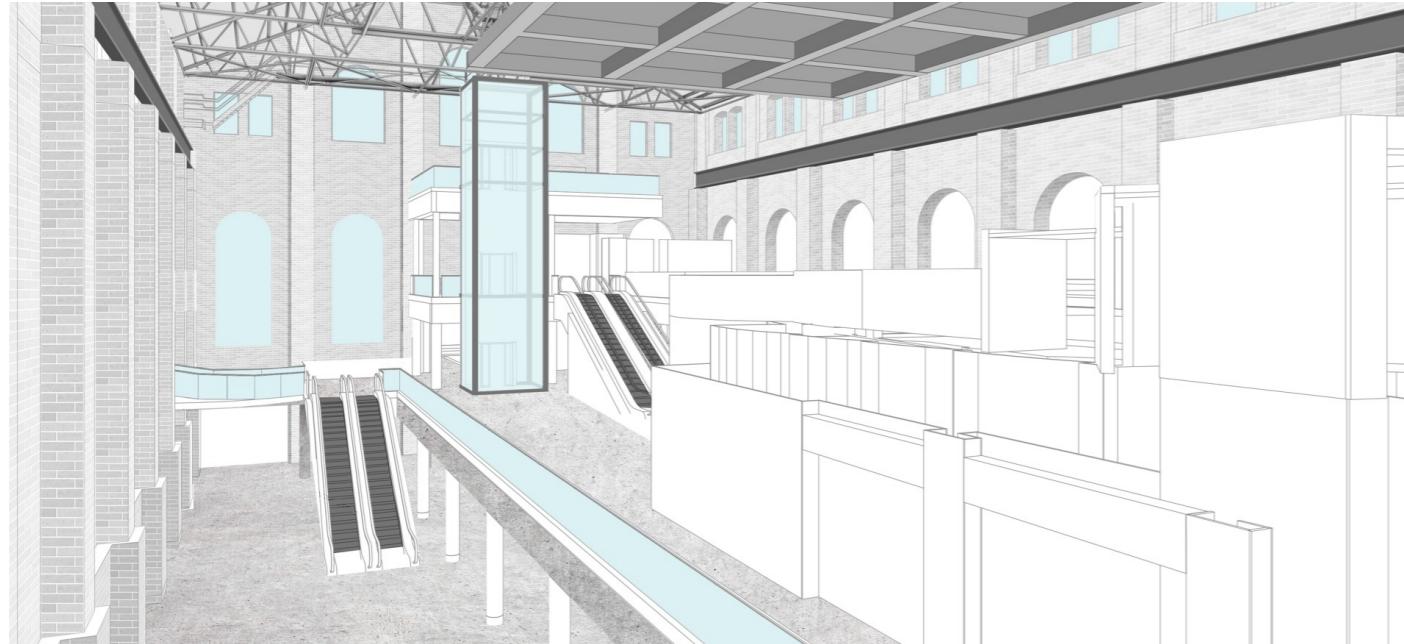


Level 1



Level 2

3.1 Concept - Heritage Halls



Heritage Exhibition Spaces

The mezzanine floors built inside the Heritage Halls in the 1980's (top image) have large amounts of floor space with low ceiling heights. These insertions will be removed to restore the original industrial scale of the Powerhouse, which will better meet contemporary exhibition and event requirements for large, flexible spaces.

3.1 Concept

Creative Industry Spaces

The Creative Industry spaces provide dynamic street front environments to Harris Street. The intentional clustering of these spaces improves the amenity and visitor experience. The Creative Industry spaces are designed to be destinational in their own right.

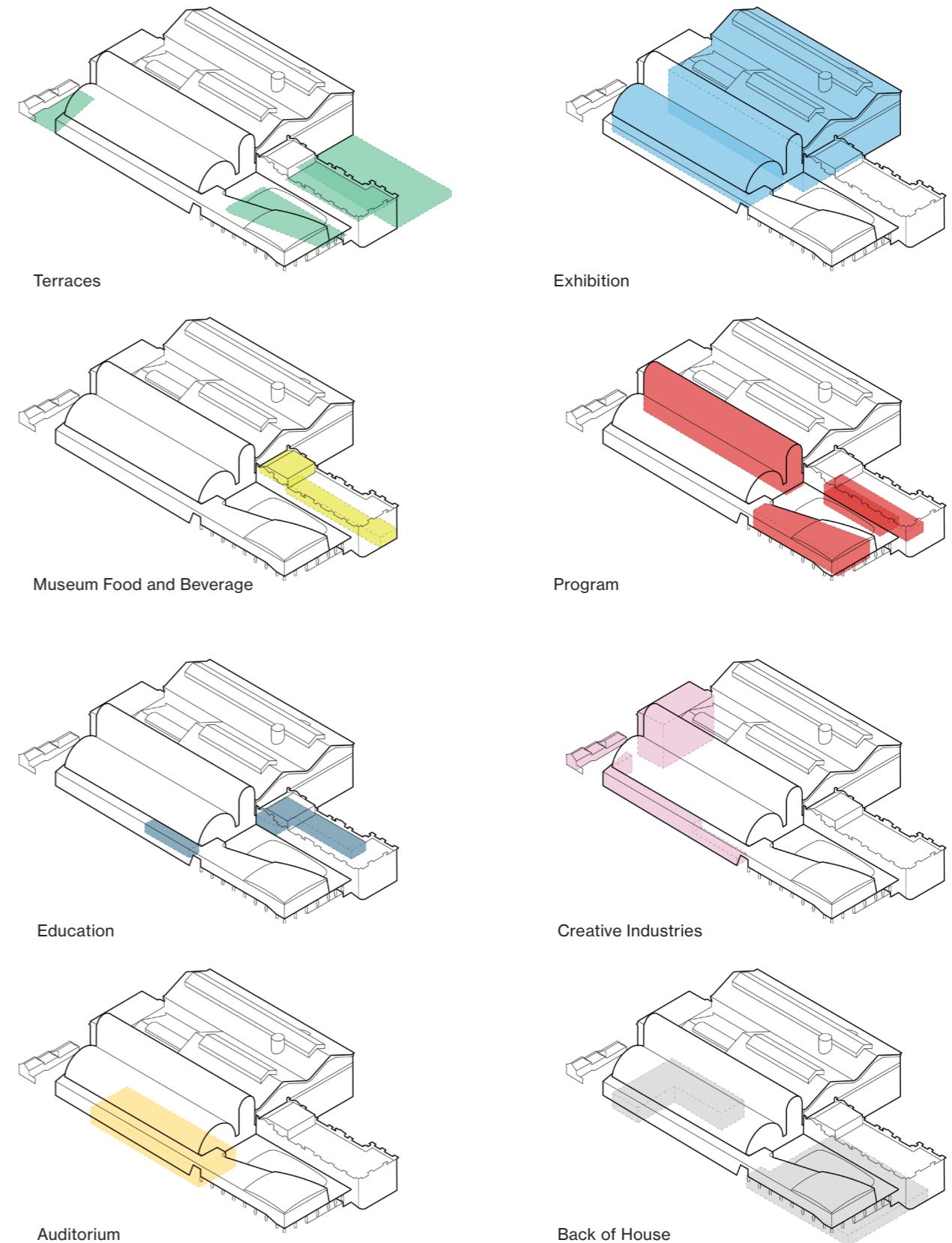
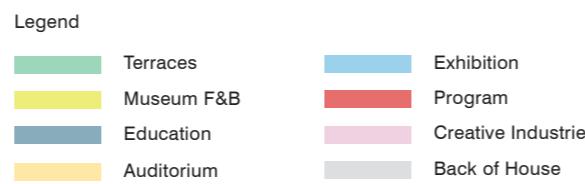
Museum Operation Spaces

Back of House spaces are consolidated and improved to meet contemporary needs and protect the Powerhouse collection.

Delivery vehicles descend an internal ramp off Macarthur St and enter a loading and back-of-house area at ground level. This space contains the Security Control Room, Collections loading dock and a waste loading dock.

Exhibition Spaces 1, 2 & 3 are accessed directly and at the same level as this operational BOH zone. A large scale freight lift and goods lift connect to the levels above including Exhibition Space 4 in the refurbished Wran; the new program space and the courtyard.

End-of-trip facilities that cater for staff and the Creative tenants are accommodated in ground level BOH zone. The existing basements under ES1 & ES2 are allocated for plant.



3.2 Entry Points and Activation

Multiple entry points to the Museum all lead intuitively to the Concierge, where information, ticketing and visitor services are located. The main entry is located within the Switch House, directly adjacent to the Gathering Terrace. Visitors can approach from The Goods Line or Macarthur St.

An additional main entry is prominent on Harris St, addressed by a vertical opening in the façade. From here visitors can descend via stair or lift to the Ground floor Concierge. A colonnade connects this entry to Macarthur street and the courtyard. A makers space is immediately located at this entry, also accessible directly from the street for independent use.

Along the Harris St edge, small tenancies for Creative Industries are located as shopfronts. They are transparent to the street, allowing connections with passers-by, enticing them to participate through small exhibitions, retail activity, workshops and classes affiliated to applied arts and science. Between the new building and the Former Post Office, the courtyard is opened to Harris Street and reimagined as a courtyard, programmed with exhibitions, making and creating.

On the Harris and Macarthur St corner, a large corner window allows views into the program space. An all-hours, accessible entry to this space is reached via the colonnade on Macarthur Street.

Diagram demonstrating entry points into the proposed development, primarily the secondary entrance on Harris Street, the entry point in the Creative Courtyard from Harris Street and the Creative Commercial Spaces along the Harris Street Frontage.

Key

- Museum Building Entry
- Public Realm

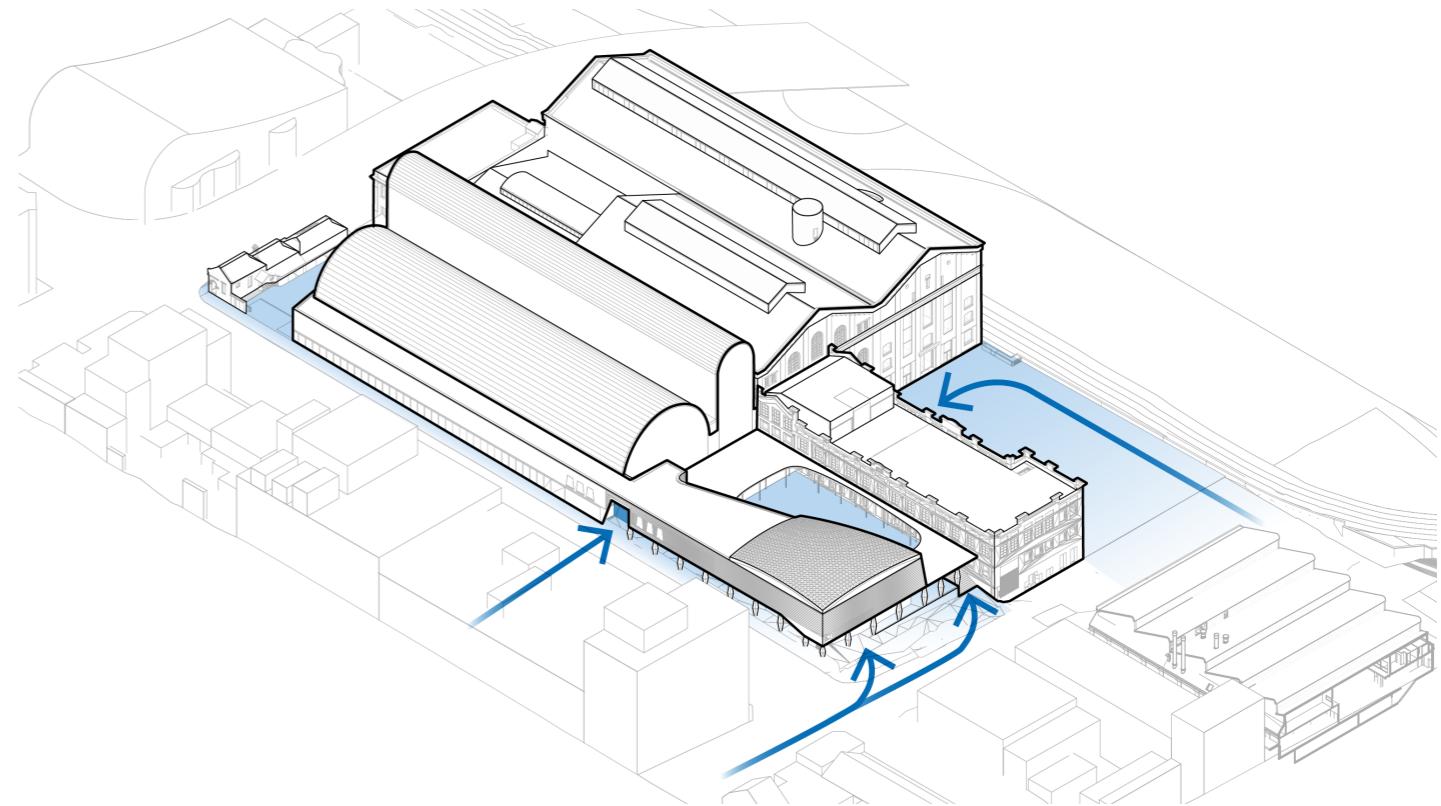
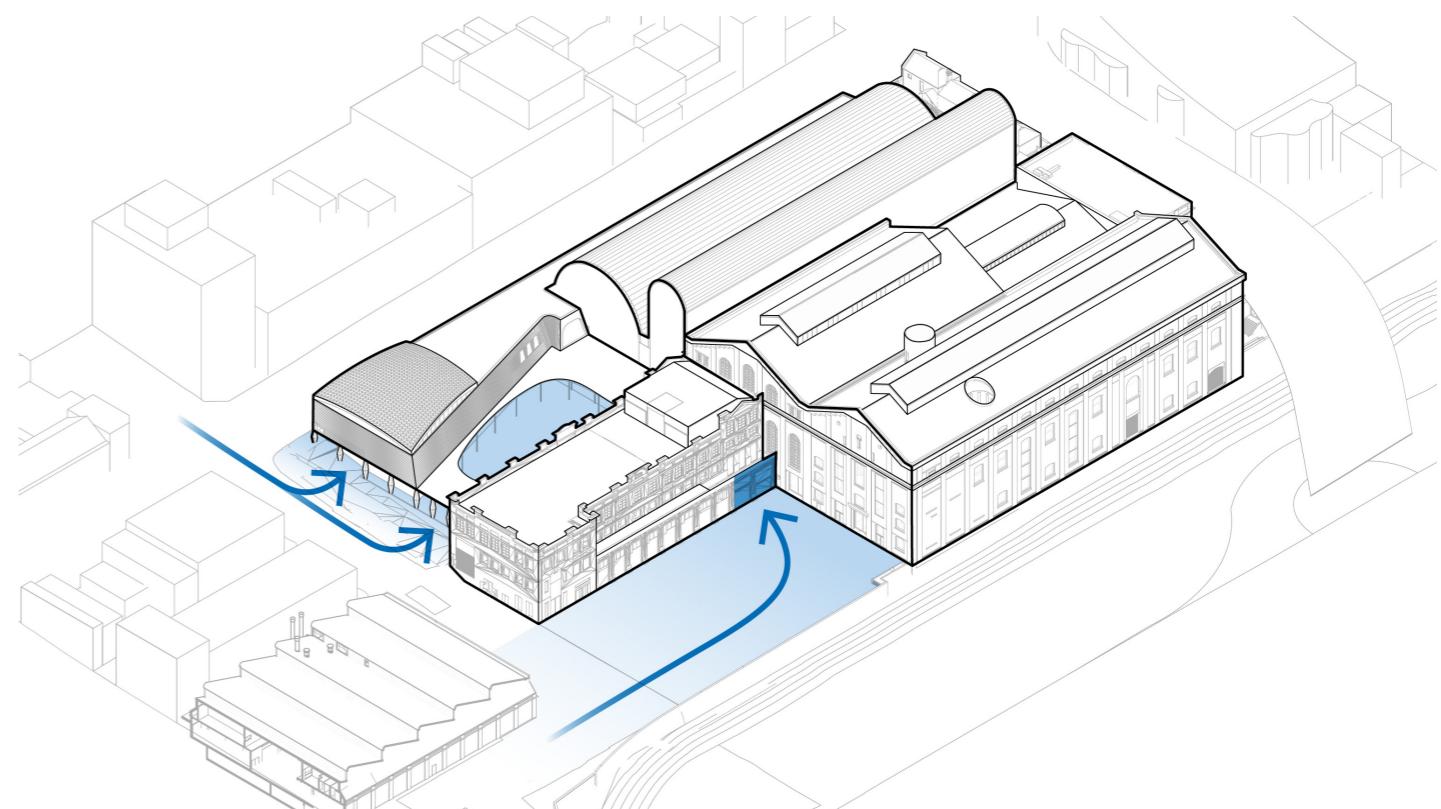


Diagram demonstrating entry points into the proposed development, primarily the main museum entrance on the Gathering Terrace as well as the approach to the Gathering Terrace from the Goods Line.



3.2 Entry Points and Activation

Precinct Activation Built form

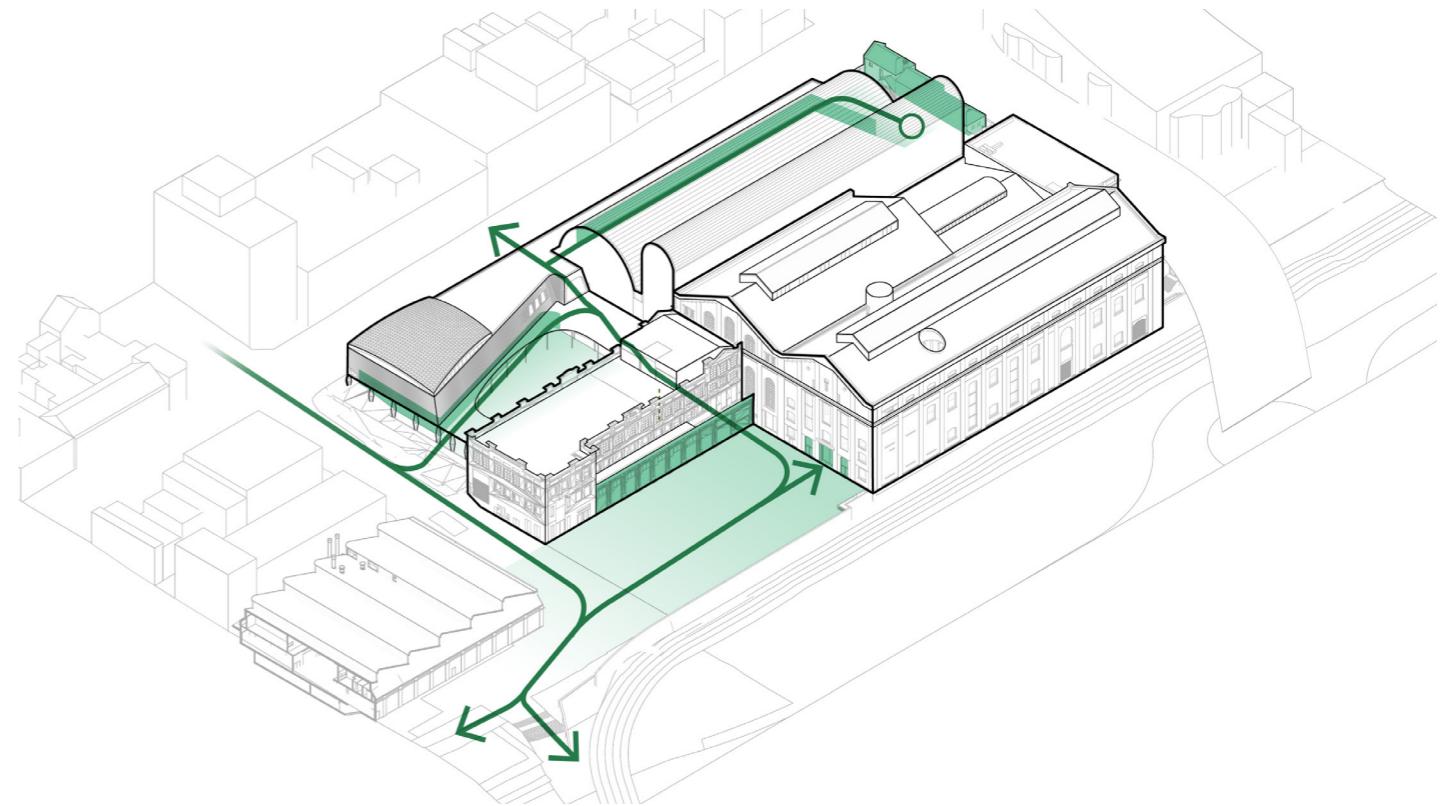
The museum is a streetscape activator, a landmark southern edge to the city. It activates the existing buildings by offering new views through the site. Key views to the buildings that comprise Powerhouse Ultimo are retained.

- The Courtyard, between the new building and the Former Post Office is open to the public.
- On Harris St, the Creative Industry Spaces will activate the street, adding to the visitor experience and community amenity.
- The program space is seen and entered from Harris Street and Macarthur Street.
- The new courtyard is activated on all sides by museum circulation, the new program space and social area, Macarthur Street and the Switch House activated edges.

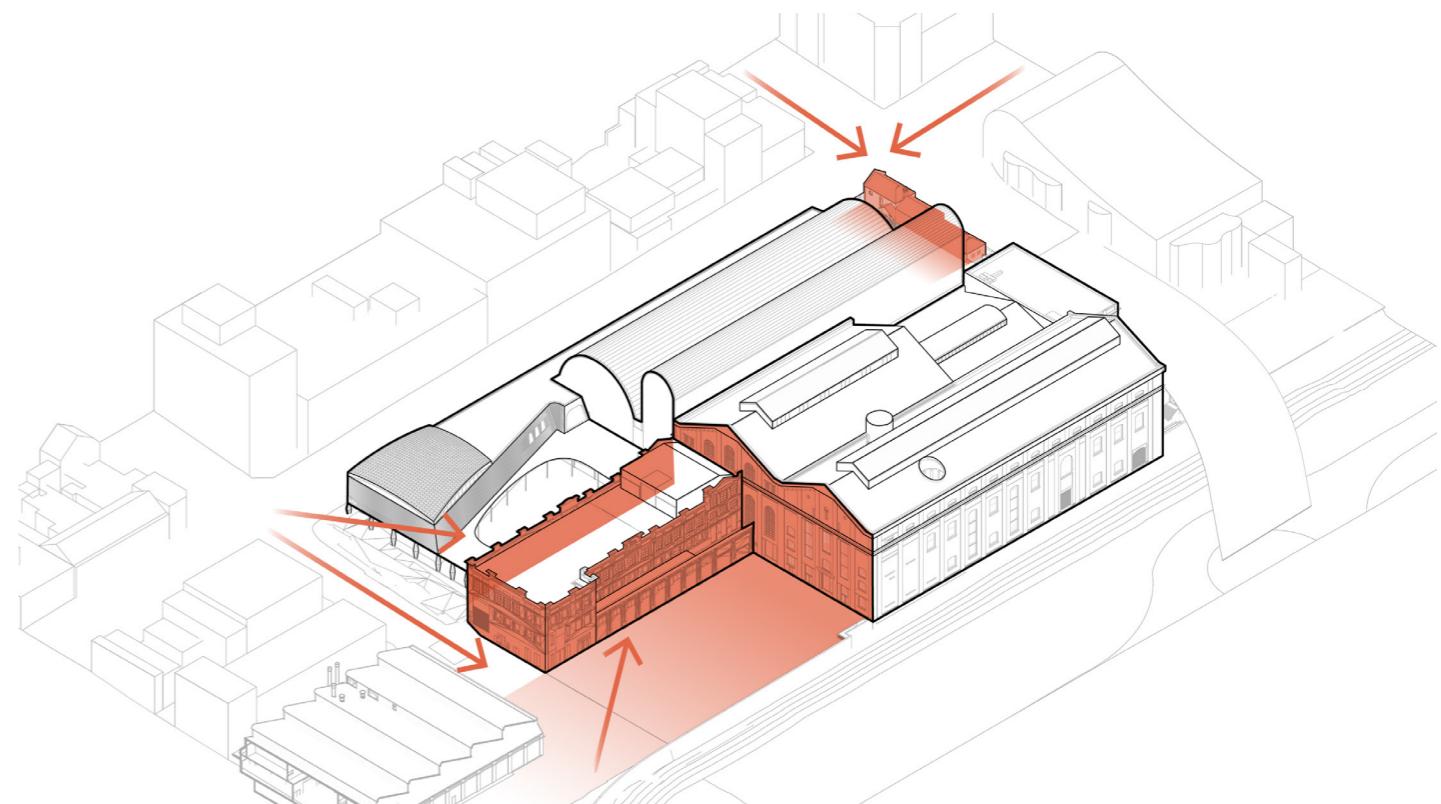
The north-east face of the Switch House is opened up, forming and forms a covered colonnade that leads to the Museum entry.

Movement between inside and outside is fluid, with the food and beverage spaces servicing both indoor and outdoor seating areas.

The design activates the public domain and streets at every interface. Active program is distributed across all interfaces with streets and public spaces.



The new building is shaped to create new and improved visual connections to the heritage fabric.



3.3 Outdoor Areas

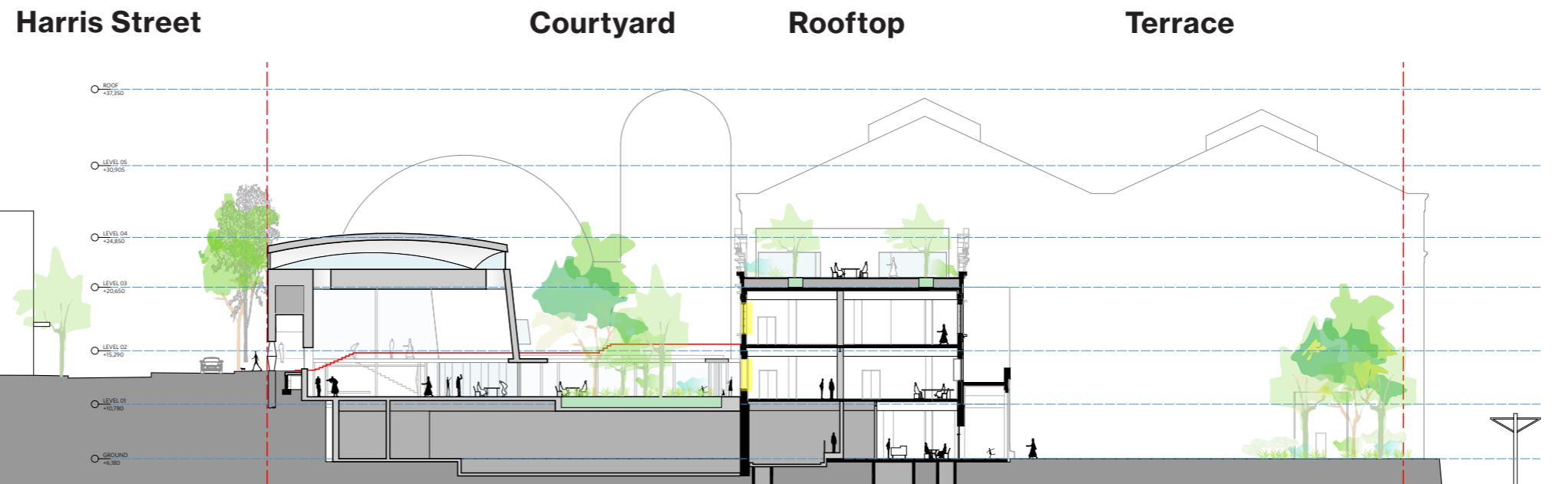
Terraces

The Public Domain Report describes the design of outdoor spaces in detail. The interactions between outdoor and indoor spaces is fundamental to the revitalised Museum and the celebration of its heritage.

Occupied terraces rise up from The Goods Line, as a memory of the rocky outcrops that would have once risen up to the ridge (now Harris St). The main public realm has the working title Gathering Terrace; a place of endless opportunities for programs.

A new courtyard at Level 1 adjoins the new program space. Flexible and welcoming, it is a space free for individuals and groups, as well as programmed events.

A Rooftop terrace on the top level of the Switch House has a small bar and views down to the Gathering Terrace and beyond down to Hay St. Between the Former Post Office and the museum building, the Post Office Courtyard is a space for hands-on creativity, spilling out from the Harris St Creative Industry Spaces and the existing creative spaces in the North Annex.



3.3 Outdoor Areas - The Courtyard

Macarthur Street

A generous new threshold and invitation to enter the Museum is created at Macarthur Street. This space is both part of the street and part of the courtyard beyond it. The design provides casual cues that offer permission to enter, use and occupy public space both within and outside of the threshold of the Museum.

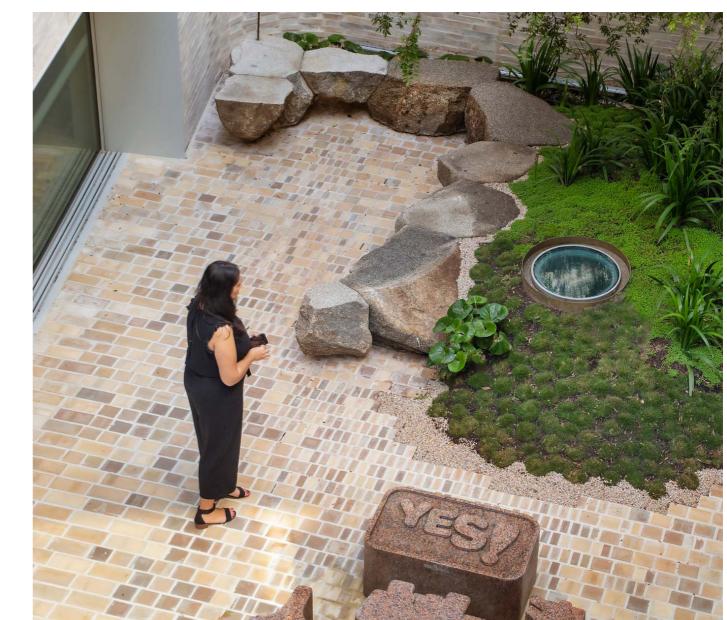
The Macarthur Street threshold acknowledges the captured or walled nature of the Level 1 courtyard and provides a way of breaking that wall to engage with the wider precinct and to be part of a bigger landscape.

Access stairs and ramps at the street edge are integrated with the colonnade and cascading planters form part of the handrail design - an invitation of kindness as well as compliance.

A Space of Relation and Experience

The courtyard itself has been formed around three questions: How can a space host the body and exchange? How can a space be responsible to the history of extraction and collection? How do spaces create culture rather than just representing it?

The response has been to propose a space that is immersive and that hosts people and events in a field of material and planting that tells the story of this place. The resulting space isn't easily categorised and slips between plaza and garden, space as ancillary and space as focus.



3.3 Outdoor Areas - The Courtyard

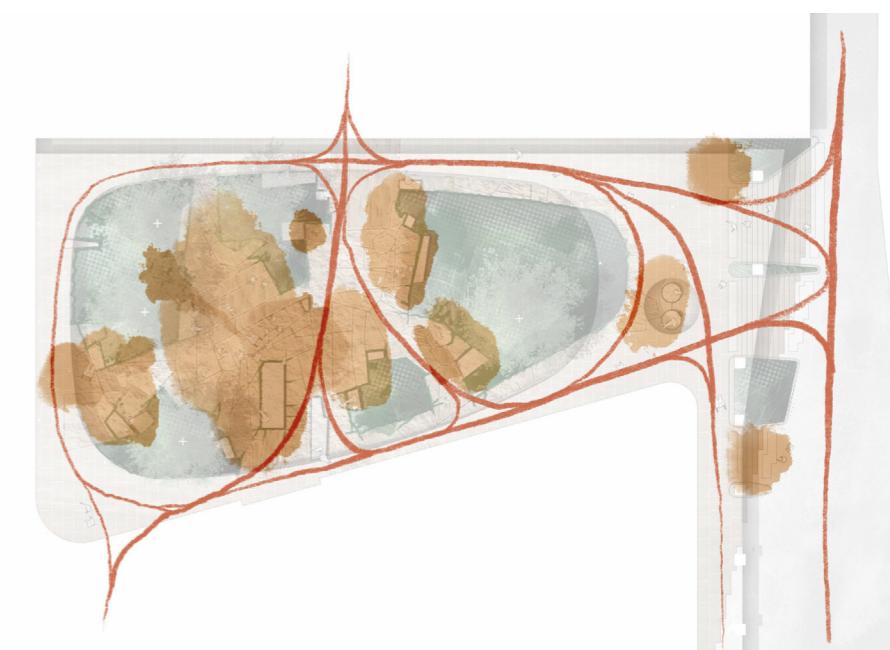
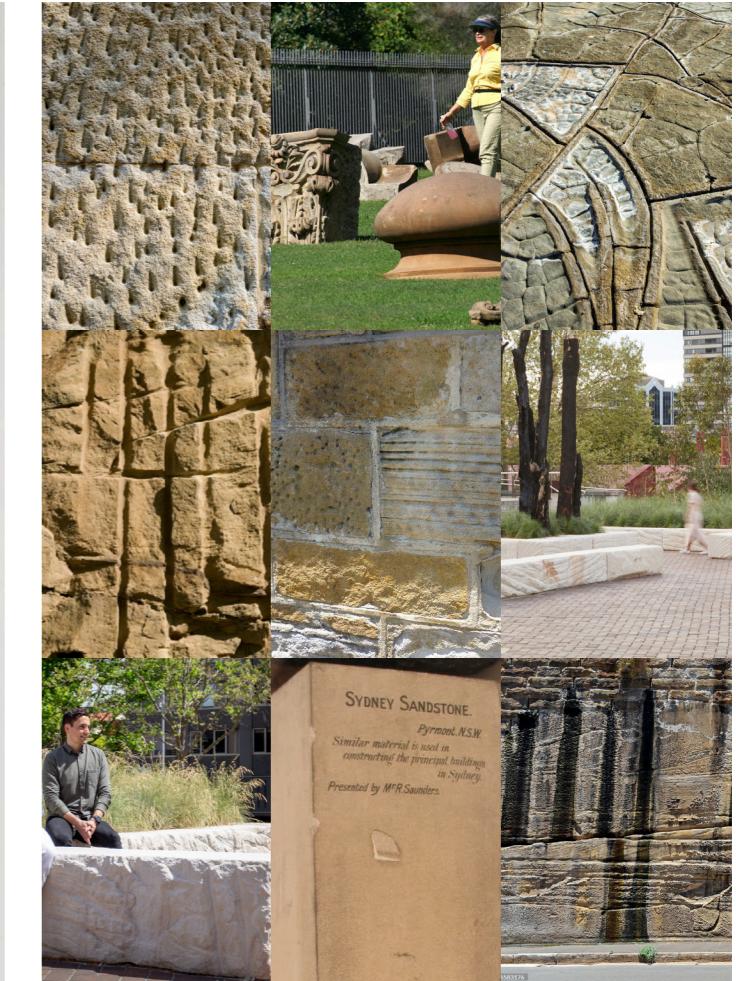
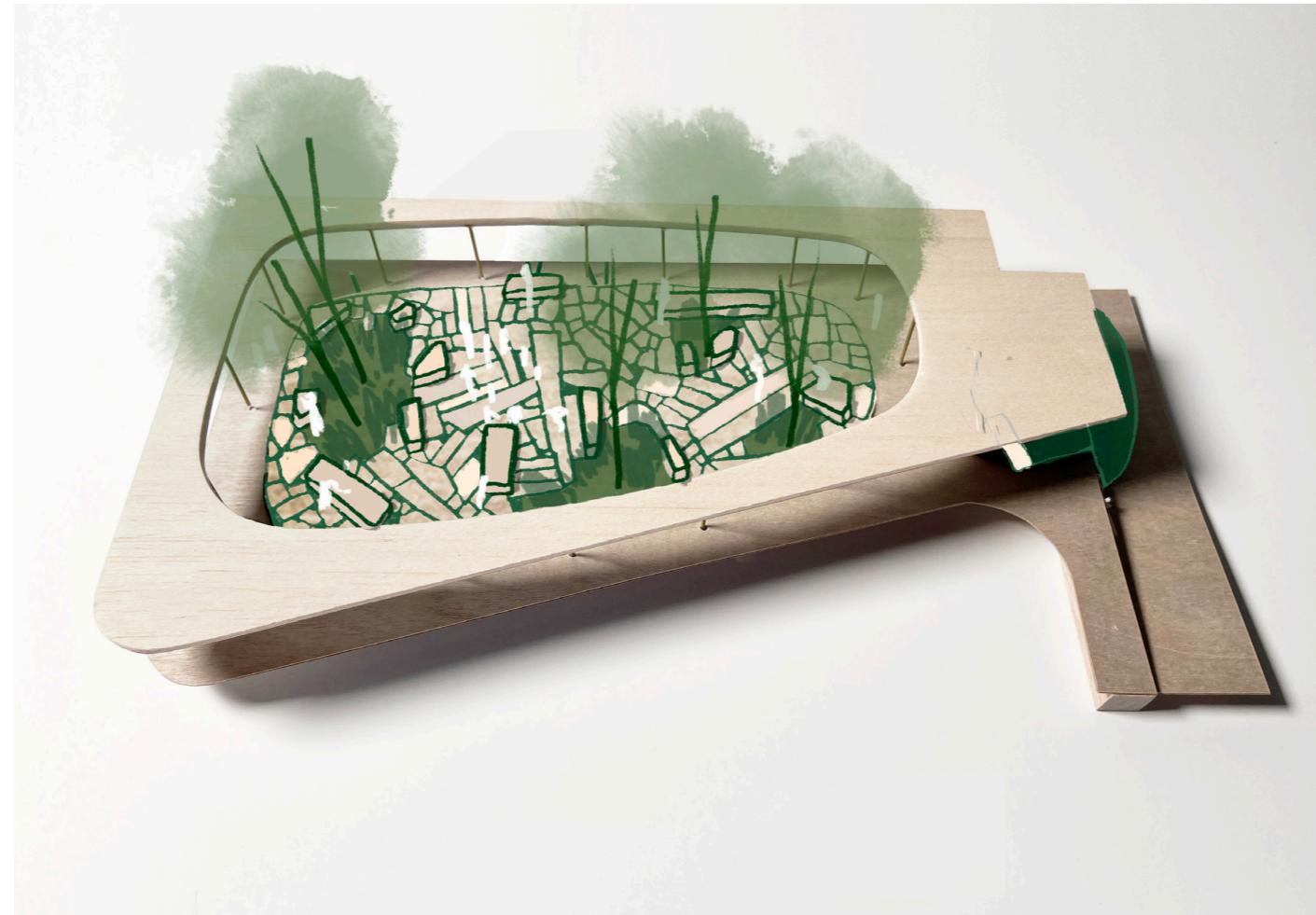
Level 1 Courtyard

Sandstone and planting is arranged within the oculus, extending under the canopy itself. The sandstone is of many dimensions, types and sources and seeks to foreground the Powerhouse's history of extraction and the wider history of the extraction on the peninsula. The sandstone bricolage is formed as large figures of cut dimension stone laid without joints, framed by 'seams' of smaller stone with a textured finish. This allows for compliant universal access, with the only change in the paving surface being the applied texture of the stone.

Where sandstone is omitted, a garden emerges out of the paving field. The soil volume for this planting sits within a deep set-down in the structural slab below, ensuring that no planter walls are needed or expressed. Fissures of planting occur along non-trafficable edges. Five medium canopy trees are located above structural columns, generally to the north, to create dappled light and animation across paved surfaces.

At the edge of planting and throughout the space, singular pieces of solid sandstone allow for seating, perching, gathering and introspection.

The arrangement of hard and soft surfaces creates connected spaces of circulation and slower spaces of occupation and exchange. The latter spaces support both the cultural production of the adjacent programmed spaces and host cultural production themselves as sites for meeting and performance - a space that elevates the human, that draws people in and connects them with the institution and each other.



3.4 Heritage

The buildings of exceptional and high heritage significance on site are celebrated and brought to the fore by the modest new building that leans away and creates a powerful sequence of spatial experiences for all users of the Museum and precinct.

The Heritage Core is the heart of the Powerhouse. Interventions from the late 20th Century are carefully removed from the Boiler House, the Engine House, the Turbine Hall, the Switch House, the Former Post Office and the North Annex.

Any new necessary components within the Heritage Core are obviously new, nothing is replicated or mimicked. Heritage is authentically celebrated.

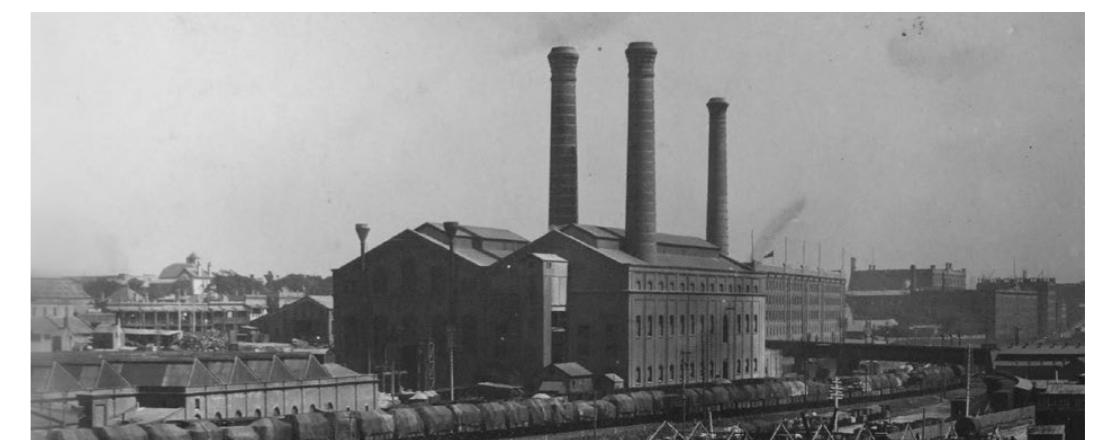
Whatever Work is done to the historic fabric is able to be undone – a principle of the Burra Charter.



Heritage facade of the Boiler House as seen from Pier Street. Photograph by Katherine Lu.



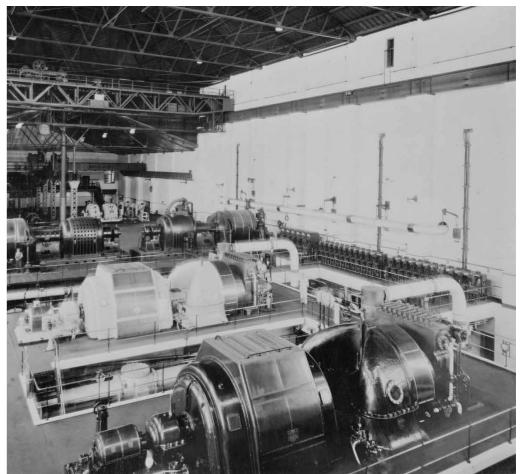
Object 89/248, Photographic negatives and prints of Ultimo Powerhouse by David Lee, 1960.



Ultimo Power Station, Darling Harbour Goods Line and construction work for new Fruit Market at Haymarket, 1911 (Source: City of Sydney Archives, NSCA CRS 51/2525)



Ultimo Power Station Boiler Hall, 1985. Photo: Powerhouse.



Photograph of the Ultimo Power Station Turbine Hall and Engine House, unknown date and photographer.

3.5 Access and Approach

A Connected Precinct

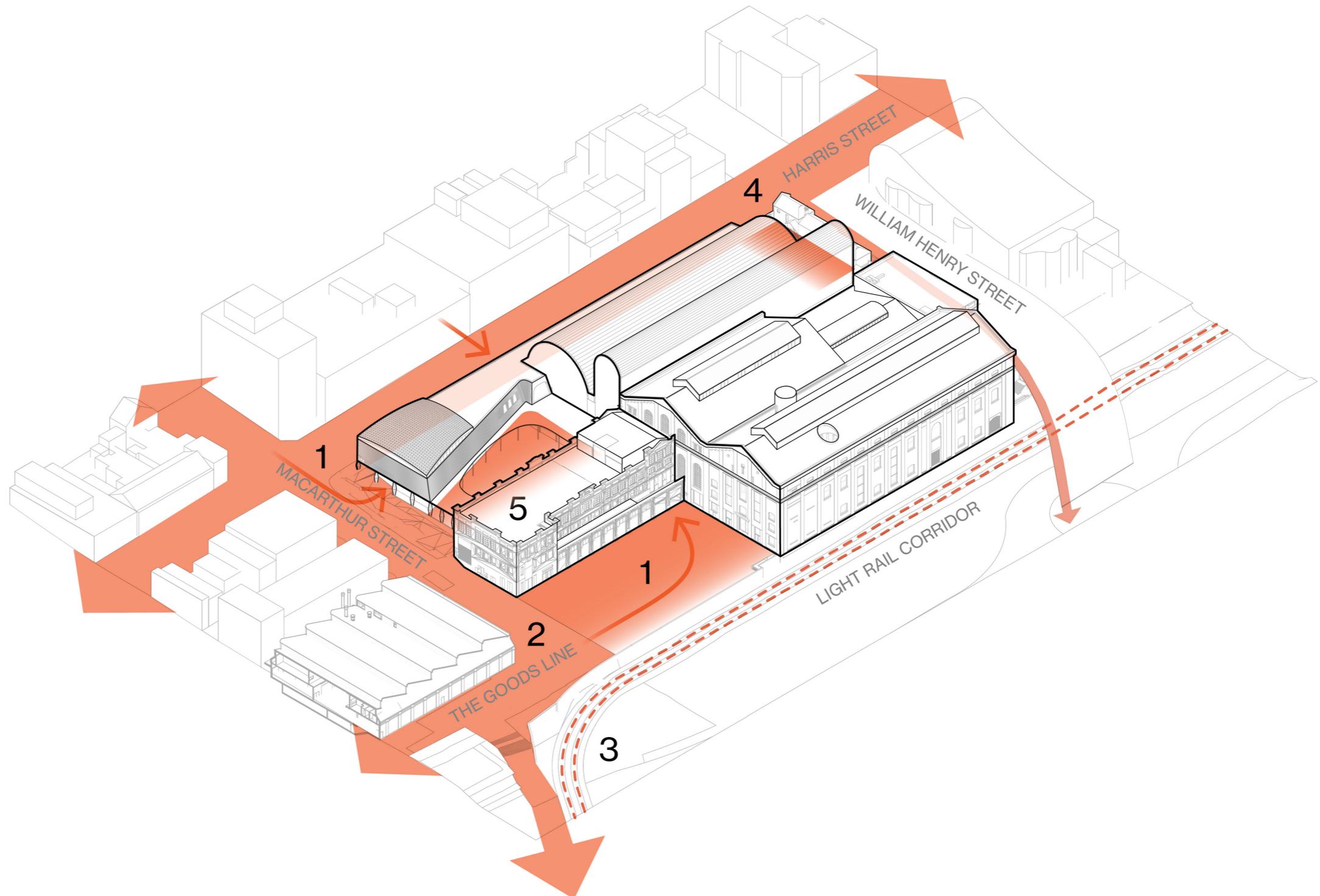
A new urban square is created at the level of the light rail corridor - the level of the former tidal mudflats. This integration project turns an awkward intersection into a clear and legible arrival to the precinct at the city level.

A beautiful landscaped edge defines a single, cityscale public terrace. This becomes the defining feature of the new museum layout, organising the three exhibition halls at Terrace level and engaging them effortlessly with the city.

New and improved pedestrian connections are created on all edges of the block as well as through-block connections that draw people seamlessly in to the museum from the city. Arrival from Harris Street is beautiful, dramatic and direct.

Pedestrian Movement and Active Transport

1. Public enter off Harris Street, and The Gathering Terrace (Public Realm).
2. New Gathering Terrace (Public realm) connects directly with The Goods Line.
3. Light rail passengers can access the precinct from the light rail stop at Paddy's Markets, walking down Hay Street to the new Gathering Terrace.
4. Staff and the occupiers of the Creative Industry Spaces can also enter off the Post Office Courtyard to the South.
5. End of Trip facilities and bike parking for staff and tenants are on ground level adjacent to the BOH loading.



3.5 Access & Approach

Building Circulation

The paths from Harris Street and Macarthur Street lead effortlessly to the central entry point at the Concierge and Terrace level.

The renovated auditorium spaces are lowered and combined into one larger space to meet at the floor level of The Heritage Halls and Switch House. As a result, three large Exhibition spaces (approximately 5000m²) are all located at the Ground Level.

These spaces are visually connected, with the capacity to be operationally interconnected or concurrently utilised in different exhibition programs.

Importantly this arrangement forms a clear and legible circulation arrangement for all users.

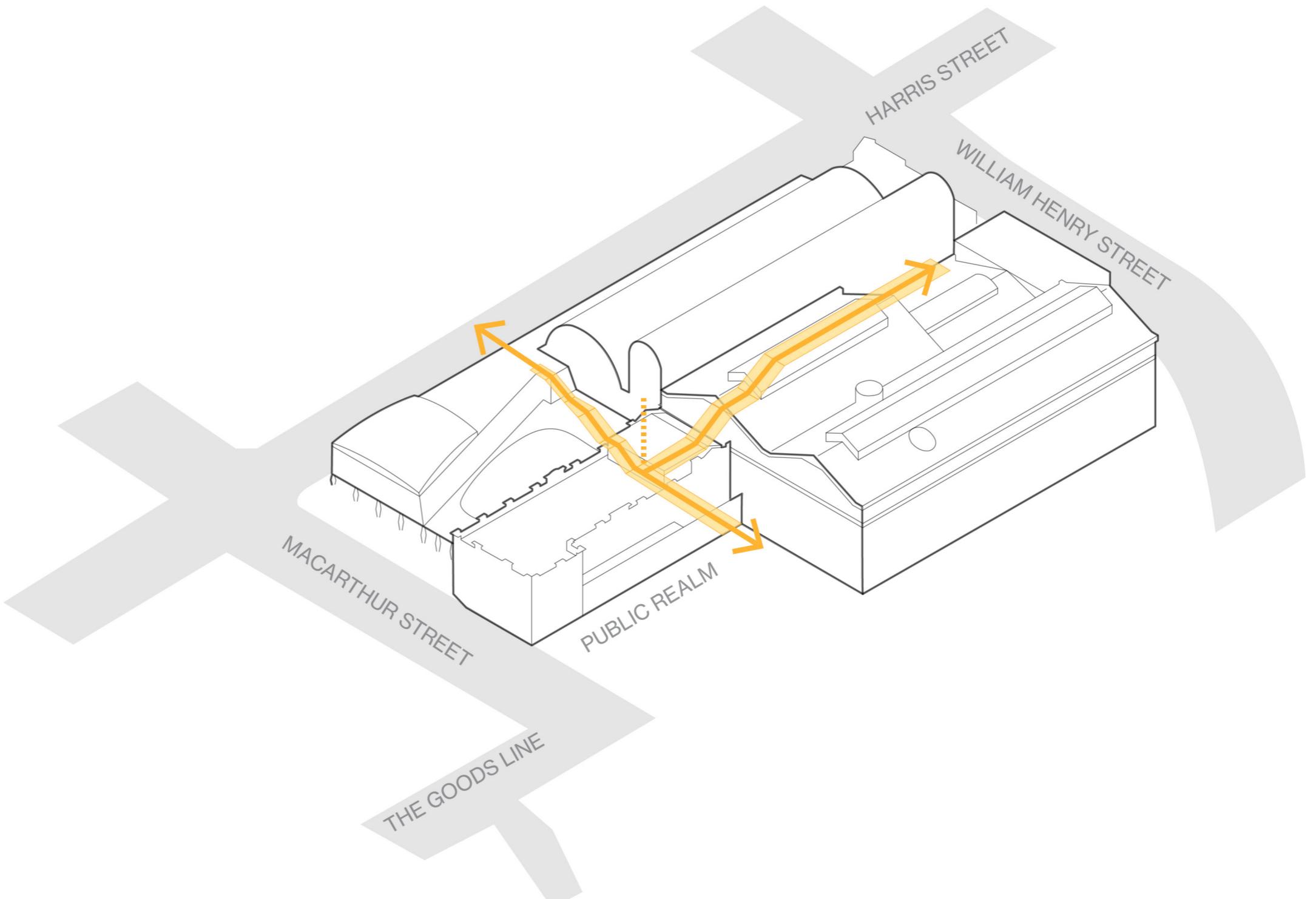
A wide stair connects visitors to the Level 1 courtyard and program space and onward to Harris Street. On the corner of Harris and Macarthur Street the new program space welcomes visitors at street level.

The courtyard opens to Macarthur Street.

A direct vertical link is made within the Wran Galleria space to connect to the Exhibition Space 4 within the renovated and enlarged Wran Exhibition space. The Galleria vista focuses on the Bolton and Watt steam engine, retained in its current location.

The collection of indoor and outdoor spaces navigates the terrain from Harris Street to the Gathering Terrace, via generous circulation and the mid level courtyard, following the natural path of water flowing from the ridge to the shoreline.

This will be a place that blurs digital and physical experiences. Digital infrastructure will be integrated throughout the precinct to support the visitor experience.



ARCHITECTURAL DESIGN

4.1 Built Form and Massing

The proposed roof top canopy on the Switch House has a maximum height of RL25.6, which is well within the permissible height limit of 28m above ground. At the lowest point of the Switch House the ground is at RL6.1 - a building height of 19.5m.

The proposed roof to the new building has a maximum height of RL26.75, which is also well within the permissible height limit of 28m above ground. At the lowest point of the New Building (the Courtyard) the surface is at RL10.78 - a building height of 15.97m.

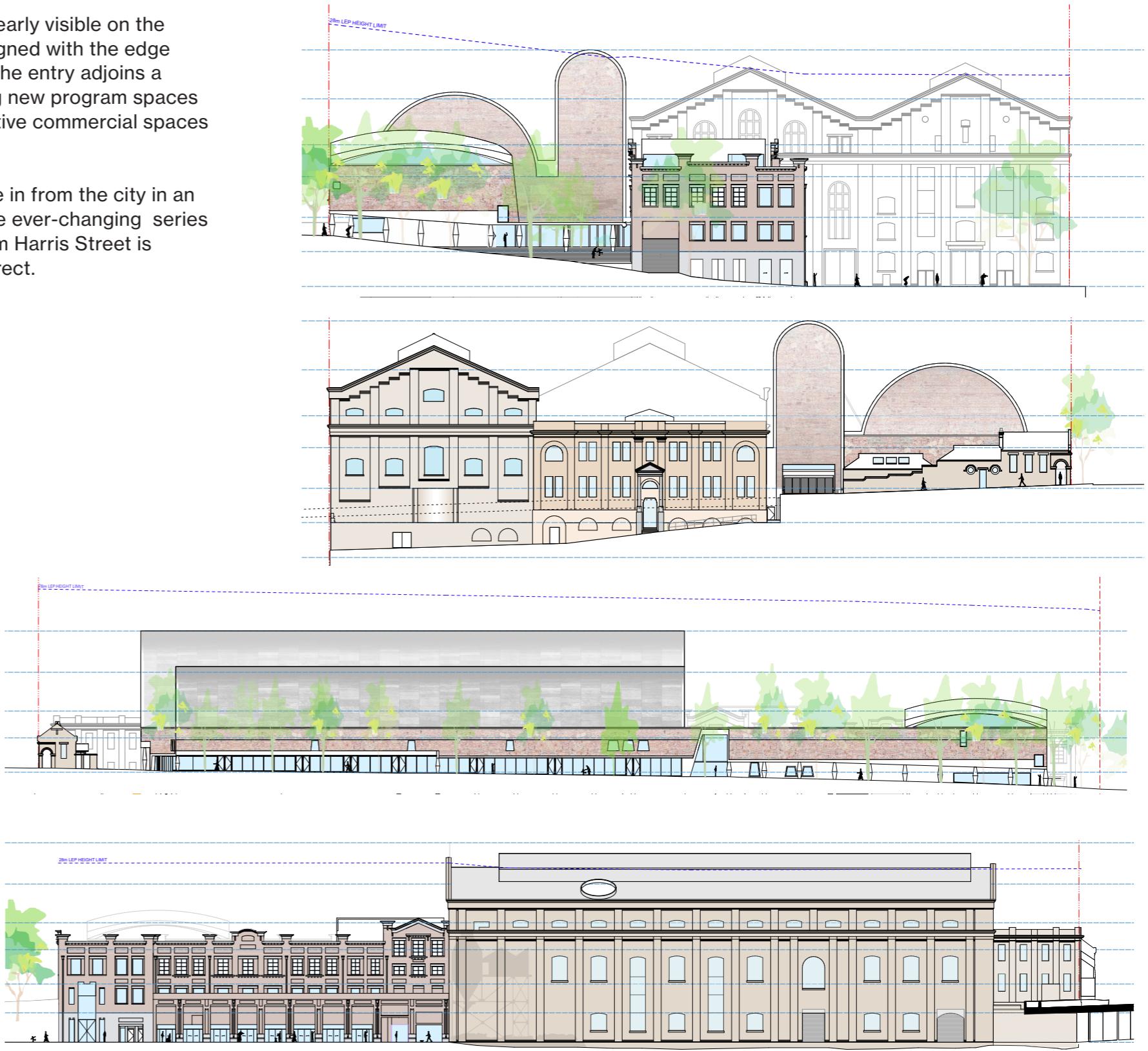
The Wran Building fronting Harris Street follows the existing profile, with a maximum height of RL37.35 at its highest point which is well below the permissible height limit of 28m. Harris Street varies between RL14.00 and RL15.20 - a building height of 23.35m.

The site area is currently 17,406m². The floor space ratio (FSR) of the proposed development is 0.91:1, which does not exceed the permitted maximum FSR of 4:1. The gross floor area (GFA) of the proposed development totals 15,843m². There are no setbacks from the site boundary or from the heritage listed items.

The enormous opportunity of the proposal is to create a large, singular public terrace that organises all major exhibition spaces at the scale of the city. The main entry is clearly visible across the Terrace from The Goods Line for easy orientation, supported by an entrance from Harris Street. Direct paths lead through the precinct to the main entry.

The secondary entry is clearly visible on the Harris Street elevation aligned with the edge of the heritage facades. The entry adjoins a covered colonnade linking new program spaces to the south and the creative commercial spaces to the north.

The building draws people in from the city in an effortless way, through the ever-changing series of landscapes. Arrival from Harris Street is beautiful, dramatic and direct.



4.1 Built Form and Massing

Switch House

The design of the rooftop canopy on the Switch House has been sited to the northern end following the profile of the pitched heritage façade, which assists in reducing its visual prominence. This new roof will form a contemporary addition and be instantly apparent as a new structure against the backdrop of the heritage buildings.

The addition of this structure will allow greater flexibility in the operation and utility of the proposed rooftop terrace above the Switch House, ensuring it forms an active addition to the overall museum function.

Heritage Core

The form of the modest new building separates clearly from the heritage fabric. This places emphasis the retention, conservation and celebration of the original Powerhouse fabric, including the full visibility of the Switch House on the western edge.

The location of the primary outdoor space along the main facades of the heritage core creates new active frontages. The robust materiality provides a unified backdrop to the heritage buildings.

Former Ultimo Post Office

Adaptive reuse of the Post Office building allows community access as well as ongoing Creative Industry and staff support uses. The courtyard will be open to the public. A better visual, physical and interpretive relationship is achieved through the use of a recessive materiality as the backdrop to the Former Post Office.

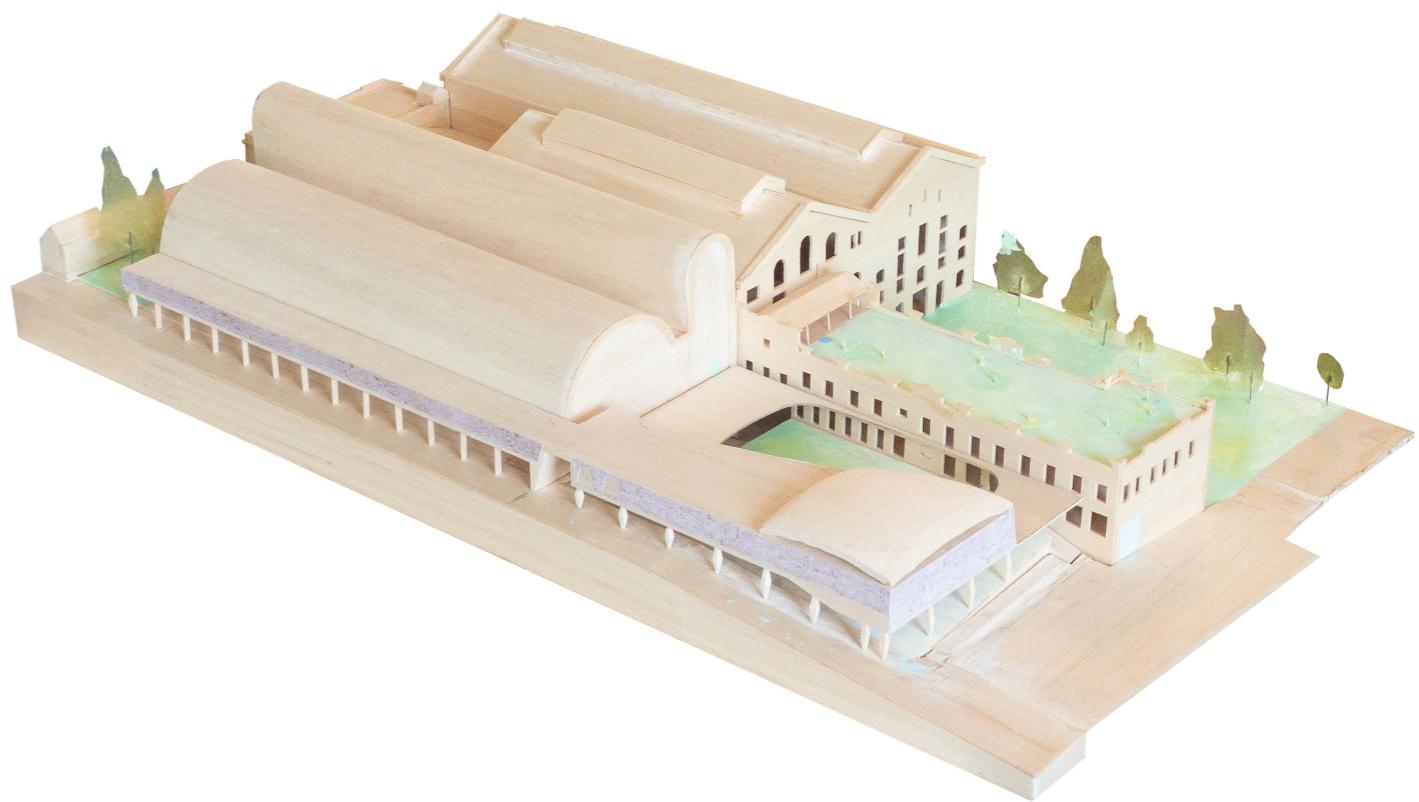
An active frontage is created to Harris Street and to the Post Office Courtyard. The Former Post Office Courtyard is part of the connected public domain experience of the building.

Harris Street

The new building is aligned with the traditional Harris Street building alignment. The building activates Harris Street with the 24/7 activity of the creative studios and their potential retail outlets. A clear and legible secondary entrance to the museum is created on Harris Street. A new roof top terrace is located on the roof of the Switch House.

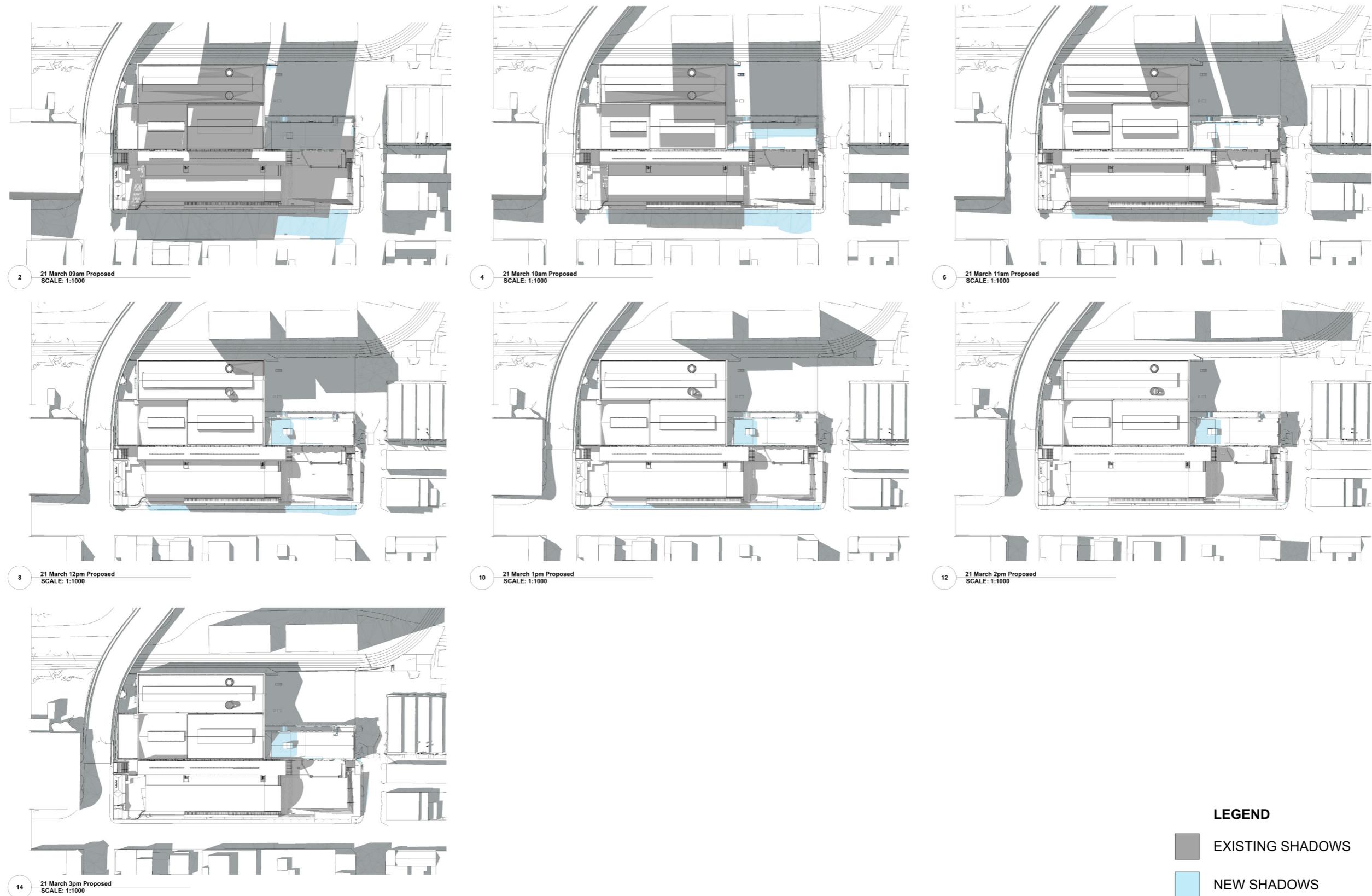
Macarthur Street East

A stronger visual connection between Ultimo and the State Heritage listed Switch House is created by the courtyard. The existing Plane Tree is retained and further street tree canopy is added to achieve the city target. The vehicular entry point is integrated with the building, with a flush condition to the pedestrian environment. Macarthur Street becomes a shared way with unified paving to allow a more generous east west pedestrian link.

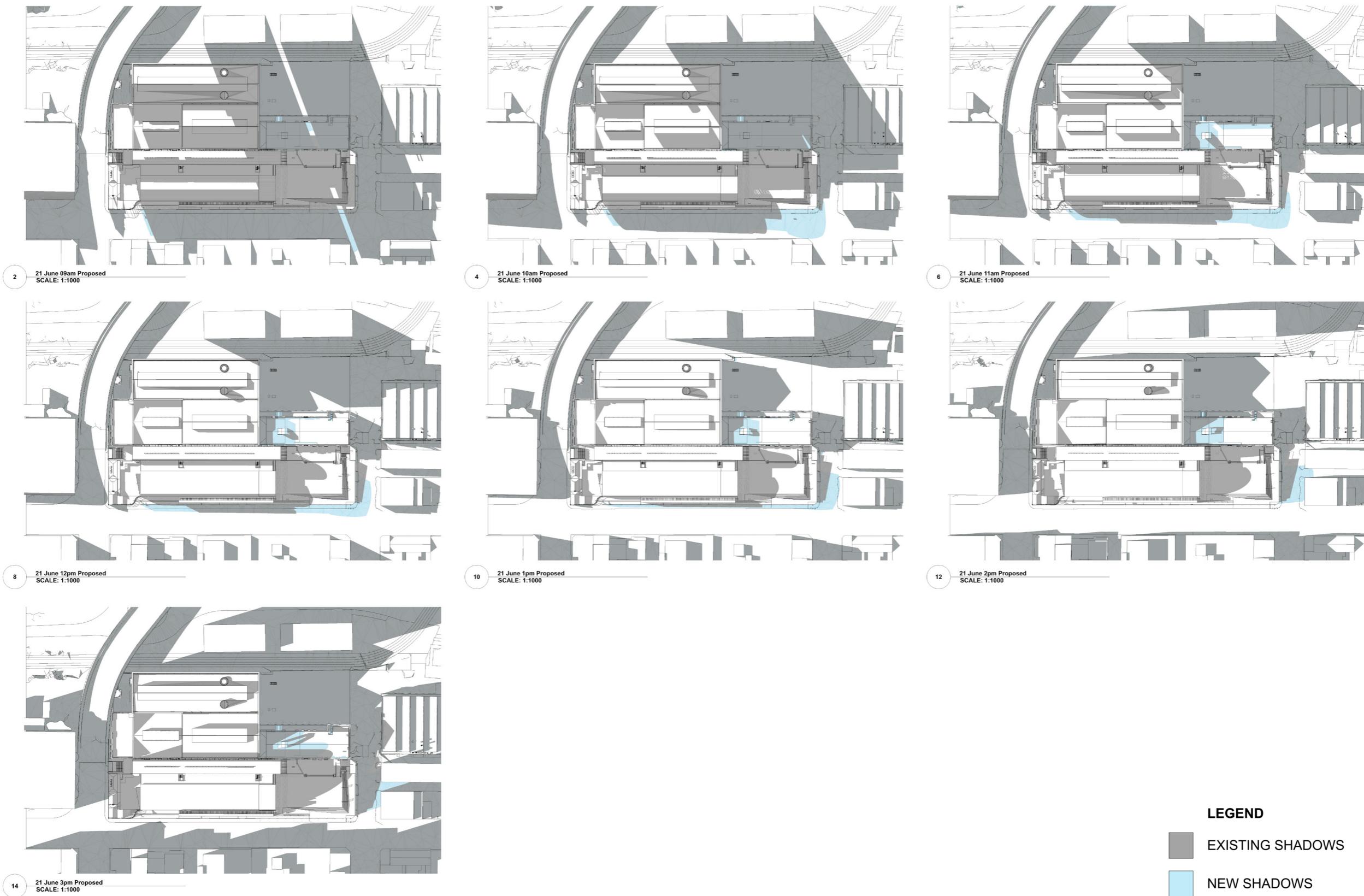


4.2 Solar Access

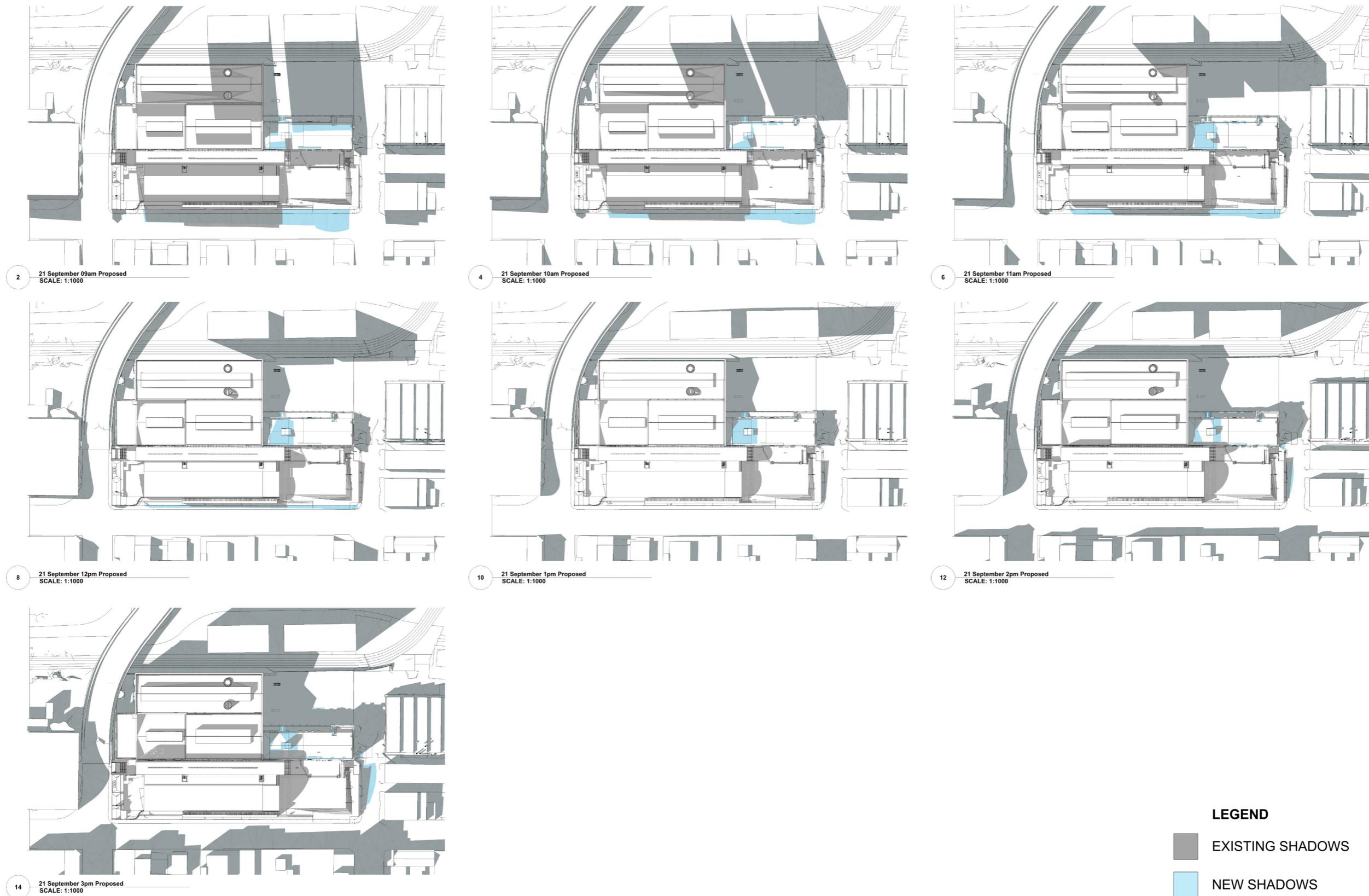
The cast shadows from the proposed development are significantly smaller than the shadows of the approved concept envelope.



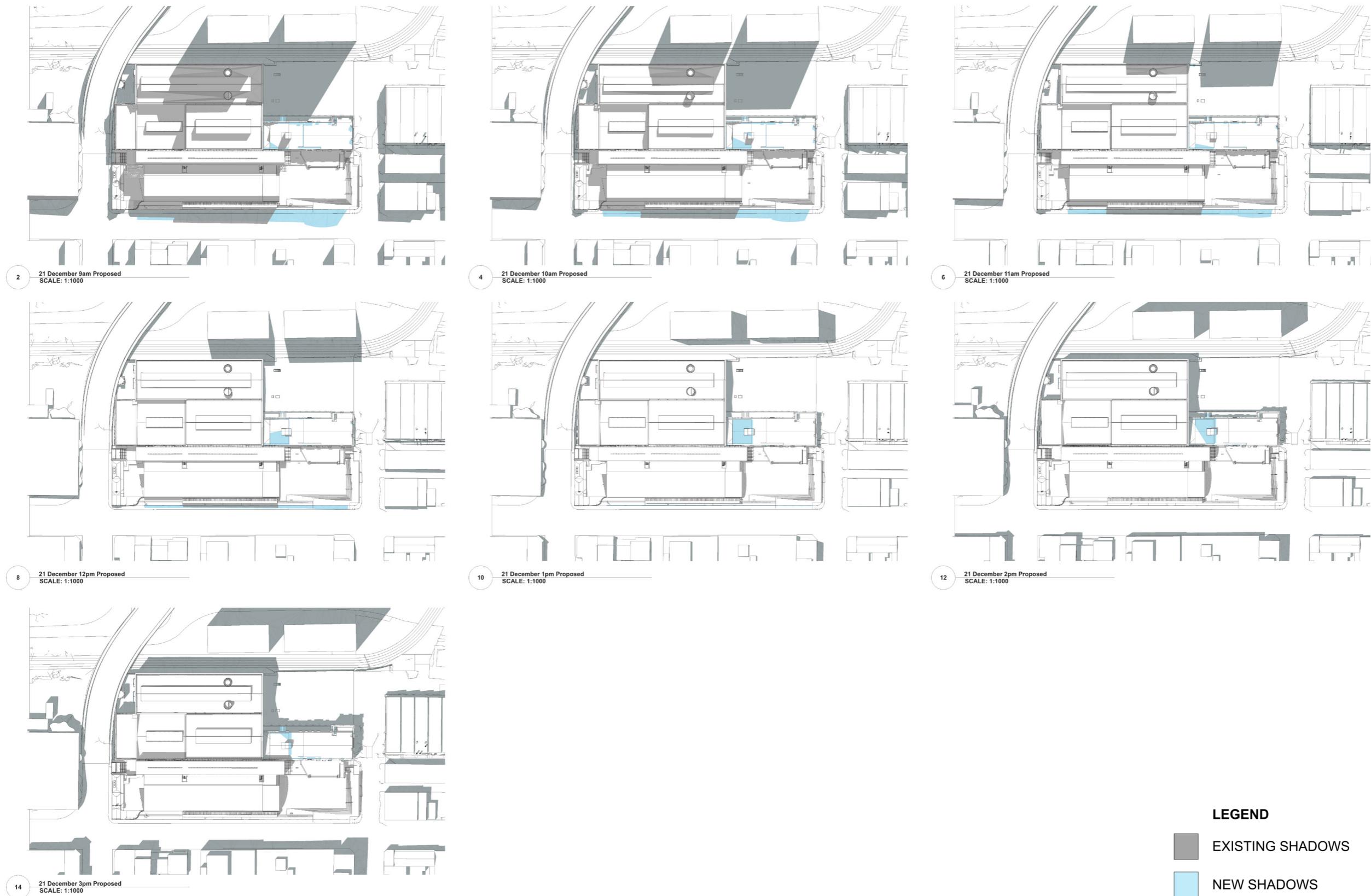
4.2 Solar Access



4.2 Solar Access



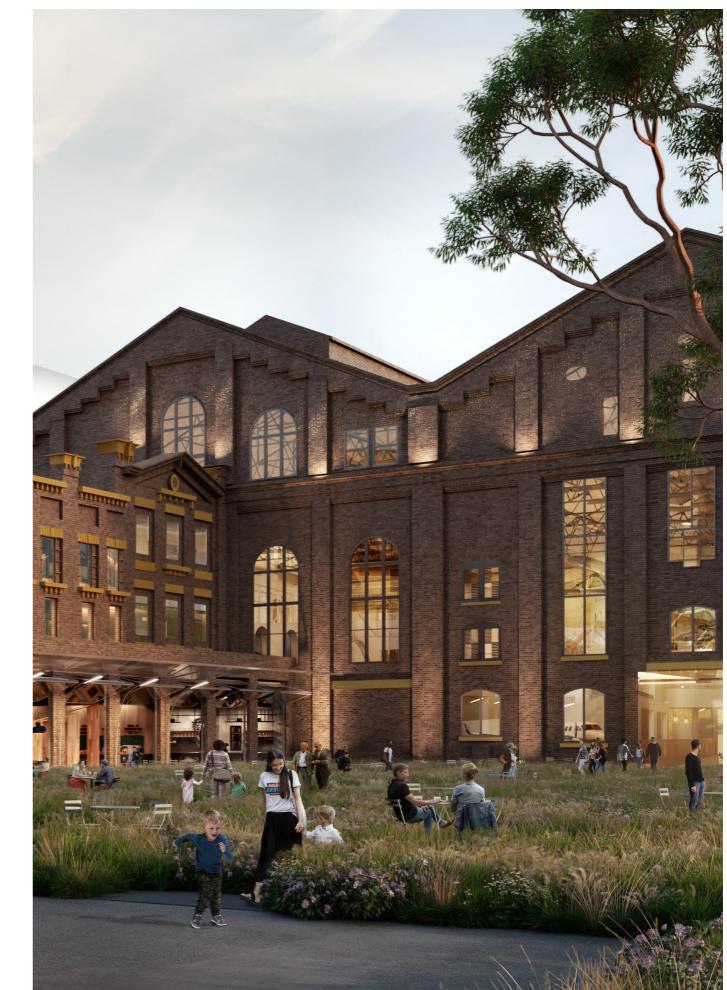
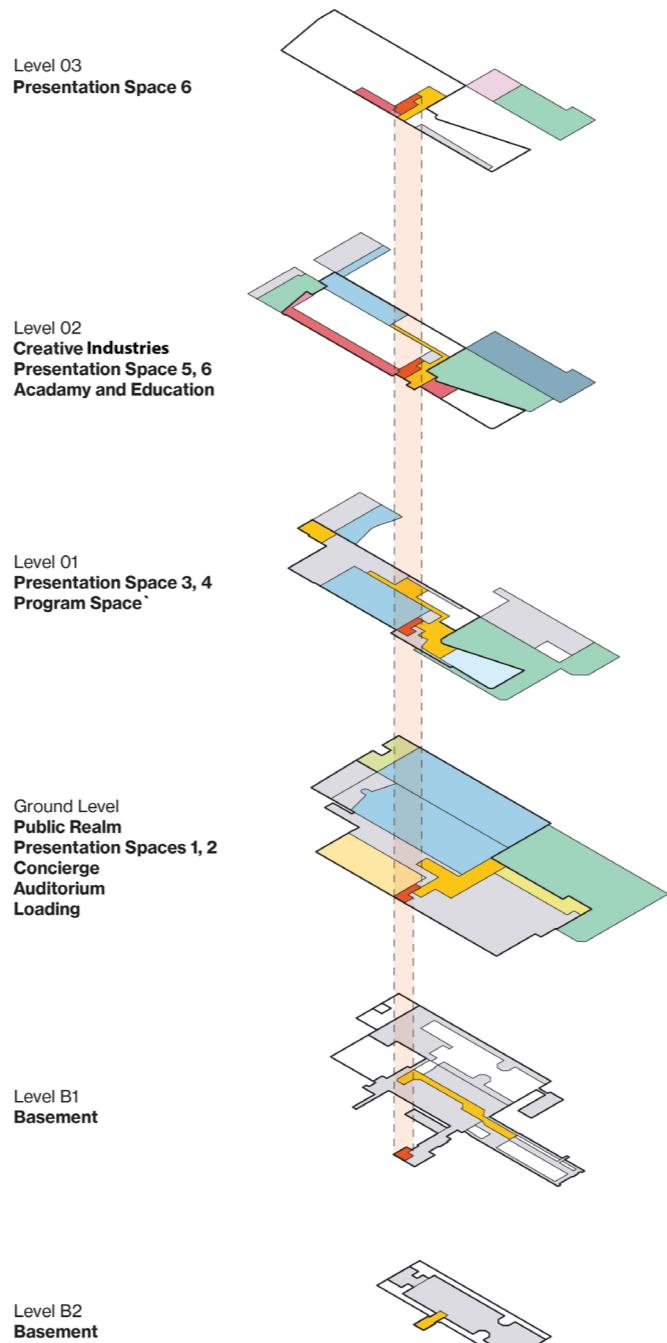
4.2 Solar Access



4.3 Amenity

The revitalisation of Powerhouse Ultimo will allow museum visitors to move easily and intuitively throughout the precinct. A wide internal view corridor is created between the Gathering Terrace (Ground Level) and the Harris St entry (Level 2), allowing visitors to immediately understand the connectivity and level changes across the precinct.

- The Concierge and Food and Beverage spaces on Ground Level open out to the Gathering Terrace with elements of the glazed façade to be operable, allowing the space to have mixed-mode ventilation (both natural and mechanical).
- The Learning and Community spaces within the Switch House are glazed to the Courtyard and Macarthur Street and can have mixed mode ventilation.
- The Auditorium is at ground level in Exhibition Space 3 with retractable seating. Patrons can spill out to the Concierge and Gathering Terrace at interval, and for pre and post-theatre refreshments.
- The Switch House Ground Level has a colonnaded space for retail, food and beverage that is available for all visitors on a day-to-day basis, and can be programmed for special events. This Ground Level space looks over the Gathering Terrace and to the city views beyond.



4.3 Amenity

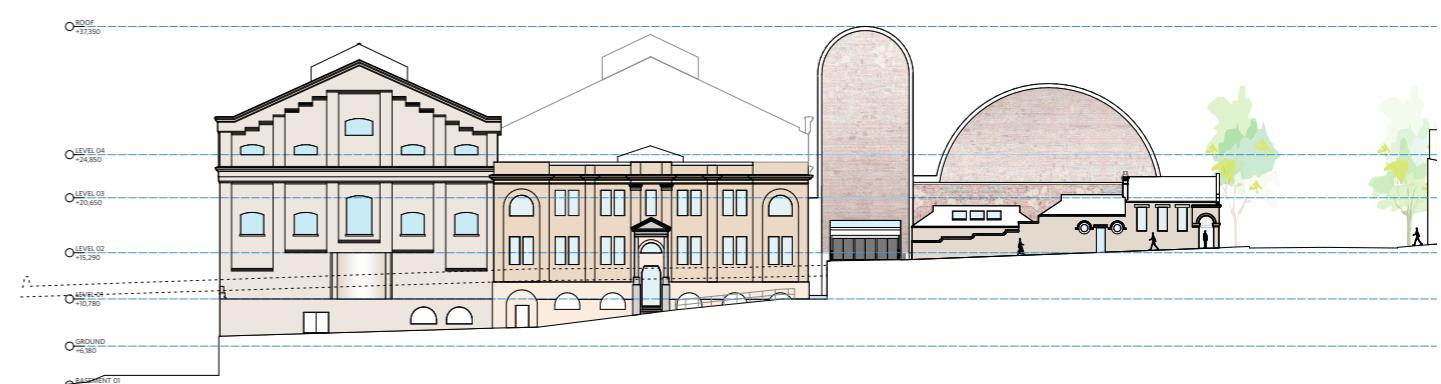
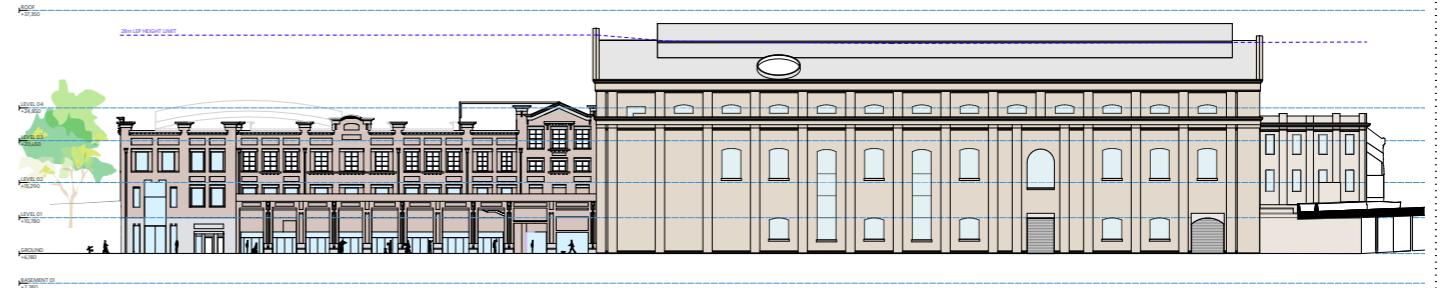
Lighting

A lighting strategy will be developed for all exterior lighting. The strategy will consider the requirements of CPTED, whilst also ensuring exterior lighting complements the architecture and Heritage detail. Down lighting will be prioritised to reduce the potential for light spill, whilst providing the requisite safety outside of museum operational hours.

The rooftop terrace will include feature lighting to highlight the garden spaces, however this will be set below the level of balustrading. No spotlights or flood lighting will be utilised in any exterior areas.

Visual Privacy

The design maintains visual privacy for surrounding residences and businesses. The façade glazing provides long-form views either over the city or to the streetscape. Rooftop terrace spaces include solid balustrades to prevent overlooking into neighbouring properties.



4.4 Vehicular Movement and Loading

Vehicular Movement and Loading

- Delivery vehicle access to the new basement is via a ramp off Macarthur St
- Waste pick-up vehicles use Macarthur St ramp, Waste Dock is separated from Collection Dock
- On the Terrace, the design concept allows vehicular paths to both the Boiler House/ Turbine Hall and Switch House. This infrequent access requirement will be managed with the use of temporary loading overlays to protect planted areas. Larger trucks would travel via Macarthur Street, turn in front of the Harwood Building and reverse in.

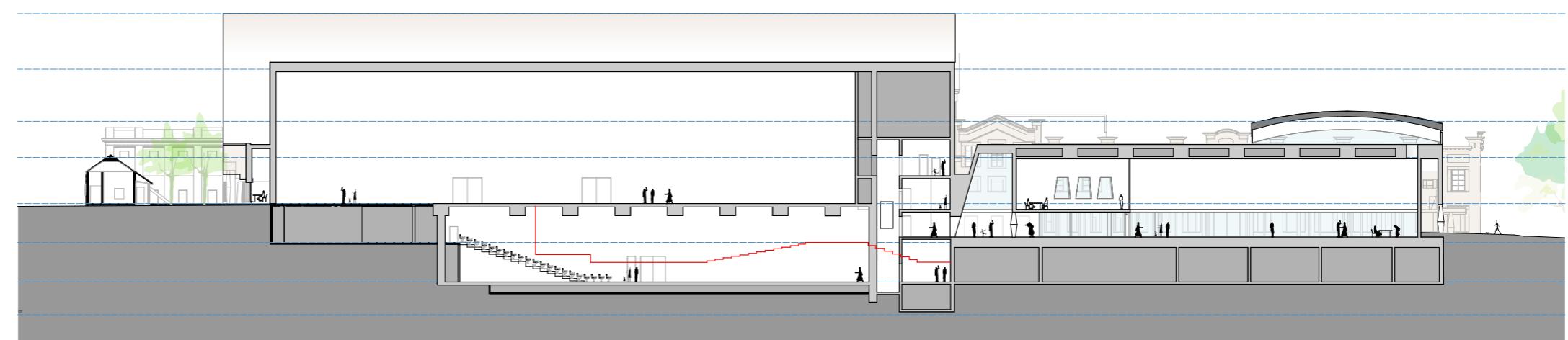
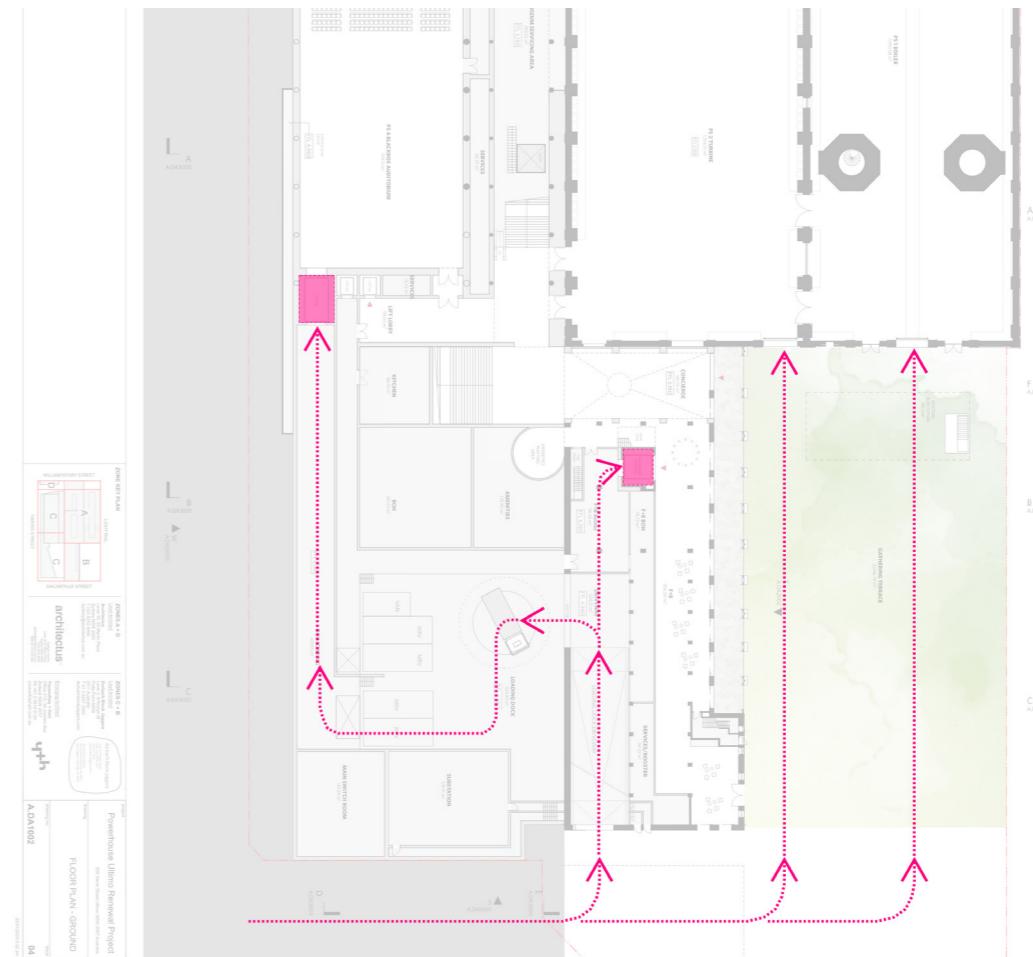
Loading

Loading is achieved from the Macarthur Street shared way. The vehicular entry portal is integrated into an existing infill panel in the Switch House facade. Dedicated back-of-house pathways provide direct connections from the loading dock to Exhibition Spaces 1, 2 & 3 and to the collections lift and the goods lift to support flexible and efficient operations across the museum. This Ground Level Loading zone houses the Security Control Room, Collections loading dock and a separate waste loading dock. Additional loading for events and for loading directly into Boiler House and Turbine Hall is allowed for in the layout of the Gathering Terrace.

Positioning the new loading dock entry at Macarthur Street recognises the key relationship to the Harwood Building, and sets up a rational and sustainable logistical relationship.

Serviceability of the site

- Loading is off Macarthur Street
- Collection delivery and waste are separated in the loading dock
- Fire Truck access strategy remains as current
- Existing basements below the Heritage Halls continue their current use as plant rooms.

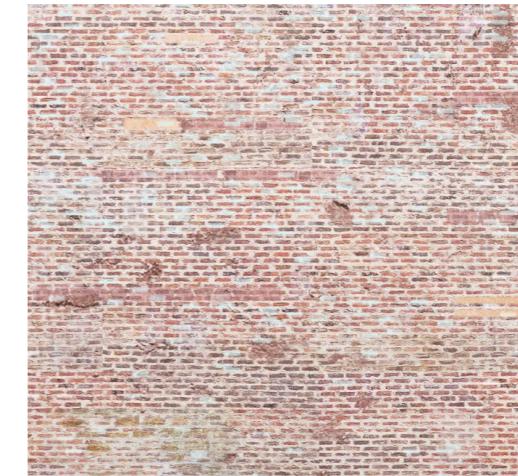


4.5 Materials and Finishes

The new built form will be comprised of a mix of recycled and new bricks, brick slips, stone, ceramics, glass, metal cladding and class 2 insitu concrete and precast concrete. This palette will form a sympathetic response to the existing heritage fabric whilst being a clearly contemporary composition.

The façade is a careful collection of robust and timeless materials and, like the content of the museum it holds, it is progressively developed to show the influences of people on the evolution of this place.

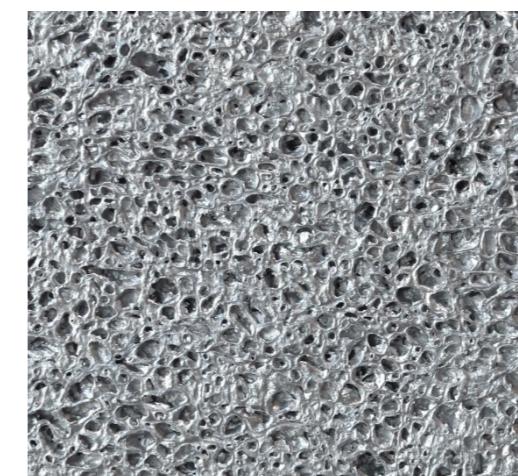
Glazing is clear to allow views into the entry, the Creative Commercial shop fronts on Harris St, the new Program Space, and education spaces.



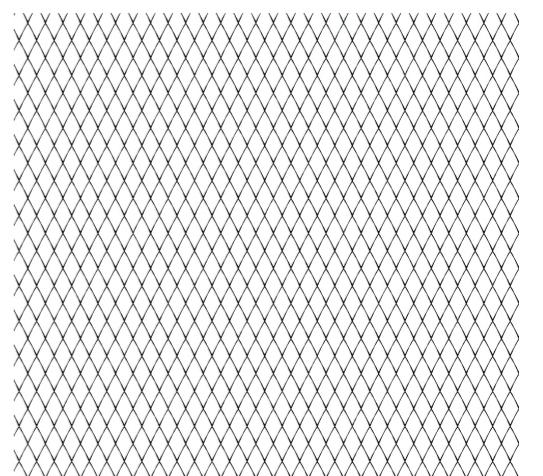
1.



2.



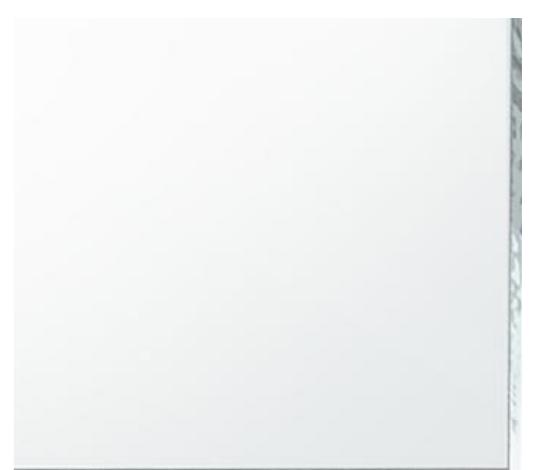
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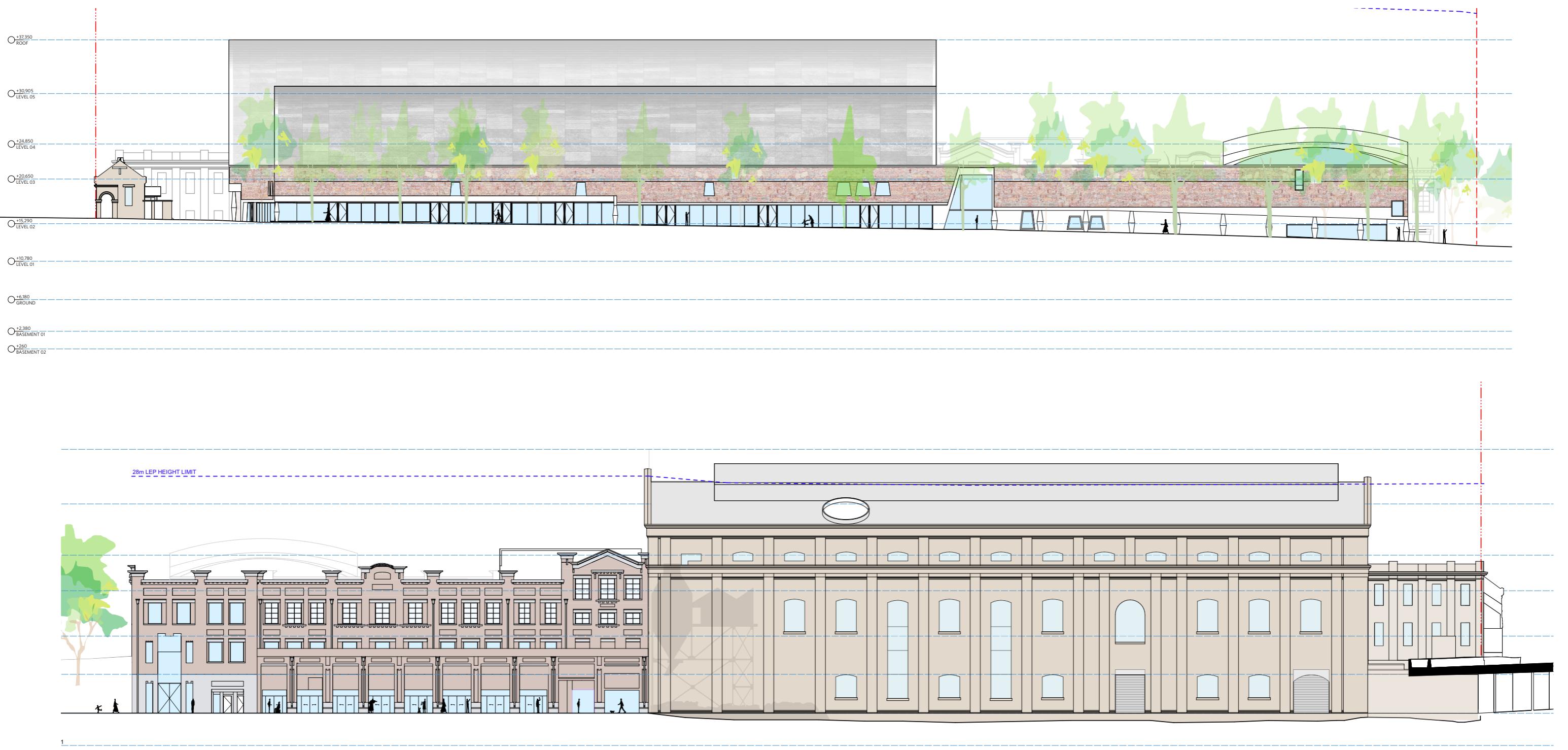
Legend

1. Recycled and reconstituted brick, stone, tiles and glass.
2. Class 2 concrete
3. Aluminium Cladding
4. Garden mesh
5. Clear glazing



5.

4.5 Materials and Finishes



4.5 Materials and Finishes

