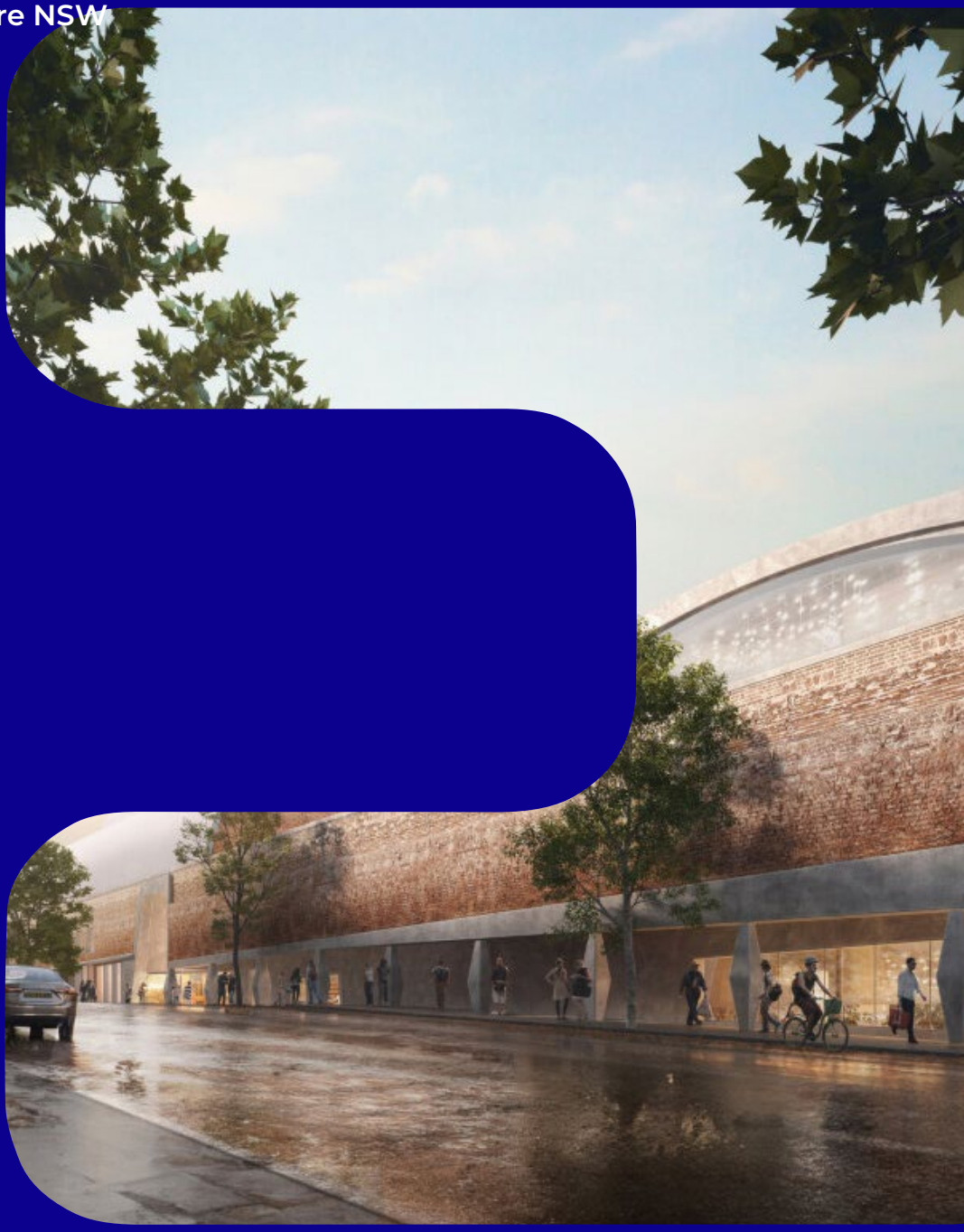
Environmental Impact Statement

Powerhouse Ultimo Revitalisation

500 Harris Street, Ultimo, NSW 2000

Submitted to the Department of Planning, Housing and Infrastructure
on behalf of Infrastructure NSW



Ethos Urban

Prepared by Ethos Urban

11 April 2024 | 2210545

'Gura Bulga'
Liz Belanjee Cameron

'Gura Bulga' – translates to Warm Green Country. Representing New South Wales.

'Dagura Buumarri'
Liz Belanjee Cameron

'Dagura Buumarri' – translates to Cold Brown Country. Representing Victoria.

'Gadalung Djarri'
Liz Belanjee Cameron

'Gadalung Djarri' – translates to Hot Red Country. Representing Queensland.

Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging.

In supporting the Uluru Statement from the Heart, we walk with Aboriginal and Torres Strait Islander people in a movement of the Australian people for a better future.

Contact:	Michael Oliver Director	moliver@ethosurban.com

This document has been prepared by:		**This document has been reviewed by:**	
Sabrina Bichara/Ella Coleman	25 March 2024	Michael Oliver	25 March 2024

Version No.	**Date of issue**	**Prepared by**	**Approved by**
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Under Separate Cover

Estimated Development Cost

Slattery

Signed Declaration

Project Details		
Project Name	Powerhouse Ultimo Revitalisation	
Application Number	SSD-67588459	
Land to be Developed	500 Harris Street, Ultimo. 3/-DP63145	
Applicant Details		
Applicant Name	Infrastructure NSW	
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Registration Number	40820	
Organisation Registered With	Planning Institute of Australia	

The undersigned declares that this EIS:

- has been prepared in accordance with the Environmental Planning and Assessment Regulation 2021;
- contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates;
- does not contain information that is false or misleading;
- addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project;
- identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments;
- has been prepared having regard to the Department's State Significant Development Guidelines - Preparing an Environmental Impact Statement;
- contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development;
- contains a consolidated description of the project in a single chapter of the EIS;
- contains an accurate summary of the findings of any community engagement; and
- contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.

Signature

11 April 2024

Abbreviations and Key Terms

Abbreviation	Meaning
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACM	Asbestos containing materials
AEP	Annual exceedance probability
ASS	Acid sulfate soils
BCA	Building Code of Australia
BDAR	Biodiversity development assessment report
BOSCAR	Bureau of Crime Statistics and Research
CIV	Capital investment value
CMP	Construction management plan
Concept SSDA	Concept Development Application – SSD32927319
COPC	Contaminant of potential concern
CPTED	Crime prevention through environmental design report
CPTMP	Preliminary construction pedestrian and traffic management plan
DPHI	Department of Planning, Housing and Infrastructure
DSI	Detailed site investigation
DTS	Deemed to satisfy
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPBC Act	*Environmental Protection and Biodiversity Act 1999 Act (Cth)*
ESD	Ecologically sustainable development
FSR	Floor space ratio
GANSW	Government Architect NSW
GFA	Gross floor area
GLVIA3	Guidelines for landscape and visual impact assessment version 3
GSW	General soil waste
GTP	Green travel plan
HAA	Historical archaeological assessment
HIS	Heritage impact assessment
HVAC	Heat, ventilation, air conditioning
LEC	Land and Environment Court
MGAC	Morris Gooding Access Consulting
MNES	Matters of national environmental significance

Abbreviation	Meaning
MRV	Medium rigid vehicle
NCA	Noise catchment areas
NCC	National Construction Code
NPfI	Noise policy for industry
NVIA	Noise and vibration impact assessment
OSD	On-site stormwater detention
PASS	Potential acid sulfate soils
PMF	Probable maximum flood
PPPS	Pyrmont Peninsula Place Strategy
PSI	Preliminary site investigation
RWP	Remedial works plan
SEARs	Secretary's Environmental Assessment Requirements
SHR	State Heritage Register
SIA	Social impact assessment
SRV	Small rigid vehicle
SSD	State significant development
SSP	State significant precinct
Sydney LEP	Sydney Local Environmental Plan 2012
TPZ	Tree protection zone
TRH	Total recoverable hydrocarbons
UTS	University of Technology
VIA	Visual impact assessment
WHS	Work health safety

Executive Summary

Purpose of this report

This Environmental Impact Statement (EIS) has been prepared on behalf of Infrastructure NSW in support of a detailed State Significant Development Application (SSDA) made to the Department of Planning, Housing and Infrastructure (DPHI) for the revitalisation of Powerhouse Ultimo.

Development for the purposes of a museum (information and education facility) that has a capital investment value of more than $30 million is classified as State Significant Development (SSD) in accordance with Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)*. As the proposed development has a capital investment value greater than $30 million, it is SSD for the purposes of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and will be assessed by DPE and determined by the Minister for Planning and Public Spaces.

A request for the Secretary's Environmental Assessment Requirements (SEARs) was made on February 2 2024, and the Secretary of the Department of Planning, Housing and Infrastructure issued the Industry Specific SEARs on 20 February 2024. This EIS addresses the matters identified in the SEARs and has been prepared in accordance with the Department's State Significant Development Guidelines (November 2021) and the State Significant Development Guidelines – Preparing an Environmental Impact Statement and the requirements of the EP&A Regulation.

Project Background

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 revitalised 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 Powerhouse Ultimo Revitalisation investment will catalyse a wider Ultimo creative industries precinct that unites existing creative industries workspaces and institutions, including the Tech Central, University of Technology and the ABC. This investment directly supports and aligns with the broader strategic opportunity to transform the Pyrmont Peninsula as identified in the Pyrmont Peninsula Place Strategy and supports a coordinated series of investments in cultural infrastructure throughout NSW as envisaged in the Cultural Infrastructure Plan 2025+.

The objectives for this 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.

Figure 1 Artists impression of Powerhouse Ultimo

Source: Architectus and Durbach Block Jaggers

Project overview

This development application sets out the detailed proposal (Detailed SSDA) for the revitalisation of Powerhouse Ultimo.

Specifically, consent is sought for the following in this Detailed SSDA:

- 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 buildings 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 Buildings.
- Construction and use of new museum spaces along Harris Street and Macarthur Street frontages, including the following uses:
  - Loading dock and ancillary back of house amenities.
  - Library and education spaces.
  - Creative industry studios.
- Alterations to the Wran Building including an auditorium upgrade and upgrade of exhibition spaces.
- Conservation and adaptive reuse of the existing Ultimo Power House and Ultimo Post Office heritage items for museum purposes.
- 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 alterations fronting Harris Street.
  - A creative courtyard between the Post Office and Wran Building.

Strategic Context

The Cultural Infrastructure Plan 2025+ (the Plan) is the NSW Government's guiding policy for the planning and delivery of cultural infrastructure that will support a thriving and dynamic cultural sector. The Plan will deliver contemporary, relevant world-class infrastructure to strengthen the depth and quality of NSW's cultural sector and provide digital infrastructure and technology that enables all forms of culture to reach wider audiences and create across new mediums.

The Cultural Infrastructure Investment Framework within the Plan ensures a strategic, coordinated approach to cultural infrastructure investment in NSW. The Powerhouse Ultimo Revitalisation is identified by the Plan as forming one part of a coordinated series of investments in cultural infrastructure throughout NSW. By making sustainable and fit-for-purpose cultural infrastructure available to all residents, visitors and workers across the state, the NSW Government will contribute to the social, economic, civic, and individual wellbeing of the state and the people in its communities. The delivery of cultural infrastructure is a key part of creating places that bring people together to live, work, visit and do business.

The Plan recognises that well-designed cultural infrastructure can have a catalytic effect on places, and when supported by other uses and transport links, it anchors urban renewal and regeneration processes, attracting business and investment. It can transform the functionality and relevance of a place and foster a new and historic identity and character that attracts people and activates the city. The Powerhouse Ultimo Revitalisation is a transformative investment that will develop a wider Ultimo creative industries precinct that unites existing creative industries workspaces and institutions, including Tech Central, University of Technology and the ABC. This investment directly supports and aligns with the broader strategic vision to transform the Pyrmont Peninsula as identified in the Pyrmont Peninsula Place Strategy.

The proposal is generally consistent with the following strategic planning polices:

- NSW State and Premier's Priorities.
- Greater Sydney Region Plan.
- Eastern City District Plan.
- Draft Ultimo Sub-Precinct Master Plan.
- Local Strategic Planning Statement – City Plan 2036 (City of Sydney).

- NSW Government Architect's Office policies including Better Placed, Draft Guide for Heritage, Greener Places, the Designing with Country discussion paper, and the Connecting with Country draft framework.

Statutory context

This EIS has been prepared in accordance with the requirements of the EP&A Act and Regulation, and **Section 4.0** of the EIS considers all applicable legislation in detail.

The Sydney Local Environmental Plan 2012 applies to the site, which is zoned B4 Mixed Use. The proposal is for an 'information and education facility' which is permissible with consent and meets the objectives of this zone.

A Concept SSDA (SSD-32927319) was lodged in 2022 and was approved by the Minister for Planning and Public Spaces 21 February 2023. The application has since been surrendered. A concept application is no longer required for the proposed revitalisation of the Powerhouse due to the commencement of Clause 2.10(2) of the Planning Systems SEPP. Further, the revised scheme no longer meets the threshold requiring a concept application under Clause 7.20 of the *Sydney Local Environmental Plan 2012*.

Pursuant to Clause 4.5 of the EP&A Act and Clause 2.7 of Planning Systems SEPP, the Minister for Planning and Public Spaces is the consent authority for a SSDA made by or on behalf of a public authority. This application is made by Infrastructure NSW who are public authority.

Community engagement

The consultation program for this SSDA included engagement with the local community, neighbours, key stakeholders, and government authorities and agencies to present an overview of the proposed development gather feedback during the preparation of the SSDA detailed in the Consultation Outcomes Report prepared by Aurecon and INSW (**Appendix J**). It addresses all consultation activities, the key issues discussed, the feedback received and whether there have been any associated amendments to the proposal.

Environment impact and mitigation measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by Infrastructure NSW to manage and minimise potential impacts arising from the development. The key environmental matters identified include (indicative below):

- Potential impacts on heritage and archaeology.
- Amenity impacts including overshadowing and visual and view impacts.
- Urban design, built form, and design excellence.
- Potential traffic impacts.
- Public domain and landscaping.
- The overarching social and economic impacts and benefits.
- Sustainability.

The proposed development has been assessed in each of these instances by technical experts across a range of disciplines as informed by the SEARs and industry best-practice. In this respect, the physical works as part of this stage have been assessed and mitigation measures included for any environmental impacts that may arise, as per the recommendations of the technical assessment and the framework established.

Accordingly, the EIS provides a detailed assessment of the environmental, social, and economic impacts of the proposed development drawing upon information provided by a team of experienced technical experts across a range of disciplines. The EIS concludes that the proposed development will not result in any significant social, economic, or environmental impacts which cannot be appropriately managed through the identified mitigation measures or standard conditions of consent.

Conclusion and justification

The EIS addresses the SEARs and provides an assessment of the relevant environmental planning considerations for the SSDA for the revitalisation of the Powerhouse Museum, Ultimo. The potential impacts of the development are acceptable and can be managed. Having regard to biophysical, economic, and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The proposal will facilitate the revitalisation of Powerhouse Ultimo and provide world class museum and exhibition spaces, which will deliver important community cultural, industry and economic benefits to a district, regional and national scale, as well as a local scale.

- The proposal represents a significant investment in the applied arts, applied sciences, culture and creative industries , and the revitalisation of this significant national public cultural facility, the associated public programming and community infrastructure will be widespread, significant, and long term.
- The revitalisation of the site buildings supports the high design quality that encourages creative expression and elicits a wide range of innovative design responses to the site. An internationally important public museum development of the highest architectural design quality will be delivered.
- The proposal allows for the significant improvement of the public domain on and around the site, allowing for improved connection to The Goods Line and surrounding precincts including Darling Square and Darling Harbour. This will reorient the entrance to the museum, improving the experience for visitors and the museums connectivity to public transport and surrounding precincts.
- The proposal will support an estimated 200 direct and 140 indirect FTE jobs, generating approximately $34.4 million in value- adding to the local and regional economy annually. The estimated 400 FTE direct ongoing workers across the Powerhouse sites will cause an immediate value-add to the economy of $37.1 million annually. When considering the multiplier effect, total continued employment is estimated at 670 FTE jobs (direct and indirect), including a total value added to the economy of $68.8 million annually.
- The proposed SSDA allows for the provision of the renewed cultural facilities that respond to the heritage significance of the site, whilst not resulting in impacts on surrounding uses that cannot be managed.
- The proposed works are directly consistent with the Pyrmont Peninsula Place Strategy, the Ultimo Sub-Precinct Plan, the NSW Government's Cultural Infrastructure Plan 2025+ , the NSW Cultural Strategy and the City of Sydney's Local Strategic Planning Statement, as it delivers design excellent, cultural and community facilities.
- The assessment of the proposal has demonstrated that the development will not result in any environmental impacts that cannot be appropriately managed and consistent with the relevant planning controls for the site.
- The proposal is consistent with the principles of ecological sustainable development as defined by section 193 of the EP&A Regulation.

Given the merits described above, and the significant benefits associated with the proposed development, it is requested that the application be approved.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning, Housing, and Infrastructure (DPHI) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of an application for State Significant Development (SSD). This application comprises a detailed proposal for the Powerhouse Ultimo Revitalisation and is made pursuant to section 4.15 of the EP&A Act.

Development for the purposes of a museum (information and education facility) that has a capital investment value (CIV) more than $30 million is identified as SSD in Schedule 1 of the State Environmental Planning Policy (Planning Systems) 2021. As the proposed development has a CIV of greater than $30 million, it is SSD for the purposes of EP&A Act.

The report has been prepared by Ethos Urban on behalf of Infrastructure NSW and is based on the Architectural Plans provided by Architectus and Durbach Block Jaggers (see **Appendix B**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation), and the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of the EIS, which are included at **Appendix A**. The EIS has also been prepared in accordance with the DPHI's *State Significant Development Guidelines* (November 2021) and the *State Significant Development Guidelines – Preparing an Environmental Impact Statement – Appendix B* (December 2021). This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

1.1 The Applicant

The Applicant's details are presented in **Table 1** below.

Table 1 Applicant Details

Applicant:	Infrastructure NSW
Address:	Level 27, 201 Kent Street, Sydney NSW 2000
ABN:	34 945 244 274

1.2 Background to the development

The Powerhouse is internationally renowned as Australia's only contemporary museum for excellence and innovation in the applied arts and sciences. Hosting a significant collection of over 500,000 items spanning history, science, technology, industry, decorative arts, music, and transport, the Powerhouse is home to the material heritage and stories of Australian culture, history, and lifestyle. It currently encompasses the existing Powerhouse in Ultimo, Sydney Observatory in Millers Point and Powerhouse Castle Hill.

On 4 December 2023, the NSW Government announced that Powerhouse Ultimo would be retained and revitalised. The revitalisation of Powerhouse Ultimo will complement Powerhouse Parramatta, expanded collection storage facilities at Castle Hill (refer to **Figure 2** and **Figure 3**) and Sydney Observatory. The Powerhouse Ultimo Revitalisation is a transformative investment to renew a world-class museum that will significantly contribute to an important and developing part of Sydney.

The revitalised Powerhouse Museum in Ultimo will deliver a dynamic applied arts and applied science program, presenting exhibitions that showcase applied arts and science and the Powerhouse collection, international exclusive exhibitions and programs that support the creative industries.

Powerhouse Ultimo temporarily closed in February 2024 in anticipation of these works and will reopen once the revitalisation works are completed.

Figure 2 Powerhouse Parramatta

Source: Moreau Kusunoki and Genton

Figure 3 **Powerhouse Castle Hill Building Development**

Source: Lahznimmo Architects

A Concept SSDA, (SSD-32927319) was lodged in 2022 and was approved by the Minister for Planning 21 February 2023. However, the application has since been surrendered. A concept application is no longer required for the proposed revitalisation of the Powerhouse, attributed to a reduction in the scope of works. A Design Competition was also undertaken following the original Concept SSDA, however the scheme achieved in the Design Competition is no longer being pursued and is therefore not applicable to this application. The Concept SSDA is not required, and SSD-32927319 is obsolete and no longer relevant to this Detailed SSDA.

Wran Building

On 12 March 2024, the NSW Heritage Council published a Notice of Intention to List (Notice) for a curtilage extension to the existing Power House State Heritage Register listing (SHR #020458F8F8F8F101). The Notice proposes to include all properties (including the Wran Building) that form Powerhouse Ultimo within the SHR listing curtilage, with the proposed statement of significance noting specifically:

> *The purpose-built 1988 Wran building contributes to the group's potential State historic and aesthetic significance for its landmark form, scale and spatial relationship with the other buildings. The Wran building, together with the Powerhouse Museum Complex has potential State significance for its associations with notable political, design and museum figures including Neville Wran, Jack Ferguson, Lionel Glendenning, Richard Johnson, Lindsay Sharp and Norman Harwood.*

Further discussion of the notice of intention is provided in the Heritage Impact Statement at **Appendix U**. It is noted that the listing process is yet to be finalised and will be considered in due course.

1.3 Overview of the proposed development

This SSDA seeks consent for the design, construction and operation of the revitalisation of Powerhouse Ultimo at 500 Harris, Ultimo. The application seeks approval for the following development:

- 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 buildings 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 Powerhouse building.
- Construction and use of new museum spaces along the Harris Street frontage and the Macarthur Street frontage, including the following uses:
  - Loading dock and ancillary back of house amenities.
  - Creative industry studios.
- Alterations to the Wran building including an auditorium upgrade and upgrade of exhibition spaces.

- Conservation and adaptive reuse of the existing Ultimo Power House and Ultimo Post Office heritage items for museum purposes.
- 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 alterations fronting Harris Street.
  - A courtyard between the Post Office and Wran Bulling.

1.4 Objectives of the development

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.

1.5 Secretary's requirements

In accordance with Section 4.39 of the EP&A Act, the Secretary of the Department of Planning, Housing, and Infrastructure issued the requirements for the preparation of the EIS on the 20 February 2024. **Appendix A** provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

2.0 Strategic Context

This section identifies key strategic matters relevant to the assessment of the proposal, including the site's features, context, strategic context and other development in the surrounding area. This section also provides an analysis of feasible alternatives that were considered in light of the proposal's objectives.

2.1 Site overview

Powerhouse Ultimo is situated upon the lands of the Gadigal people of the Eora Nation. The site is located at the interface between the suburbs of Ultimo, Pyrmont, Haymarket, and Darling Harbour, and this is reflected in its strategic positioning in relationship to the local pedestrian, active transport, public transport and road network. The site is located at the northern terminus of The Goods Line from Central Station and close to the southern end of Tumbalong Boulevard. Macarthur Street serves as a pedestrian-friendly east-west connection between Ultimo and the southern CBD. Paddy's Markets and Exhibition Centre Light Rail Stations are both located near the site, and bus stops at Harris Street provide access to Central as well as centres including Ryde and Parramatta via Victoria Road.

The site's locational context is shown at **Figure 4** below.

2.1.1 Site Description

The site comprises several allotments all of which are owned by the Trustee of the Museum of Applied Arts and Sciences. These encompass the following, as outlined in **Table 2**.

Table 2 Site Description

Lot/DP	Description	Owner
Lot 1 DP 631345	Ultimo Powerhouse, Harris Street civic space and museum entrance, café and southern carpark	The Trustees of the Museum of Applied Arts and Sciences
Lot 1 DP 781732	Wran Building	
Lot 3 DP 631345	Harris Street civic space and museum entrance	
Lot 37 DP 822345	Harris Street civic space and museum entrance	
Lot 1 DP 770031	Former Ultimo Post Office	

Figure 4 Site plan and key features

Source: Ethos Urban

2.1.2 Restrictions and Covenants

The site is subject to a number of existing easements as detailed in the site survey at **Appendix L**. There are no restrictive covenants registered to the site.

The following easements are likely to be extinguished and/or reshaped at this stage of the project:

- BK1277 – right of way easement that both benefits and burdens the Trustees of the Museum of Applied Arts and Sciences, which is a historical easement from 1922 when the site was under previous ownership. Given this is now redundant, it is likely that it will be removed.
- T738285 – right of way easement to pass over the site benefitting the former State Rail Authority of NSW and its successors, which related to the former monorail line that connected with the site. Given the monorail no longer passes through the site, it is likely that this easement will also be removed or reshaped as necessary to align with any new built form and public domain areas on the site.
- DP870306 – an easement enabling the maintenance of the Harwood Building from a neighbouring lot. This easement is likely to be unaffected by the project.

2.2 Key features of site and surrounds

2.2.1 Existing Development

The project site contains several existing buildings that range in architectural style, scale, and significance including:

- The 1988 museum building (Wran Building) fronting Harris Street.
- The 'Ultimo Powerhouse' heritage buildings at Pier Street adjacent to the light rail line.
- The café building immediately to the south of the Powerhouse at the northern end of The Goods Line.
- The 'Former Ultimo Post Office' heritage building at the corner of Harris Street and Pier Street.

There is also the former tram shed (Harwood Building) located to the south of the project site. This building will remain, noting that whilst the Harwood Building is not included in the scope of this project, some minor works may be necessary to upgrade and separate shared building services, decouple operational functions.

A plan of the existing site layout is provided at **Figure 5** below.

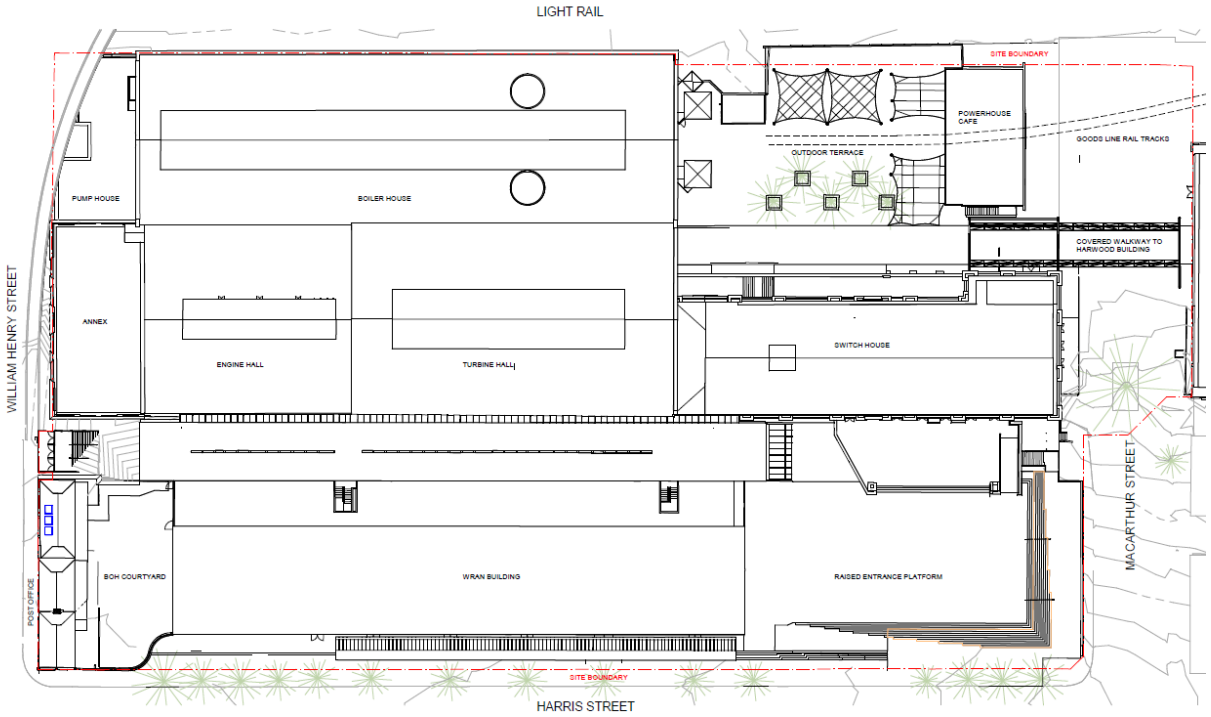


Figure 5 Current project site layout, Harwood Building out of frame

Source: Architectus, DJB

Figure 6 Wran Building and Powerhouse building viewed from Harris Street

Source: Powerhouse Museum

2.2.2 Vegetation

As the site in a highly urbanised environment, there is not extensive existing vegetation within the project boundary. The Arboricultural Report prepared for this application (**Appendix K**) has identified trees located within the project area, which includes 22 trees in total located along Harris Street frontage of the site, within the café courtyard to the south of the Powerhouse building, and on the southern Macarthur Street Road reserve.

There are 22 trees located on or immediately adjacent to the site that have been assessed by the arborist (see **Appendix K**. Trees 1-15 are located within the eastern Harris Street Road reserve (immediately outside the site boundary) and Tree 16 is located within the southern Macarthur Street road reserve. Tree 17 is an in-road planting located at the eastern end of Macarthur Street and Trees 18-22 are located within a courtyard area to the south of the Powerhouse.

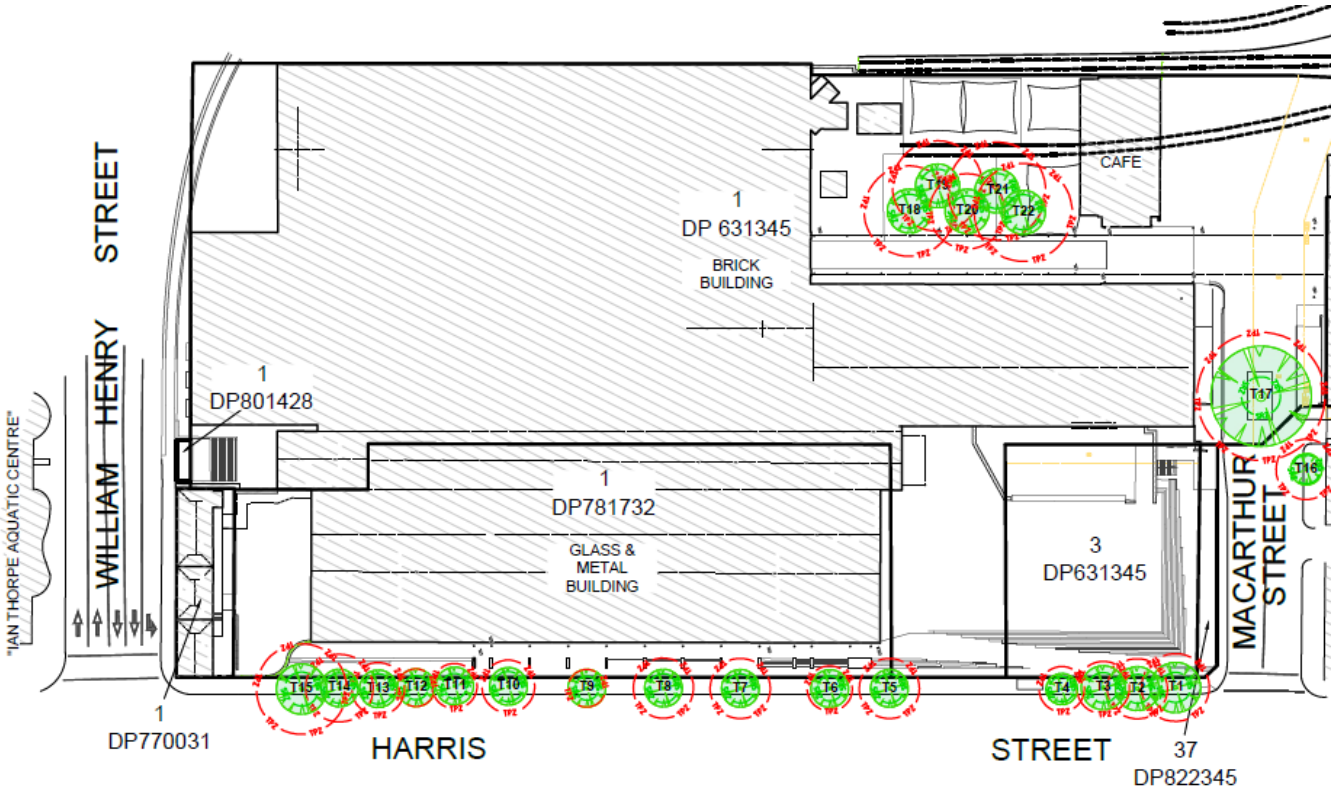


Figure 7 Existing trees on the project site

Source: Tree IQ

2.2.3 Topography

The Powerhouse site is characterised by a complex ground plane in terms of topographic level changes. The topography of the site varies by up to nine metres between Harris Street and The Goods Line meaning that the existing buildings step across the site in response to this slope to form several different floor levels and platforms throughout the site. There is a sharp drop from the eastern edge of the site towards Darling Drive, which is managed through retaining walls and stairs/ramps within The Goods Line.

A site survey detailing the topography of the site is provided at **Appendix M** by LTS.

2.2.4 Heritage

The site contains two 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. These items are also locally listed.

The site is also located in the vicinity of several locally listed heritage items identified under the Sydney LEP including the Glasgow Arms Hotel, groups of terrace-houses along Harris Street and Macarthur Street, the former Millinery House building, former National Cash Register building, and the former Technological Museum/Sydney Technical College building in Harris Street.

The site is not identified as being located within a Heritage Conservation Area; however, it is adjacent to and in the vicinity of the Harris Street Ultimo Conservation Area.

Figure 8 State Heritage listings on the site

Source: Heritage NSW

2.2.5 Transport and accessibility

Vehicle Access

Vehicular access to the site varies for staff and contractors, and for loading and servicing. Staff and contractor parking is accessed via Mary Ann Street and Macarthur Street. Staff parking is provided to the east of the Harwood Building. It is noted that no public parking is provided on the site.

Loading and servicing access is provided via Macarthur Street, with the main loading dock located within the Harwood Building. For large museum deliveries, trucks manoeuvre within the main civic space and museum entrance area at the eastern end of Macarthur Street and reverse into the loading zone of the Harwood building. The vehicle and access arrangements are shown in **Figure 10** below.

Figure 10 Existing vehicle access and arrangements

Source: JMT Consulting

Walking and cycling network

The site is well serviced by several key walking and cycling routes, providing connections to key destinations such as Darling Harbour, Darling Square, Central Sydney, and Central Station. The Goods Line facilitates a continuous connection between the site and Central Station/Railway Square, while a shared path on Darling Drive provides connectivity to Darling Harbour and into Pyrmont. Public bicycle parking is available within the streets surrounding the site.

Public Transport

The site is well connected by a range of public transport services, including:

- Light rail, with stops on both the Inner West, CBD, and Southeast Light Rail line within 800m of the site.
- Heavy rail, with Central Station and Town Hall approximately 10 minutes' walk from the site.
- Bus, with bus stops located on Harris Street immediately adjacent to the site. Railway Square bus terminus is also within walking distance via The Goods Line.

There are also further public transport improvements planned in the surrounding area including the delivery of a new Metro Station at Pyrmont as part of Sydney Metro West line.

Figure 11 Transport connections

Source: John Wardle Architects

2.2.6 Contamination and geotechnical conditions

The site has been historically used for industrial and commercial purposes from the early 1900s, prior to which the use of the site in relation to potentially contaminating activities is not known. Outside of the existing buildings, the majority of the site is surfaced with either concrete or asphalt. As per the Geotechnical Report (**Appendix M**), the western portion of the site is underlain by Hawkesbury Sandstone of Triassic age, whereas the eastern part of the site is underlain by Quaternary Alluvium.

A Detailed Site Investigation (DSI) (**Appendix I**) has been undertaken for the site, which found that across the site, eight metal contaminants were identified in soil and ground water samples above criteria. This is assessed further in **Section 6.11** of the EIS.

2.2.7 Surrounding development

The urban context of the site is characterised by a wide array of land uses, development typologies and architectural styles. There is no consistent street wall height along Harris Street or intersecting local streets, with 2-storey historic terraces sitting in close proximity to more modern 6-8 storey commercial and mixed-use buildings. The recent urban renewal of Darling Square provides a rapid transformation in density and building heights immediately to the east of the site, with a range of 20+ storey buildings.

The context surrounding the site is discussed in more detail below.

North

The site is bordered by William Henry Street / Pier Street to the north, which is a four-lane arterial road connecting Harris Street and Ultimo to southern Central Sydney and Haymarket. The publicly accessible Ian Thorpe Aquatic Centre is located on the northern side of Pier Street. Beyond this is Tumbalong Park and Darling Harbour, which represents the western edge of Central Sydney.

Figure 9 **Harris Street to the north**

Source: Ethos Urban

Figure 10 **Ian Thorpe Aquatic Centre**

Source: Ethos Urban

East

Directly to the east of the site is Urbanest student accommodation, which is an approximately 22 storey building. Further east is Darling Square, which contains high density student and residential accommodation. Beyond this precinct is Haymarket and Chinatown, characterised by commercial, retail and residential development.

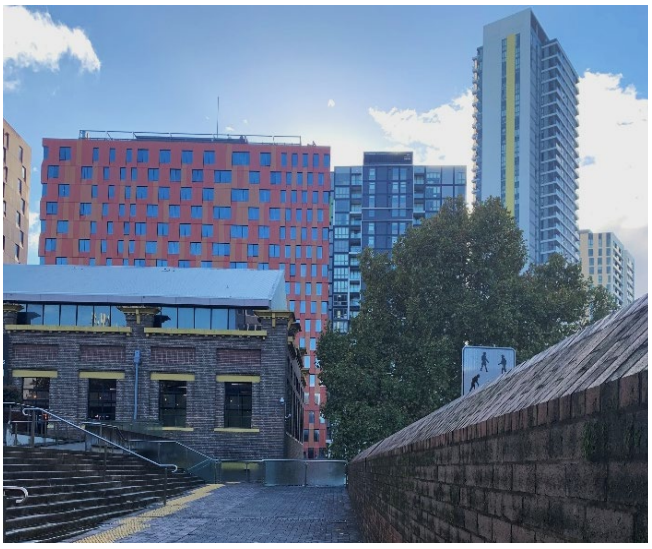


Figure 11 **Urbanest and Darling Square behind the Powerhouse building**

Source: Ethos Urban

Figure 12 **Urbanest and Darling Square behind the Powerhouse building**

Source: Ethos Urban

South

The Goods Line is located directly to the south of the site, connecting the Powerhouse, northern Ultimo and Pyrmont with Central Station and the University of Technology Sydney UTS). The Goods Line is a pedestrianised park and walking track along an old train track and is not accessible by vehicle. Several UTS education buildings are located along The Goods Line, including the Dr Chau Chak Wing Building designed by Frank Gehry. Harris Street is parallel to The Goods Line and runs to the south-east of the site, connecting Pyrmont to Central Station. Further south of the site is Central Station, the Central Park precinct and Chippendale.

West

Directly to the west of the site is the suburb of Ultimo, which is characterised by a mix of medium density residential, educational uses and commercial uses. Beyond this is Wentworth Park, the suburb of Glebe and Broadway. This area is characterised by a mix of residential, education and commercial uses, and contains Broadway Shopping Centre and University of Sydney.

Figure 13 **Western side of Harris Street**

Source: Ethos Urban

Figure 14 **Residential Street to the west of the site**

Source: Ethos Urban

2.3 Strategic planning context

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in Table 3.

Table 3 Strategic Planning Context

Instrument/Strategy	Comments
Greater Sydney Region Plan and Eastern City District Plan	The Powerhouse Ultimo Revitalisation is closely aligned with the key strategic principles and vision outlined for the Eastern City in the Region and District Plans. Powerhouse Ultimo sits at the heart of a planned 'Innovation Corridor' spanning from The Bays Precinct through Pyrmont-Central and up to Circular Quay, with creative, cultural, and digital industries identified as being critical to supporting the innovation ecosystem. The site also sits at the edge of the Camperdown-Ultimo Collaboration Area, which highlights the need to create a walkable precinct with a vibrant cultural and night-time economy. More generally, the project will closely align with the key priorities identified for the Eastern City by: Contributing towards a more liveable city with high-quality cultural infrastructure to meet the needs of the community, support culturally rich and socially connected communities and support urban renewal to create a place that respects local heritage. Supports a stronger and more competitive Harbour CBD by contributing towards the development of a strong Innovation Corridor that can support innovation and economic growth and supporting the growth of the cultural and tourism sectors. Supports key sustainability principles including the reduction of energy/resource consumption, delivering high quality and resilient public buildings, and protecting the health and water quality of Sydney Harbour
Pyrmont Peninsula Place Strategy	The Powerhouse Ultimo Revitalisation is a key government investment that will support the strategic directions and 'big moves' identified in the Pyrmont Peninsula Place Strategy (PPPS). The site is identified under the PPPS as being capable of change, and the Powerhouse is identified as a significant contributor to the growth of knowledge-based jobs, innovation and creative, cultural and community uses within the Peninsula. The reuse of heritage buildings, enhancement of pedestrian connections and rejuvenation of Harris Street will all be directly supported through the delivery of the project. Subject to further transport, heritage and design advice, the project has the potential to contribute towards the enhancement of The Goods Line as an active transport loop with potential new pedestrian connections.
Ultimo Sub-Precinct Master Plan	The Draft Pyrmont Peninsula Sub-Precinct Master Plans were publicly exhibited between November 2021 and February 2022. The Draft Ultimo Sub Precinct Master Plan supports the

Instrument/Strategy	Comments
	urban renewal of the Ultimo precinct and identifies the important contribution the project will make to creating an innovative, entrepreneurial, and knowledge-based 24-hour precinct. The Pyrmont Peninsula sub-precinct master plans are now finalised. The Sub-Precinct Master Plan encourages conveniently located public transport stops and connections underneath Pier Street which has been addressed through the accessibility to the site via Pier Street which provides an additional access point to the Powerhouse via the light rail. The Sub-Precinct Master Plan. The Sub-Precinct Master Plan seeks to explore ways to support education and create cultural, creative, and commercial opportunities. The proposed design of the project will significantly improve the outcomes for each of these sectors through the proposed building design and the proposed adaptable spaces that can be adjusted to be used for exhibition space or educational space. The proposed design will significantly improve the through site and surrounding site accessibility through the proposed through site links that are accessible to the public as well as through the proposed new access point on Pier Street. This document was finalised in late 2022.
Cultural Infrastructure Plan 2025+ (NSW Government)	The *Cultural Infrastructure Plan 2025+* (the Plan) is the NSW Government's guide for the planning and delivery of cultural infrastructure that will support a thriving and dynamic cultural sector. The Plan will deliver contemporary, relevant world-class infrastructure to strengthen the depth and quality of NSW's cultural sector and provide digital infrastructure and technology that enables all forms of culture to reach wider audiences and create across new mediums. The Cultural Infrastructure Investment Framework within the Plan ensures a strategic, coordinated approach to cultural infrastructure investment in NSW. By making sustainable and fit-for-purpose cultural infrastructure available to all residents, visitors and workers across the state, the NSW Government will contribute to the social, economic, civic, and individual wellbeing of the state and the people in its communities. The delivery of cultural infrastructure is a key part of creating places that bring people together to live, work, visit and do business. The Plan recognises that well-designed cultural infrastructure can have a catalytic effect on places, and when supported by other uses and transport links, it anchors urban renewal and regeneration processes, attracting business and investment. It can transform the functionality and relevance of a place and foster a new and historic identity and character that attracts people and activates the city. The Powerhouse Revitalisation transformative investment will develop a wider Ultimo creative industries precinct that unites existing creative industries workspaces and institutions, including the Tech Central, University of Technology and the ABC. This investment directly supports and aligns with the broader strategic opportunity to transform the Pyrmont Peninsula as identified in the *Pyrmont Peninsula Place Strategy*.
Local Strategic Planning Statement – City Plan 2036 (City of Sydney) LSPS	The Powerhouse Ultimo Revitalisation will directly support the vision and key planning priorities outlined in the City of Sydney's LSPS by supporting excellence in design, contributing to Sydney's profile as Australia's most significant global city with world-renowned cultural infrastructure, and a well-connected city with a facility that supports the desired future character of the Pyrmont/Ultimo village as a highly walkable place. The LSPS identified the Harris Street corridor as making the largest contribution to employment growth outside of the CBD, with 22,000 new jobs over the next 15 years. The LSPS highlights the role that the Innovation Corridor (including Ultimo) will play in delivering the knowledge intensive jobs that will be vital to Sydney's ongoing economic success and global competitiveness. The Powerhouse Ultimo Revitalisation will support this by prioritising space for knowledge-based creative industries and developing relationships with surrounding creative sector stakeholders. The project will make significant positive contributions by improving walkability within and around the site, better activating Harris Street and supporting the creation of great places

Instrument/Strategy	Comments	
	that are vibrant and support activity throughout the day and evening. Ongoing adaptive reuse and conservation of heritage fabric and better articulation of First Nations culture will play an important role in creating a more connected and culturally aware community.	
Better Placed	Better Placed - An Integrated Design Policy for the Built Environment of New South Wales (2017) is a policy produced by the Government Architect NSW (GANSW), which seeks to promote good design and capture our collective aspiration and expectations for the places where we work, live and play. Better Placed includes seven objectives for good design. An assessment against the objectives is provided below.	
	Better fit: contextual, local and in its place	The proposed building is designed to respond to the context surrounding the site, including activating The Goods Line, Harris Street and providing new access from Pier Street to the north. The built form seeks to reveal views to the heritage items on the site, further responding to the locale and context of the site.
	Better performance: sustainable, adaptable and durable	As outlined in **Section 6.9**, the proposed building has been designed to meet a 5 Star Green Star target at minimum. The building has been designed to adapt to the changing needs of the museum and business and will be able to flexibly accommodate changes in spatial needs into the future.
	Better for community: inclusive, connected and diverse	The development provides for increased accessibility and more diverse and flexible spaces within the Powerhouse, to allow for a more diverse range of events and programs to be held on site, therefore improving the breadth of the community who has access to the facilities.
	Better for people: safe, comfortable and liveable	The development is accompanied by a CPTED Report (**Appendix EE**) which has provided design feedback on how to improve the environmental safety of the site, which has been incorporated into the design. Further, the design is focused on providing an accessible and comfortable design that is human, responds to programming needs and flexibly adapts to different uses.
	Better working: functional, efficient and fit for purpose	The proposed built form has been designed to flexibly adapt to the various different uses that may be able to be accommodated on the site, including different museum programs and other ancillary uses. This design makes the building fit for purpose and adaptable to the different uses. Additionally, the ESD Report provided at **Appendix BB** outlines the efficiency and sustainability of the building.
	Better value: creating and adding value	By creating a greater diversity of spaces, both external to the Powerhouse in the public domain, and internally in the form of greater and more useable museum space, the development seeks to improve the value of the site.
	Better look and feel: engaging, inviting and attractive	The proposed development is of high architectural design quality. The proposal has been designed to improve the activation of the frontages surrounding the site, making it engaging, and inviting to those passing by. The built form also demonstrates design excellence as a result of the competitive design process, further improving the attractiveness of the development.

2.4 Cumulative impacts

Table 4 identifies nearby relevant future projects. An assessment of the cumulative impacts associated with these projects are considered under the relevant issue in **Section 6.0**.

Table 4 Surrounding development

Development	Description	Location	Timing / Approval Stage
SSD-7874 Harbourside Shopping Centre Redevelopment	Staged Development Application (Concept Proposal) for a residential apartment tower, non-residential podium envelope and public domain improvements.	2-10 Darling Drive, Darling Harbour Approx. 700 metres from the site	Stage 1 was approved in June 2021. The Stage 2 SSD was approved by the DPHI on December 4, 2023. Since its approval 3 modifications to the project have been sought. Modification 1 was withdrawn and Modification 2 and 3 have been approved. Construction of the project is underway, and it is anticipated that the major phases of construction will occur prior to any works occurring at Powerhouse Ultimo. Coordination may be required prior to the commencement of construction for the Powerhouse Ultimo project (subject to approval) with respect to construction traffic management. This would occur through submission and approval of the final Construction Traffic and Pedestrian Management Plan with the relevant project delivery office within Transport for NSW.
SSD-9978934 Cockle Bay Wharf Mixed Use Development	Construction and use of a 43-storey mixed-use development and land bridge across part of the Western Distributor between Darling Harbour and Darling Park	Cockle Bay, 241-249 Wheat Road, Sydney Approx. 700 metres from the site.	Stage 1 was approved in May 2019. Stage 2 Detailed DA was lodged in October 2021 and is currently being assessed. This project is more progressed than Powerhouse Ultimo in the planning phase. However, Cockle Bay is located one kilometre from the site, and therefore any cumulative construction impacts can be appropriately mitigated due to the distance.
D/2021/251 Dexus-Frasers Central Place Sydney	Demolition of existing office buildings and staged construction of two commercial towers (35 and 37 storeys) containing office and retail uses, basement parking (121 car spaces, end of trip facilities) and loading facilities (48 servicing spaces) with proposed basement connections to the adjoining Atlassian and future “over station development”. Works are proposed to part of Henry Deane Plaza and above the existing Devonshire Street tunnel for an above ground connection to the future 'over station development'. Future detail is to be provided on the low-rise Attractor building that connects to the podium fronting Henry Deane Plaza.	14-18 Lee Street, Haymarket Approx. 750 metres from the site	A DA was lodged with the City of Sydney in March 2021 and has been approved under the grounds of a deferred commencement on October 20, 2022. Given that the project is approved, it is likely to start construction prior to the works of the Powerhouse Ultimo. It should be noted that 14-18 Lee Street is 750m from the site, and accordingly there are unlikely to be any significant cumulative impacts during the construction phase, should these coincide. It is noted that the Framework Construction Pedestrian and Traffic Management Plan for the Central Place development identifies that vehicles may use Pier Street to access that site but would not use Harris Street.
SSD-33258337 TOGA Central	Development of a mixed-use hotel, retail, and commercial	2 & 8A Lee Street, Haymarket	The SEARs were issued on the December 17 2021.

Development	Description	Location	Timing / Approval Stage
	development within the Western Gateway Sub-precinct	Approx. 750 metres from the site	The EIS was lodged on the August 1, 2022, and approval was granted on February 2, 2024. It is unclear as to when construction timing for this development is likely. However, the TOGA development is at least a kilometre from the site, and it is likely that any cumulative impacts from these developments could be appropriately addressed given they are of sufficient distance from the site.
SSD-10405 Atlassian – Office and Hotel Development	Development of a new mixed-use development comprising 'tourist and visitor accommodation' (in the form of a 'backpackers' YHA (Youth Hostel Association) and commercial office space within the tower form. Retail, lobby and food and drink premises at the Lower Ground level and Upper Ground level.	8-10 Lee Street Approx. 750 metres from the site	The detailed DA was approved by the Department on the 15 October 2021. MOD 6 was approved November 2, 2023, to make retail and public art changes. Given that this project is significantly more progressed than the Powerhouse Ultimo revitalisation it is anticipated that the construction of the Atlassian development will occur prior to any works occurring at Powerhouse Ultimo.
Blackwattle Bay State Significant Precinct	A State Significant Precinct (SSP) is currently being planned to facilitate the future redevelopment of Blackwattle Bay.	Blackwattle Bay, Glebe Approx. 650 metres from the site	This represents the statutory planning process for Blackwattle Bay and does not include any proposal for specific construction works. Once the statutory requirements for the SSP are finalised, the redevelopment of Blackwattle Bay will likely begin, in line with the SSP. The Blackwattle Bay State Significant Precinct rezoning was finalised in December 2022. However, as there are no specific development applications lodged for the precinct, it is unclear as to whether there would be any specific cumulative impacts between the renewal of the Powerhouse Ultimo and this development. This will be considered again at the detailed DA phase(s) of that development.
SSD-8925 The New Sydney Fish Market – Stage 2	Construction and operation of a new fish market including land and water-based structures for the use of the site for the fish market including waterfront commercial and tourist facilities and ancillary uses.	1A, 1B and 1C Bridge Road, Glebe 2037 Approx. 650 metres from the site	This SSDA was approved in June 2020 and is currently under construction. Given that this project is significantly more progressed than the Powerhouse Ultimo Revitalisation, it is anticipated that the construction of the Sydney Fish Market development will be completed prior to any works occurring at Powerhouse Ultimo.
SSI-19238057 Sydney Metro West – The Bays to Sydney CBD	Application for tunnelling and major civil construction work between The Bays and the Sydney CBD. This proposal is largely located underground and includes all major civil construction work including station excavation at Pyrmont Station and Hunter Street Station.	Areas within the Inner West and City of Sydney local government areas.	This SSI was lodged in November 2021 and was approved on the August 8, 2022. Given that this project is significantly more progressed than the Concept DA, it is anticipated that the civil works associated with the Sydney Metro West development will occur prior to any works occurring at Powerhouse Ultimo. Whilst no application has been lodged for the Pyrmont Station itself, a station is proposed to be located between Pyrmont Bridge Road and Union Street, Pyrmont, which is approximately one kilometre from the site. Coordination may be required prior to the commencement of

Development	Description	Location	Timing / Approval Stage
			construction for the Powerhouse Ultimo project (subject to approval) with respect to construction traffic management. This would occur through submission and approval of the final Construction Traffic and Pedestrian Management Plan with the relevant project delivery office within Transport for NSW.
UTS Sites 13-15 Indigenous Residential College	Proposal for development of UTS Sites 13-15 to facilitate the development of a c. 18 storey building for indigenous residential accommodation associated with the university.	South-east on block bounded by UTS Gehry Building, Mary Ann Street, Harris Street and Ultimo Rd	No application has been lodged for this project. Given that the planning phase of this project is less progressed than the Powerhouse Ultimo Revitalisation, it is anticipated that the construction of the UTS Site development will occur following any works occurring at Powerhouse Ultimo. Coordination may be required prior to the commencement of construction for the Powerhouse Ultimo project (subject to approval) with respect to construction traffic management. This would occur through submission and approval of the final Construction Traffic and Pedestrian Management Plan with the relevant project delivery office within Transport for NSW.

2.5 Project justification

As detailed in **Section 7.0** of this detailed EIS, the projected is justified in the context of the biophysical, social, and economic environments, as well as the proposals alignment with the objects of the EP&A and other statutory instruments applicable to the site.

2.6 Analysis of alternatives

Three (3) primary options have been considered in responding to the identified strategic need and objectives for the revitalisation of the Powerhouse Ultimo. This includes not undertaking any works on the site, proceeding with an alternative use of the site, and advancing with the proposed revitalisation as detailed in this EIS.

Option 1 – Do Nothing

The 'Do Nothing' scenario comprises the existing Powerhouse Ultimo remaining in-situ. As the existing facility is currently closed, the Do Nothing scenario anticipates its reopening, with no changes to its existing form or use. For the reasons outlined in **Section 1.4**. above, the revitalisation of the Powerhouse Ultimo precinct represents an important investment in cultural infrastructure and the applied arts, sciences and creative industries in NSW and allows for Powerhouse Ultimo to act as a complementary facility to Powerhouse Parramatta, Powerhouse Castle Hill and Sydney Observatory.

Should the facility continue to operate as it has previously operated, ongoing maintenance issues and end of life services and heritage conservation would be required. It is anticipated that the existing facilities would not be fit for purpose to exhibition the Powerhouse collection, with the pressure to find more suitable museum space increasing. Eventually, it is likely that the existing facility would no longer be fit for purpose and a different space would be required to be investigated.

Without the revitalisation of the existing facility, Powerhouse Ultimo will fall behind comparative museum facilities, locally, nationally, and internationally, with Sydney and NSW missing out on major exhibitions, programs and events due to the lack of international standard spaces available. This would include locally produced exhibitions and programs and missed opportunities associated with potential major regional and international exhibitions, program, and events. This would result in the loss of potential social, cultural, and economic opportunities.

Therefore, the 'Do Nothing' approach is not considered to be an acceptable approach for a major public facility such as Powerhouse Ultimo, given the current status of the facility as inadequate for the current and future uses.

Option 2 – Design Competition

The second option available is to deliver on the scheme achieved through the competitive design process previously undertaken. This competitive process was surrendered as the NSW Government revises the scope and funding for the project.

Should this design be pursued, the previous design would have a greater footprint and required greater alterations to the existing buildings on the site.

Therefore, utilising the previous competitive design scheme is not considered an acceptable alternative for the revitalisation of a major public facility such as Powerhouse Ultimo.

Option 3 – Refurbish Existing

The third option available is to refurbish the existing buildings without creating any new built form on the site. This option would involve the existing heritage and non-heritage items undergoing a range of internal alterations that would upgrade some of the existing facilities to be more suited to the future needs of the museum.

This option constrains the potential outcomes able to be achieved on the site and does not meet the space and program utilisation needs of the museum to exhibit the collection. Specifically, Powerhouse requires large, unrestricted exhibition areas that the current buildings, either as they are now or if they were to be modified, cannot accommodate. These large spaces are required to enable flexible use for future exhibitions. The refurbishment of the existing buildings does not accommodate these changes.

Therefore, the 'Refurbish Existing' approach is not considered an acceptable approach for a major public facility such as Powerhouse Ultimo, given the future needs for larger and more flexible exhibition spaces that cannot currently be accommodated within the existing buildings.

Option 4 – Revitalisation

The retention and revitalisation of Powerhouse Ultimo will deliver an international standard museum with new and refurbished spaces for museum operations, exhibitions, programs across the applied arts and applied sciences and associated industry and creative uses that will activate and engage audiences. It will deliver a exhibitions that showcase the Powerhouse Collection, international exclusive exhibitions and programs that support the applied arts, applied sciences and creative industries.

The proposal responds to and seeks to celebrate the important State heritage listed buildings on the site, while providing an adaptable envelope to accommodate. It has been developed through testing and analysis, which included consideration of varying levels of revitalisation, and consultation completed through this process prior to lodgement to inform the outcomes and performance requirements of the museum. The proposal responds to the identified issues constraining visitor circulation and provides clear legible internal circulation that allows for independent operation of exhibition spaces.

Importantly, the proposal will support the revitalisation of the museum spaces for contemporary and flexible use in line with contemporary museum practice and the cultural needs of NSW. Therefore, 'Option 4 – This Proposal' approach represents is the best possible, and preferred option for this site.

3.0 Project description

This chapter describes the proposed development, including the project's disturbance area, detailed layout and design, main uses and activities and other relevant construction and operational details for which approval is sought.

3.1 Project overview

The application seeks approval for the following development:

- 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 buildings 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 Powerhouse building.
- Construction and use of new museum spaces along the Harris Street and Macarthur Street frontages, including the following uses:
  - Loading dock and ancillary back of house amenities.
  - Creative industry studios.
- Alterations to the Wran building including an auditorium upgrade and upgrade of exhibition spaces.
- Conservation and adaptive reuse of the existing Ultimo Power House and Ultimo Post Office heritage items for museum purposes.
- 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 alterations fronting Harris Street.
  - A courtyard between the Post Office and Wran Bulling.

The proposed development is described in greater detail in the following sections and in the Architectural Design Report and accompanying plans have been prepared by Architectus and Durbach Block Jaggers Architects (**Appendix E**).

Table 5 Key Development Information

Component	Proposal
Site area	17,419.3m^2
GFA	15,842.95m^2
FSR	0.91:1 (complies with Sydney LEP)
Maximum Height	Tallest building is RL 45.83 (complies with maximum building envelope and Sydney LEP)
Car spaces	No on-site parking is proposed for visitors
Loading spaces	Five vehicle spaces
Deep Soil Area	7.5% of site area

3.2 Design principles

The following design principles have been developed as the objectives and guidelines for this project:

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 learning 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 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 accessible from The Goods Line and Harris Street 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.

3.2.1 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, it's 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 entrance at to 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.

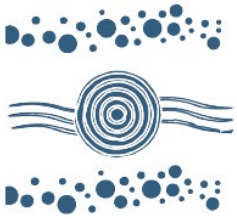
3.3 First Nations and Connecting with Country

The Architectural Design Report prepared by Architectus and Durbach Block Jaggers at **Appendix E** addresses how the proposed revitalisation of the Powerhouse Ultimo incorporates connecting with Country in its proposed design and principles.

The Design Report addresses multiple elements of Country that have been carefully considered and incorporated into the design of the renewed Powerhouse. The principles incorporated into the development as noted in the Design Report are outlined below.

Move with Country

At the heart of Country is people and community, where spirituality is embedded in environmental consciousness.



Water Country

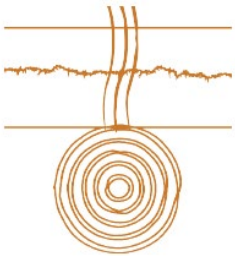
Water Country is the connective tissue, the circulatory system, the confluences, and paths within and between Country. It is the meeting of salt and fresh water, where one drop forms setting a path through Country, connecting with story and landscape.

Sky Country

Sky Country is an important component of ceremony that allows engagement with Aboriginal and Torre Strait Islander ancestors and spiritual beings.

Non-Human Kin

Non-human kin fills the senses with colours, smells and sounds from our kin the animals and plants. This is where we learn about the connection to all living things and our responsibilities and roles within this web of connection.



Deep Country

Deep Country refers to the most ancient of connections to Country. When celebrating and honouring the spiritual beings below our feet and their kin in Sky Country, it represents the extent and connection to Country.

Wind Country

Wind Country varies the messages of seasonal change, the songs and worlds of Aboriginal and Torre Strait Islander ancestors across Country. It is where the landscape and light vibrates to a rhythm, be it the trees and grass, or the clouds.

The revitalised Powerhouse seeks to connect with Country and invites visitors to experience and engage with Country through the reintroduction of the natural landscape. The proposal improves the Powerhouse Ultimo's connection to Country significantly through its building design and landscape.

3.4 Site preparation

Demolition

In preparation for the proposed Powerhouse development, demolition of some existing structures on site is required. The heritage buildings on site will be protected and retained as part of this development, with no heritage fabric impacted as part of the demolition works.

Demolition works includes the Harris Street forecourt, structures in the forecourt entrance at The Goods Line, including the Café and internal demolition of non-heritage elements of the Ultimo Powerhouse building. Partial demolition of the Wran building and its internal structures are also proposed as described below. Some examples of the amount of demolition proposed is shown in **Figure 15** and **Figure 16**.

Table 6 outlines the proposed demolition by level. Detailed demolition plans are provided at **Appendix B**.

Table 6 Demolition Plan by levels

Level	Proposed Demolition Works
Basement 2	• Demolition of minor internal walls and fittings.
Basement 1	• Demolition of internal staircases. • Minor internal demolition of walls.
Ground Level	• Demolition of supporting structures of The Goods Line Terrace. • Internal demolition of mezzanines in the Boiler House, Engine House, Power House and Turbine Hall. • Demolition of internal walls of the Wran Building. Demolition of southern and northern exterior walls of the Wran building.
Level 1	• Demolition of The Goods Line Terrace structures including the café. • Internal demolition of the Turbine Hall, Wran Building and Harris Street forecourt. • Demolition of existing main entrance of the museum.
Level 2	• Demolition of majority of internal walls (contemporary additions only) of the Powerhouse building. • Demolition of selected internal walls in the Wran building. • Demolition of the Harris Street forecourt. • Demolition to internal walls and doors in the Ultimo Post Office.
Level 3	• Demolition of selected internal walls, layouts, stairs and fixtures (contemporary additions only) of the Powerhouse building. • The café/ entrance fixtures. • Demolition of internal walls of the Wran Building as well as demolition of the exterior walls fronting the Harris Street forecourt.
Level 4	• Demolition of selected internal walls, layouts, and fixtures (contemporary additions only) of the Powerhouse building. • Demolition of internals walls of the Wran building as well as demolition of the exterior walls fronting the Harris Street forecourt. • Demolition of shade structures at the café entrance.
Level 5	• Demolition of the Switch House building roof which was a non-heritage addition in 1988. • Demolition of selected internal features (contemporary additions only) in the Powerhouse building. • Partial demolition of the Wran Building roofing and external walls connecting to the Switch House Building.
Roof Plan	• Partial demolition of Wran Building roofing connecting to the Switch House Building.

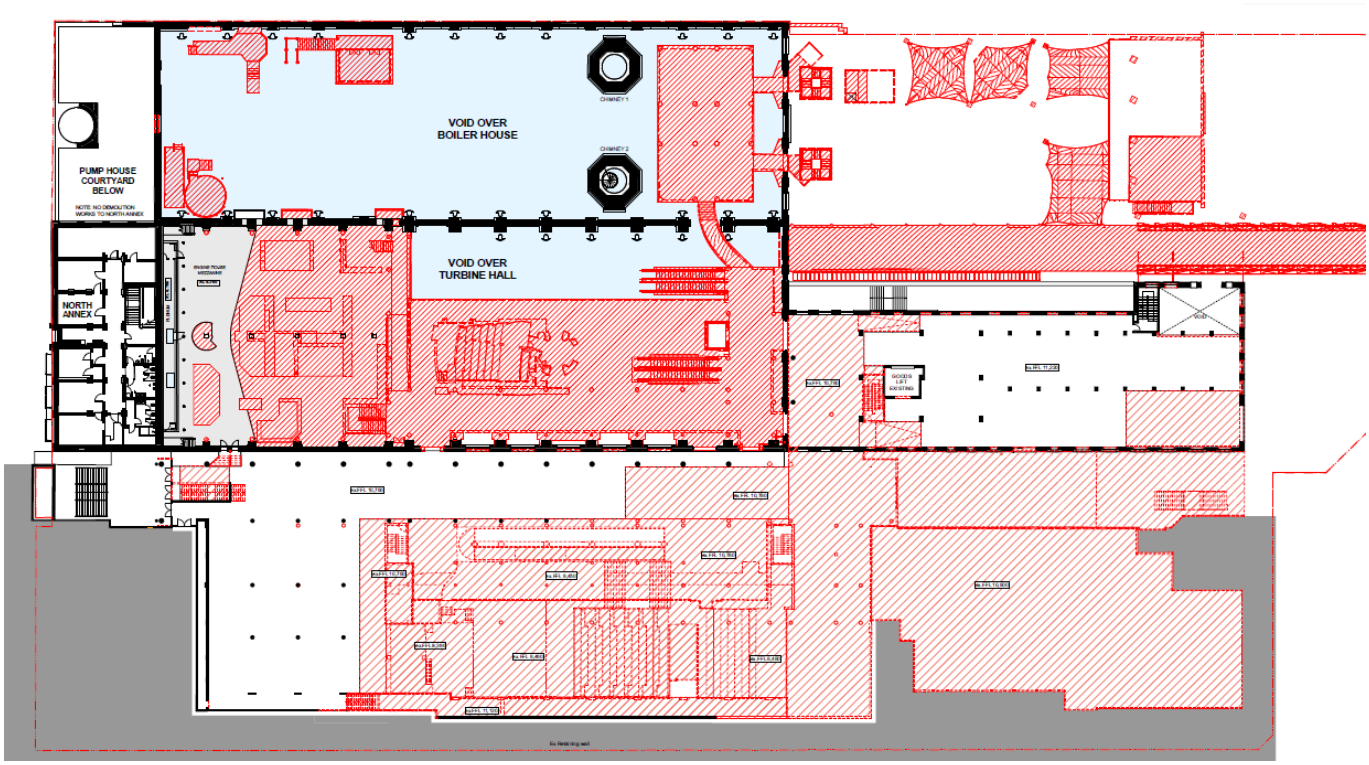


Figure 15 Level 1 Demolition

Source: Architectus and Durbach Block Jagger

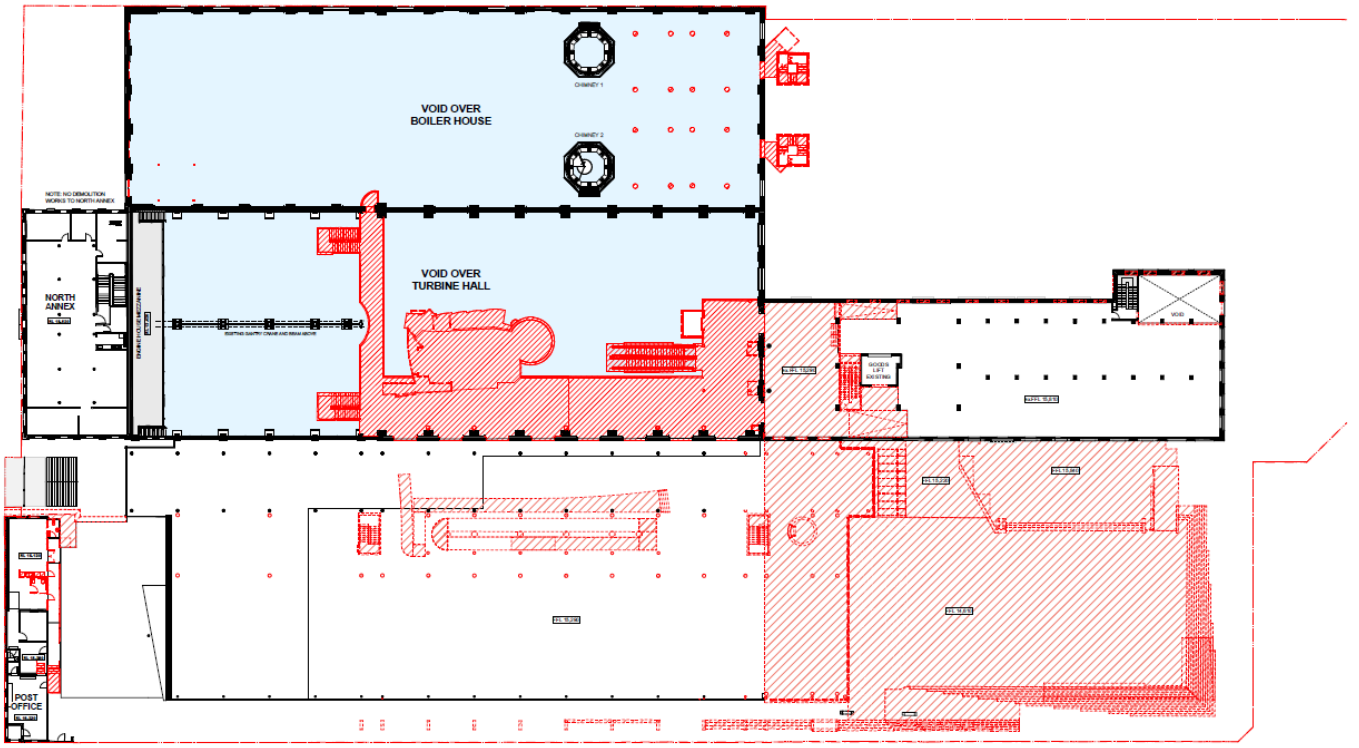


Figure 16 Level 2 Demolition

Source: Architectus and Durbach Block Jagger

Tree protection and removal

Seven trees are proposed to be removed as part of this development application, located in the courtyard area to the south of the existing Powerhouse Building and along Harris Street adjacent to the south-western boundary of the site. These trees have been identified as being more vulnerable to destabilisation through root loss and altered wind loading from changes to the form of surrounding buildings, meaning they have been identified for removal.

Trees 4 and 3, as well as Trees 18- 22 are suggested to be removed as per the Arboricultural Report at **Appendix L**. From a tree management perspective, these trees would be difficult to retain and are likely to become more vulnerable to destabilisation. Tree 16, an existing Water Gum (Tristaniopsis Laurina) and tree 17, an existing London Plane Tree, (Plantus x Acerifolia) are proposed for retention.

The location of the tress to be removed and retained are illustrated in the Public Domain Plans prepared by Tyrell Studio at **Appendix F**, see **Figure 17**.

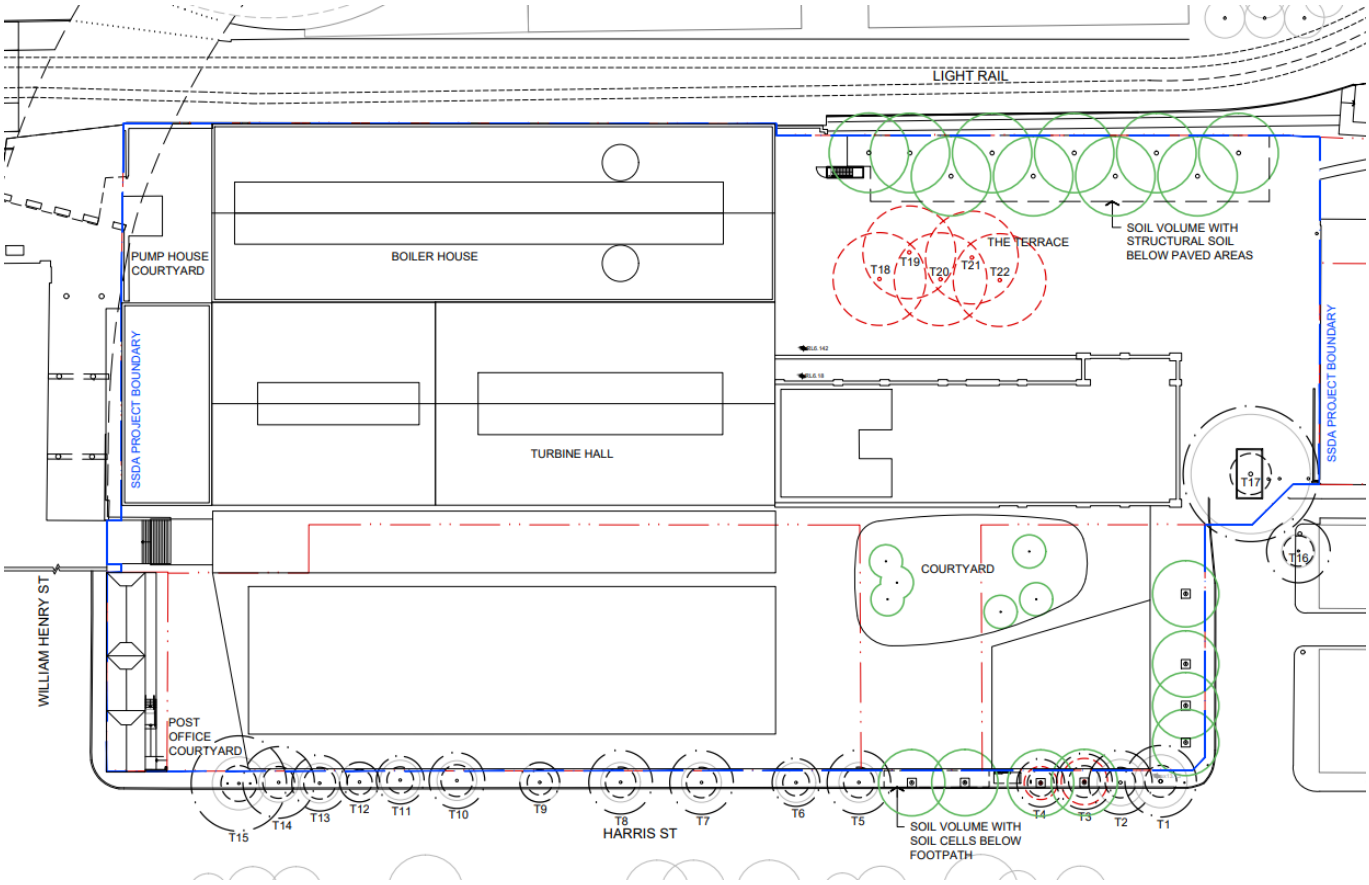


Figure 17 Tree removal and tree retention

Source: Tyrell Studio

3.5 Built form and urban design

The proposed revitalisation of the Powerhouse will be constructed largely within the existing museum footprint, excluding the new building structure in the Harris Street Courtyard. It is proposed to extensively refurbish the non-heritage listed Wran building located in the western portion of the site, with a modest addition along the western boundary of the Wran Building which will redefine the interaction of the Powerhouse site with the Harris Street frontage. The upgraded Wran Building and extension will further provide the museum with a substantial street presence and improved activation.

Smaller built-form interventions within the exterior and interior of the heritage-listed Ultimo Power House and Former Ultimo Post Office buildings will include minor internal demolition, alterations and additions to integrate with the upgrades to the Wran Building.

The breakdown of each of the program spaces is provided in the following sections and demonstrated in **Figure 18**.

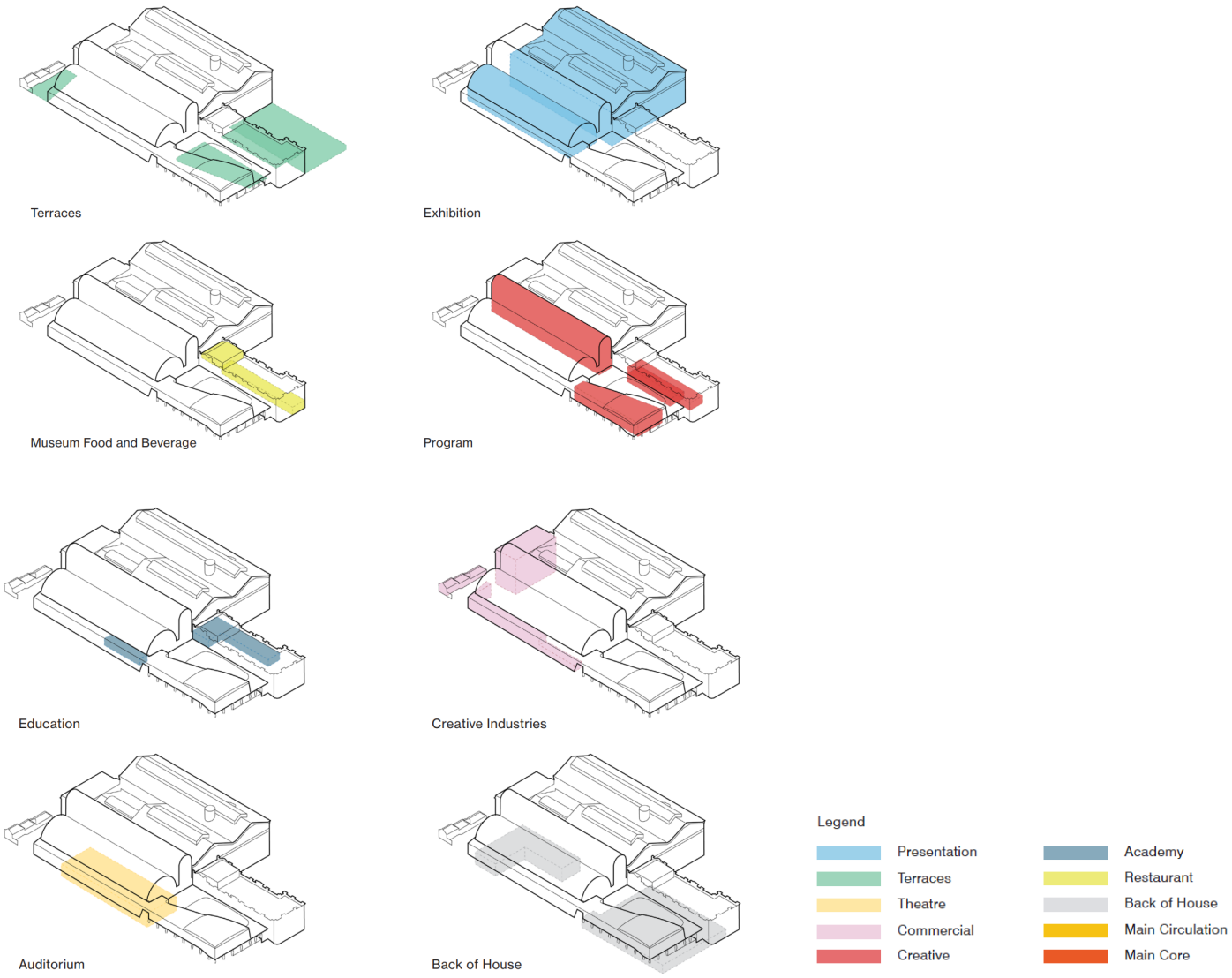


Figure 18 Built Form Breakdown

Source: Architectus and Durbach Block Jagger

3.5.1 Building Design and Uses

Entries

There are multiple entries into the revitalised Powerhouse, as proposed. These multiple entrances each lead visitors to the Concierge. The main entry is located within the Switch House directly adjacent to the Gathering Terrace which visitors can access from The Goods Line or Macarthur Street.

An additional new main entrance will be provided from Harris Street, from which visitors can descend via stairs or lift to the ground floor Concierge. All entries will be accessible during operational hours. A new entrance via William Henry Street will lead visitors to the new courtyard and the Former Ultimo Post Office building.

These entrances are shown in **Figure 19** below.

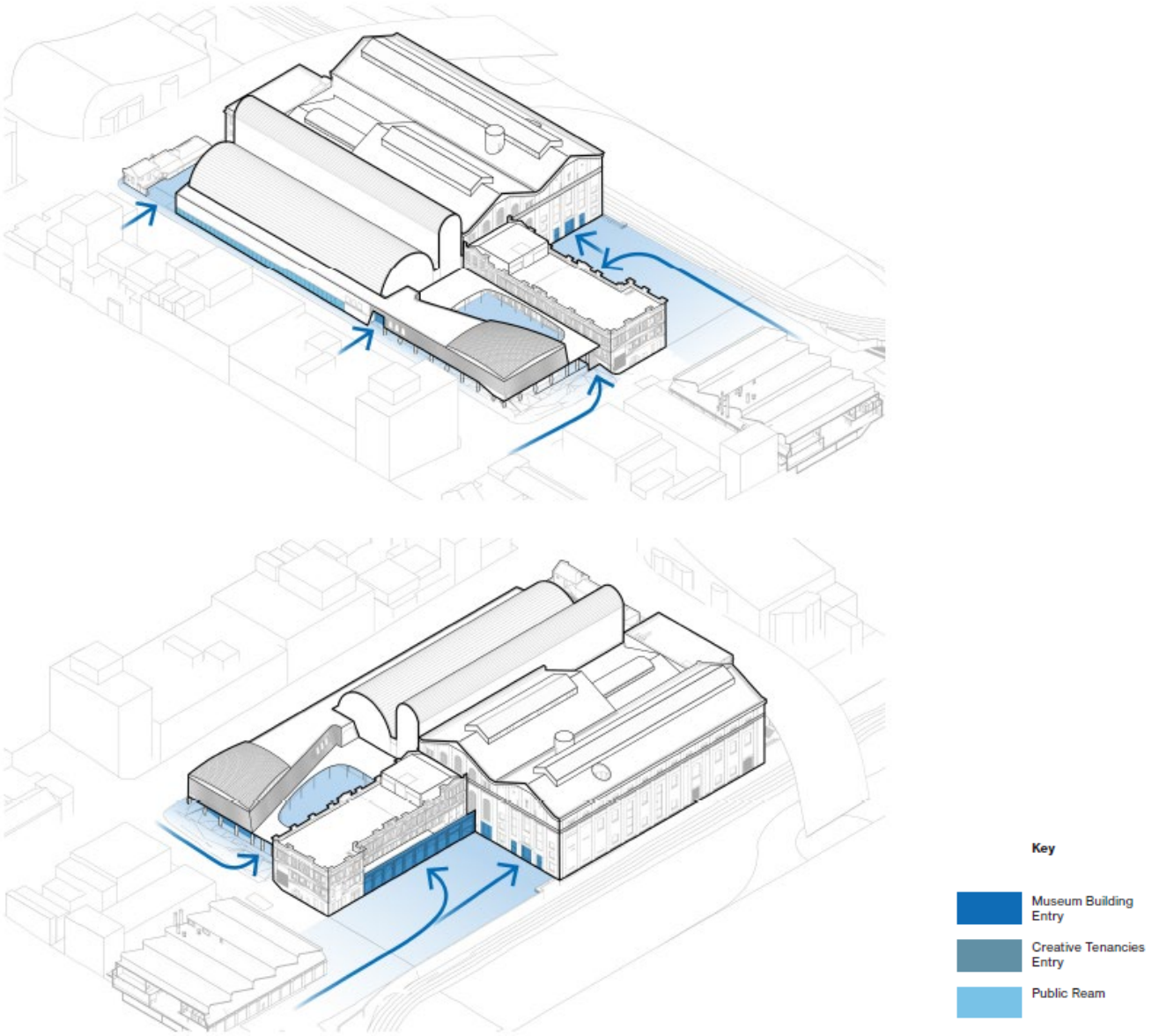


Figure 19 Proposed entrances to the revitalised Powerhouse

Source: Architectus and Durbach Block Jaggers

Terraces and Creative Courtyard

A new terrace is proposed at the Goods Line and will be named the Gathering Terrace. The Gathering Terrace will be the main point of entry to the site and guide visitors to enter via the Switch House. The Gathering Terrace will be a large space for visitors to dwell and can be utilised for events.

In addition to this, a new courtyard is proposed between the new addition to the Wran Building and Switch House, fronting Macarthur Street (see **Figure 20**). The new courtyard will be accessible via Macarthur Street as well as through the new entrance at Harris Street through the new building. The new courtyard is shaped within the structure of the new building to create a protected outdoor space.

A rooftop terrace is proposed on the top level of the Switch House and will overlook views to the Gathering Terrace.

A revitalised Creative Courtyard will be located between the Former Ultimo Post Office and the Wran Building. The Creative Courtyard will be supported from the new William Henry Street entrance as well as a new entrance from Harris Street to create a welcoming, activated space.

Figure 20 New courtyard viewed from Macarthur Street, adjacent to the new building on the left

Source: Architectus and Durbach Block Jaggers

Exhibition Spaces and Auditorium

Exhibition spaces are primarily located on the Gound Floor and Level 1 of the Powerhouse. Exhibition Space 1 is to be located within the Boiler House and will facilitate a full height exhibition space. This space will benefit from exposed heritage fabric, natural light through its restored windows and will be suitable for a range of museum exhibitions. With the removal of later internal mezzanines and interstitial spaces , the heritage elements of the existing buildings is able to be revealed.

Exhibition Space 2 will be located in the Turbine Hall and Engine House. It will feature full height, exposed heritage fabric and like Exhibition Space 1, will be well suited to facilitate a range of museum exhibitions.

Exhibition Space 3 will be formed through combining the two existing auditoriums at the ground level of the Wran Building. Its revitalisation will allow for black box exhibition space functionality and will feature retractable seats to facilitate auditorium utilisation.

Exhibition Space 4 will be located on Level 2 of the new extension component of the revitalised Wran Building at the southern portion of the site. This space will be suitable to support a range of museum uses.

The indicative location of the presentation and exhibition space is shown in **Figure 21**. Renders of Exhibition Space 2 and 3 is provided at **Figure 22**.

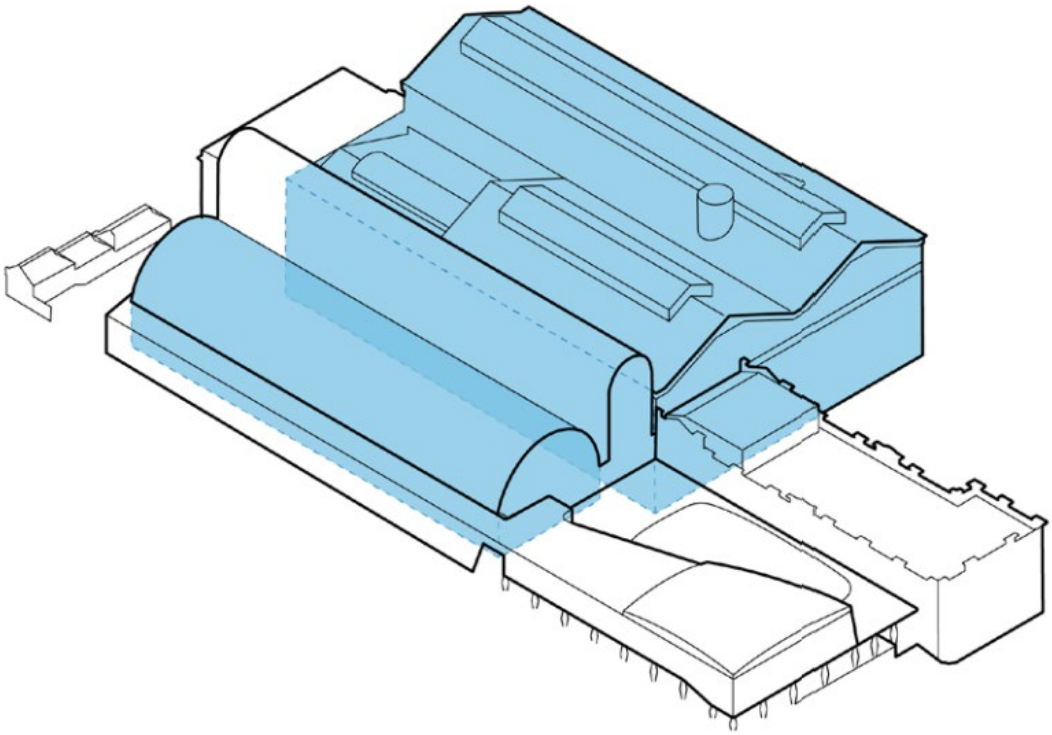


Figure 21 Indicative location of the presentation and exhibition spaces

Source: Architectus and Durbach Block Jaggers

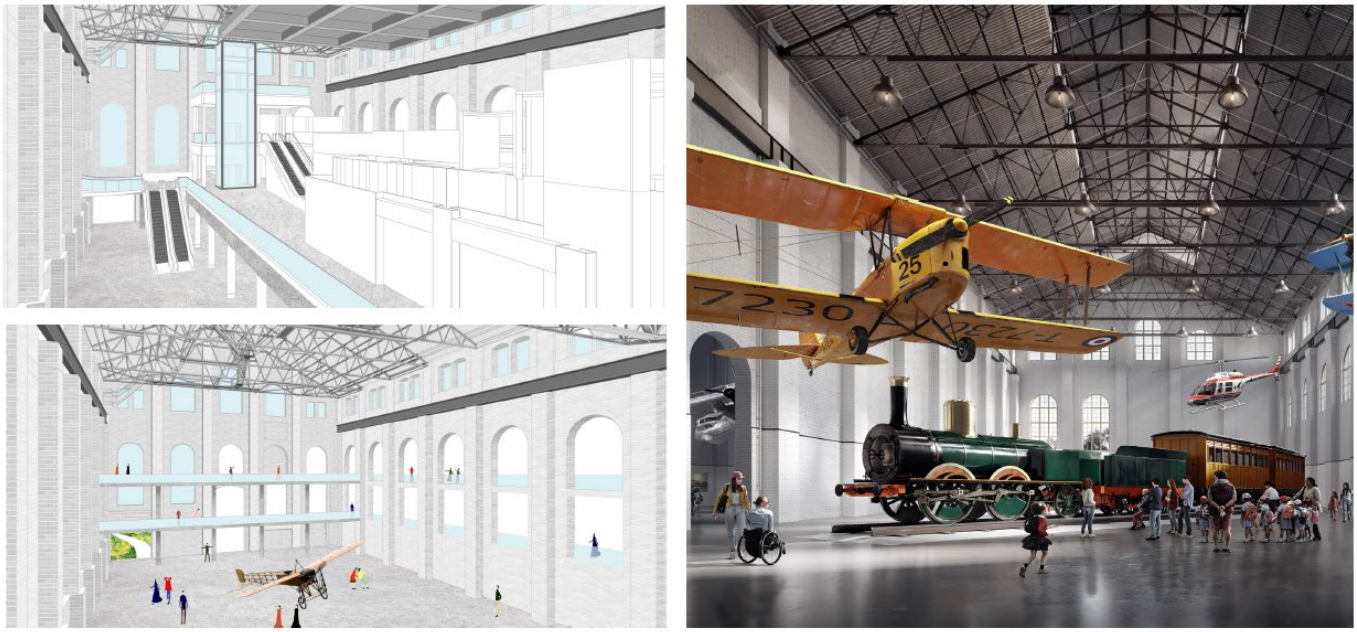


Figure 22 Exhibition space 2

Source: Architectus, Durbach Block Jaggers and Powerhouse Museum

Food and beverage

New food and beverage facilities are proposed at the ground level fronting The Goods Line and expanded public domain entrance. The new cafe will facilitate indoor and outdoor dining areas.

A new rooftop terrace is proposed on the roof of the Switch House.

Creative spaces

The North Annex will continue to accommodate creative industry space. The William Henry Street entrance showcases the proposed creative industry space in Level 2 of the Former Ultimo Post Office. The Former Ultimo Post Office will accommodate a community meeting space on Level 2. The Creative industries spaces will also be located in a shopfront style along Harris Street to active the Harris Street frontage of the revitalised Wran Building.

Learning spaces

The learning and community spaces are proposed to be located within the repurposed Switch House. The Powerhouse Academy and learning spaces will be located within Level 1 of the Switch House.

The Wran extension and museum spaces

The museum uses proposed are to be addition to the Wran Building, along the Harris Street frontage of the site. The new building component will connect to the refurbished Wran Building and re-define the Harris Street frontage. The new building will comprise museum program spaces and a loading dock at lower levels. The new building is aligned with the existing Harris Street Building and will form a consistent building that is prominent yet seamlessly integrated with the existing fabric of the Powerhouse buildings. Glazing will be clear to allow views into the creative shop fronts on Harris Street.

This Wran extension connects into the new Harris Street Courtyard, which is located on the corner of Harris and Macarthur Street.

This proposed extension and courtyard is shown in **Figure 23** and **Figure 24**.

Figure 23 Proposed Wran Building extension viewed from Harris Street

Source: Durbach Block Jaggers

Figure 24 Proposed Harris St Courtyard

Source: Durbach Block Jaggers

Switch House

The Switch House Ground Level is proposed to include colonnaded space for retail, food and beverage that is available for visitors on a day-to-day basis that can be programmed for special events.

Back of house

The back of house areas will be maintained in Basement Level 1 and Basement Level 2. Both basements will be used for back of house and plant purposes. The back of house areas will be facilitated by dedicated back of house corridors to access other parts of the museum. A dedicated loading dock within the museum to improve collection security during exhibition installation and dismantle. There will be clear separation between the waste collection area and exhibition deliveries.

3.5.2 Façade and Materiality

The form of the newly proposed building celebrates the site's original heritage fabric by choosing a red brick, yet modern style façade. The façade is robust and unifies the existing heritage fabric while maintaining a bold modern design to capture the attention of visitors and pedestrians. The façade and materiality is assessed in further detail in **Appendix E**.

The façade responds to the sustainability opportunities of the development. The proposal seeks to reuse materials from the existing buildings on the site. A render of the proposed façade is shown in **Figure 25** below.

The proposed materials and finishes of the development aim to form a building that embraces the existing heritage fabric that will be retained while creating a bold building that makes a statement through the careful choice of neutral-coloured bricks pictured below in **Figure 26**.

Figure 25 Proposed building facade viewed from Harris Street

Source: Architectus and Durbach Block Jagger

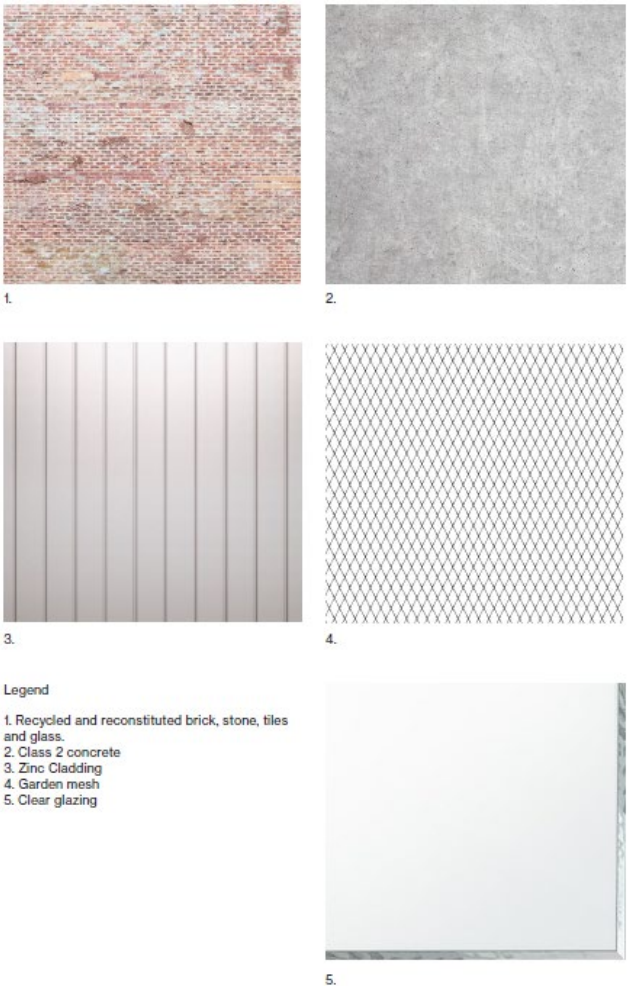


Figure 26 Proposed materials and façade finishes.

Source: Architectus and Durbach Block Jaggers

3.6 Public domain

A Public Domain Report has been prepared by Tyrrell Studio (**Appendix F**), which outlines the delivery of public open space within the site, and its integration with the surrounding network of streets and public spaces. The public domain supports the delivery of a new large scale civic space for passive and active museum programming and community use that facilitates high design quality and integrates seamlessly with the site's surrounds, particularly in respect of the adjacent Ultimo Goods Line.

The design of the public domain is detailed in the Public Domian Plans and Public Domain Report located at **Appendix G** and **Appendix F**. A summary description of the proposed public domain and landscaping on site is included in the following sections.

Lighting

Lighting is proposed throughout the public domain and will provide sufficient lighting in all outdoor areas of the proposal. Lighting is subject to further detailed design and will be developed in accordance with AS4282-1997 'Control of the obtrusive effects of outdoor lighting'.

Connections to the public domain

The proposed development contains three new or enhanced pedestrian access points to the surrounding street network and public domain. The first key entrance is from The Goods Line to the Gathering Terrace in the south-eastern corner of the site, which is a key point of entry into the museum.

The second connection is via Harris Street, where visitors will enter directly from Harris Street on the corner of Macarthur Street. The third entrance is via Macarthur Street, where pedestrians will enter via the Gathering Terrace.

The surrounding connections and key paths of travel are shown in **Figure 27**.

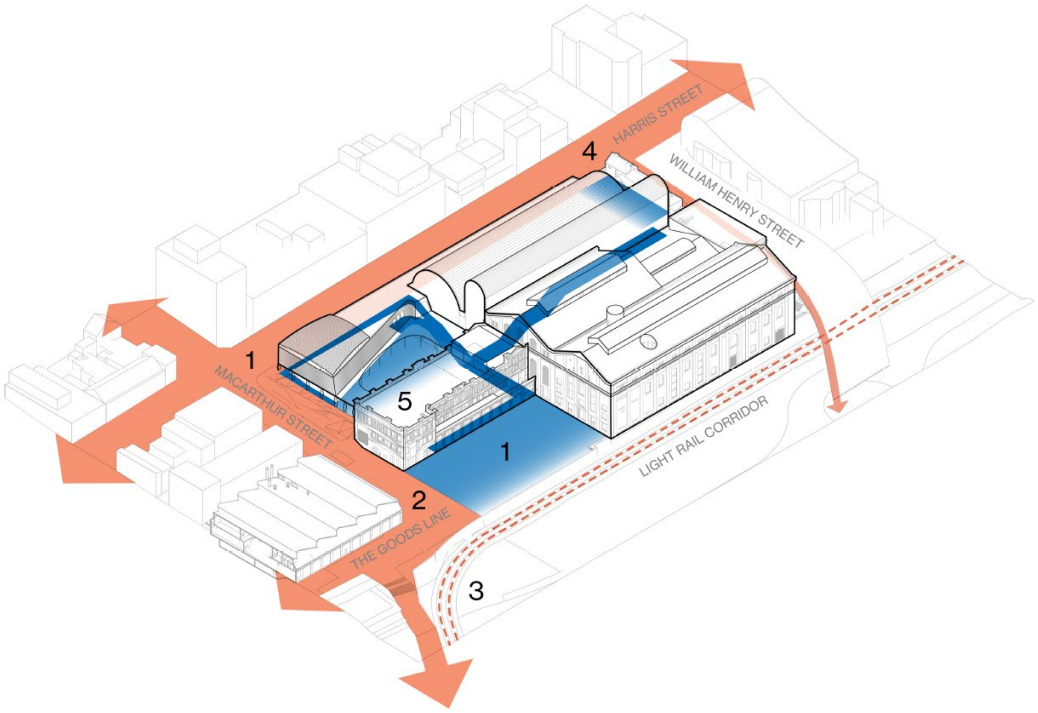


Figure 27 Site connections to public domain

Source: Tyrrell Studio

The Gathering Terrace

The primary area of public open space provided on the site is the Gathering Terrace, which is located at the termination of The Goods Line, see **Figure 28**. This space has an area of approximately 2,000m^2 and is intended to be the main entry point to the museum. The proposed Gathering Terrace is designed to incorporate plants that flourish at different times of the year to provide a seasonally curated landscape. The existing plane trees currently in this location are proposed to be replaced by Angophoras, which will allow increased visibility towards the heritage fabric of the building from the surrounding public domain. The Gathering Terrace will become a space of activity and have improved accessibility to the wider community through its improved connectivity to The Goods Line, Harris Street and Macarthur Street.

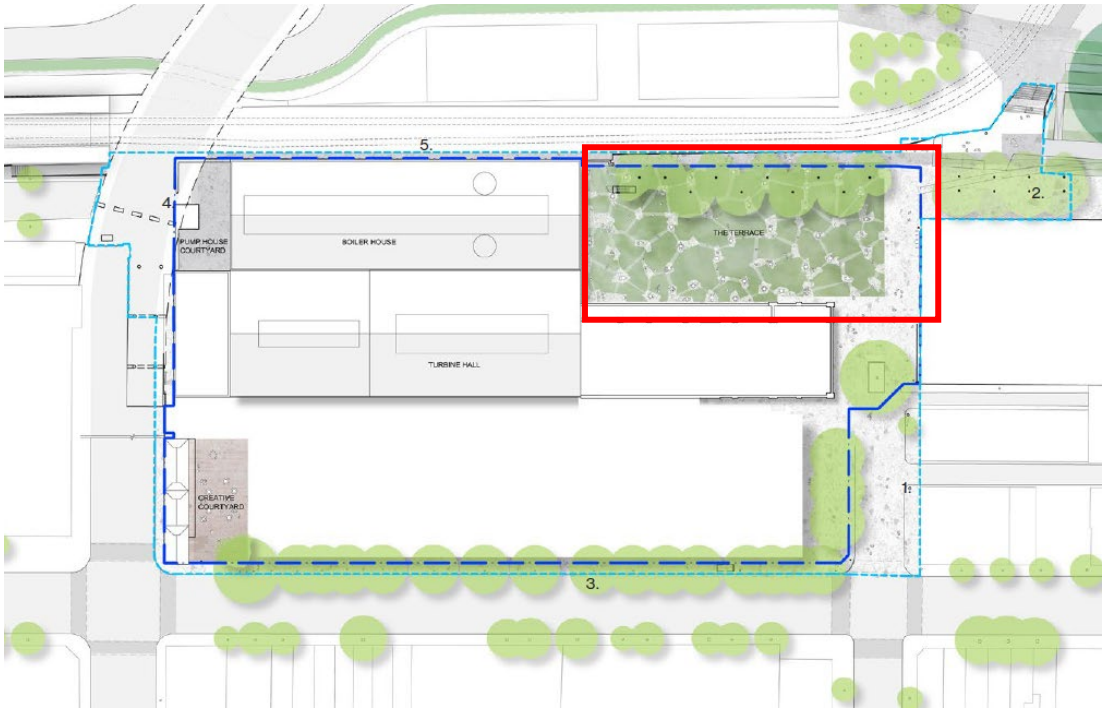


Figure 28 Proposed Gathering Terrace, outlined in red

Source: Tyrrell Studio

Macarthur Street Frontage

In conjunction with the building extension proposed along Harris Street and the corner of Macarthur Street, a number of landscaping works are proposed to activate and upgrade Macarthur Street. Two existing trees along Harris Street will be required to be removed and are proposed to be replaced with six new trees. The Macarthur Street frontage is shown in **Figure 29** below.

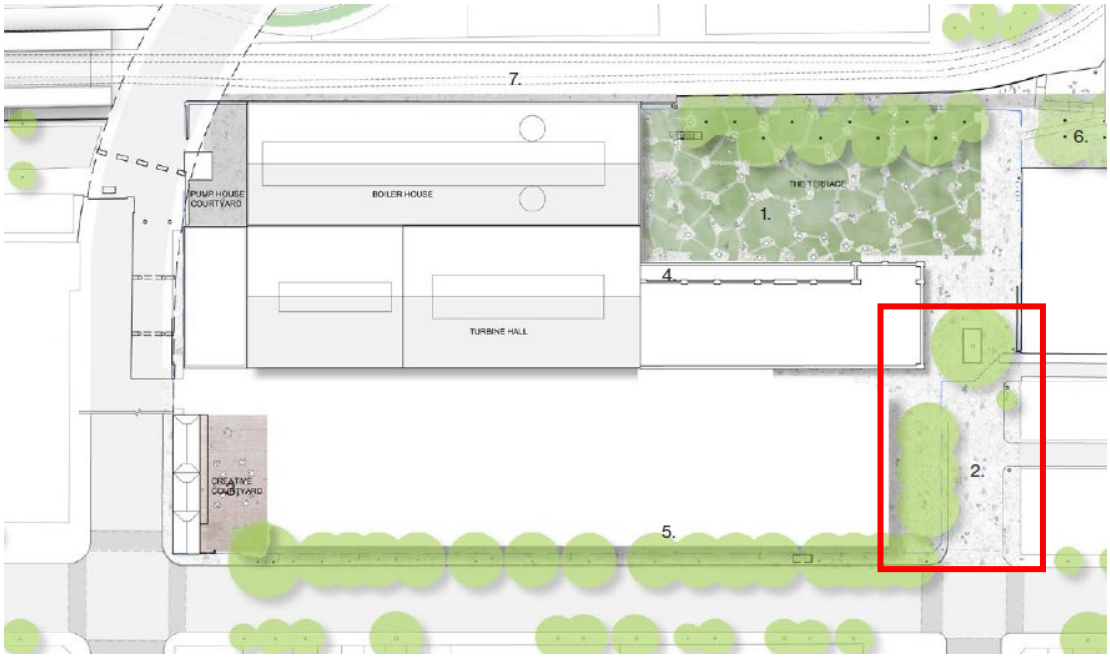


Figure 29 Macarthur Street

Source: Tyrrell Studio

Post Office Courtyard

The adaptive reuse of the Former Ultimo Post Office Building provides an opportunity to make a new public space accessible from the site's Harris Street frontage. The existing private courtyard located to the south of the Post Office Building is proposed to be repurposed as a new courtyard and made accessible to visitors of the museum. The identified heritage significant components of the Ultimo Post Office will be retained, including the heritage significant veranda.

The courtyard is proposed to be lit appropriately for use during both the day and evening, to support safe and active use of the space. New trees will be planted in this space, and the trees and key heritage façades will be highlighted using lighting. The Post Office Courtyard is outlined in red in **Figure 30**.

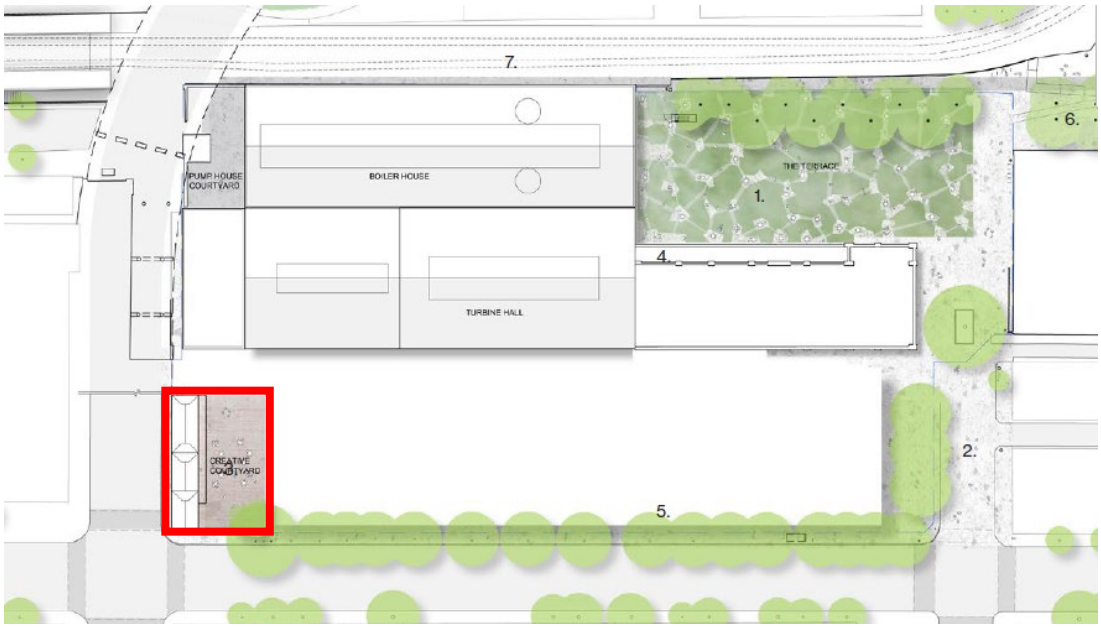


Figure 30 Post Office Courtyard connection to Powerhouse buildings

Source: Tyrrell Studio

Pump House Courtyard

The Pump House Courtyard refers to a small pocket of open space located in the north-east corner of the site, behind the Ultimo Power House Building and below the level of Pier Street as shown in **Figure 31**. The Pump House Courtyard seeks to establish a direct connection from Pier Street to the north into the Powerhouse Museum. This connection aims to create an additional access point and will provide a connection from the Light Rail stop to the Powerhouse.

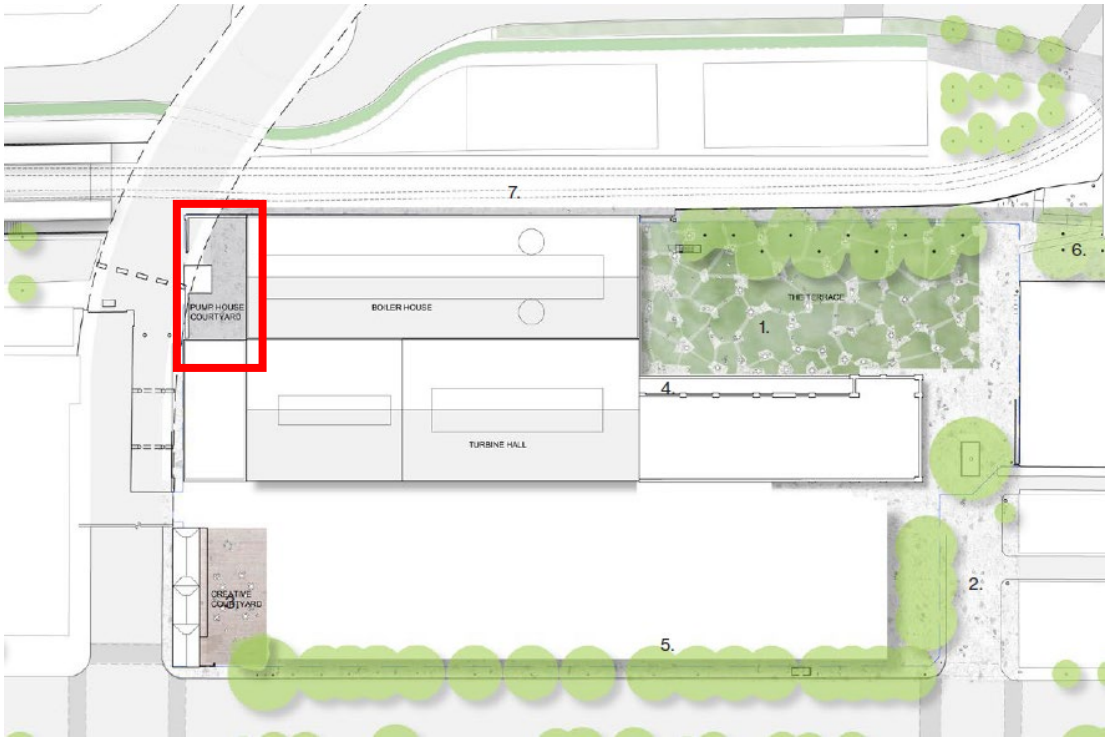


Figure 31 Pump House Courtyard

Source: Tyrrell Studio

3.7 Land use and operation

This application seeks consent for the redevelopment of the site primarily for the purposes of an 'information and education facility', which includes the existing uses of a museum exhibition and education spaces. This primary function will be supported by a range of ancillary and related uses which contribute to the operation of Powerhouse Ultimo as a new day to-night cultural and arts destination, including:

- Multiple museum spaces (Exhibition Spaces 1-4), each with dedicated back of house access with direct connection to collections and the goods lift. Each museum space has bold entrances to guide visitors to the museum spaces. Exhibition space 1 and 2 have full ceiling heights to cater to larger exhibitions that require a taller ceiling height. These spaces will positively contribute to the nighttime economy in the precinct.
- Learning and community spaces have been carefully placed to optimise engagement with the public realm. Each learning and community space has integrated natural ventilation, natural sunlight with high quality acoustics and technology. These spaces will typically operate between business hours.
- The creative industry spaces are located along the William Henry Street frontage and along the Harris Street frontage of the site (as discussed in **Section 3.5**). These spaces are proposed to be used in collaboration with creative industry workers and will be leased to creative industry workers as creative retail spaces. These areas will typically operate between business hours.
- The loading dock and back of house area located at Level 1 and within Basement Level 1 and 2 is accessible to delivery vehicles on the northern side of Macarthur Street. A service corridor is proposed to be provided and will allow goods to be transported between the loading dock and Switch House. A goods lift then allows goods to be transported throughout the upper levels of the building. These spaces will be typically operating between 6am and midnight.
- The Powerhouse offices are proposed to be located within Level 1 of the Switch House. The office space will typically operate between business hours.

3.7.1 Operation details

- The Powerhouse currently facilitates up to 800,000 visitors per annum. The revitalisation will result in an increase in 1,200,00 visitors totalling to 2,000,000 visitors per annum.
- The proposed hours of operation are 7am to 12pm, daily.
- No events will occur in the outdoor areas of the Powerhouse.

3.8 Parking, access and movement

Private vehicle parking

No vehicle parking for visitors or staff will be provided on the site. A Green Travel plan has been prepared to assist staff in understanding and accessing the numerous public and active transport options available to the site as well as nearby off-site public parking.

Access, loading and servicing

A new vehicle access point for loading/servicing is proposed on the northern side of Macarthur Street which has been designed to accommodate up to an 8.8 metre long and 3.5-metre-high vehicle. A 3.5 metre height clearance provides flexibility for a large range of Small Rigid Vehicles (SRV) Medium Rigid Vehicles (MRV) to access the site. The loading dock can accommodate up to five vehicles at one time including three MRV and two SRV. The vehicle swept path is illustrated in **Figure 32**.

A service corridor is proposed to be provided and will allow goods to be transported between the loading dock and Switch House. A goods lift then allows goods to be transported throughout the upper levels of the building. The proposed access point allows vehicles to enter and exit the site in a forward direction in accordance with the City of Sydney's policy for new development. The loading dock will be supervised by a loading dock manager.

Large delivery trucks (semi-trailers) that are up to 19 metres long may be required to access the site from time-to-time to access exhibition spaces. Large delivery trucks of this size will be required to drive into the forecourt area of Macarthur Street and reverse back into the site adjacent to the Boiler House. All large deliveries will be required to be pre-booked with Museum staff and are required to take place outside of museum operation hours and under the supervision of on-site personnel and traffic controllers. These deliveries are expected to be infrequent.

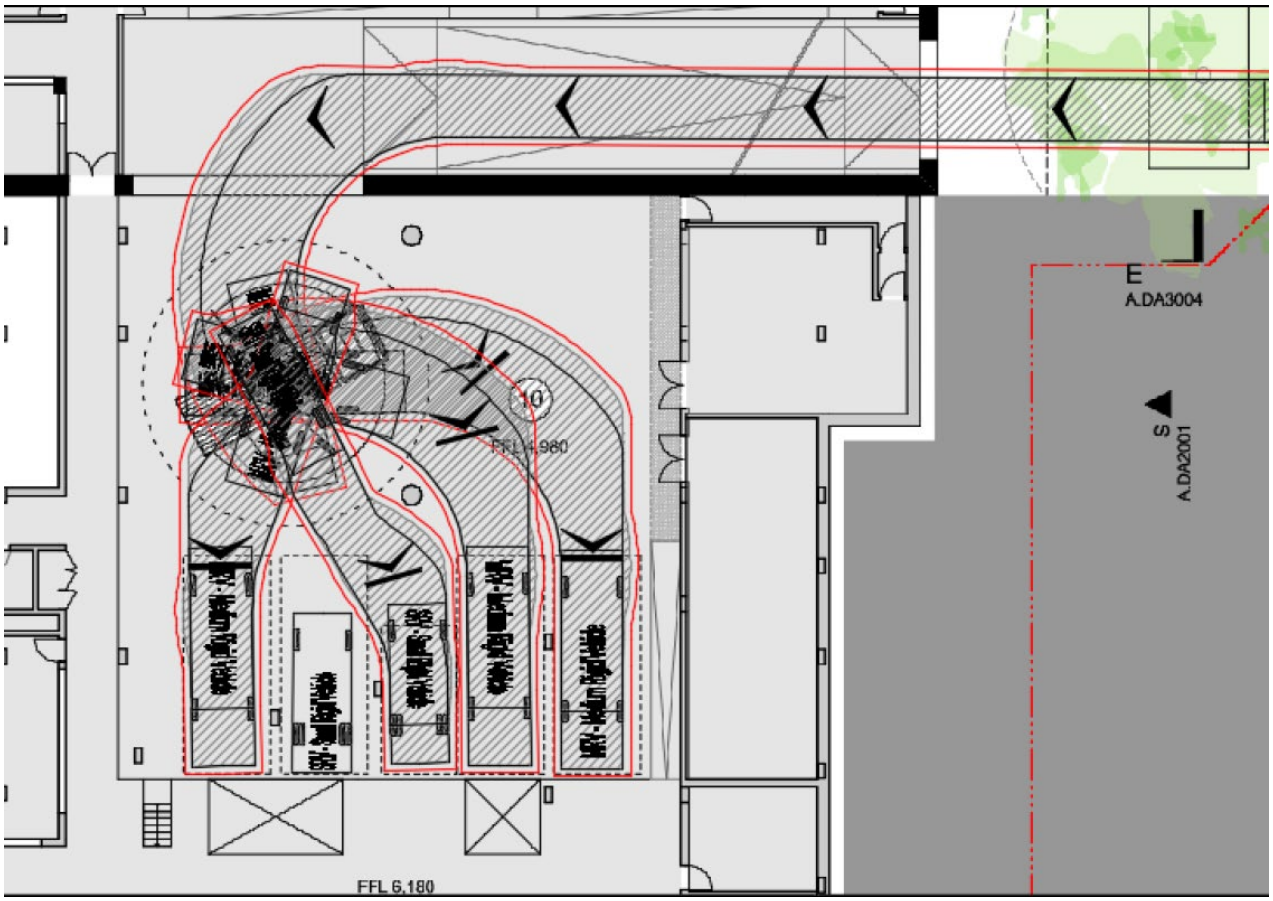


Figure 32 Vehicle swept path analysis – loading dock

Source: JMT Consulting

Bicycle parking and access

Public bicycle racks are proposed within the public domain, complementing the existing public bicycle parking in the surrounding area along The Goods Line. Secure staff bicycle parking located in a secure (lockable) area. The secure staff bicycle parking area accommodates for 20 bicycles in line with the requirements identified in the Transport Assessment (**Appendix H**) discussed further in **Section 6.3**.

Pedestrian access

The site is surrounded by a strong public transport network that connects pedestrians and public transport users to major public transport routes and hubs. The revitalisation of Powerhouse Ultimo considers pedestrian access in the design and ensures improved pedestrian access at the edges of the block as well as through providing through site pedestrian access.

The key pedestrian access points connecting the site to the broader public domain include:

- The Goods Line and the main entrance into the museum via the Gathering Terrace.
- The Harris Street Entry.
- The Macarthur Street area, guiding pedestrians between Harris Street and the Gathering Terrace.
- Access from Pier Street.

Pyrmont Street entry below Pier Street

The proposed layout changes result in a new entry point from Pier Street, adjacent to the Exhibition Centre light rail stop. The new connection extends from Pyrmont Street, providing a secondary public entry to the museum from the north, or a stair and accessible lift that can connect pedestrians via the Post Office Courtyard up to Harris Street. This entrance will be closed after operating hours of the museum.

Coaches

The proposal seeks to retain the existing coach pick up and drop off facilities located on the eastern side of Harris Street. This area can accommodate up to four coaches at any one time which is consistent with the current and future needs of the Powerhouse Museum. The area is approximately 75 metres long and available for use between 10am and 3pm from Monday to Friday and 9am-5pm on Saturday. Given coaches are allowed to use the space for up to 15 minutes, the zone can cater for a maximum of 16 coaches per hour. The site is also within immediate walking distance of the existing coach layover area on Darling Drive to the south-east.

3.9 Sustainability

The ESD Report is provided at **Appendix BB**. The proposal is designed to achieve a minimum 5 Star Green Star rating, with a target to achieve a 6 Star Green Star rating. Efforts will be focused on ambitious, meaningful and practical initiatives including:

- Retaining heritage assets.
- Photovoltaic cells.
- 100% renewable energy from the grid.
- High performance heating, ventilation, and air conditioning (HVAC) systems and heat recovery ventilation to minimise energy demand.
- The Powerhouse Ultimo will continue to use sea water heat rejection, significantly reducing water consumption from cooling towers and energy loads for cooling. Upon completion the project will be procuring 100% renewable electrical energy, significantly reducing to operational carbon emissions of the project.
- The proposal is targeting a 45% reduction in potable water compared with an equivalent code compliant reference building.
- Rainwater catchment will be utilised for irrigation.

The proposal seeks to meet and exceed the National Construction Code (NCC) through the building design. The proposed development has been registered with the Green Building Council of Australia and is set to achieve a minimum of a 5 Star Green Buildings Rating and is aiming to achieve a 6 Star Green Star Buildings v1 Rating. The Green Star Buildings Rating assesses buildings through categories including Responsible, Healthy, Resilient, Positive, Places, People, Nature, and Leadership. An assessment of the ESD principles is provided at **Section 6.9**.

3.10 Waste management

The operational waste generated by the revitalised Powerhouse Ultimo will be managed in accordance with the Operational Waste Management Plan developed by Foresight Environmental (**Appendix N**). During operation, staff will be responsible for back of house bin waste management. Following each operational day, staff or cleaners will transport waste and recyclable materials to the waste room using the lift and separate the waste into the appropriate collection bins which will be located on the Ground Level.

A private waste collection contactor will be engaged to collect the waste, recycling, and food waste as per an agreed schedule. The waste vehicle will enter the site via Macarthur Street and drive down the loading dock driveway and onto the loading bay turn table where it will there be able to be turned. This way, the rear of the vehicle will face the waste storage areas. The waste contractor will then be able to collect the bins directly from the main storage waste room, empty and return to the waste storage room.

When collecting skip bins, the Hook Truck will enter onto the loading dock turntable the same way as above, turned so that the rear of the vehicle faces the waste storage areas and then reverse as far as needed to be able to hook skip bins safely. To exit, all trucks will drive forward onto the turntable and be turned to effectively drive back up the loading dock driveway and exit back onto Macarthur Street.

3.11 Water cycle management

The Flood Risk and Storm Water Civil Report prepared by Arup (**Appendix O**) details the proposed water cycle and management works to support the proposed development. This includes a proposed stormwater system that is in accordance with the City of Sydney Stormwater design requirements.

Stormwater servicing

The site is adequately serviced by Sydney Water stormwater infrastructure, the proposed GFA is within the proposed building envelopes and will therefore have no impact on the existing capacity of the Sydney Water stormwater assets as the existing site is fully developed.

Stormwater management plan

No change will be made to impermeable areas across the site, the existing storm water infrastructure will be utilised, as such there is no limitations that will affect the built form design of the proposal.

3.12 Utilities and services

To support the operation of the development, it is proposed to relocate, alter or augment infrastructure for the site including stormwater, sewer, water, gas and communications which will be subject to further discussions and approval from the relevant asset owners and authorities. The site Infrastructure Management Strategies at **Appendix P** and **Appendix Q** identify the following works:

- Water – It is envisaged that two new connections will be required. A new 80mm to 100mm incoming water supply connection will be required to provide domestic cold water service to the development. It is proposed that the new connection will be via the 300mm cast iron cement-lined water main on Harris Street. A new 150mm incoming water main tapping from the 300mm cast iron cement-lined water main in Harris Street is proposed for the fire water supply to the development. Further survey and discussions with Sydney Water, through a Water Services Coordinator appointed by INSW will be required to determine the full extent of the required works once the building water demands are finalised.
- Sewer – The existing DN150 sewer connection into the 812mm x 1219mm brick sewer main in Railway Line shall be retained to service the development. Consultation with Sydney Water is ongoing to determine whether the expected loads from the Powerhouse revitalisation can be accommodated within the capacity of the existing infrastructure, however, the new loads are not envisaged to increase significantly from the existing loads.
- Gas – The gas demand will be either equal or lesser than that existing within the development. A new incoming gas supply connection will be required to service the development, specifically the for the two 500kW steam boiler units. A new 50mm nylon natural gas connection at 210kPa is expected to extend approximately 45m into the site from the 50mm nylon natural gas connection at 210kPa on Harris Street. Consultation with Jemena is ongoing to determine whether the extension of the gas line from Harris Street to the proposed gas meter room is viable and satisfies all requirements. Connections to the existing Powerhouse Ultimo will be disconnected and removed as part of the early works and site preparation. Once the building gas demand is confirmed, a formal application will be submitted to Jemena to determine the feasibility of connection to their infrastructure and confirm the full existent of the required works.
- Electricity – Two new Campus Distributer rooms and Building Distributer rooms will be established in the development with one lead-in cable services and provision for the second lead-in cable services via physically diverse pathway. Modifications are required to the existing cabling infrastructure including the Lead-In service and the Link to Castel Hill. The works includes diversion of the existing AARNET services from the Main Building to the Harwood Building. This includes some works on telecommunications services in Harris Street.

  It is envisaged that existing network has capacity to serve the new development. Further liaising with NBN and Service Providers during the design phase will confirm details on the required works.
- Telecommunications – New cable connections from the relevant telecommunication service providers including the NBN will reticulate underground to the building in existing and modified infrastructure.
- Infrastructure and Augmentation – Modifications will be made to the existing pumping and heat-exchanger which are not part of the heritage considerations. This will include replacement of the heat-exchangers to newer, but similar units. Similarly, the circulating pumps will be replaced to improve energy efficiency and improve lifetime. The new development may require Catholic Protection earthing studies which will be addressed in the future phase of development. All works and access required shall be in accordance with the requirements of the Roads and Maritime Services (RMS) and TfNSW.

3.13 Construction management

A preliminary Construction Management Plan (CMP) has been prepared by Infrastructure NSW (**Appendix R**) which aims to establish the overarching principles and practices for the management of construction activities during the works for the revitalisation of Powerhouse Ultimo. The CMP establishes site management principles that are to inform the preparation of a detailed Construction Environmental Management Plan which will be required to be prepared by the appointed Contractor prior to the commencement of works.

Hours of work

Site works will be completed between the following hours, which are consistent with the standard construction hours set by the *Interim Construction Noise Guideline* (Environmental Protection Authority).

- Monday to Friday: 7am-6pm
- Saturday 8am-1pm
- No works on Sunday or Public Holidays

Other times outside of the above hours will only occur where approved in writing by the NSW Department of Planning, Housing and Infrastructure due to extenuating circumstances. These may include situations such as:

- Erecting and dismantling tower cranes, services connections.
- Works that would unduly interfere with the surrounding road network if carried out during normal daytime hours, upon the advice of Transport for NSW.
- Works required to address emergency scenarios that pose a risk to environmental or human health and safety.
- Works which are unable for other practical reasons to be completed within the standard working hours.

4.0 Statutory context

4.1 Relevant legislation

Development consent is sought for the project under the State Significant Development provision of the Part 4 of the EP&A Act. Table 7 below outlines an assessment against the projects Key statutory requirements and is further expanded upon at **Appendix C**, which identifies all statutory requirements and where those requirements have been addressed in the EIS.

Table 7 Relevant statutory matters

Matter	Comment
Land Use Definition	The project is defined as an 'information and education facility' under the Sydney Local Environment Plan 2012.
Permissibility	The site is zoned B4 Mixed Use under the Sydney Local Environmental Plan 2012. Information and education facilities are permissible with consent within the B4 zone. The proposed education, retail and food and beverage premises are considered to be incidental and subordinate to the museum use, however, it is noted that each of these uses are also permitted within consent within the zone.
Power to grant consent	**Declaration of State Significant Development** Development consent will be sought under 'Division 4.7 – Stage Significant Development' of the EP&A Act. Section 4.36(2) of the EP&A Act states that "A State environmental planning policy may declare any development, or any class or description of development, to be State significant development." Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021* lists development that is declared State significant development. Section 13 states (emphasis added): *(1) Development that has a capital investment value of more than $30 million for any of the following purposes—* *(a) film production, the television industry or digital or recorded media,* *(b) convention centres and exhibition centres,* *(c) entertainment facilities,* *(d) information and education facilities, including museums and art galleries,* *(e) recreation facilities (major),* *(f) zoos, including animal enclosures, administration and maintenance buildings, and associated facilities.* As the project is for an information and education facility, with a CIV of over $30 million, it is declared State Significant Development. Before a State Significant Development can be determined, it is subject to a comprehensive assessment under the EP&A Act. **Consent Authority** Section 4.5 of the EP&A Act and Section 2.7 of the State Environmental Planning Policy (Planning Systems) 2021 stipulates that the consent authority is the Minister for Planning if an SSDA is made by or on behalf of a public authority. This application is made by the Infrastructure NSW, who is a public authority.
Other Approvals	The following section outlines other legislative approvals required for the project in addition to a development consent under Division 4.7 of the EP&A Act. **Consistent Approvals** Section 4.42 of the EP&A Act stipulates that certain authorisations cannot be refused if they are necessary for carrying out State significant development. The following table lists legislative approvals that are required for the project and cannot be refused if the project is approved.

Act	Approval Required?
Legislation that must be applied consistently	
Fisheries Management Act 1994	No

Matter	Comment	
	Mine Subsidence Compensation Act 1961	No
	Mining Act 1992	No
	Petroleum (Onshore) Act 1991	No
	Protection of the Environment Operations Act 1997	No
	Roads Act 1993	No
	Pipelines Act 1967	No

EPBC Approval

The *Environmental Protection and Biodiversity Act 1999 (Cth)* (EPBC Act) provides a legal framework to protect and manage matters of national environmental significance (MNES), which include nationally and internationally important flora, fauna, ecological communities, and heritage places. These are known as MNES. If the proposed development will, or is likely, to impact a MNES, then it is required to be referred to the Federal Department of the Environment for assessment to determine if it constitutes a 'controlled action' requiring EPBC approval. Presently, a bilateral agreement allows the Commonwealth Minister for the Environment to rely on the NSW environmental assessment process when assessing a controlled action under the EPBC Act.

The project is not likely to impact any MNES. Therefore, the project is not required to be referred to the Federal Department of the Environment to determine if it constitutes a controlled action and the bilateral agreement applies.

Approvals not required for State Significant Development

Section 4.41 of the EP&A Act stipulates that certain authorisations are not required for SSD. The following legislative approvals would otherwise be required if the project was not State significant.

Legislation	Approval Otherwise Required
Legislation that does not apply to State Significant Development	
Fisheries Management Act 1994	No
Heritage Act 1977	Yes
National Parks and Wildlife Act 1974	No
Rural Fires Act 1997	No
Water Management Act 2000	No

Pre-Conditions to Exercising the Power to Grant Consent

The following section identifies pre-conditions to be fulfilled by the consent authority before exercising their power to grant development consent.

Legislation	Pre-Condition
Biodiversity Conservation Act 2016	Section 7.9 (2) of the BC Act requires that an SSD application be accompanied by a Biodiversity Development Assessment Report unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values. The proposed development is subject to a waiver from the requirement to prepare a BDAR in compliance with this pre-condition. This is discussed further at **Section 6.12**.

Matter	Comment	
	State Environmental Planning Policy (Transport and Infrastructure) 2021	Section 2.48 requires the consent authority to give written notice to the electricity supply authority for the area and take into consideration any response to that notice before granting consent to a development likely to affect an electricity transmission or distribution network. This proposed and undertaken engagement with the relevant electrical supply authority is outlined in **Section3.12** and at **Appendix Q**.
	State Environmental Planning Policy (Industry and Employment) 2021	Section 3.6 stipulates that a consent authority must not grant development consent to an application to display signage unless the consent authority is satisfied that the signage is consistent with the objectives of the SEPP, and the signage satisfies the assessment criteria specified in Schedule 1 of the SEPP. It is noted that no signage is proposed as part of this SSDA.
	State Environmental Planning (Resilience and Hazards) 2021	A Detailed Site Investigation has been prepared by JBS&G. The results indicate that remediation or management of contamination is required for the sites development. JBS&G consider the site can be made suitable for the proposed revitalisation of the Powerhouse Ultimo.
Mandatory Matters for Consideration	The following section identifies matters that the consent authority is required to consider in deciding whether to grant consent to any development application.	

Legislation	Matter for Consideration
Environmental Planning & Assessment Act 1979	The proposed development is consistent with the objects of the EP&A Act for the following reasons: • It allows for the orderly economic development of the land for a public use and provides improved cultural facilities that are contemporary and respond to the changing needs of museum spaces. • It allows for additional employment opportunities throughout the construction and operation phases. • It will facilitate ecologically sustainable development. • It will facilitate high quality design outcomes that will benefit future museum users and visitors. • It is a development for public purposes and will facilitate the delivery of community used spaces. The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons: • The development has been declared to have State significance. • The development is not prohibited by an environmental planning instrument. • The development has been evaluated and assessed against the relevant heads of consideration under section 4.15(1), as outlined in this table.
State Environmental Planning Policy (Resilience and Hazards) 2021	Section 3.12 outlines mandatory matters for a consent authority to consider when determining an application for potentially hazardous or offensive development. Chapter 3 applies to any proposals which fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. The works proposed as part of this SSDA do not fall within these definitions, and as such a Preliminary Hazard Analysis is not required. The site is also not adjacent to or on land in a pipeline corridor.
State Environmental Planning Policy (Housing) 2021	The proposed development does not seek consent for residential accommodation.

Matter	Comment		
	State Environmental Planning Policy (Sustainable Buildings)	Because the building involves alterations to an existing building with a cost of development of more than $10 million, the Sustainable Buildings SEPP applies. An Ecologically Sustainable Development Report (ESD) has been prepared for the proposed development at **Appendix BB**. The development will minimise waste from associated demolition and construction through the reuse of building materials. 80% of construction and demolition materials will be recycled by the head contractor. Further, a reduction on the reliance on artificial lighting and mechanical heating and cooling through passive design will be incorporated. The proposed project is targeting a 45% reduction in potable water compared to an equivalent code compliant reference building. A NABERs Embodied Emissions Material form has been prepared by Slattery and is appended to the ESD within **Appendix BB**. The proposed development will be designed to operate as net zero after offsets are made for refrigerant leakage and process load gas use. Solar panels will be installed on the new buildings rood of the creative industries space. The proposed development has been prepared in accordance with the Sustainable Building SEPP which is detailed further in **Appendix BB**.	
	State Environmental Planning Policy (Biodiversity and Conservation) 2021	The site is located within the Sydney Harbour Catchment area under Section 10.10 of the Biodiversity and Conservation SEPP. The proposed development has been designed to have minimal impact on biodiversity, ecology and the environment. Future detailed DAs on the site will be required to consider stormwater and water quality, vegetation on the site and biodiversity and ecology. The site is not located within a close distance of the foreshore, and therefore, it is not anticipated that the development will have any impact on access to the waterfront or foreshore access. The proposal intends to improve pedestrian access and permeability across the site, contributing to pedestrian access to Darling Square, Darling Harbour and the Darling Harbour Foreshore. Further, the project can be comfortably integrated into the site ensuring it will not impact prevailing views of Sydney Harbour or iconic features of the harbour as discussed further in the Visual Impact Assessment accompanying this EIS.	
	Sydney Local Environmental Plan 2012	Clause 2.3 Zone Objectives and Land Use Table	The site is zoned B4 Mixed Use. Development for the purposes of an 'information and education facility' is permissible with consent. The proposal is consistent with the B4 zone objectives as: The revitalisation and enhancement of Powerhouse Ultimo provides a range of spaces and functions including museum, education, and presentation facilities. These will complement surrounding uses, such as existing university and education uses at the University of Technology Sydney, and tourist facilities within Darling Harbour. The site is closely aligned with a variety of public transport options and is highly accessible within walking distance of Central Station, the light rail and numerous bus routes. The adjacent Goods Line also provides highly amenable pedestrian walkways through to Broadway and Central Station. Sustainable and active transport options will continue to be prioritised for Powerhouse Ultimo. The proposed revitalised Powerhouse Ultimo in this location supports the viability of the Ultimo, Pyrmont and Darling Square centres, by providing a mix of uses in close proximity to residential, retail, commercial and education uses.
		Clause 4.3 – Height of Buildings	The maximum permitted height of buildings on the site is 28 metres across the majority of the site, and 6 metres for the Former Post Office at the corner of William Henry Street and Harris Street.

Matter	Comment		
		Clause 4.6 – Exceptions to development standards	The proposed development is compliant is consistent with the maximum permitted height.
		Clause 4.4 – Floor Space Ratio	The maximum floor space ratio (FSR) on the site is 4:1. The proposed development has an FSR of 0.91:1, which therefore complies.
		Clause 5.10 – Heritage Conservation	There are two items of heritage significance on the site, including the locally listed 'Ultimo Powerhouse' buildings and the 'Former Ultimo Post Office including interior'. Beyond the Powerhouse site, there are also a number of locally-listed heritage items mapped in the Sydney LEP in proximity including the Glasgow Arms Hotel, terrace-house groups along Harris St and Macarthur St, the former Millinery House building, former National Cash Register building and the former Technological Museum/Sydney Technical College building in Harris Street. The site is also adjacent to, and in the vicinity of, the Harris Street Ultimo Conservation Area The impacts of the proposed development on heritage-listed items within the sited and surrounds has been addressed through the preparation of a Heritage Impact Statement by Curio Projects (**Appendix U**) and is discussed further at **Section 6.4.**
		Clause 5.21 – Flood Planning	Flooding implications of the proposed works are discussed further at **Section 6.6** and **Appendix O**.
		Clause 6.21C – Design Excellence	Refer to Table 8 for full consideration. The revitalisation works proposed at the Powerhouse have been explored through a considered design process. Specifically, the proposal meets the relevant considerations of design excellence under the Sydney LEP as follows: • The external works proposed respond considerately to the existing heritage context and nature of the surrounding area, including Harris Street and Macarthur Street. • The proposed works will significantly improve the public domain, including along Harris Street and through the provision of new publicly accessible open spaces. • The development will not impact view corridors (refer to further discussion at **Section 6.2.1**). • The development considerately responds to the heritage context of the site through materiality and form. • The design seamlessly resolves vehicular and pedestrian access. • Appropriate landscaping has been incorporated into the design. For this reason, the design is considered to meet the relevant controls of design excellence.
		Clause 6.21D – Competitive design process	A Design Excellence Strategy (**Appendix HH**) has been prepared that details how design excellence will be achieved without a competitive design process being undertaken, noting the scope of the project and the background to the design process. The DES is accompanied by a waiver request in respect of the competitive process required.
		Clause 7.9 – Car parking – Other land uses	Under this clause, information and education facilities are permitted a maximum number of car parking spaces of 1 space

Matter	Comment		
			for every 200 square metres of the gross floor area of the building used for those purposes. This application does not seek to provide any parking for visitors to the site. There remains limited existing staff parking on the site which will not be altered or increased as part of this application. This DA therefore complies with the LEP.
		Clause 7.14 – Acid Sulfate Soils	The site is identified as being affected by Class 5 acid sulfate soils as per the Sydney LEP. Further, the Geotechnical Report at **Appendix M** notes that the site contains natural material deposited in the early Holocene era, currently located at, or under the water table that represents a moderate risk of actual acid sulfate soils (AASS) or potential acid sulfate soils (PASS). Additionally, historic fill material may have undergone oxidisation in the past, if it was sourced from harbour locations and hence represents a low / moderate risk of AASS. This is discussed further at **Section 6.11**.
	Sydney Development Control Plan 2012	Clause 11 of SEPP SRD states that 'Development Control plan... do not apply to... State significant development'. Further, it is noted that Sydney DCP 2012 does not provide specific controls for information and education facilities. Reference to the DCP has been made only if relevant in the technical studies and discussed in the environmental assessment sections.	

Table 8 Clause 6.21 Design Excellence assessment

Clause 6.21 Design Excellence	How matter is addressed
(a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved,	The project demonstrate a high standard of architectural design, materials and detailing that is appropriate to the function and role of the Powerhouse Museum Ultimo within the site and locality, as well as within the cluster of creative industries fostered within the Ultimo-Pyrmont locality. The Architectural Design Report (**Appendix E**) and Architectural Drawings (**Appendix E**) set out clearly the architectural response to the project objectives to ensure that the development will achieve a very high standard of architecture that positively contributes to the locality and the wider form of the Eastern Harbour City.
(b) whether the form and external appearance of the proposed development will improve the quality and amenity of the public domain,	The external form and appearance of the development will significantly enhance the quality and amenity of the public domain, as outlined in the Architectural Design Report (**Appendix E**). In particular, the enhanced activation of Harris Street, aligned with the aims of the Pyrmont Peninsula Place Strategy, with creative industries uses will significantly enhance the activation and appearance of the museum to Harris Street. Likewise, the reorientation of the museum entrance towards The Goods Line will significantly enhance the activation of this space and the presentation of the museum to the public domain. The use of materials will complement and enhance the conservation and restoration of retained heritage and non-heritage building elements to improve the overall external appearance and form of the development.

Clause 6.21 Design Excellence	How matter is addressed
(c) whether the proposed development detrimentally impacts on view corridors,	The proposed development will not impact on any identified view corridors or viewlines, as *identified in the Visual Impact Assessment at **Appendix S**.
(d) how the proposed development addresses the following matters—	Refer below.
(i) the suitability of the land for development,	The site is suitable for the proposed development, being the location of the existing Powerhouse Museum which has a longstanding operational and cultural presence within the Pyrmont-Ultimo locality and containing buildings and key collection items that are aligned with the purpose of the Powerhouse.
(ii) the existing and proposed uses and use mix,	The proposal seeks to leverage off the existing museum uses to provide an enhanced museum function that is aligned with the wider aims and network of facilities operated by the Powerhouse, and to incorporate new functions and capacity within the museum and Powerhouse organisation to contribute more widely to the creative industries cluster within the Ultimo-Pyrmont locality.
(iii) any heritage issues and streetscape constraints,	The proposal responds appropriately to the heritage considerations of this site, as outlined in the Heritage Impact Statement (**Appendix U**) and seeks to enhance the Harris Street streetscape by showcasing the creative industries uses along the key Harris Street movement corridor.
(iv) the location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers, existing or proposed, on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form,	No tower is proposed.
(v) the bulk, massing and modulation of buildings,	The bulk, massing and modulation of the building forms represents a high quality response to the functional requirements of the Powerhouse to deliver presentation volumes that are flexible and adaptable to the requirements of an international-standard museum, whilst ensuring that the form is appropriate to the local context and urban form. Further information is set out in the Architectural Design Statement provided at **Appendix CC**.
(vi) street frontage heights,	The proposed street frontage heights are appropriate and site comfortably within the form and scale of existing street-fronting buildings within the immediate and broader locality, as well as within the desired future character for Harris Street.
(vii) environmental impacts, such as sustainable design, overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity,	The proposed development achieves design excellence with respect to the environmental impacts arising from the development, which are acceptable and able to be managed in an appropriate fashion, as outlined in **Section 6** and in the relevant technical studies which form part of the EIS.
(viii) the achievement of the principles of ecologically sustainable development,	The project achieves the principles of ESD as set out in **Section 7.1** of this EIS. The development has been registered with the Green Building Council of Australia and will achieve a minimum of a 5 Star Green Star Buildings rating with an aspiration to achieve a 6 Star Green Star Buildings v1 Rating. A 5 Star Rating is considered current Australian excellence while a 6 Star Rating is considered current world excellence. The

Clause 6.21 Design Excellence	How matter is addressed
	project will also achieve alignment with the City of Sydney's relevant sustainability policies.
(ix) pedestrian, cycle, vehicular and service access and circulation requirements, including the permeability of any pedestrian network,	The proposal achieves design excellence through the movement strategy for the site, which seeks to ensure efficient and orderly servicing of the museum, promote sustainable travel forms and importantly will significantly enhance the accessibility and permeability of the site and the museum for pedestrians which will facilitate better connections for the community with the museum. Reorienting the museum towards the goods Line and creating new pedestrian access points, along with clearer internal circulation routes, will significantly enhance the integration of the project with local pedestrian movement networks.
(x) the impact on, and any proposed improvements to, the public domain,	The proposed development will facilitate significant enhancements to the public domain as outlined in the Public Domain Report provided at **Appendix F**. In particular, the reorientation of the museum and creation of the enhanced courtyard towards the Ultimo Goods Line significantly enhance and extend the public domain to improve the relationship between the museum and the city. The reactivation of Harris Street through the introduction of new creative industries spaces that directly address the street will also significantly improve the urban quality and liveliness of Harris Street, which is identified as a key corridor in the PPPS.
(xi) the impact on any special character area,	The proposed development will not impact on any special character area, and is directly aligned with the aims and objectives for this locality as outlined in the PPPS Sub-Precinct Master Plan.
(xii) achieving appropriate interfaces at ground level between the building and the public domain,	The proposed development will achieve appropriate and high quality interfaces at ground level to enhance the public domain and deliver a building that demonstrates design excellence. In accordance with the PPPS, the proposed development seeks to reorient the main museum entrance towards the Ultimo Goods Line, making this a key interface for the museum. The development also facilitates improved connections for the museum with Harris Street and Pyrmont Street, in a manner that supports an efficient and clear internal wayfinding network. he reactivation of Harris Street through the introduction of new creative industries spaces that directly address the street will also significantly improve the interface to this key corridor and foster enhanced prominence of the creative industries cluster within Pyrmont-Ultimo along this key movement corridor.
(xiii) excellence and integration of landscape design.	Through the design moves outlined in the Public Domain Report provided at **Appendix F**, the proposed development will achieve excellence in landscape design that creates a series of spaces which enhance public amenity, the user experience within the Powerhouse, and integrate closely with surrounding landscapes. The landscape design has been informed by principles and knowledge imparted through a process of Connecting with Country.

4.2 Surrendered Concept Approval

Under Section 4.24 of the EP&A Act, any detailed application in respect to the site cannot be inconsistent with a Concept SSDA. A Concept SSDA, (SSD-32927319) was lodged in 2022 and was approved by the Minister for Planning on 21 February 2023. The application has since been surrendered. A concept application is no longer required for the proposed revitalisation of the Powerhouse due to the operation of Section 2.10(2) of the Planning Systems SEPP.

5.0 Community engagement

5.1 Engagement carried out

Infrastructure NSW and Aurecon in partnership with the Powerhouse have undertaken a range of community and stakeholder engagement to inform the preparation of the Powerhouse Ultimo SSD Application and this EIS. The consultation program included engagement with the local community, neighbours, key stakeholders, and government authorities and agencies to present an overview of the proposed development gather feedback during the preparation of the SSDA DA. Full consideration has been given to the SEARs during this development application process and to the SSD Consultation guidelines.

The consultation completed prior to the lodgement of this SSDA is detailed in the Consultation Outcomes Report prepared by Aurecon (**Appendix J**). It addresses all consultation activities, the key issues discussed, and the feedback received.

The Consultation Outcomes Report identifies the proactive and strategic approach to communications and stakeholder engagement undertaken for the revitalisation of the Powerhouse Ultimo. This approach allowed for a transparent, comprehensive engagement that was timely, genuine, constructive and engaging. The consultation exercises were conducted by INSW and the relevant technical experts that have been contributing to the developing and refining the proposed development.

The overall objectives of the consultation were to:

- Raise awareness and educate stakeholders and community about the planning process and how to participate.
- Ensure the community, museum visitors and stakeholders feel highly engaged have has an opportunity to give feedback.
- Manage community expectations, identify how the community can influence the project, build/re-build trust through direct engagement and establish project advocates.
- Continue to maintain well established stakeholder relationships and support for the Powerhouse Museum Ultimo with the local community, influential cultural groups and other key stakeholders.
- Generate excitement for the future that the revitalisation will bring to the museum.
- Provide timely information to impacted stakeholders, including arts and broader communities.
- Address and correct misinformation in public domain; and
- Create a positive legacy for the Powerhouse Museum Ultimo.

Over the course of this consultation, the following engagement activities and participation occurred:

- 122 people were engaged during the in person pop up session of 15 February 2024.
- 70 people were engaged at the in person session on 17 February 2024.
- 31 people attended a virtual event on 19 February and 30 attended on 22 February 2024.
- A project webpage reached 2,309 users across 7 pages.
- A total of 122,413 people were reached through electronic direct mail (eDM).
- 3 people contacted the project team via call and 68 via email.
- A total of 112 properties were reached through door knocking system.

5.2 Views

18% of the total community comments were in relation to the temporary closure for the Powerhouse Museum and the decanting of the Powerhouse Collection. Some community members thought the three year closure was too long and unnecessary. 15% of the total comments regarded the consultation and planning process noted the level of information available during the community information sessions. Concerns were made about the transparency of information. 14% of the total comments were in relation to the design of the buildings noting that the Harwood building should be in the scope of the revitalisation. Further, comments were made about the Wran building noting that the new brick building on Harris Street blocks the view of the Wran. 12% of comments were made regarding the removal of the Transport, Flight and Space exhibitions, Steam revolution exhibit and the 1785 Boulton and Watt engine collection. 10% of comments expressed concerns regarding the reduced

exhibition space, entrance to The Goods Liene and student accommodation. Other themes included the process of the revitalisation, the timeline being too long, and the opposition to the museum design and rationale.

Table 9 outlines the key issues raised during these engagement sessions as summarised by Aurecon.

Table 9 Feedback received

Category of feedback	Items raised
The design of the project and any alternatives considered	• Satisfaction regarding the adaptive reuse of heritage items. • Concerns about the new design impact on increasing noise. • Concerns about the rooftop increasing noise. • Satisfaction of the proposed change of entrance to the Goods Line. • Disability friendly ramps and facilities • Would like the inclusion of neutral sound spaces for those with auditory processing needs. • Concern that museum spaces are reduced. • Gender neutral toilets, baby change and parent rooms requested. • Improve accessibility through large print panels, contrasting colour schemes. • Concerns around signage and way finding to improve for all audiences. • Design should be more innovative. • More areas of green open space for sitting, more green grass and water features. • More native plants incorporated into the design. • More spaces for children to play in outdoor spaces.
Community engagement	• 63% felt satisfied with the level of engagement about the project. • 23% felt unsatisfied about the level of engagement about the project. • Some community members noted that the engagement activities were 'secretive' as some documents were not publicly released. • Provide more visual renders. • Producing draft floor plans for display and inclusion of a fact sheet. • Holding community information session inside the museum. • Engaging community about permanent exhibitions in the renovated museum. • The project timeline being too long. • Opposing the museum design and the rationalise that the revitalisation is needed to meet international standards.
Justification and evaluation of the project as a whole	• Majority were supportive of the revitalisation of the Powerhouse. • Satisfaction that the Powerhouse Ultimo is staying.
Beyond scope of the project	• Concern about the forecourt being overshadowed by the Scape building. • Community comments addressing areas beyond the Harwood building. • Request for more public museum advertisement. • Request for more interactive activities/exhibition for children mechanical activities. • Interested in other Powerhouse venues as some were not aware of the revitalisation. • Support for displaying Powerhouse collection items.

5.3 Engagement to be carried out

The applicant is committed to ongoing community consultation following the submission of this EIS. This includes during the exhibition and assessment of the project, and if approved, following a determination.

Following its submission, DPHI will exhibit the EIS on the Major Projects NSW website and invite submissions from government agencies and the public. Once the exhibition period is complete, DPHI may require the Proponent to prepare a Submissions Report in response to issues raised. The Proponent will continue to liaise with DPHI and stakeholders during the project's assessment to address queries that may arise.

6.0 Assessment of impacts

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Appendix A**) and the heads of consideration pursuant to Section 4.15 of the EP&A Act. The Mitigation Measures at **Appendix D** are informed by the findings of this section and the relevant specialist technical studies. A table summarising how the SEARs have been addressed is also provided at **Appendix A**.

6.1 Built form and urban design

6.1.1 Urban design, bulk and scale

As outlined in **Section 3.5**, the proposed works involve a range of upgrades to existing buildings, as well as a modest addition to the western edge of the Wran Building, with a new built form element on the south-western corner of the site at Harris Street and Macarthur Street. The majority of the proposed works are internal, or have been designed to be minimal in nature, to protect the heritage character of the site.

The addition to the Wran Building has been designed to provide increased views to the Ultimo Power House in the eastern portion of the site and to the Ultimo Post Office in the northern portion of the site. The Wran Building addition is aligned with the traditional Harris Street building alignment to ensure the Harris Street context does not increase in the perceived bulk and scale from the street level. The building will activate Harris Street with the introduction of the creative studios and their potential retail outlets.

Further, the proposed addition lines Harris Street with activated creative commercial spaces, a new entry and visible and active program space and courtyard, responding to the less activated façade that is currently located on Harris Street. The new building seamlessly integrates with the existing buildings on the site. The curved roofing mimics the existing curved rooftops across the site and is positioned below the building height of the retained buildings, allowing views to be retained. The new building separates clearly from the heritage fabric and emphasises the retention and celebration of the original Powerhouse fabric. The new building addition does not obstruct visibility of the Switch Hose at the western edge and the southernmost extent of the new building has been angled at its northern frontage to reveal a new courtyard. The new courtyard is welcoming and accessible from the new entrance on Harris Street and from the Macarthur Street entrance.

The design of the rooftop addition on the Switch House has been sited on the northern end following the lines of the pitched heritage façade which contributes to reducing its visual prominence. The new roof will form a contemporary addition and be recognisable as a new structure against the background of the heritage buildings.

The Former Ultimo Post Office will result in improved community access and creative and staff support uses. The Post Office Courtyard will office a better visual, physical, and interpretive relationship through the use of recessive materiality. The Post Office Courtyard will be accessible by Harris Street and is part of the connected public domain.

Further discussion of the built form is provided in the Architectural Design Report at **Appendix E**. It is considered that the built form of the project is acceptable from an urban design and built form perspective in respect of the overall urban design and built form approach.

6.1.2 Building heights

The permissible building height for the site is 28m above ground level. The proposed roof top addition on the Switch House has a maximum height of RL25.6 which is well within the permissible height limit of 28m. The proposed roof to the new building addition to the Wran Building has a maximum height of RL26.75 which is also well within the height limit of 28m.

The proposed building fronting Harris Street has a maximum height of RL37.85 at its highest point which is well below the maximum permissible height limit of 28m and below the height of the existing building on site. Harris Street varies between RL14.00 and RL15.20 and results in a maximum building height of 23.35m. The height of the proposed buildings and additions are appropriate and acceptable in the context of the site and applicable requirements as follows:

- The proposed new building additions are entirely consistent with the 28m height limit above ground level. The maximum building height is 28 metres, which falls across the site, reflective of the change in topography across the site.
- The proposed building height is compatible with the scale of the existing development located in the immediate and broader vicinity of the site and is consistent with the site's location in a highly urbanised CBD-edge location.

The height of the proposed building additions is therefore considered appropriate on this basis.

6.1.3 Setbacks

There are no setbacks from the site boundary or from the heritage listed items. The proposed built form response to key site interfaces is considered to be appropriate as it:

- Maintains the prevailing set back and street wall approach along Harris Street. The new building will provide an innovative extension of the prevailing street wall along Harris Street and provide visual interest at a key landmark site.
- Redefines the entrance to the museum from The Goods Line and utilises the existing constrained space available on Harris Street for museum purposes.
- Provides responsive public domain areas that have high amenity, are useable and connected to other existing public domain areas and cultural spines, such as The Goods Line and Darling Square thoroughfare.
- Responds to existing heritage items on, and adjacent to, the site.

The new building addition extends toward the Macarthur Street and is setback between five and eight metres from the Macarthur Street boundary, allowing for adequate pedestrian flow along this corner.

6.1.4 Public domain landscaping

The Gathering Terrace is the key piece of public space that is proposed to provide open sky open space which is publicly accessible. The Gathering Terrace is 2,025m^2 in area, accessible to the public from multiple directions and greatly increases the quality of the public domain area provided by Powerhouse Ultimo. A total of 2,610m^2 of open to the sky open space which will be publicly accessible 24/7 is proposed to be provided on the site. To ensure these spaces remain open, they are adjacent to other areas which will always be publicly accessible, such as The Goods Line, Macarthur Street or Harris Street. They have direct sight lines and achieve good passive surveillance.

The proposal includes public domain areas which are a significant improvement upon the existing public domain areas present within the site. In accordance with the SEARs, the proposed public domain areas have been designed to achieve their intended use including suitable levels of solar access and shade, provision of amenities, and wind protection. The proposed public domain and landscaping is designed to maximise street activation and allow for the multi-functional use of spaces for a range of public activations in association with the museum, whilst ensuring the delivery a public space that is welcoming, attractive and accessible for all.

6.2 Environmental amenity

6.2.1 Visual and view impacts

A Visual Impact Assessment (VIA) has been prepared by Ethos Urban (**Appendix S**) to identify, describe and assesses the significance and appropriateness of the potential visual impacts of the proposed buildings and building alterations and additions outline in this EIS.

The methodology used by this VIA is derived from the international standard 'Guidelines for Landscape and Visual Impact Assessment' version 3 (GLVIA3), the NSW Land and Environment Court (LEC) planning principle for 'impact on public domain views' established in *Rose Bay Marina Pty Limited v Woollahra Municipal Council & Anor [2013] NSWLEC 1046* (Rose Bay) and for 'Views - general principles' established in *Tenacity Consulting v Warringah Council [2004] NSWLEC 140*.

Public views

The assessment of the public viewpoints confirms the following:

- The existing site is complex and layered. While dominated by large scale, Federation Warehouse buildings, the site also comprises the finer grain former Ultimo Post Office at the north-west corner of the site, and the

newer (1988) Wran Building that dominates the site's Harris Street frontage and publicly accessible civic space and entrance at the site's south-west corner. Like its surrounding inner Sydney visual context, this creates a complex and layered visual quality. While details such as architectural styles, materiality and colours are diverse, there is a general compatibility of scale and form.

- The Harris Street and William Henry Street intersection is dominated by the State heritage listed Former Ultimo Post Office, which will be retained. The VIA notes that the magnitude of visual impact in this location is likely to be a perceptible change over a wide area.
- From the proposed viewpoint from Pier Street, there is no perceptible change to the existing view. The scale of change is considered imperceptible, and the significance of the visual impact is considered of negligible sensitivity.
- The proposed viewpoint from The Goods Line and Macarthur Street has a similar view impact to the existing impact. The scale of change is considered noticeable and the significance and sensitivity from this perspective is also considered moderate.
- The proposed viewpoint from The Goods Line largely remains the same. The scale of change is considered perceptible, and the significance of the visual impact is considered to be of low sensitivity.
- At present, the view from the corner of Harris Street and Macarthur Street has the existing Powerhouse Museum forecourt, which does not contain any significant built forms. However, the new built form will be visible from this viewpoint, particularly in the location of the existing forecourt. The VIA concludes that the magnitude of impact from this location will be considerable and of moderate impact.
- The viewpoint from Harris Street is proposed to be of a considerable scale of change and of moderate sensitivity to the significance of the visual impact.

In response to the SEARS, a finding of a moderate significance of visual impact for one or more viewpoints constitutes a finding of significant visual impact for the entire project. A finding of a significant visual impact is not determinative of an unacceptable visual impact. Rather, this is determined based on considered assessment against key issues and the planning framework. The following elements have been considered relevant in determining that the visual impact is acceptable:

- The distribution of the built form.
- The size and scale of the proposed works.
- The implications to the heritage items.
- The detailed design elements of the proposed works, including form, colour and materiality.
- The amenity impacts for surrounding uses.

The VIA concludes that, on the balance of relevant visual impact considerations and the planning framework, the proposal has an acceptable public visual impact and can be supported on the visual impact grounds.

Figure 33 to **Figure 38** shows the visual impact from each of the key views described above.

Figure 33 Modelled view from Harris Street and William Henry Street

Source: Virtual Ideas

Figure 34 Modelled view from Pier Street

Source: Virtual Ideas

Figure 35 Modelled view from The Goods Line and Macarthur Street

Source: Virtual Ideas

Figure 36 Modelled view from The Goods Line

Source: Virtual Ideas

Figure 37 Modelled view from Harris Street and Macarthur Street

Source: Virtual Ideas

Figure 38 Modelled view from Harris Street

Source: Virtual Ideas

Private views

The VIA has considered the established principles for view sharing in accordance with *Tenacity Consulting v Warringah Council [2004] NSWLEC 140* and confirms the following:

- There are rows of residential terraces located at the northern end of the site on Harris Street that are impacted by established mature street trees and a modest scale (generally limited to 2 storeys in height) ensuring that, what views are available from these locations, are unlikely to significantly change in scope or depth. These views also do not contain any water, land and water interface or iconic elements or features in the meaning of Tenacity that would be impacted by the proposed development. The proposed development will not fundamentally alter the components or composition of views (see Figure 43 below).
- There is an apartment block located approximately 100m to the south-west of the central part of the site at 349-355 Bulwara Road, which owing to its scale, benefits from views of and over the Powerhouse Ultimo site towards the CBD. The existing Powerhouse Ultimo buildings partially obscure areas of sky and/or lower parts of buildings within the Sydney CBD skyline in views from this location. The proposed building envelope, somewhat build upon this existing context and obscure parts of the sky and lower parts of buildings in the background of views. As detailed in the VIA, the apartments in this location will retain the ability to see and perceive the skyline and there will be no loss of visibility to highly valuable or iconic features (such as Centre Point Tower). The VIA concludes that the proposed development will not fundamentally alter the components or composition of views. The view loss has been assessed as minor (refer to Figure 44 and Figure 45 below).
- There is an apartment block behind Harris Street at 333 Bulwara Road which, owing to its scale, also benefits from views of and over the Powerhouse Ultimo site towards the CBD. The VIA concludes the same findings as the above, determining that the proposed development will not fundamentally alter the components or composition of views (see Figure 46 and Figure 47 below).

Fundamentally, the proposed development does not introduce a new element that is uncharacteristic or discordant in the existing views. The Powerhouse Ultimo revitalisation will contribute to the existing layered built form on this site, which, like its context, comprises buildings of different periods, styles, and scales of development. This SSDA results in a high quality and visually interesting proposal.

The views discussed above are provided in **Figure 39** to **Figure 43**.

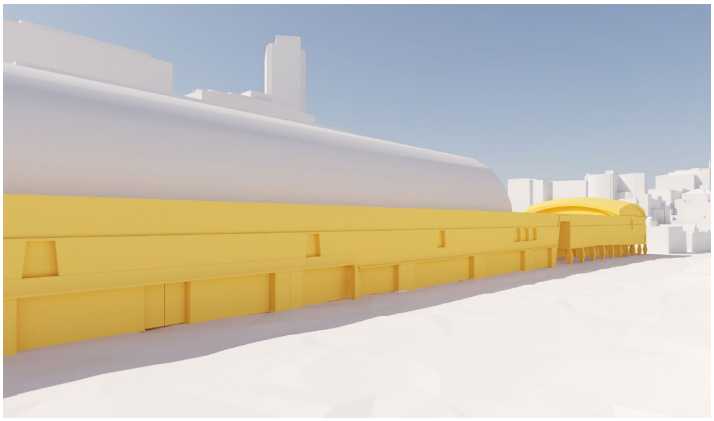


Figure 39 Modelled view from 537 Harris Street

Source: Virtual Ideas

Figure 40 Modelled view from Level 7 of 355 Bulwara Street

Source: Virtual Ideas

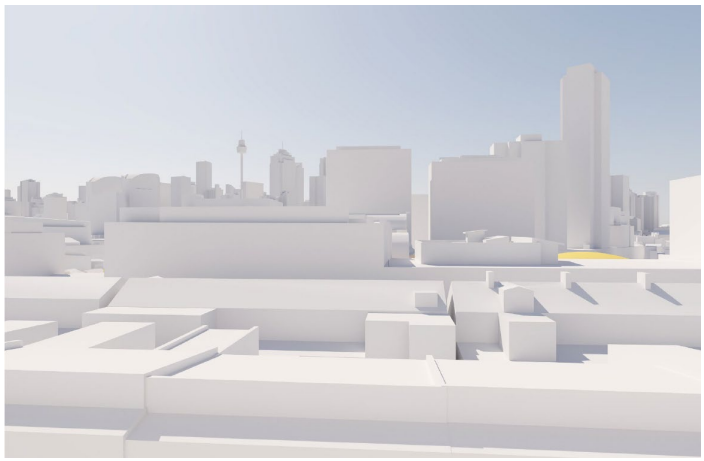


Figure 41 Modelled view from Level 3 of 355 Bulwara Street

Source: Virtual Ideas

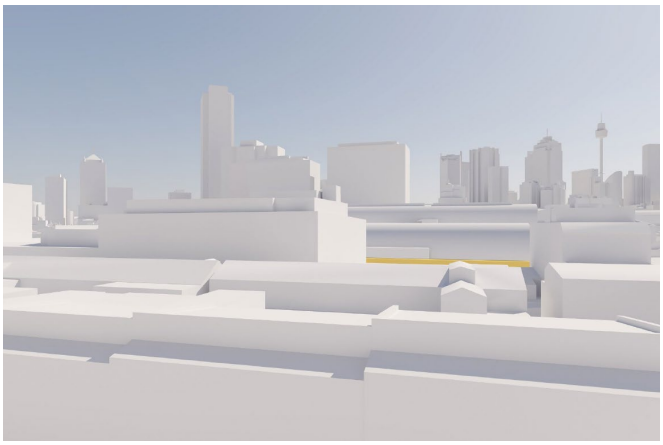


Figure 42 Modelled view from Level 4 of 333 Bulwara Street

Source: Virtual Ideas

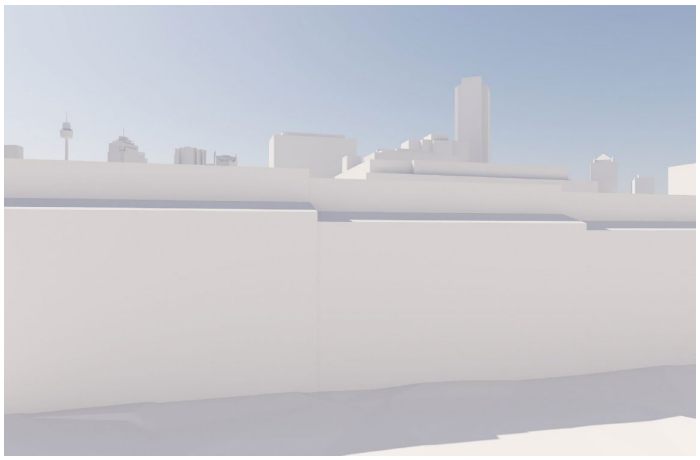


Figure 43 Modelled view from Level 2 of 333 Bulwara Street

Source: Virtual Ideas

6.2.2 Overshadowing

An assessment of solar access and overshadowing was conducted by Architectus and Durbach Block Jaggers and is detailed in the Architectural Drawings at **Appendix B**. The assessment indicates overshadowing associated with the proposal at one-hour intervals between 9am and 3pm for both solstices and the equinox, as required by the SEARs.

The shadow diagrams demonstrate that the proposed building works would result in minor additional overshadowing to Harris Street and buildings on Macarthur Street to the west and south of the site. The impacted buildings consist of commercial and residential buildings located on Macarthur Street.

As shown in **Figure 44** to **Figure 47** below, the overshadowing impacts are minor. Most shadows cast by the proposed building fall within the envelope of shadowing caused by the existing buildings located on the site or within the roadway, or to the rooftops of adjoining buildings.

It is noted that the majority of the shadow falls within the existing Powerhouse envelope, on Harris Street and Macarthur Street. The key impact on neighbouring properties is the overshadowing on the Harris Street terraces to the west of the site (across Harris Street from the site). The key time of impact on 21 June is between 2pm-3pm with the shadow completely gone from these terraces from 9am-1pm. The terraces achieve their required solar access and are not unreasonably impacted by the proposed new building additions.

The approved overshadowing impacts from the approved building envelope and proposed overshadowing impacts during the winter solstice are demonstrated in the figures below. The remaining overshadowing diagrams are provided at **Appendix B**. The overshadowing resulting from the existing buildings is in grey, whilst the proposed detailed design is shown in blue.

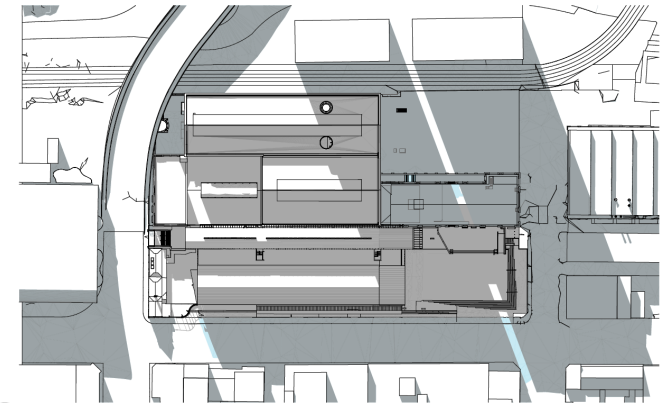


Figure 44 9am solar access and overshadowing during the winter solstice

Source: Architectus and Durbach Block Jaggers

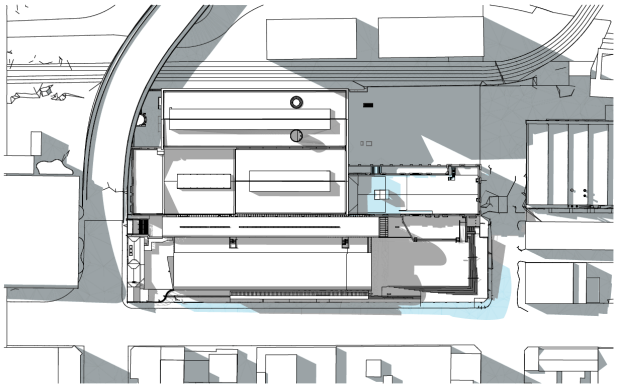


Figure 45 12pm solar access and overshadowing during the winter solstice

Source: Architectus, Durbach Block Jaggers

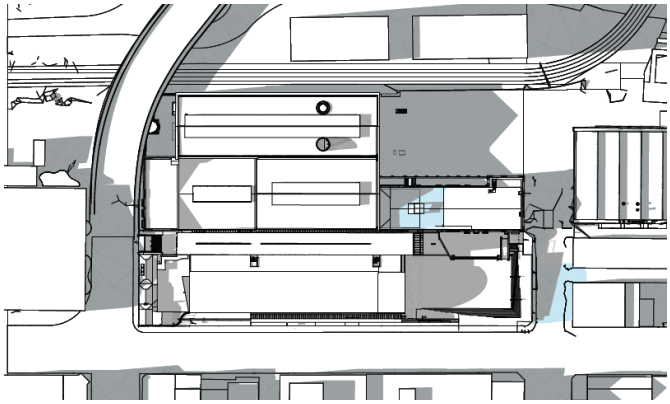


Figure 46 2pm solar access and overshadowing during winter solstice

Source: Architectus, Durbach Block Jaggers

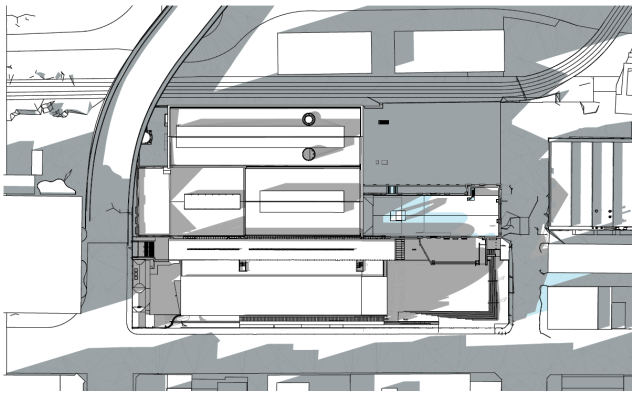


Figure 47 3pm solar access and overshadowing during the winter solstice

Source: Architectus, Durbach Block Jaggers

Having regard to the above diagrams, the proposed built form is not considered to give rise to any unacceptable overshadowing impacts on existing or future public domain areas, or adjoining properties.

- For the western side of Harris Street, a small portion of shadows fall on the residences located between 531 and 547 Harris Street of varying degrees between 9am and 11am (noting that all shadows are gone by 12pm), residences at 11-21 Hackett Street at 9am only, and on the eastern façade of a residential terrace at 79 Macarthur Street for an hour at 9am (which occurs for a short duration and on a primarily a blank wall). All remaining sections of this area are non-residential or are already overshadowed by the existing urban environment. The proposed development does not create additional overshadowing to any residence surrounding the site for more than 3 hours.
- For the southern side of Macarthur Street, shadows are largely cast on the road network, on non-residential buildings, or are contained within the footprint of existing overshadowing from the Scape towers and other buildings. The overshadowing plans demonstrate that there is a row of three terraces at 81-85 Macarthur Street which will be subject to additional overshadowing in the afternoon between from 3pm onwards.
- The overshadowing plans also demonstrate that there will be no additional shadow cast to The Goods Line between, consistent with the Open Space Sun Access Control Zone in the Peninsula Height Strategy suggested by the Pyrmont Peninsula Sub-Precinct Master Plan. Given that the majority of the new built form is located in the western portion of the site, there is no additional overshadowing to The Goods Line as a result.

The assessment confirms that the proposed development does not result in any significant overshadowing of more than one hour for any one residence and as such no further study or refinement is required, and no specific mitigation measure has been nominated in this instance.

6.2.3 Wind environment

Arup has undertaken detailed modelling to quantify the potential impacts of the proposed development on the pedestrian environment (**Appendix FF**). The Wind Impact Assessment by Arup has applied the Lawson Criteria to determine pedestrian comfort and safety within the public domain surrounding the site, the criteria are considered to be the applicable means of assessing the site as it determines the regular wind conditions of the site, opposed to the maximum wind conditions without duration or probability to their occurrence.

The assessment confirms that all locations around the proposed Powerhouse Ultimo Revitalisation would pass the safety criterion. It is considered that majority of locations around the site would be classified as suitable for pedestrian standing with faster conditions around the building corners where classification of pedestrian walking would be expected. The conditions would be slightly windier around the existing articulated building.

Wind conditions in the new courtyard in the south-western corner of the site would be classified as pedestrian sitting. The wind conditions in the Gathering Terrace would be classified as pedestrian sitting close to the building envelope, increasing to pedestrian standing further from the building. Canopies, landscaping, and trees have not been modelled in this assessment, and are expected to further mitigate the impacts of wind on pedestrians by providing further shielding and comfort.

The wind across the courtyard in the south-east corner of the site currently benefits from the existing café structure. Removal of the café as proposed, and the opening of the Gathering Terrace are expected to adversely affect the wind conditions across the space. Mitigation measures have been included at **Appendix D** to address this issue.

The overall proposed wind conditions are considered suitable for the intended uses of the site for the following reasons:

- The position of the proposed new building at the south-western corner of the site is expected to improve wind conditions around the existing exposed corner of the Wran building.
- Will improve conditions in the public domain along the Harris Street and Macarthur Street frontages.
- Majority of locations around the proposed site layout is classified as suitable for pedestrian type activities.

The modelling confirms that the wind conditions surrounding the proposed development are similar to those experienced surrounding the existing development on site. All pedestrian accessways along the surrounding streets of the site including Harris Street, Pier Street, and Macarthur Street meet the walking criteria and are considered suitable for the intended use of the site. The proposal will result in overall calm and suitable wind conditions in all the recessed entries, colonnades and under crofts.

6.3 Transport, traffic, parking and access

JMT Consulting has prepared a Transport Impact Assessment (**Appendix H**) to outline a strategy for access to Powerhouse Ultimo during the construction and operation phase.

6.3.1 Operation

Carparking

Onsite parking is not proposed. Due to the site's strong public transport links and accessibility, public transport is the encouraged mode of transport to access the Powerhouse Museum. This pathway is beneficial to maximise the amount of public open space and to reduce car generate traffic to the Ultimo precinct and its surrounds. It is noted that there is some existing staff and contractor parking associated with the adjacent Harwood Building that is not part of this application and is not considered.

Noting that there would be some residual demand for private car use for travel to the site, there are numerous publicly accessible car parks located within close walking distance of the site including those listed below:

- Market City Car Park.
- International Convention Centre Car Park.
- Darling Quarter Car Park.
- 187 Thomas Street Car Park.
- Novotel Sydney Central Car Park.

The combined capacity of surrounding publicly accessible car parking spaces accounts for over 2,000 spaces. A forecast assessment of arrivals as determined by travel surveys undertaken by existing visitors to the Powerhouse Museum indicates that following the revitalisation of the site, parking demand may increase by an estimated 80 cars per day on weekdays when existing public parking is most utilised. JMT Consulting's findings indicate that there is capacity to accommodate this increased demand within existing parking capacity.

Road network impacts

JMT Consulting has undertaken an assessment of any potential impacts to the road network associated with increased visitation to the site. The assessment concludes that the proposal will not have adverse impacts on the Ultimo precinct or its surrounding road network. Additional vehicle movements during the weekday morning peak of 8am-9am (+16 vehicles) and weekday evening peak of 5pm-6pm (+61 vehicles) are minimal within the context of existing road network capacity and vehicle movements and will not result in any change to the level of service within the existing road network.

As there is no parking proposed within the site, the projected increase in vehicle trips would be dispersed across various car parking locations in the surrounds of the Powerhouse Museum. Considering this additional level of dispersal of vehicle movements throughout the load road network, the impact is therefore considered negligible with no further road infrastructure or assessment required.

Coaches

JMT Consulting confirms that the coach drop-off/pick-up arrangements which currently exist for the Powerhouse are suitable for retention and reliance upon within the redeveloped museum. There is an existing coach drop-off and pick-up zone located on Harris Street adjacent to the site entry point. Coaches can use this point on weekdays from 10am through to 3pm and on Saturdays from 9am to 5pm. The proposed retained coach pick-up and drop-off facility can accommodate four coaches at a time, which is deemed satisfactory to cater to the demands of the museum in its present and future. There are also four coach spaces located on Darling Drive, which are capable of use for drop off, but also for coaches required to be parked until returning for pick up.

Coach parking on site was eliminated as an option on the grounds that it would detract from the public domain to reach turning circle requirements. There typically is a nearby coach parking area along Darling Drive to wait prior to returning for pick up, this area can accommodate for four coaches at any one time.

JMT Consulting concludes that the existing short-term coach stopping area on Harris Street remains beneficial and suitable for the demands. The Powerhouse Ultimo has confirmed the revitalisation of the Powerhouse will not affect the number of school group arrivals. A queueing assessment undertaken by JMT consulting indicates that the four available coach spaces will be adequate post the upgrade of the Powerhouse Ultimo.

Bicycle demand

To encourage access by bicycle to the Powerhouse Ultimo, bicycle parking and from the site is proposed for staff and visitors of the site. As part of the design for the project bicycle parking has been included both within the building as well as the adjoining public domain.

Powerhouse Museum will have a maximum of 200 employees across the precinct at a time, including staff who are based in the Harwood Building. It is proposed that 20 staff bicycle parking spaces are provided, which represents 10% cycling mode share. This is consistent with the City of Sydney's Sustainable Action Plan. These 20 spaces will be in a secure lockable area. End of trip facilities including lockers, showers and change areas will be provide for staff which include 20 lockers, changing facilities and two showers.

Visitor bicycle parking will be available in the public domain and will provide good levels of passive surveillance. The Visitor bicycle parking will complement the existing public bicycle parking available in the surrounding area including along The Goods Line.

Taxi and rideshare

The Powerhouse Ultimo has close access several locations that provide taxi ranks and pick up and drop off zones for ride share vehicles. 'No-parking' zones and taxi ranks on Harris Street, Macarthur Street and Darling Drive can be utilised for pick up and drop off zones, including for ride share vehicles. 40-50 spaces for private vehicle drop-off and pick up are located around the site, including a taxi rank on the eastern side of Harris Street that can accommodate 5-6 vehicles at one time. These locations for taxi and rideshare drop-offs are considered more than adequate by JMT Consulting, considering the projected increase in peak hour of 17 passengers.

Pedestrian and road user safety

The proposed development will facilitate improvements to pedestrian amenity though provisions for setbacks along Harris Street and Macarthur Street to provide generous space for pedestrians travelling to and from the site. Further, provision has been made for the majority of back of house activities to be undertaken on site opposed to Macarthur Street where this is the current arrangement. This updated approach reduces conflicts between service vehicles and pedestrians walking in the precinct. The proposed development will facilitate on-site loading in a dedicated loading dock, which is a significant improvement compared to the current on-street arrangements and will significantly reduce risk of pedestrian conflicts at Macarthur Street. The access to the loading dock will be located approximately 35 metres from Harris Street, this minimises safety impacts to users of the classified road.

The proposed development does not propose any on-site visitor car parking which promotes the use of public transport, walking and cycling as the primary modes of transport to the site. This will result in an overall reduction traffic movements in and around the site minimising conflicts with pedestrians and cyclists.

Loading Dock

The future Macarthur Street driveway will provide access to the loading dock. This will remove the need for vehicles to drive through the public domain and park adjacent to the Harwood Building. The loading dock will provide space for up to five vehicles parked at any one time, including:

- Three Medium Rigid Vehicles (MRV).
- Two Small Rigid Vehicles (SRV).

The peak service vehicle numbers of six per hour can comfortably be accommodated in the loading dock with capacity for four vehicles at any one time. Typically, the length of stay for loading vehicles will be between 15 to 30 minutes and therefore the loading dock could support between 8 and 16 vehicles per hour which is well above the predicted maximum number of movements.

Loading and servicing will be managed through an on-site facility manager and delivery management system that enables the team to track delivery times and allocate docks. This provision ensures demand can be moderated throughout the day and vehicles do not require queuing prior to entering the site, removing the potential for impacts upon the road network or pedestrian safety. Given the ramp geometry, which only provides for single-way movement of large service vehicles, a traffic light system will be introduced to manage vehicle conflicts.

Vehicle swept path analysis was undertaken to confirm the suitability of a loading dock in this location. The analysis demonstrates that a MRV could park in the loading dock adjacent to a SRV and enter/exit independently of one another. A service corridor would be provided which would allow goods to be transported between the loading dock and the Switch House to the east.

Green Travel Plan

A Green Travel Plan (GPT) has been prepared by JMT Consulting and is included at **Appendix H**. The GTP sets out the measures that will be implemented to encourage and support sustainable travel modes and reduce reliance of private car use.

The proposed development seeks to utilise existing and future public transport routes including buses, the light rail, the heavy rail and the proposed new Sydney Metro connections. The GTP aims to support the use of sustainable travel options for both staff and visitors of the Powerhouse Ultimo.

JMT Consulting expects approximately 20% of staff and visitors to access the site through private vehicle usage and 80% of staff and visitors to access the site via public transport modes, walking or cycling which is supported by the high level of public transport provision within the locality, including bus, trains, light rail, and future metro services. To achieve this target, the GTP notes that a nominated staff member at the Powerhouse will be responsible for the implementation of the plan including:

- Communicating the GPT to stakeholders.
- Promote awareness of the GPT and associated initiatives.
- Providing travel information for staff and visitors, including through the Powerhouse website.
- Developing and circulating up to date travel plan marketing information.
- Liaise with other venues and Government agencies to develop a collaborative approach to the GTP.
- Manage the implementation and effectiveness of the GTP.

Summary

The Transport Impact Assessment prepared by JMT Consulting confirms that the proposed development can be accommodated within the existing transport network, and has been designed to facilitate safe, simple, enjoyable, and seamless loading and delivers and arrival and exit arrangements for staff, residents and patrons. The assessment confirms that:

- Suitable travel demand management measures have been proposed as part of GTP to promote non-car modes of transport.
- A high level of access to public transport infrastructure and active travel networks will minimise reliance upon private vehicles to access the site.
- There is sufficient public parking available within existing car parks located conveniently to the site in the surrounding area for those who do need to travel by private vehicle, and accordingly it is appropriate to continue to provide no on-site parking for staff or visitors.
- Onsite management will ensure loading operations and deliveries occur in a coordinated manner predominately within the site.
- The project integrates with and enhances the existing pedestrian network by providing new entrances in locations that encourage walking/cycling, increasing through-site permeability, providing a new connection to Pyrmont Street, and facilitating the upgrade of adjoining public domain within Harris Street and Macarthur Street.
- The site has been designed to promote safety of pedestrians and cyclists accessing the site through the positioning of driveways to access docks and the setbacks of pathways from the road exceeding the relevant requirements.

6.3.2 Construction traffic

JMT Consulting has prepared a Preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) provided at **Appendix H**. CPTMP assesses the proposed access and operation of construction vehicles and their potential traffic impact on the surrounding area. A detailed CPTMP will be developed with the appointment contractor and confirm the detailed construction methodology and specific measures for safely managing construction traffic in the surrounding area. The contractor will be responsible for monitoring and coordinating all vehicles entering and exiting the site.

Further, Coordination may be required prior to the commencement of construction for the Powerhouse Ultimo project (subject to approval) with respect to construction traffic management of surrounding developments occurring at the same time. This would occur through submission and approval of the final Construction Traffic and Pedestrian Management Plan with the relevant project delivery office within Transport for NSW.

Work hours

Consistent with the standard construction hours in the Interim Construction Noise Guidelines, the construction would be undertaken within the following hours:

- Monday-Friday: 7:00am-6:00pm
- Saturday: 8:00am-1:00pm
- Sunday and public holidays: No works

Construction vehicle volumes

JMT Consulting estimate the peak number of construction vehicles accessing the site on working days would be in the order of 50-60 vehicles/day. The number of vehicles will be later confirmed following the appointment of a contractor and will form part of a detailed CPTMP which will be prepared before the commencement of construction.

These expected volumes are well within the capacity of the existing road network and will not impact the site or it surrounds adversely.

Construction vehicle routes

The construction vehicle routes to be utilised during the construction of the development would be selected to restrict vehicle access to the State and Regional road network, not impact residential streets, avoid impacting concurrent construction projects and minimise impacts on the public transport network (see **Figure 48** below).

The potential construction vehicle routes include:

- From north to south: Harbour Bridge- Western Distributor- Harris Street.
- From the west: Anzac Bridge- Allen Street- Harris Street.
- From west and south: Parramatta Road- Broadway- Wattle Street- Fig Street- Harris Street.

Figure 48 Construction routes for the site

Source: JMT Consulting

Work zone

A work zone may be required to facilitate the construction of the renewed Powerhouse Ultimo. The most feasible location for a potential work zone is the 'No Parking' zone on the eastern side of Harris Street which is currently being used to facilitate the arrival of visitors by coach (**Figure 49**). This zone will not require the removal of on street parking space and would only be used until 3pm when the area becomes a clearway as per current conditions.

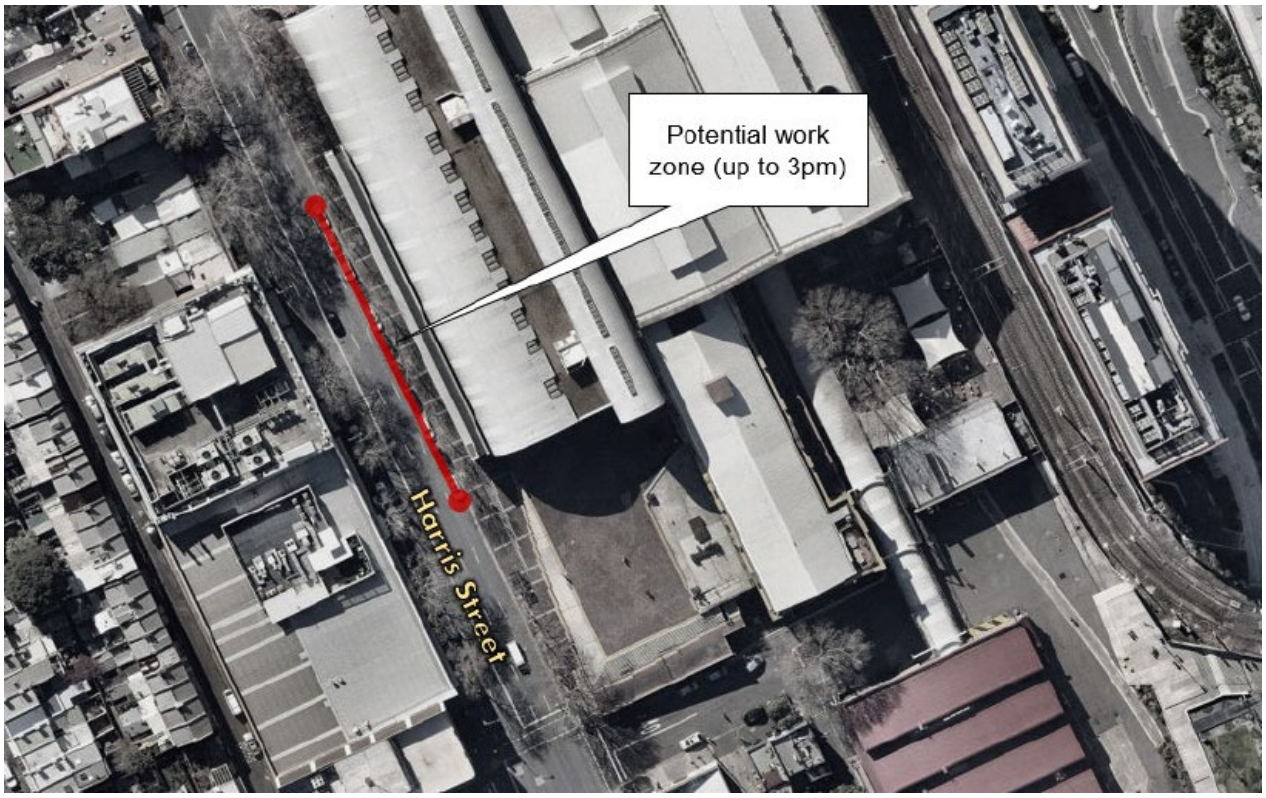


Figure 49 Potential work zone location

Source: JMT Consulting

Construction worker access

Minimal or no on-site car parking will be provided during the construction phase of the project. Staff will be encouraged to arrive to the site by public transport or park in nearby public parking stations, similar to arrangements for other major development projects in the Sydney CBD. Possible transport options available to construction staff are described in detail in the CPTMP at **Appendix H**.

All staff employed on the site by the contractor would be required to undergo a site induction. As part of this induction staff will be provided with information as to how to travel to/from the site, including:

- Promote the use of public transport options including light rail, bus, and heavy rail, including potential benefits of public transport over car usage.
- Where to park for those that elect to drive to the site, including strict guidance that no staff should be parking in nearby residential streets.
- Relevant walking and cycling routes, including locations of bicycle parking in the precinct.
- Notifying workers in relation to arrangements made on-site for any equipment/ tool storage and drop-off requirements.

Further mitigation measures are provided at **Appendix D** and discussed further in the Traffic Assessment at **Appendix H**.

6.4 Heritage and archaeology

This section seeks to identify and assess the potential impact of the proposed development on surrounding heritage items and neighbouring heritage conservation areas, heritage landscapes and potential heritage items located on the site and in surrounding areas and as identified in the Sydney LEP, the *Heritage Act 1977* and other statutory registers.

6.4.1 Aboriginal cultural heritage

Curio Projects has prepared an Aboriginal Cultural Heritage Assessment Report (ACHAR) (**Appendix T**) in consultation with Aboriginal stakeholders in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents Guidelines (OEH 2010). The ACHAR documents the process that has been undertaken for consulting with local Aboriginal stakeholders, investigating and assessing Aboriginal cultural heritage associated with the site and surrounds. The ACHAR outlines that the proposed development is assessed as having the following potential impacts on Indigenous cultural values:

- Cultural, social, and spiritual values – Social, cultural and spiritual values of the site can only be identified through consultation with First Nations people. No previous investigations in the immediate surrounding area of the Site have encountered or confirmed the presence of Aboriginal burials. The potential on the Site for Aboriginal burials is low given the significant disturbance of the site which has occurred as a result of previous urban development; however, any Aboriginal burials would be of significantly high social and cultural significance. The social, cultural, and spiritual value of the site will be updated following the close of Stage 4 consultation for the Project after consultation is conducted.
- Historic values – The site is not specifically associated with any specific Aboriginal stories, events or people, although the surrounds of the site has post-contact connections and interactions between early colonial government officials and Sydney's Traditional Owners. Multiple Aboriginal archaeological sites located near the study area have provided evidence for contact-archaeology in the form of flaked glass artefacts. There is potential for glass artefacts to be identified within the study area, if found, the historical value of the study area will require re-assessment. This is considered in the mitigation measures at **Appendix D**.
- Scientific values – It is not possible to determine the nature and extent of any Aboriginal archaeological deposit at the study area without investigating the site physically. If intact Aboriginal archaeological deposit exists within the site, it would potentially be of moderate research and moderate significance dependent on the nature of the find in the context of the wider Aboriginal landscape. This is considered in the mitigation measures at **Appendix D**.
- Aesthetic values – The site is located within an urban landscape with no remaining natural landforms or features reminiscent of the pre-1788 landscape which First Nations groups occupied. Therefore, the aesthetic value of the site is low. If Aboriginal archaeological deposits are found to be present within the study area, they may potentially have aesthetic significance for the technological form of the artefacts, or potentially considered useful for education and interpretative purposes. This is considered in the mitigation measures at **Appendix D**.

6.4.2 Post-settlement heritage

The Heritage Impact Statement (HIS) prepared by Curio (**Appendix U**) details the timeline of events post settlement of the Powerhouse Ultimo, as well as in the surrounding precinct.

Figure 50 details the current heritage significance of each of the existing buildings on the Powerhouse Ultimo site. The assessment addresses the description of works to the proposed heritage items and assesses the impact on the affected heritage significant buildings having regard to the requirements of the SEARs and Clause 5.10 of the Sydney LEP.

Figure 50 Heritage Grading of the Powerhouse existing structures

Source: Curio

The HIS concludes that the proposed new building elements and other works proposed as part of this application are sensitive and considerate of the significance of heritage items located within the site. The HIS notes that the project includes extensive conservation works to the heritage buildings, which are to be retained, including the following:

- Conservation works to the historic buildings on site including the reinstatement of the singe volume spaces of the Turbine Hall and Boiler House.
- Removal of intrusive elements such as bricks and other elements such as doors that were installed as part of the c.1988 adaptive reuse of the Powerhouse Museum.

- The reinstatement of windows, doors, and openings.

In relation to the proposed new building elements, the HIS details that the proposed development is sensitive to the structure of the existing buildings on the site. Further, Curio endorses that the proposed building is centred around the celebration of the layered history of the site.

Greater visual access is provided to the heritage buildings on the site, particularly from locations within the site. Sensitive and collaborative Aboriginal co-design of the new built form components have resulted in a form that meets the international standards for museums whilst incorporating an Aboriginal-focused cultural connection to the land and to the museum itself.

The form, massing and scale of the new building, combined with the modern glazing, concrete piers and accented brickwork will ensure that the new building emulates robustness and also has a contemporary feel, while responding to the heritage context of the precinct. The use of recycled brick, stone, tiles and glass align with the environmental considerations of the project, whilst also ensuring that historic elements of the site remain as bold and identifiable buildings structures.

The HIS concludes that the proposal provides a design that result in visibly and physically engaging infrastructure through the use of facades that provide for views from within the site to the historic fabric of the Power House. The public domain spaces offer visitors with significantly better opportunities for engagement with the historic structures on the site through the carful and particular deign of the public domain spaces that provide opportunities for observation and appreciation of the historic buildings.

The SHR Sewerage Pumping Station no.1 SHR Item (#01336) and the Ultimo Road Railway Underbridge SHR Item (#01062) are located in relatively close proximity to the site, although they have been assessed as being unlikely to be impacted by any future development of the site.

Mitigation measures to ensure the ongoing protection of heritage fabric on the site are outlined at **Appendix D**.

6.4.3 Archaeology

Curio has prepared a Historical Archaeological Assessment (HAA) (**Appendix V**) which has been undertaken for investigating and assessing both Aboriginal and European archaeology within the site.

The HAA notes that the site has been used for a multitude of purposes, with each prior use likely having impacted upon evidence of other previous land uses in some way. Earlier archaeological work undertaken on land surrounding the site, however, indicates that there may be some archaeological remains from earlier uses of the site that may have survived.

The HAA concludes that the site has moderate to high potential for an archaeological resource of local significance to be present within the site. Of note are the areas of the site that have not been previously impacted by the construction of the basement levels, constructed in the early 20th century.

The potential archaeological deposit within the study area would be of local significance and meet the criteria for classification as archaeological ‘relics’ as defined and protected by the Heritage Act 1977.

Given that the proposed works do not require any significant additional bulk excavation or other in ground works, it is not anticipated that there will be a significant archaeological impact. Mitigation measures for ensuring the ongoing protection of archaeology on the site are provided at **Appendix D**.

6.5 Tree removal and protection

An Arborist Report has been prepared by Tree IQ and is provided at **Appendix K**. The following sections detail tree removal and protection for the proposed works.

Tree removal

The Arborist Report identified 22 trees located on or immediately adjacent to the site. Of these trees, 15 are proposed to be retained and seven are proposed to be removed, as shown in **Figure 51**.

Trees 18-22, (London Plane Trees) were identified in the existing courtyard area south of the Ultimo Power House building and are proposed to be removed. Trees 3 and Tree 4 (London Plan Trees) were identified within the Harris Street footpath towards the southern boundary of the site and are proposed to be removed. The assessment concludes these trees have been identified as being more vulnerable to destabilisation through root loss and altered wind loading from changes to the form of surrounding buildings, meaning they have been

identified for removal. These trees are considered to have moderate landscape value but would be difficult to protect and maintain throughout the construction process.

The removal of these trees will be offset through the planting of 41 new trees throughout the site, which will be endemic species more suited to the locality.

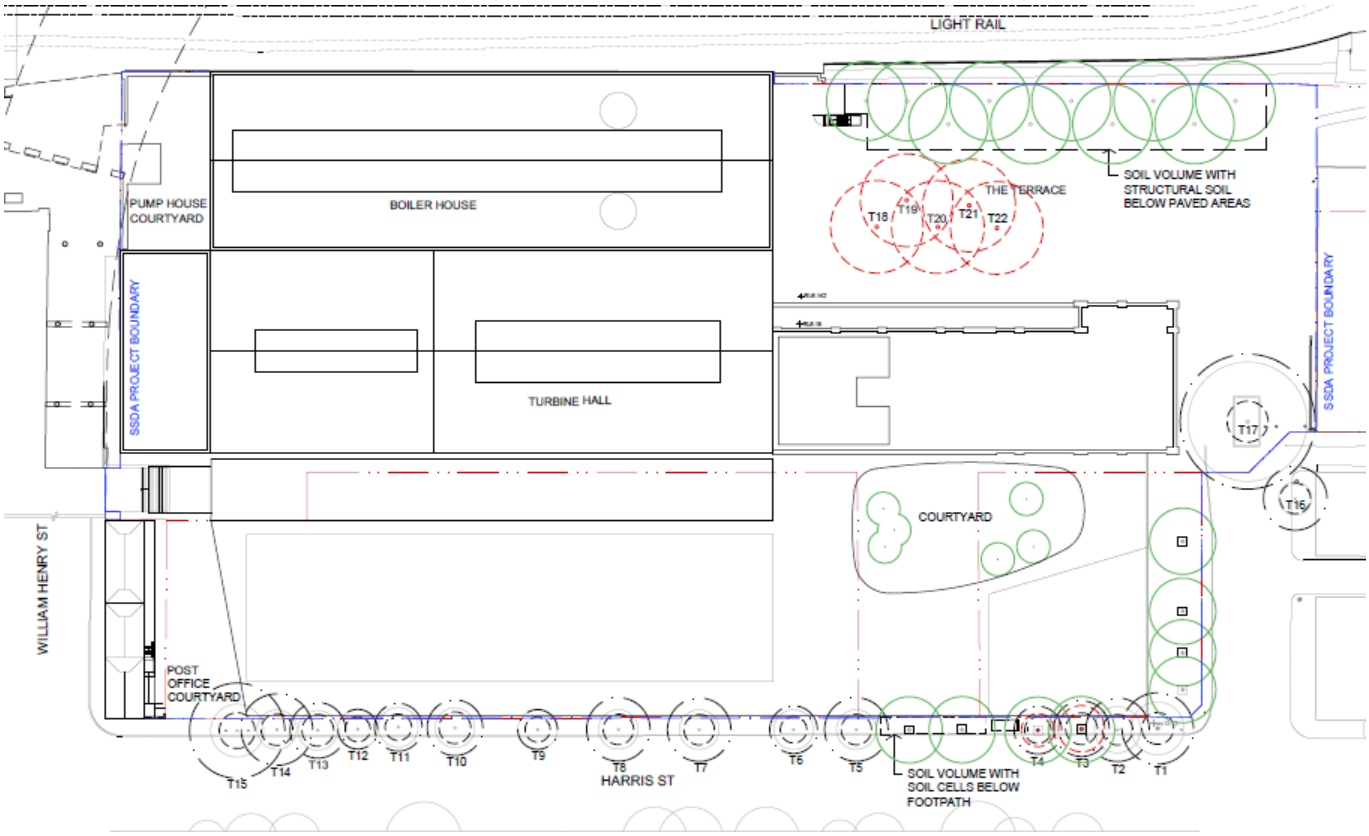


Figure 51 Proposed trees for removal noted in red

Source: Tyrrell Studio

Tree protection

The Arborist Report identifies that the remaining trees adjacent to the site, being Trees 5-15, are of moderate landscape significance and will be retained where possible. The plans show Trees 1, 2 and 5-15 are to be retained with demolition works, building alterations and additions (including new isolated piers to support the new building extension along the western frontage), and pavement installation proposed within their Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) areas. The extent of works represent Major Encroachments as defined by AS-4970. For Trees 1 and 15, the works account for less than 10% of their TPZ areas. For Trees 2 and 5-14, the works account for 20-30% of their TPZ areas.

The proposed works fall largely within the existing building footprint which has an existing retaining wall (to be retained) running along the western perimeter of the building envelope. This retaining wall should have limited (at least partially) root spread into the site.

Despite the minor encroachment on some tree protection zones, the Arborist Report concludes the proposed works should not adversely impact the health of the existing trees. Where encroachment within a TPZ occurs, these works are to be carried out in accordance with the recommendations identified by Tree IQ, including use of sensitive construction methodologies and supervision of works by an arborist where necessary.

Mitigation measures relating to the protection of trees are provided at **Appendix D**.

6.6 Flooding, drainage and stormwater

Arup has prepared a Flood Risk and Storm Water Civil Report (**Appendix O**) detailing the flood risk of the site and associated management strategies, as well as methods for proposed stormwater drainage, on site detention and water sensitive urban design strategies.

6.6.1 Flooding

Flood modelling contemplates the potential impacts of climate change upon the proposed development, with the combined impact of increased sea levels of 90cm and increased rainfall intensity of up to 30% taken into account. These combined impacts of climate change do not have a significant increase in flooding within or adjacent to the site.

The flood study identifies that the site is generally not impacted by flooding, with some limited areas of shallow, short-term flooding within the north-eastern and south-eastern corners of the site during both the 1% Annual Exceedance Probability (AEP) flood event and Probable Maximum Flood (PMF).

Arup conclude that the proposed development will generally not have any impact on the existing quantum of impermeable surfaces as compared to the existing environment. Generally, it is concluded that the proposed works will not have any significant impact on existing flood behaviour in either the 1% AEP or PMF and will have no adverse impact on flood impacts to surrounding properties or street networks. The proposed development does not give rise to detrimental increases in the potential flood affectation of neighbouring land and does not result in any adverse impacts to flood storage and conveyance or flood hazard.

Further, it is noted that the floor levels of the new built form elements will meet the minimum flood planning levels. There is no proposed change to the existing floor levels of the heritage listed buildings.

6.6.2 Stormwater

Water quantity

The approximate stormwater catchments surrounding the development are shown in **Figure 52**. The surrounding area is divided into two sub catchments, being the area north of Macarthur Street that has existing connections to the Sydney Water Stormwater in Macarthur Street, and the area to the north-eastern area under the raised bridge deck draining east of the site into an existing Council Stormwater pipe located in Pier Street.

The proposed stormwater minor system will be designed to convey the 5% AEP annual exceedance probability (AEP) (1 in 20 years) flows, and the major system will be designed to convey the 1% AEP (1 in 100 years) flows in accordance with the City of Sydney Stormwater design requirements. Further, Sydney Water has confirmed that there is no on-site detention (OSD) required or any restriction on stormwater discharge required for the development site. Arup have undertaken DRAINS modelling to confirm that the proposed works will not result in increased discharge rates from site. As there is no effective change in impermeable areas from the site, there will be no change in stormwater flows and no downstream impact associated with the development.

Water quality

The City of Sydney requires development to meet pollutant reduction targets through the following quality measures (**Table 9**) that will need to be integrated with the landscaping, irrigation, water use/reuse and reticulation. This will be further detailed in the Integrate Water Management Plan to be produced by the Hydraulic Engineer, refer to the mitigation measures at **Appendix D**.

Table 10 Council stormwater quality targets

Pollutant	Average annual pollutant load reduction objective (%)
Gross pollutants (>5mm)	90%
Total suspended solids	85%
Total phosphorous	60%
Total nitrogen	45%

Source: City of Sydney

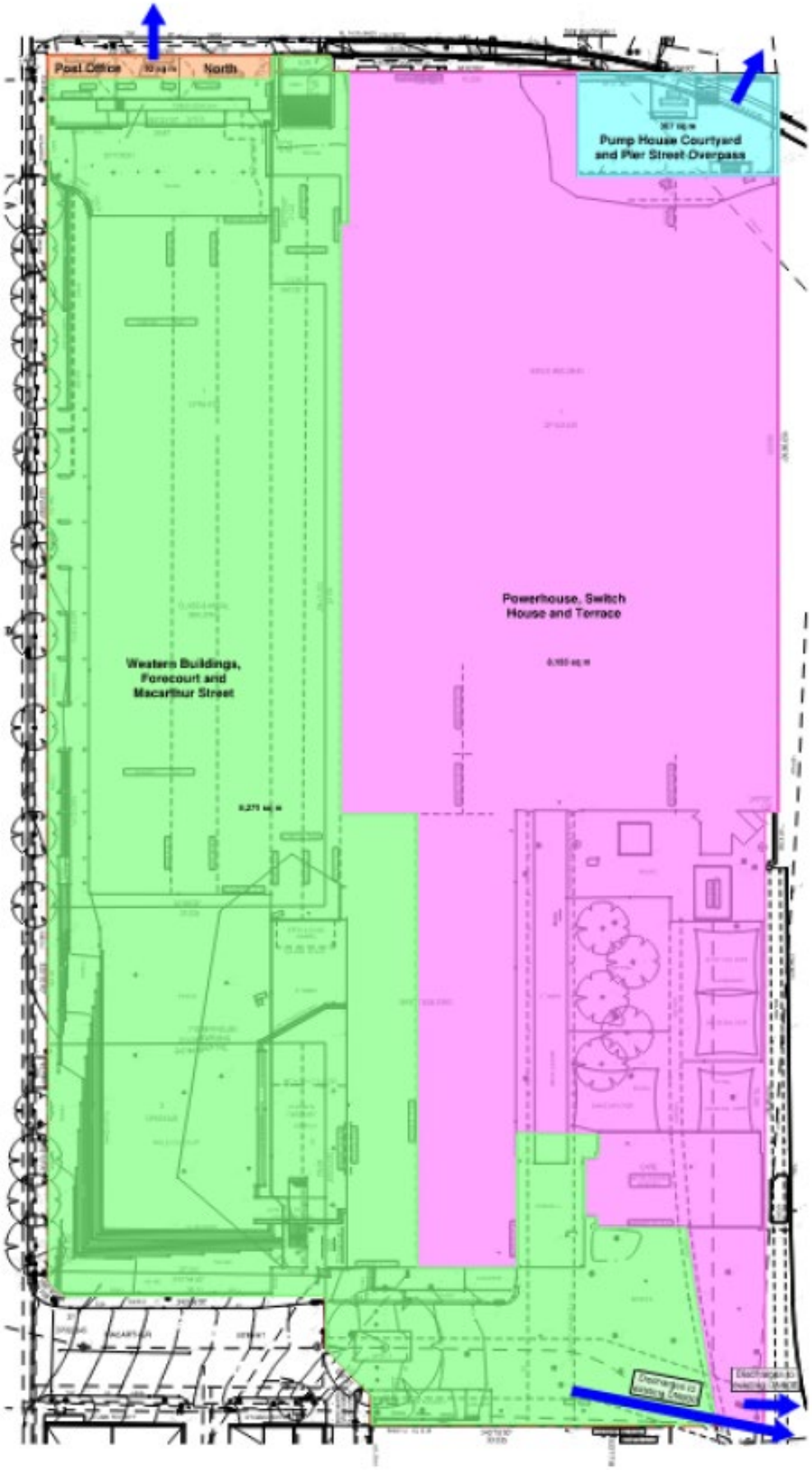


Figure 52 Existing storm water catchments

Source: TTW

6.7 Social and economic impacts

A detailed Social Impact Assessment (SIA) has been prepared by Aurecon and is provided at **Appendix W**. This report considers and identifies the key potential impacts and social benefits of the proposed development.

The key potential impacts associated with the project have been identified as the following:

- Temporary impacts to surroundings and amenity during the construction phase of the project. Changes to amenity may relate to environmental factors such as noise, traffic and parking, vibration, views, and air quality. These impacts will be managed in accordance with legislation and regulation, through a Construction Management Plan to be developed in consultation with the contractor.
- Temporary impacts to accessibility and way of life associated with disruption due to the construction phase, such as changes to wayfinding, pedestrian and bicycle accessibility and daily routines for Powerhouse staff, surrounding workers, residents and users of the locality, including bicycle commuters accessing the Sydney CBD.
- As the site is in a high-density central city environment, the area is likely to be accessed by a large number of sensitive receivers who could be more sensitive to changes to environmental factors, accessibility and routines. This could include children, elderly, people with limited mobility, people experiencing illness, disability or distress, and others. Appropriate wayfinding and safe and legible diversions will be essential throughout the construction process.
- Cumulative impacts associated with other development projects near the site may cause disruption and inconvenience for residents and local workers who may perceive "construction fatigue".

However, the above potential impacts are largely temporary or can be appropriately mitigated through the various environmental mitigation measures proposed throughout this EIS. Further, the most significant social benefits of the proposal are as follows:

- The provision of new contemporary museums, community and learning facilities within the project would significantly benefit livelihoods derived from creative enterprise and vocational development and enhanced livelihoods through community and industry engagement/employment opportunities and education/support networks within the strategic Tech Central activation precinct.
- The development will provide a new, high-quality public facility what will positively impact way of life for visitors, local workers, and residents. The increased floor space and open public space close to public transport is significant, providing a new leisure, creative, innovation and educational space for all of Greater Sydney.
- The development will generate approximately 200 operational total jobs, with 400 people to be employed across all Powerhouse sites once complete. Refer to **Table 11** for direct and indirect jobs generated from the proposal.
- The development will be highly transformative for the precinct, delivering a striking, design excellent built form and public domain that will improve accessibility to arts culture and creative industries within Sydney.

Overall, the SIA finds that the development to have a medium impact (both negative and positive) during the construction phase, which will be temporary and short term and able to be mitigated through appropriate mitigation measures (**Appendix D**). During the operation phase, Aurecon consider the impacts to be medium in scale and exclusively positive.

Table 11 Job numbers

Type	Existing jobs	Proposed jobs
Construction jobs		
Indirect	-	505
Direct	-	755
Total construction jobs	-	***1,260***
Operational jobs		
Direct	160	40 additional + 160 existing
Total Operational Jobs	***160***	***200***

Economic impacts

The proposed development will have significant positive economic impacts through jobs and economic activity. The proposed development will support an estimated 1,710 direct and indirect job-years during the construction phase of the development and an approximate $225.2 million the economy. The ongoing phases of the project will support an estimated 200 direct and 140 indirect FTE jobs, generating $34.4 million to the local and regional economy annually.

6.8 Noise and vibration

Arup has prepared a Noise and Vibration Impact Assessment (NVIA) (**Appendix X**), to identify and provide a quantitative and qualitative assessment of the noise and vibration generating sources produced during the construction and operation of the project.

6.8.1 Noise environment

The site is surrounded by a range of commercial, residential, recreational, and educational land uses. The NVIA separated its surrounds into three noise catchment areas (NCAs). Identified noise sources currently experienced surrounding the site are predominantly produced from surrounding roads, the light rail and other industrial and/or mechanical noise sources. **Figure 53** identifies the surrounding sensitive receivers adjacent to the site.

Figure 53 Sensitive Noise and Vibration Receivers

Source: Arup

Ambient noise monitoring was undertaken by RWDI April 5 and 19 2022 which was inclusive of long term and short term attended measurements. Noise measurements were carried out in the closest and most potentially affected areas surrounding the development. The short term and long-term measurement locations conducted by RWDI are outlined in **Table 12**.

Table 12 Measurement Summary Table

ID	NCA	Measurement location	Measurement Type	Comment on location suitability
Meas. 1a	1	Old Post Office Courtyard, Ha	Long term	Considered representative of the worst affected receivers, located along Harris Street.
Meas. 1b	1	Harris Street	Short Term	Considered representative of the worst affected receivers, located along Harris Street.
Meas. 2	2	Ultimo Powerhouse Rooftop	Long and Short Term	Considered representative of the worst affected receivers in NCA 2.
Meas. 3	3	Staff Courtyard, Mary-Ann Street	Long and Short Term	Considered representative of the worst affected receivers in NCA 3.
Meas.4	3	Corner of Macarthur Street and Omnibus Lane	Short Term	Used to validate that the results of long term, measurements taken in Meas. 3 for receivers between 81-85 Macarthur Street.

Based on the above base noise environment surrounding the site, the following sections outline the potential noise impacts on this base noise environment.

6.8.2 Construction

Noise

The identified NCAs outlined in **Section 6.8.1** have been used to formulate the construction noise criteria for the development, which has been utilised to evaluate the construction impacts of the proposed development. The construction noise criteria also considers the extent and program works in the site and the relevant noise policies, noise monitoring and guidelines. The noise assessment undertaken at this stage is conservative, in that it assumes concurrent use of a range of high-noise construction equipment in the same area of the site and does not take into account any on-site mitigation measures. The NVIA also conservatively assumes the use of impact piling rigs, rather than bored piling, which is to be confirmed based on further detailed ground composition surveys.

The assessment of construction noise concludes that residential noise receivers to the west of Harris Street, east on Darling Drive, and south across Macarthur Street will be most significantly affected as a consequence of close proximity to the site. The NVIA finds that the greatest noise impacts during the construction phase are likely to occur during the piling/excavation phase, with exceedances of noise management levels by up to 30 dB at the worst affected receiver (Darling Drive student accommodation buildings).

Non-residential noise receivers during construction include commercial and hotel receivers, childcare facilities, educational facilities, active recreation facilities and community use facilities. The results of the assessment conclude that exceedances of up to 18dB are predicted at the surrounding commercial premises along Harris and Macarthur Streets and exceedances of up to 33db are predicted at the educational facilities located directly across from Harris Street. The Aquatic Centre is predicted to receive up to 17db of construction noise and the childcare centre located across William Henry Street is forecasted to receive up to 27db of noise impacts.

Whilst there are some predicted instances of noise exceedances during construction, the assessment undertaken by Arup is considered to be conservative. These instances of predicted high noise levels are attributed to a small amount of high noise producing activities, such as jackhammering. These activities will not be occurring constantly, therefore reducing the periods of exceedance.

Mitigation measures have been identified by Arup to minimise impacts resulting from construction noise which have been outlined at **Appendix D**.

Vibration

Impact piling has the potential to produce significant adverse vibration impacts to receivers immediately adjacent and in close proximity to the site. At this stage, the use of impact piling has not been determined, however where possible bored piling is suggested to be used as an alternative to reduce the vibration effects to near vibration receivers and structures due to their close proximity to the location of works.

Site specific minimum work distances are recommended to be developed to reduce the impact of adverse vibration impacts should the works require the use of vibration intensive equipment including rock hammers vibratory rollers or compactors.

The heritage buildings located on site including the Pump House and Boiler House have been identified as requiring specific management to safeguard against cosmetic damage. Condition surveys and ongoing monitoring of vibration intensive works are recommended due to the close proximity of the works to the heritage buildings on site. These mitigation measures are provided at **Appendix D**.

6.8.3 Operation

Daily operational noise

Operational noise criteria have been established in accordance with the NSW Noise Policy for Industry (NPfI) which is primarily concerned with controlling intrusive noise impacts in the short-term for residences and maintaining long-term noise level amenity for residences and other land uses. The assessment details the NPfI recommended Amenity Noise Levels and categories the noise amenity areas in receiving categories including residential, hotels, internal school classrooms, active recreation areas and commercial premises.

The key items of potential noise in the day-to-day operation of the museum include:

- Patron and amplified sound including music from both internal and external spaces.
- Patrons arriving at and leaving the site.
- Building services and external plant.
- Loading dock operations and waste and recycling collection.
- Traffic generated by operation of the site.

It is not anticipated that any day to day operational noise will have any considerable effect on surrounding sensitive receivers.

Traffic generated noise

Given the proposal incorporates no parking or vehicular access beyond the loading dock, there is no expected noise to result from any private vehicle use on the site. However, some noise may result from the loading dock. Arup has assessed the expected noise of the loading dock operations and has concluded that all noise from internal loading activities is expected to be contained within the loading dock itself. Doors to the loading dock will be appropriately designed to control noise egress, as well as to minimise noise from the opening and closing of doors (refer to the mitigation measures at **Appendix D**).

The loading activities proposed external to the loading dock (as discussed in **Section 6.3.1**) are expected to have some noise impact for some adjoining residences, however given that these loading activities will occur 1-2 times a year, it is not expected that they will have any significant impact. The infrequency of these events should be noted in this instance.

Patron and music generated noise

This section seeks to address the potential impact from events held on the site that may generate large crowds and includes the provision of music, either in the form of background music or more focal entertainment. Table 11 below outlines the proposed activities of this nature on the site and the noise levels resulting from such uses.

Table 13 Proposed activities and noise descriptions

Activities	Description of use	Primary noise sources	Overview of acoustic environment within activity space
Museum exhibition	Public exhibition of installations	Patron conversations, installations with sound	Low to moderate noise levels
Installation / deinstallation of exhibitions	Loading / unloading and installation / deinstallation of exhibition pieces	Staff conversations, loading and unloading noise	Typically, low noise levels, with intermittent noise from loading / unloading activities.
Program	Conferences and symposiums	Amplified speech, patron conversations	Low to moderate noise levels

Activities	Description of use	Primary noise sources	Overview of acoustic environment within activity space
	Film, performances and music (concerts)	Amplified music during concerts, amplified speech, noise from large crowd	Moderate to high noise levels possible, with highest noise levels associated with amplified music.
Commercial	Commercial use under lease, eg. Corporate functions, Christmas parties, dinners	Amplified music during Christmas parties or functions, amplified speech, patron conversations	Medium to high noise levels.

Arup's assessment notes that different noise levels are likely to result from the varying events, as well as from the different spaces within the site. The acoustic modelling results indicate that predicted noise levels at all residential and non-residential receivers comply with the NPfI PNTLs, and the proposed events outlined in Table 11 can be categorised as 'low risk' operations and are considered reasonable to occur on a regular basis.

Mitigation measures, depending on the risk level and perceived level of impacts of these events, are outlined at **Appendix D**.

Vibration

There are limited vibration impacts expected to result from the ongoing operation of the museum. The loading of large exhibition pieces the loading dock and exhibition spaces are likely to be the most significant sources of operational vibration. The anticipated vibration impacts on the site's surrounding receivers is not expected to be significant enough to affect human comfort or structural damage to neighbouring properties. Therefore, no vibration mitigation measures for ongoing operation are considered necessary.

6.9 Sustainability

An Ecologically Sustainable Development (ESD) Report has been prepared by LCI Consultants and is provided at **Appendix BB**. The report provides an assessment of the proposal against the principles of ESD, outlines the project's ESD performance targets and alignment with the relevant plans and policies, and describes the ESD framework and sustainable design principles being implemented to achieve the project targets.

The development has been registered with the Green Building Council of Australia and will achieve a minimum of a 5 Star Green Star Buildings rating with an aspiration to achieve a 6 Star Green Star Buildings v1 Rating. A 5 Star Rating is considered current Australian excellence while a 6 Star Rating is considered current world excellence. The project will also achieve alignment with the City of Sydney's relevant sustainability policies.

Key design features that will lead to the achievement of the abovementioned targets include the following:

- No gas from the grid to be utilised.
- 100% renewable electricity will be procured.
- Building refrigerants will be offset.
- On-site electricity generation through PV cells.
- Monitoring and metering key parameters such as CO2 (to determine when outdoor air is required).
- Procurement of responsible materials for construction of the building structure, envelope, systems, and finishes.
- Low flow rate taps to ensure unnecessary potable water is not wasted for sanitary needs.
- Rainwater catchment from exposed non-trafficable surfaces for irrigation of the flora onsite.

Mitigation measures are provided at **Appendix D** to ensure an appropriately sustainable outcome is realised. Refer to the ESD Report at **Appendix BB** for further detail.

6.10 Safety and security

A Crime Prevention Through Environmental Design Report (CPTED) has been prepared by Ethos Urban at **Appendix EE**, which details the project, policy and crime context for the project and makes recommendations about the necessary CPTED strategies to reduce opportunities for crime to occur.

This strategy includes a detailed assessment, which includes:

- A review of Safety by Design Manual by the NSW Police Force.
- Collection and analysis of local and NSW State crime statistics from the Bureau of Crime Statistics and Research (BOSCAR).
- A crime risk assessment, in accordance with the current NSW policy and practice, of matters of surveillance, lighting and technical supervision, territorial reinforcement, environmental maintenance, activity and space management, access control, and design, definition and designation.

This assessment has found that, with the implementation of the recommendations outlined in the CPTED Report, the crime risk rating of the site would be 'moderate', a product of the dense urban environment that Powerhouse Ultimo is located within rather than the high-quality design for the site, which is considered consistent with the principles of CPTED.

Mitigation measures relating to crime risk on the site are outlined at **Appendix D**.

6.11 Soils and contamination

Acid sulfate soils

JBS&G has prepared a DSI (**Appendix I**), which identifies the potential for acid sulfate soils occurring on the site and techniques to mitigate the potential environmental impacts associated with potential site excavation works and piling.

This assessment has identified that the site does not contain any acid sulfate soils, however, may contain potential acid sulfate soils. The DSI identifies mitigation measures relating to the management of acid sulfate soils, which are included at **Appendix D**.

Contamination and remediation

The DSI has also assessed the potential contamination of the site. An assessment of the historical data found that the site has been used for commercial and industrial purposes, including glass, paper and maize manufacturing, and as a service station. Given the site's history, there are numerous potential sources of contamination.

Asbestos was detected below the site assessment criteria at one location. Given the varied industrial history of the site and the various fill types encountered, it is considered likely that asbestos containing materials (ACM) may be present in fill materials sporadically across the site. Although the concentration was detected below the site assessment criteria, there is a potential risk to workers health during soil disturbance works. Isolated fragments of bonded ACM, whilst potentially not a concern from a long-term health exposure assessment perspective, will require management from a WHS perspective during future ground disturbance at the site. These mitigation measures have been included at **Appendix D**.

Concentrations of total recoverable hydrocarbons were reported above the ecological criteria and management limits at two locations. The exceedances were detected in soils where proposed gardens/green spaces are proposed. It is considered there is potential risk to ecological receptors and underground infrastructure.

It is recommended that a Remedial Works Plan be developed to support the project in conjunction with the detailed design to manage the surplus material, data gaps beneath the Wran building and ensure relevant protocol to address any unexpected finds including asbestos and odorous soils should they be encountered during the later stages of the development. These mitigation measures are included at **Appendix D**.

6.11.1 Geotechnical

JK Geotechnics have prepared a Geotechnical and Ground Water Report at **Appendix M**. The fieldwork for the investigation was carried out between 7 June 2023 and 11 August 2023 and comprised the below scope of work:

- Drilling and testing of twelve boreholes.
- Four test pits were excavated using hand tolls.
- Four exposed sandstone bedrock faces with faces within the existing Powerhouse basement were inspected and mapped.

Based on the subsurface conditions encountered during the investigation, JK Geotechnics considers the site to be geotechnically suitable to support the proposed development. Based on the results of the ongoing groundwater monitoring, groundwater was found to be present in the bedrock below the lowest excavation level for the proposed additions. JK Geotechnics conclude there will no impact on groundwater as a result of the proposed development. The Report provides recommendations that include specific issues to be addressed in

the design and construction phase of the proposed development. The mitigation measures are provided in **Appendix D**.

6.12 Biodiversity

A Biodiversity Development Assessment Report (BDAR) Wavier Report has been prepared by WSP and submitted separately to DPE prior to the lodgement of this application (see **Appendix Y**).

The BDAR Waiver Report states that the proposed development is unlikely to have a significant impact on threatened species or their habitats due to the highly developed and urbanised nature of the site. As such no specific mitigation measures are proposed in relation to biodiversity impacts.

6.13 Waste management

6.13.1 Construction waste

A Construction Waste Report has been prepared by Foresight Environmental and is provided at **Appendix R**. This plan details the waste expected to be generated during the construction phases of the development. The estimated composition of demolition waste by volume is detailed in **Table 14** below.

Table 14 Estimated composition of demolition

Material	Kilograms	Approximate recovered %
Plasterboard	3,753	94
Green Waste	16,037	100
Timber	50,241	33-100
Metal	146,458	100
General Residual	1,265,319	20
Brick	5,287,078	100
Concrete	6,758,073	100
TOTAL	13,526,959	

The approximate percentage of recovered waste is only indicative and has been derived from various resource recovery centres in the Sydney district, and as such it is high level and subject to change. Once the specific waste contractor for the site is known, a more detailed analysis can be calculated.

6.13.2 Operational waste

An Operational Waste Management Plan has been prepared by Foresight Environmental and is provided at **Appendix N**. The Plan details the waste management procedures during operation of the development. The plan also identifies the likely waste streams and quantities during the operation of the development which has been based on benchmark date. **Table 15** details the estimated waste generation volume of frequently uses waste stream, waste will however also be generated by less frequent streams inclusive of sanitary waste, hazardous waste and had bulky waste.

Table 15 Estimated waste generation during operation

Waste Stream	Generated Waste Rate KG/Week
Dry	4,978
General Waste	3,064
Paper	495
Organics	260
Mixed recycling	240

Waste Stream	Generated Waste Rate KG/Week
Cardboard	270
Total	**2,192**

Source: Foresight Environmental

The following waste management systems and facilities have been incorporated into the design of the development to promote reuses, recycling and safe disposal of waste:

- It is expected that all commercial areas will implement centralised bin hubs throughout their fit-out in appropriate areas. This system is recommended for the event spaces as well. Establishing centralised bin-hubs for the management of all relevant waste streams will typically drive better practices. Cleaners will be responsible for transporting waste from the bins to waste room using trolleys, back of house operations and lifts.
- It is recommended that retail areas including food and beverage kitchen areas also separate and manage their waste and recycling streams.
- All waste and recycling streams will be differentiated with clear signage on all bins and on walls within the waste storage area. The allocated building manager is responsible for waste room signage and safety signage. The necessary signage must be displayed on doors, walls and bins to ensure the separation of waste and recycles is clearly labelled for visitors and staff. All signage will abide by the relevant Australian Standards.
- Waste from level 1, 2 and 3 will transferred via lifts to the ground floor. All waste will then be transferred to the loading dock and down the ramp to the waste storage room. The waste contractor will collect bins directly from the waste storage room.

Mitigation measures relating to construction and operational waste are provided at **Appendix D**.

6.14 Accessibility

The access arrangements for all people including those with a mobility impairment has been considered during the design process and in the architectural and landscape solutions for the site as well as in the transport strategies for the operation of the site.

Morris Gooding Access Consulting has undertaken an accessibility review (**Appendix Z**) to assess if the design of the proposal is equivalent to or exceeds the principles of the universal access considering all user groups and members of the public, visitors and staff for sensory impairment, mobility impairments and dexterity impairments. The review confirms that the proposed development will be capable of compliance with the accessibility requirements of the DDA Premises Standards 2010 and the Building Code of Australia (BCA).

6.15 Fire safety

Arup has reviewed the documentation and has assessed the capability of the development to satisfy the performance requirements of the BCA (**Appendix AA**) in relation to fire safety and engineering. The purpose of the report is to request consideration from the consent authority for partial conformity of the proposed works to the BCA. The items which are seeking concession on are as follows:

- The existing columns within the Engine House, which are to be retained in their original condition in lieu of providing passive fire protection to achieve a fire resistance level of 60/-/-.
- The North Annex, for which no fire safety assessment will be conducted.

This approach has been discussed with the nominated Certifier (Steve Watson & Partners) and an agreement in principle has been reached regarding the pathway and is consistent with the approach undertaken for the Development Consent process under Clause 64 of the *Environmental Planning and Assessment Regulations 2021*. Subject to agreement and endorsement by the Consent Authority, Arup requests that the listed concessions form part of the proposed Building Works Development Consent requirements.

6.16 Structural

A Structural Design Statement has been prepared by Arup and is provided at **Appendix CC**. The statement assesses the proposal in accordance with the National Construction Code, relevant Australian Standards, applicable technical guides and accepted engineering principles. The assessment confirms that structural engineering design will be developed as part of the detailed construction phase for the project in accordance with the Australian Standards, BCA and accepted engineering principles. The structural design elements are capable of complying with these relevant standards, subject to further detailed design.

6.17 Building Code of Australia

Steve Watson and Partners have prepared a Building Code of Australia (BCA) Statement of Compliance which is provided at **Appendix DD**.

The BCA assessment states that the design is capable of complying with the relevant components of the Act and EPAR (DCFS) 2021, EPAR 2021 and the BCA 2022 subject to resolution of the identified areas of non-compliance and compliance with the recommendations proposed at **Appendix D**.

Further detailed regulatory reviews will need to be progressively undertaken as designs advance and become more resolved to ensure compliance is achieved.

6.18 Air Quality

An Air Quality Assessment has been prepared by SoundIn (**Appendix GG**), which assesses the potential dust and air quality impacts and any necessary mitigation and management strategies to minimise these impacts.

A qualitative assessment of potential air quality impacts during construction has been undertaken by SoundIn, which concluded that the works can be undertaken in general accordance with the methodology described in Guidance on the assessment of dust from demolition and construction (IAQM,2014).

Numerous management and mitigation measures have been since identified to minimise the risk of potential dust which will minimise and monitor the dust in real time. The residual effects are expected to be insignificant and to have a low risk on generating unacceptable air quality impacts are expected to have low impacts on the health of humans. These mitigation measures are provided at **Appendix D**. Notably, a Preliminary Construction Management Plan has been prepared and provided at **Appendix R**, which considers the potential air quality impacts and management methods. A further detailed CMP will be prepared once a contractor is appointed.

It is noted that no ongoing air quality impacts are expected during operation of the site.

7.0 Project justification

The EP&A Act specifies that a justification must be made having regard to biophysical, economic, and social considerations and the principles of ecologically sustainable development, including both positive and negative impacts.

The proposed development comprises a detailed proposal for the revitalisation of Powerhouse Ultimo. It details the assessment against the relevant framework for alterations and additions and new built from and public domain spaces to deliver exhibitions that showcase the Powerhouse Collection, international exclusive exhibitions and programs that support the creative industries.

As part of this redevelopment process, the construction of buildings, the detailed design and public domain spaces were subject to an innovative, detailed design process.

This assessment focuses on the detailed extent of works and the impact of the proposed works. The assessment is detailed and provides a detailed assessment against the Architectural Design Report (**Appendix E**) and supporting consultant reports which represent the proposed outcomes and effects of the proposal for the Powerhouse Ultimo site.

Various components of the biophysical, social and economic environments, as well as the proposals alignment with the objects of the EP&A Act and other statutory instruments applicable to the site have been examined in this EIS and are summarised below.

7.1 Ecologically sustainable development

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any serious threat of irreversible damage to the environment and, therefore, the precautionary principle is not relevant to the proposal. The proposed technical studies accompanying this EIS appropriately establish strategies and a framework for the future detailed design and delivery of the Powerhouse Ultimo Revitalisation project, emphasising that there is no potential threat of serious or irreversible damage at this stage.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- Delivering a highly operational precinct that contributes to delivery of strategic State and Local Government directives for activation of visitor and night-time economies, while creating publicly accessible and open spaces to encourage the local community to engage with the precinct.
- Providing for new local employment opportunities close to public transport including approximately 200 new jobs, increasing the total number of people employed flexibly across the suite of four Powerhouse sites to 400.
- Enhancing opportunities for cultural and social interaction for residents, workers, and visitors in the local area through renewed, programmed internal museum space, and enhanced open space and pedestrian

infrastructure within the site. This will positively improve daily living routines due to increased amenity and walkability.

- Delivering new/revitalised creative and learning spaces for creative, research and learning programs, providing enhanced opportunities to collaborate with schools, universities, and industry. This has the potential to improve life-long education outcomes for students and thereby supporting long term social and economic wellbeing.
- Supporting sustainability and the transformation of Ultimo alongside Tech Central and Darling Harbour as an internationally renowned innovation precinct and cultural destination. The proposal has the potential to enhance the cultural significance and characteristics of the south-eastern CBD.
- Recognising and appropriately considering the sites rich heritage and architectural fabric which was appropriately adapted and contributes to Powerhouse Ultimo as a vital component of the ongoing cultural life of Sydney.

The proposal has integrated short and long-term social, financial, and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long-term implications such as waste disposal are avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports. The adaptive reuse of any heritage significant spaces within the site would be conducted in accordance with the CMP.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration. As has been demonstrated in **Appendix BB** and throughout this EIS, the proposed development will not result in any significant effect on the biological and ecological integrity of the study area, subject to the implementation of the Mitigation Measures set out in **Appendix D**.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling, and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Measures have been detailed in the mitigation measures at **Appendix D** and have been detailed throughout this EIS to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases of the development.

7.2 Environmental Planning and Assessment Act 1979- Objects of the Act

This EIS has examined and considered all possible matters affecting or that are likely to affect the environment by reason of the proposed development. The project is consistent with the relevant Objects of the EP&A Act, as outlined in **Section 4.0** and will not result in any unjust or significant environmental impact.

7.3 Environmental Planning and Assessment Act 1979 – Clause 4.15 Evaluation

The following section assesses the proposal against the relevant heads of consideration listed in Section 4.15 of the EP&A Act.

7.3.1 Environmental planning instruments

As described in **Section 4.0** , the proposal against the relevant heads of the consideration listed in Section 4.15 of the EP&A Act.

- *Environmental Planning and Assessment Act 1979.*
- *Environmental Planning and Assessment Regulation 2021.*
- *Biodiversity Conservation Act 2016.*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021.*
- *State Environmental Planning Policy (Industry and Employment) 2021.*
- *State Environmental Planning Policy (Resilience and Hazards) 2021.*
- *State Environmental Planning (Resilience and Hazards) 2021.*

- *State Environmental Planning Policy (Biodiversity and Conservation) 2021.*
- *State Environmental Planning Policy (Sustainable Buildings) 2022*
- *Sydney Local Environmental Plan 2012.*

It is further noted that State Environmental Planning Policy (Housing) 2021 will not apply to this project.

The Statutory Compliance Table at **Appendix C** further outlines the relevant statutory requirements of each EPI and the location in the EIS where those requirements have been assessed. Those statutory requirements that are yet to be assessed in the EIS are addressed below.

7.3.2 EP&A Regulation

The EIS has addressed the specification criteria within Section 190 and 192 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see above). As required by Section 4.42 of the EP&A Act, no additional approvals will be required at this stage to enable the project.

An approval under the *Roads Act 1993* will be required to accommodate works on Macarthur Street, which will be sought following determination of the proposal.

7.3.3 Likely impacts of development

Social and Economic

An assessment of the likely social and economic impacts of the project has been undertaken in the Social Impact Assessment at **Appendix W** of the EIS, prepared in accordance with DPE's Social Impact Assessment Guideline 2021. The assessment confirms that the proposal has the potential to result in both positive and negative impacts. The identified negative impacts are primarily short-term related to completing construction activities on the site and have informed mitigation measures discussed in **Appendix D**. The identified positive impacts range from short-term to long-term and will impact both the local area and the wider vitality and vibrancy of Sydney and NSW.

In addition, the ongoing phase of the project will support an estimated 200 direct and 140 indirect FTE jobs, generating approximately $34.4 million in value- adding to the local and regional economy annually. The estimated 400 FTE direct ongoing workers across Powerhouse sites will cause an immediate value-add to the economy of $37.1 million annually. When considering the multiplier effect, total continued employment is estimated at 670 FTE jobs (direct and indirect), including a total value added to the economy of $68.8 million annually.

Overall, the revitalisation of Powerhouse Ultimo will ensure positive social outcomes for the broader community subject to the implementation of the identified mitigation measures. Investment in the revitalisation of this significant national scale public cultural facility, will generate broader benefits for the associated public programming and community infrastructure, which will be widespread, significant, and long term. A detailed assessment of the social and economic impacts was assessed in this EIS at **Section 6.7**

7.3.4 Suitability of the site

Having regard to the characteristics of the site and its location, the proposed development is suitable for the site as it:

- Will not change the use or function of the site, as the project seeks to renew and enhance the existing museum (information and education facility) that has occupied this site for several decades to ensure that it remains functional and relevant to future users.
- Directly supports and aligns with the broader strategic opportunity to transform the Pyrmont Peninsula as identified in the Pyrmont Peninsula Place Strategy and supports a coordinated series of investments in cultural infrastructure throughout NSW as envisaged in the Cultural Infrastructure Plan 2025+.
- Will celebrate and enhance the heritage significance of the site, as demonstrated in **Section 6.4**.
- Has been designed to be developed in a manner that minimises impacts on its surrounds and has been designed to in some respects improve the natural, historical, and environmental qualities of the site.
- Will result in only minor environmental impacts that can be appropriately managed and mitigated.

The subject site is also considered to be highly suitable for the proposal in that:

- It is zoned B4 Mixed Use under the Sydney LEP 2012, which permits the development of 'information and education facilities', and the project will meet the objectives for this land use zone.
- The project is consistent with pursuant to the requirements of Section 4.24 of the EP&A Act.
- It is well serviced by existing and future transport arrangements comprising walking and cycling routes including The Goods Line, light rail, heavy rail, and buses, and future Metro Station at Pyrmont as part of Sydney Metro West.
- It is of sufficient size to accommodate new built form and public domain areas.
- It has existing utility infrastructure connections which have capacity, or which can be readily augmented to provide capacity for, the servicing requirements of the Powerhouse Ultimo Revitalisation project.
- The site is located on the CBD-fringe and therefore is ideally positioned to host a 'destination' development that contributes to the visitor economy and day-to-night character of the Sydney CBD.

7.3.5 Public interest

The application provides additional direct benefits that the previous site did not accommodate and realises the project objective to renew Powerhouse Ultimo and provide a world-class contemporary museum and is considered to be in the public interest as it:

- Has as the potential to deliver significant social, cultural and economic benefits to the local and greater Sydney and NSW community by providing new and enhanced cultural infrastructure that will support creative, research and learning programs, providing enhanced opportunities to collaborate with schools, universities, and industry. This has the potential to improve life-long education outcomes for students and thereby supporting long term social and economic wellbeing.
- Represents the economic and orderly development of land that will retain the existing core function of the site and renew and enhance the existing facilities, providing an additional approximate 200 jobs.
- Contributes to the visitor and night-time economies and activates the site and surrounds, providing new cultural and entertainment opportunities during both day and night and diversifying the local night-time economy.
- Demonstrates design excellence, ensuring a high-quality built form and landscape design that achieves design excellence and contributes to the architecture of Sydney.
- Provides opportunities to better integrate with its surrounds including enhanced connections to The Goods Line and surrounding light rail strops to support the activation and uses of these spaces and destinations.
- Demonstrates the desire to achieve a high level of environmental performance including achieving a minimum 5 Star Green Star Rating with opportunities for 6 Star Green Star Rating elements, as well as measures that promote and support the uptake of sustainable transport options, and design considerations for addressing environmental risks and climate change.
- Continues to prioritise increased visitation by public transport, cycling and walking through providing bicycle parking, improved coordination infrastructure outside of the site, and the development of a Green Travel Plan as part of the future operation of the site.
- Will not result in any significant environmental impact that cannot be appropriately mitigated or managed through the adherence of Mitigation Measures detailed in **Appendix D**, standards of development consent and any further mitigation measures during the construction and operational phases of the development.

8.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to address the environmental, social, and economic impacts of the proposed Powerhouse Ultimo revitalisation. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and accords with Part 8 of the EP&A Regulation with regards to consideration of the relevant environmental planning instruments, built form, and social and environmental impacts resulting from the proposed development. Appropriate mitigation measures have been identified to manage the impacts of the development through the construction and operational phases of the project.

This SSDA seeks consent for the detailed design, construction, and operation of the revitalised Powerhouse. The project is consistent with the objectives of the strategic planning documents applying to the land, including the Eastern City District Plan and the Pyrmont Peninsula Strategy.

Having regard to biophysical, economic, and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The proposal will facilitate the revitalisation of Powerhouse Ultimo and provide world class museum and exhibition space, which will deliver important community wellbeing and economic benefits to a district, regional and national scale, as well as a local scale.
- The proposal represents a significant investment in the cultural, arts and creative industries, and the revitalisation of this significant national scape public cultural facility, the associated public programming and community infrastructure will be widespread, significant and long term.
- The proposal demonstrates high design quality in accordance with the requirements of the City of Sydney LEP.
- The proposal allows for the significant improvement of the public domain on and around the site, allowing for improved connection to The Goods Line and surrounding precincts including Darling Square and Darling Harbour. This will redefine the entrance to the museum, improving the experience for visitors.
- The proposal will support an estimated 200 direct and 140 indirect FTE jobs, generating approximately $34.4 million in value- adding to the local and regional economy annually. The estimated 400 FTE direct ongoing workers across the Powerhouse sites will cause an immediate value-add to the economy of $37.1 million annually. When considering the multiplier effect, total continued employment is estimated at 670 FTE jobs (direct and indirect), including a total value added to the economy of $68.8 million annually.
- The proposed SSDA allows for the provision of the renewed cultural facilities that respond to the heritage significance of the site, whilst not resulting in impacts on surrounding uses that cannot be managed.
- The proposed works are directly consistent with the Pyrmont Peninsula Place Strategy, the Draft Ultimo Sub-Precinct Plan, the NSW Government's Cultural Infrastructure Plan 2025+ and the City of Sydney's Local Strategic Planning Statement, as it delivers design excellent, cultural and community facilities.
- The assessment of the proposal has demonstrated that the development will not result in any environmental impacts that cannot be appropriately managed and consistent with the relevant planning controls for the site.

The proposal is consistent with the principles of ecological sustainable development as defined by section 193 of the EP&A Regulation.

Given the merits described above, and the significant benefits associated with the proposed development, it is requested that the application be approved.