Attachment C1

Powerhouse Museum Heritage Assessment Report (Lovell Chen)

POWERHOUSE MUSEUM

HERITAGE ASSESSMENT

No. 500 Harris Street, Ultimo, Sydney, New South Wales 2007

August 2024

Prepared for

CITY OF SYDNEY

Prepared by

LOVELL CHEN

ACKNOWLEDGEMENT OF COUNTRY

This report was prepared on the lands of the Wurundjeri people who have been custodians of this land for thousands of years. We acknowledge their stories, connection to land, water and culture which is embedded in Country. We pay our respects to their Elders past and present and acknowledge that this report includes a post-contact history that forms only a small part of the ongoing story.

The Powerhouse Museum is located on the lands of the Gadigal of the Cadigal (Gadigal), Gammerigal and/or Wangal clans of the Eora Nation, who are, and have always been the custodians of this land. We pay our respects to the Elders past and present, and acknowledge the stories, traditions and cultures of all Aboriginal and Torres Strait Islander people.

Quality Assurance Register

The following quality assurance register documents the development and issue of this report prepared by Lovell Chen Pty Ltd in accordance with our quality management system.

Project no.	Issue no.	Description	Issue date	Approval
20230071	1	Draft for review	3 June 2024	AM
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Referencing

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Limitation

Cover: View of the Powerhouse Museum looking south-east from the corner of Harris and William Henry streets (September 2023)

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1.0 BACKGROUND AND BRIEF

This Heritage Assessment was commissioned by the City of Sydney. It responds to a Resolution of Sydney City Council that 'the Chief Executive Officer be requested to investigate the entire Powerhouse Museum site [in Ultimo] for heritage significance'.[1] Further commentary on the context for assessment is provided below (see Section 1.4 and Appendix A).

The primary authors were heritage consultant Adam Mornement, a Principal of Melbourne-based practice Lovell Chen and Professor Philip Goad, Redmond Barry Distinguished Professor and Chair of Architecture, Melbourne School of Design, University of Melbourne.

1.1 Nomenclature

Buildings at the subject site have been referred to by various names over time. For ease of understanding, the nomenclature adopted in this document is generally consistent with the most recent documents relating to the place, including the Conservation Management Plan (CMP) prepared by Curio Projects in 2022.[2]

1.2 Acknowledgements

The authors are grateful for support provided by the following: Lisa Havilah, Chief Executive Officer, Museum of Applied Arts and Sciences (MAAS); Jeremy Kelshaw, Director, Office of the Chief Executive, MAAS; and Simon Walkom, Director, Strategy & Operations, MAAS.

1.3 Study area

The study area (the Powerhouse Museum complex) is bound by William Henry Street to the north, Harris Street and Omnibus Lane to the west, Mary Ann Street to the south the and the Goods Line/tramway corridor to the east. This area, illustrated at Figure 1, comprises Lot 1, DP 631345 (the Powerhouse Museum, 500 Harris Street) and Lot 1, DP 770031 (Former Ultimo Post Office). Lot 1, DP 631345 is made up of the following:

- Lot 1, DP 781732: Museum and gallery space constructed in the 1980s (generally referred to as the Wran Building), and hard paved courtyard to the north
- Lot 1, DP 631345: Including the remnants of an electricity-generating power station built from 1898 to the 1930s (Engine House, Boiler House, North Annex, Pump House) as well as hard paved areas and public open space generally to the west and east of the study area
- Lot 3, DP 631345: Harris Street forecourt (part)
- Lot 37, DP 822345: Harris Street forecourt (part)
- Lot 1, DP 216854: The 'Harwood Building', a former Tram Depot that was adapted for use as storage, offices and conservation studios in 1980-81

1 City of Sydney, Resolution of Council (City of Sydney), 15 May 2023, Item 11.9 'Supporting the Powerhouse', Item 'B'.

2 Curio Pty Ltd, *Powerhouse Ultimo Draft Conservation Management Plan,* 2022. At the time of writing it was understood that this CMP was under review.

Figure 1
The study area
Source: Nearmap (base photograph)

The Powerhouse Museum was developed during the 1980s as premises for MAAS, which maintains a diverse collection estimated at 500,000 items/objects. The Museum is owned by the NSW Government and operated and maintained by the NSW Minister for the Arts and the Trustees of MAAS, which is constituted as a body corporate under the *Museum of Applied Arts and Sciences Act* 1945. Under the provisions of the Act, nine Trustees are appointed by the Governor of NSW, on the recommendation of the NSW Minister for the Arts, for a term of up to three years, and may serve for a maximum of three full terms.

1.4 Context for review

This heritage assessment was prepared during a period of public interest in the management and future of the Powerhouse Museum. This interest was triggered by a proposal, announced by the NSW Government in November 2014, to close the Powerhouse Museum at Ultimo and construct a new Powerhouse facility in Sydney's western suburbs (see Appendix A for further information).

The original proposal has evolved over the intervening decade. The proposition, at the time of writing, was for the Powerhouse Museum at Ultimo to be retained and adapted as part of a creative industries precinct. The new museum (at Parramatta) was under construction.

Since 2014/15, plans for the Powerhouse group of museums have been the subject of extensive media coverage and community activism including, but not limited to, the 'Powerhouse Alliance', 'Save the Powerhouse' and the NSW Chapter of the National Trust of Australia. In 2020, a Select Committee was convened to consider the NSW Government's management of the Powerhouse Museum and other museums and cultural institutions in the State[3] (again, see Appendix A for further information).

The statutory heritage controls that apply to the Powerhouse Museum (Ultimo) have also evolved since 2014. At that time the only building at the study area that was included in the NSW State Heritage Register was the Post Office (Item no. 00502). The remnants of the Ultimo Power House built from the late-nineteenth century to the interwar period were included in the City of Sydney Local Environmental Plan (LEP I2031) as 'Powerhouse Museum former warehouse buildings, including interiors'.

In 2020, the Ultimo Power House was included in the NSW State Heritage Register (Item no. 02045), and in 2023 the Heritage Council of NSW resolved to investigate an expansion of the NSW State Heritage Registration to include the Wran and Harwood buildings.[4]

Further commentary on the heritage controls that apply to the study area is at Section 1.6.

1.5 Methodology

The approach to assessment in this document follows best practice methodologies including those set out in the *Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter)* 2013 and its Practice Notes, and *Assessing Heritage Significance, Guidelines for assessing places and objects against the Heritage Council of NSW criteria* issued by the NSW Department of Planning and Environment, 2023.

Best practice in significance assessment demonstrates the importance of an approach which recognises that values ascribed to places are interrelated. Methodologies that assist in thinking broadly about values are also consistent with best practice, as is the recognition that assessments of significance are qualitative and can never be completely objective. As such, it should be acknowledged how, why and when they have been produced.

It is also important to acknowledge that significance assessments will change over time as new evidence emerges, or perceptions of historical and social values about a place evolve – as has occurred at the

3 NSW Legislative Council, *Select Committee on the Government's Management of the Powerhouse Museum and Other Museums and Cultural Projects in New South Wales*, September 2022.

4 Heritage Council of NSW, Meeting Minutes 520, 4 October 2023, p. 5.

Powerhouse Museum in recent years. That is to say, assessments of significance should be sufficiently flexible to accommodate changing community and professional understandings of heritage values.

In cases where the primary author(s) of a heritage place are alive it is considered appropriate to consult with them (or endeavour to do so). Consultation with the author(s) of heritage places is also consistent with the provisions of the *Copyright Act* 1968, and the amendments made to that Act by the *Commonwealth Copyright Amendment (Moral Rights) Act* 2000, notably the provisions of Section 195.

In broad terms, the sequence observed in the assessment of the Powerhouse Museum complex was as follows:

- Understanding the place, including:

  Data gathering and summary history

  Site familiarisation – physical inspection

  Document review, including previous heritage reports and assessments

  Analysis of press coverage and advocacy campaigns

  Consultation with Lionel Glendenning, architect-of-record for the Powerhouse Museum, Jennifer Sanders, Deputy Director of the Powerhouse Museum 2001-09, and Dr Lindsay Sharp, Director of MAAS from 1978-88

- *Assessment of significance*

  Against the NSW Heritage Criteria, consistent with *Assessing heritage significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, prepared by Department of Planning and Environment, NSW, 2023

1.6 Heritage controls and listings

Table 1 Heritage controls and listings within the study area

Place	Statutory heritage controls	Heritage listings (non-statutory)	Extent of registration
Ultimo Post Office, 1901, 494 Harris Street, Ultimo	NSW State Heritage Register (00502), gazetted 4 February 1999 LEP (I2030), gazetted 14 December 2012 ('Former Ultimo Post Office including interior')	Register of the National Estate (Place ID 2381) Classified by the National Trust of Australia (NSW), (S9302)	
Ultimo Power House (Powerhouse Museum, Stage Two)	*State:* NSW State Heritage Register (02045), gazetted 4 September 2020 * Note: on 28 February 2024, the NSW State Heritage Register	Register of the National Estate, 'Powerhouse Museum (Stage Two)' (Place ID 100690)	The boundary is within Lot 1 DP 631345 and comprises the four main interconnected heritage buildings being the Engine House and Turbine Hall, Second Boiler House, Office Building and Switch Hall.

Place	Statutory heritage controls	Heritage listings (non-statutory)	Extent of registration
	Committee (HOD No. 5068313) issued a draft recommendation to expand the Powerhouse Museum complex to include the Wran and Harwood buildings. *Local:* LEP (I2031), ('Powerhouse Museum former warehouse buildings, including interiors', see Figure 2)		The proposed extension to the curtilage of the Ultimo Power House SHR listing (February 2024) includes: • Lot 1 DP 631345 • Lot 1 DP 770031 • Lot 1 DP 781732 • Lot 3 DP 216854 • Lot 3 DP 631345 • Lot 37 DP 822345
Harwood Building (Former Ultimo Tramway Depot; Powerhouse Museum, Stage One)	N/A * Note: on 28 February 2024, the NSW State Heritage Register Committee (HOD No. 5068313) issued a draft recommendation to expand the Powerhouse Museum complex to include the Harwood Building	Register of the National Estate (Place ID 100691) Classified by the National Trust of Australia (NSW), (S10611)	
Water Cooling System and Manifold	Section 170 Heritage Register 2020 Ultimo Power House SHR Listing	N/A	

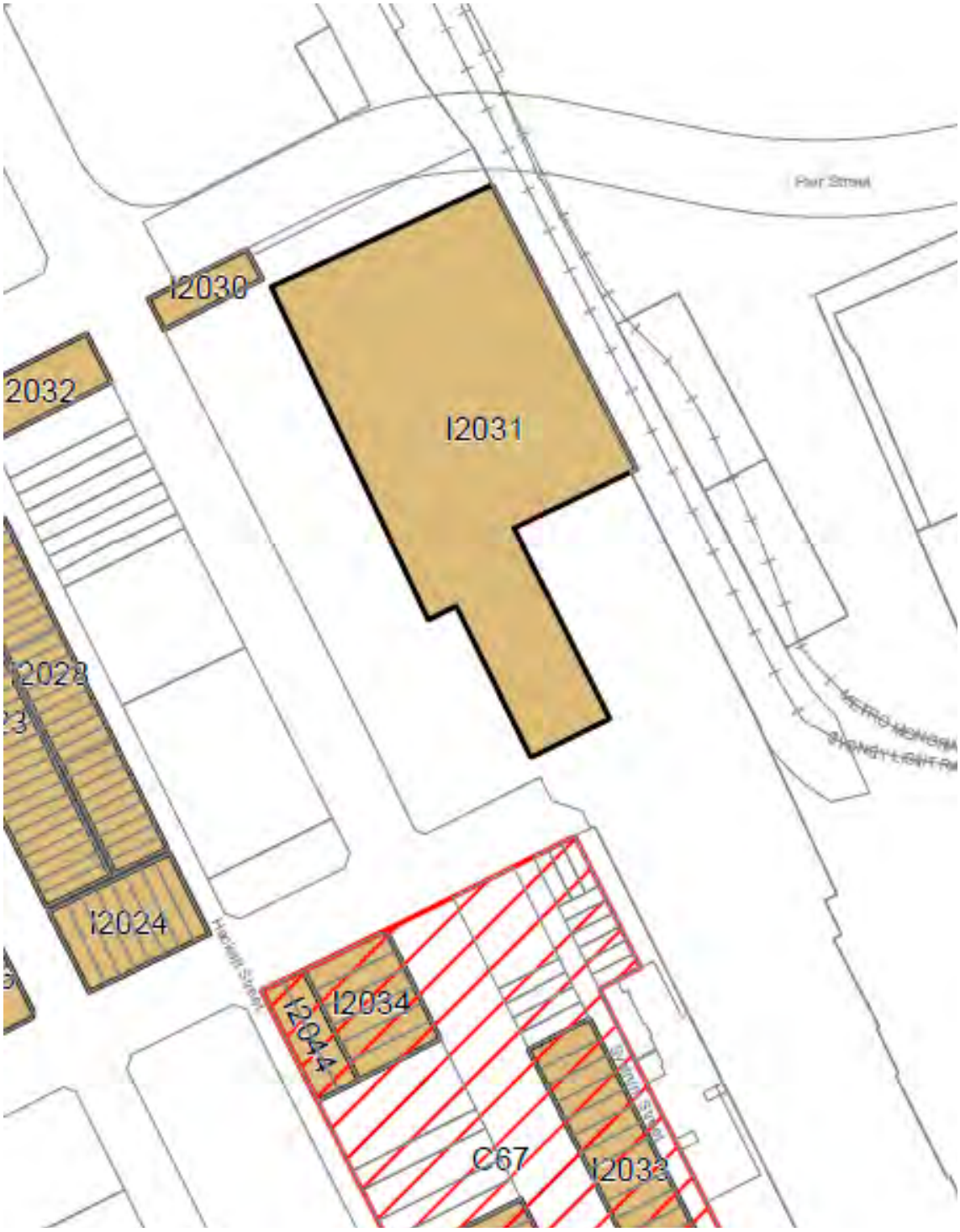

Figure 2 Mapping for the 'Powerhouse Museum former warehouse buildings, including interiors' (designated I2031), Sydney LEP
Source: Sydney Local Environmental Plan 2012, Heritage Sheet 008

1.7 Exclusions and limitations

1.7.1 Direct engagement with interested parties and Traditional Owners

Other than the individuals noted above, direct engagement with interested parties was not part of the agreed scope of this heritage assessment. The same applies to engagement with Traditional Owners.

1.7.2 Research

Primary research was generally not undertaken for this heritage assessment. Existing sources were relied upon including, but not limited to, those listed at Section 1.9.

1.7.3 MAAS collection

Analysis of the MAAS collection does not form part of this heritage assessment. As noted, the collection includes an estimated 500,000 items, many of which are significant in their own right.

This heritage assessment does, however, recognise that the collection (generally) and items within it (specifically) were one of a number of reference points in the development of the programme and design for the Powerhouse Museum concept (discussed further at Section 2.0).

1.8 Definitions

The terminology used in this report is of a specific nature. The following definitions are from the *Burra Charter, 2013* (Article 1), as endorsed by a large number of statutory and national heritage bodies.

Place means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

- *Cultural significance* is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, *meanings*, records, *related places* and *related objects*.
- Places may have a range of values for different individuals or groups.

Fabric means all the physical material of the *place* including elements, fixtures, contents and objects.

Conservation means all the processes of looking after a *place* so as to retain its *cultural significance*.

Maintenance means the continuous protective care of a *place*, and its *setting*.

Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Preservation means maintaining a *place* in its existing state and retarding deterioration.

Restoration means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.

Reconstruction means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material.

Adaptation means modifying a *place* to suit the existing *use* or a proposed use.

Use means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

Compatible use means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.

Setting means the immediate and extended environment of a *place* that is part of or contributes to its cultural significance and distinctive character.

Related place means a *place* that contributes to the *cultural significance* of another place.

Related object means an object that contributes to the *cultural significance* of a *place* but is not at the place.

Associations mean the special connections that exist between people and a *place*.

Meanings denote what a *place* signifies, indicates, evokes or expresses to people.

Interpretation means all the ways of presenting the *cultural significance* of a *place*.

The following derives from the *Operational Guidelines for the Implementation of the World Heritage Convention (*12 July 2017):

- *Integrity* means the completeness, intactness and condition of the attributes that convey (or embody) the heritage values of the place. Attributes may be tangible and/or intangible.

The following derive from current dictionary definitions:

- *Tangible* means perceptible by touch. In a heritage context, this typically relates to the fabric (elements, fixtures, contents and objects) of a place.
- *Intangible*, means incapable of being perceived by the sense of touch. In a heritage context, the term is often applied to concepts of social and/or historical value. An example of an intangible value at Federation Square may the meanings generated between the place and the community through experience and interaction over time.

1.9 Sources

Documents reviewed during the preparation of this document include but are not limited to the following:

- AMBS Ecology & Heritage, *Historical Archaeological Assessment,* 2018
- Architectural Projects, *Conservation Management Plan: The Powerhouse Museum*, 2003
- Coast History & Heritage, *Draft Aboriginal Overview Powerhouse Ultimo*, 2022
- Cracknell & Lonergan Architects Pty Ltd, *Assessment of Heritage Significance, Independent Review*, 2020
- Curio Pty Ltd, *Powerhouse Ultimo Draft Conservation Management Plan,* 2022
- Legislative Council of the NSW Parliament, Select Committee on the Government's Management of the Powerhouse Museum and other Museums and Cultural Projects in New South Wales, September 2022
- NSW Government response to the Select Committee findings
- National Trust of Australia (NSW) State Heritage Register Nomination: Ultimo Powerhouse, 2015
- National Trust of Australia (NSW), T Brassil, *Ultimo Tram Depot (The Harwood Building), History and Significance*, 2019
- National Trust of Australia (NSW) State Heritage Register Nomination: Harwood Building, 2020
- Winkworth, Kylie, Powerhouse Museum Social Values assessment, unpublished, 2020

2.0 UNDERSTANDING THE PLACE

The objective of the following is to provide insight into the cultural, creative and contextual forces that shaped the creation of the Powerhouse Museum complex, a place that should be understood as an integrated whole.

2.1 A new type of attraction

The Powerhouse Museum was conceived as a broad-based place of education, entertainment, research, and collecting. It is understood that the initial impetus for this new type of public attraction came from Neville Wran, Premier of NSW from 1976-86. Wran, his wife Jill Hickson-Wran and David Hill, head of Wran's Ministerial Advisory Unit, travelled to Paris in 1977, where they visited the Centre Pompidou, a new multi-dimensional centre for the arts and culture designed in striking contrast to its setting, with a highly mechanised aesthetic and technical character (Figure 3).

Figure 3 Elevated view of the Centre Pompidou, Beaubourg, Paris: designed by Italo-British team of Renzo Piano, Richard Rogers, Su Rogers and Gianfranco Franchini
Source: www.spiralarchitectslab.com.au/journal/2018/4/30/iconic-architecture-georges-pompidou-centre

During the 1970s, museums and public visitor attractions across North America as well as Europe were in the throes of a renaissance, with an increasing emphasis on entertainment, accessibility and engagement with exhibits/collections.

As well as Wran, a prominent voice in the promotion of the Powerhouse as an Australian response to these ideas was Dr Lindsay Sharp, who was appointed Deputy Director of MAAS in 1978 and became Director shortly afterwards. Speaking in 1981, Sharp observed that:

> […] the concept that was emerging from the multitude of meetings and architectural refinements […] was for […] a new cultural and educational centre for Sydney that brings together three singular elements: the collections of the Museum of Applied Arts and Science, the Ultimo Power House buildings and the concept of a science discovery centre and space theatre.[5]

These ideas were expanded in a 1982 interview:

> […] Museums have gone way beyond mere serried ranks of objects illustrating one particular esoteric point or other. What they are now is a whole range of cultural activities, they can include films […] theatre, plays, they can include discussion and display of subjects that are of ecological importance, or the impact of science and technology upon society […]. [This] new generation of museums is going to impact [the] new Powerhouse Museum in due course […].[6]

Throughout the generation of concepts for the architectural design of the Powerhouse, as well as the visitor experience, a commitment to popular appeal remained a central preoccupation:

> Certainly, the Powerhouse has been planned from the outset as a museum for all of us. Accessibility is the keynote. Strategies have been developed to meet the varied needs of families, school children and senior citizens, ethnic groups, tourists and the disabled, as well as specialists and the general visitor. A wide variety of visitors programmes, films and performance arts activities will ensure this venue hums with activity.[7]

As discussed below, aligned with ambitions for innovation as a museum experience were correspondingly progressive aspirations for building conservation, architectural design and exhibition design.

2.2 Sources and references

Critical to the Powerhouse Museum concept was a process of tailoring the hybrid visitor attraction model to the existing buildings, their setting, the collections (applied arts and science) and the expertise embodied within MAAS.

The Powerhouse Museum complex is conspicuous as a place embedded within and responsive to its setting. The decision to retain and adapt the Power House buildings and the Tram Depot perpetuated their physical presence in the urban landscape, as well as Ultimo's historic associations with industry and transport (see also Appendix A). As noted by Sharp in 1982:

> The Power House [building complex], which originated in the late 1890s […] are in themselves major artefacts recording the social, industrial, and if you like, transport history of Sydney and NSW […]. We will use the broad social history attached to the architecture of those buildings in our displays. It's the perfect location, and a perfect set of buildings for us.[8]

5 MAAS Annual Report, 1981.

6 '"We couldn't have better buildings to work in", Frank Lowe interviews Lindsay Sharp', *The Architecture Show* (journal), December 1982, p. 10.

7 MAAS Annual Report, 1986-87, p. 15.

8 '"We couldn't have better buildings to work in", Frank Lowe interviews Lindsay Sharp', *The Architecture Show* (journal), December 1982, p. 13.

Opportunities presented by the cavernous volumes of the buildings, as well as aspects of the collection were also optimised:

> I [Lindsay Sharp] would say that the buildings have inevitably laid down certain ideas. For example, the main halls, the Power Halls are roughly 300ft long and about 90ft wide and about 90ft high. [This] makes them a natural space in which to display very large transport items – boats, plains, trains and cars and all of transport objects. Now it seems to me that we have to go beyond that, understanding the relationship between the spaces and the big objects, and to develop themes.[9]

As well as items within the collection, Lionel Glendenning, Principal Architect for the Powerhouse, drew upon the linear vaulted forms of the Garden Palace (Figure 4) – venue for the 1879 International Exhibition, the event that was foundational to MAAS (see Appendix A) – in the design of the West Building (now known as the Wran Building):

> Unique to the Powerhouse Museum is the fact that the Museum's building, its historic fabric and contemporary architecture, and its Ultimo location, together with its diverse collection are metaphors for the overarching narrative that informs the Powerhouse Museum, for the Museum is born of the Industrial Revolution – its essence is designing and making for living.[10]

Glendenning recorded some of the references and sources that informed the design in the 1980s, summarised below (see also Figure 5):

> A number of ideas are developed and explored in this project including:
>
> - The great exhibition and railway buildings of the 19th century including Garden Palaces, Sydney, Melbourne Exhibition Building and Central Railway Station, Sydney.
> - A contextual awareness and historic reference.
> - Creating old and new linkages with the architecture of Ultimo and the Powerhouse.
> - Architecture within Architecture. House within House.
> - Adaption and reuse of existing fragments of the city.
> - Separation, layering, transparency, screen, density, diversity, intervention.[11]

A number of these points, and others, are discussed further below.

9 '"We couldn't have better buildings to work in", Frank Lowe interviews Lindsay Sharp', *The Architecture Show* (journal), December 1982, p. 12.

10 Lionel Glendenning and Jennifer Sanders, Powerhouse Museum Redux, 15 November 2020.

11 Lionel Glendenning, notes and sketches from the early 1980s (private records). See also Design 5, Powerhouse Museum Design Principles, 13 October 2022, p. 26.

Figure 4
Engraving of Garden Palace interior, 1879
Source: State Library of Victoria
(*Illustrated Australian News*)

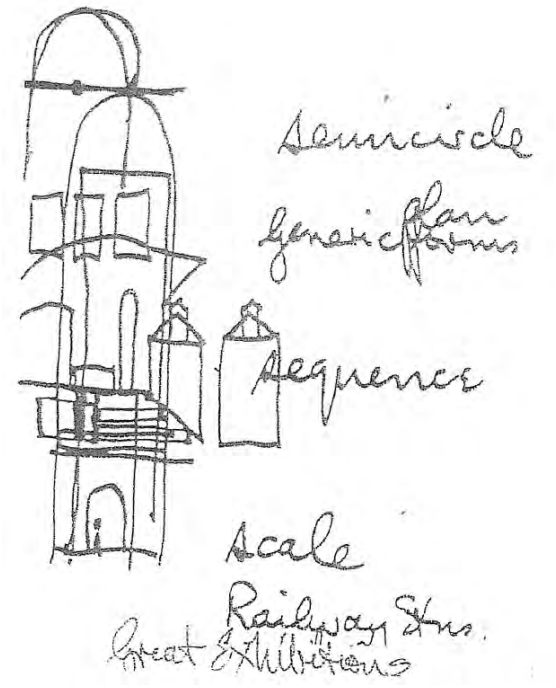

Figure 5 Glendenning sketch referencing sources and relationships embedded in the Powerhouse concept
Source: Courtesy of Jennifer Sanders and Lionel Glendening

2.3 A landmark of adaptive reuse

The emergence of the heritage movement worldwide from the 1960s was, at least in part, a response to urban areas being decimated by speculative development and urban 'rejuvenation' projects. It was led by a groundswell of activist reaction from residential communities and design professionals who saw a practical means to halting demolition. A pivotal moment in Paris came in 1973, when the nineteenth century iron and glass market buildings of Les Halles were demolished and replaced by the Forum des Halles (1979-86), a partially underground glass and steel multi-storey commercial and shopping centre with associated gardens (the site is very close to the Centre Pompidou, referenced above). The outpouring of community concerns over both developments, one speculative and the other institutional, found global response in a new interest and excitement in revitalising old buildings with new uses.

Such an interest was not confined to Europe. The examples of the conversion in 1964 of the Ghirardelli Chocolate Factory in San Francisco into a retail and hospitality venue (now Ghirardelli Square) and in 1967 of the Cannery, also in San Francisco by architect Joseph Esherick into a shopping mall, were trendsetters in the commercial sphere. There also developed an emerging enthusiasm globally for conversions of warehouses in the mid-1960s and early 1970s into residences and small businesses. By contrast, cultural institutions in these decades adopting a similar philosophy came somewhat slowly. The conversion of former office and industrial buildings into museums or art galleries was a later phenomenon, reserved largely for the mid-1970s and 1980s (discussed below)

One of the most significant conversions of an industrial (or transport-related) structure into an art gallery/museum was the transformation of the vast former railway station of the Gare D'Orsay (1898-1900) in Paris into the Musee D'Orsay (Figure 6). It was one of President Valery Giscard D'Estaing's *grand projets*. Announced in 1978, the station's renovation and design transformation was contemporary with the Powerhouse Museum – the works were complete in 1986, with the internal museum planning, decoration, installation, furniture and fittings undertaken by Italian architect Gae Aulenti.

Figure 6 The Gare D'Orsay, Paris was adapted at the Musee D'Orsay in 1978-86
Source: https://www.britannica.com (Musee-d'Orsay)

2.3.1 The Powerhouse Museum as a landmark of adaptive renewal

The Powerhouse Museum was conceived at a moment of momentum in the evolution of heritage controls in NSW and Australia – the *Heritage Act* (NSW) was passed in 1977 and the first edition of the *Burra Charter*, a document that has exerted a considerable influence on heritage policy and practice in Australia, was published in 1979. In between these two events, in 1978, the NSW Government committed to retaining and adapting the Power House buildings and Tram Depot. Prior to this, wholesale demolition had been actively contemplated.

The prominence of the project, as well as the sophistication of the approach to assimilating the existing buildings with the new programme (a process led by Glendenning, Sharp and Richard Johnson, discussed below, see also Appendix A), contribute to an understanding of the Powerhouse Museum as a landmark of adaptive renewal. The Museum was highly visible, regularly reported and the scale of the project was without (or with few) precedents, certainly in Australia.

The adaptation of the former Tram Depot (1979-81) was a very early example in NSW (and Australia) of adaptive renewal of a transport/industrial building. The approach set the tone for the Powerhouse itself. Significant works were required to adapt the derelict tram shed to its new use (Figure 7). The floor was excavated, the roof line raised to create additional space and a new south elevation was introduced (Figure 8). The structure now includes a basement (storage and plant), ground floor (conservation studios and offices) and mezzanine areas. Original fabric is limited to the east and west elevations, and part of the north elevation. The building, however, reads as an historic industrial structure; the saw tooth roof and limited materials palette reference the original building, and the footprint is largely unchanged.

Figure 7 Works for the adaptive re-use of the Tram Depot underway, November 1980
Source: Powerhouse Museum Photo Library ST1D-SMN-16-12A

Figure 8 South elevation of the former Tram Depot (Harwood Building) during works, 1981
Source: Extract from paper given by Jennifer Sanders and Kylie Winkworth, Australia ICOMOS 2019, Sydney Talk Series No. 6, 1 October 2019 (original source not cited)

The design response to the Power House buildings was bold and assertive. The buildings were adapted as three-dimensional volumes – early consideration of retaining only the external fabric was resisted. A notable example of the intent to optimise opportunities presented by the existing buildings was the use of historic conduits connecting the Turbine Hall to Darling Harbour (for use in the water cooling system) in support of the Museum's air conditioning system. Applied details and new interventions embraced texture, patterning and colour (see, for instance, Figure 8) as well as the diversity of the evolved building complex, which included Federation era industrial and commercial forms, Queen Anne Revival, (the Post Office) and Art Nouveau references.

In terms of its status as a landmark of adaptive renewal, the Ultimo Power House also derives significance for its function as new headquarters for MAAS; this was adaptive re-use with a clear purpose. The coalition of the collection and the historic buildings was mutually strengthening in terms of their significance, social resonance and cultural influence. For the first time, the buildings were accessible to the public, and the collection had space to breathe and reach its intended audience. The retention of the Power House buildings and the Tram Depot also retained their historic functional relationship, and was similarly mutually reinforcing.

Figure 9 Striped escape stairs and a lift shaft, pictured c. 1987, reference former coal elevators and pneumatic ash handling plant at the south of the Boiler House
Source: *SD Magazine*, 89/02

2.4 The design response

Broadly contemporary with the global embrace of possibilities presented by adaptive renewal was a questioning of tenets that had been fundamental to Modernism from the 1920s. These included the propositions that historic architecture as represented by ornament, decoration and stylistic reference was irrelevant and out of date, and that the historic city centre was redundant, unhealthy and needed to be cleared. Challenges to Modernist principles found divergent expression in locations worldwide. By the early-1970s these strands of thought had coalesced as Postmodernism.

2.4.1 Postmodernism in Australia

Across the globe, the adoption of Postmodernism in architecture from the late 1960s proceeded in parallel with developments in Europe, Great Britain and the United States, with buildings that would later be labelled as 'postmodern' appearing in countries including Japan, Thailand, and also Australia.

In Australia, the influence of Robert Venturi's ideas came first through Australian architects studying at the University of Pennsylvania, where Venturi and Romaldo Giurgola taught during the 1960s. Douglas Gordon's and later Peter Corrigan, writing from the United States, published an important article on the

Venturis' work in *Architecture Australia* in February 1972. On Corrigan's return to Melbourne in 1974 and joining in partnership with Maggie Edmond, their partnership of Edmond and Corrigan produced some of the most convincing early examples of Postmodernism in Australia as applied to non-residential buildings. Their Resurrection Church and Resurrection School at Keysborough (1974-6), and St Joseph's Church, Box Hill (1976) in suburban Melbourne, with their polychromatic brickwork made direct reference to everyday suburban vernacular forms.

Perhaps the strongest signal of the embrace of a postmodern position at a professional level, was the Royal Australian Institute of Architects' annual convention held in Sydney in May 1980, which had as its theme, 'The Pleasures of Architecture' and featured as keynote speakers, the postmodernists Michael Graves, Dutch architect Rem Koolhaas (who had published *Delirious New York* in 1978) and Canadian architect/educator George Baird, who had co-authored with Charles Jencks, *Meaning in Architecture* in 1969.[12] A key feature of the convention was an exhibition of 20 Australian architect considering the adaptive reuse/reinterpretation of architect John Verge's nineteenth century Regency villa, 'Engehurst' in Woollahra. To complete that official acceptance of Postmodernism at the level of large-scale civic architecture, in Mitchell Giurgola Thorp's competition-winning design for Parliament House, Canberra (1980) was announced. On its completion in 1988, it was Australia's largest purpose-built Postmodern public building.

Postmodernism in NSW

In NSW, the adoption of Postmodernism in architecture was gradual, and adopted across a spectrum of building typologies from the mid-1970s. At the time, and afterward, many of the architects, trained as modernists, disavowed any links to the term 'Postmodern' but many of the buildings produced at the time reveal a strong interest in the forms and materials of the rural vernacular (including shearing sheds and colonial homesteads), the nineteenth century terrace house, as well as nineteenth century structures such as exhibition buildings and railway stations. In short, they refer to a set of historical and symbolic elements not usually associated with the label 'Modernism'. As such, the term 'Postmodernism' is used here often to identify buildings that, from the 1970s, show a new and critical awareness of history. The Marie Short House, Kempsey (Glenn Murcutt, 1974-5) and Andrews Farmhouse, Eugowra (John Andrews, 1978) are two such examples. So too the historically referential inner-urban housing blocks in the Woolloomooloo Housing Precinct (1975-85) designed separately by the firms of Philip Cox & Partners (Forbes Street, 1979) and Allen Jack & Cottier (Forbes Street, 1979-80) for the NSW Housing Commission. Those blocks had roof forms, verandahs and arched windows that made direct reference to the precinct's nineteenth century terrace houses.

More overt in their adoption of Postmodern elements was the conversion of three Edwardian terrace houses in Paddington by Allen Jack & Cottier (project architect Peter Stronach, 1978-9) as well as their later Smith House, Paddington (1980-1) and Nankervis House, Paddington (1981-4). One of the state's largest early Postmodern public buildings, the brick polychrome striped University of Technology Sydney's Haymarket Campus (Philip Cox & Partners, 1980-4), retained fragments of the old Flower Markets building as facades and urban landmarks (Figure 10).

12 'The Pleasures of Architecture', *Architecture Australia*, 69: 2 (April-May 1980), pp. 37-78. See also Paul Hogben, 'The Aftermath of 'Pleasures: Untold Stories of Post-Modern Architecture in Australia, in *PROGRESS: 20th annual conference of SAHANZ* (Sydney: 2-5 October 2003), pp.146-151.

Figure 10 View of the Haymarket Campus of the University of Technology Sydney
Source: UTS

2.4.2 Postmodernism and the NSW Government Architect

The office of the NSW Government Architect was one of the state's leading design trendsetters from the late 1950s to the late 1980s. This was due in part to the office employing the most talented young designers soon after graduation and the fostering of those talents.[13] Some of the state's most progressive designers worked within the office at critical stages of their careers, including Ken Woolley, Peter Webber, Peter Hall, Michael Dysart, and later David Turner, Colin Still and Lionel Glendenning among others. A result was that the NSW Government Architect was often at the forefront of exploring the latest theories and functional innovations associated with the development of post-war architecture in NSW.

In the 1980s, for example, the office of the NSW Government Architect was an early adopter of some of the characteristic forms and stylistic themes of Postmodernism. The barrel vault, for example, a practical roof shape though with long historical associations and references, was one of the most

13 Nicola Pullan and Robert Freestone, 'Enthusiasm, Energy and Originality: The Influence of Harry Rembert's European Architectural Investigations on Australian Post-war University Design' in *Proceedings of the Society of Architectural Historians, Australia and New Zealand* 36; *Distance Looks Back*, edited by Victoria Jackson Wyatt, Andrew Leach and Lee Stickells (Sydney: SAHANZ, 2020), pp. 324-38.

commonly adopted signs of aesthetic change towards a more historically referential architecture. High vaulted steel structures signified, for example, the key circulation route of the Claymore Public School (NSW Government Architect, project architect Lionel Glendenning, completed 1980) and the forms of the Sulman Award-winning (1984) Parklea Prison (1979-83) in Sydney's outer west (NSW Government Architect, project architect Lindsay Kelly, and Noel Bell, Ridley Smith & Partners).

A high point of the NSW Government Architect's Office embrace of Postmodernism came with buildings and urban spaces completed for the 1988 Bicentennial. Notable among these are structures and urban design elements that adorn Bicentennial Park, Homebush Bay (NSW Government Architect, project architect Lionel Glendenning; project landscape architect Lorna Harrison, 1983-88), especially the tholos form of the Federation Pavilion in Centennial Park (Lewin Tzannes Pty Ltd with NSW Government Architect, project architect Andrew Andersons, 1987, Figure 11); Glendenning's arched and pyramid-roofed Treillage Tower (Figure 12); and the contextually referential and Classically-composed Macquarie Street Wing of the State Library of NSW (NSW Government Architect, project architect Andrew Andersons, 1983-88).

Figure 11 Federation Pavilion in Centennial Park, Alex Tzannes, 1988
Source: https://www.monumentaustralia.org.au

Figure 12 Treillage Tower at Bicentennial Park, Homebush Bay, Lionel Glendenning, 1986
Source: https://sydney-city.blogspot.com

2.5 Postmodernism, adaptive reuse and the Powerhouse Museum

The development of the Powerhouse Museum between 1978 and 1988 occupies a significant place in the context of Postmodernism's emergence and the rise of the adaptive reuse of historic buildings, both globally and within Australia. The completion of the Powerhouse Museum involved not just the adaptive reuse of the former Ultimo Power House complex and Tram Depot (Stage I) but also major additions on Harris Street (the Wran Building) and the insertion of service structures in the courtyard behind.

The Wran Building is where Glendenning, as architect of record for the Powerhouse and Principal Architect within the Office of the NSW Government Architect, explored a series of design themes including: the layering of space through screens and structural rhythm; levels of transparency to evoke spatial depth; the insertion of buildings within buildings to rescale experience; memory and contextual reference to create dialogues between old and new, and between past and present; and grids and their rotation as compositional tactics to encourage diverse movement and experiences within a building or site. While Glendenning himself does not favour the term, the design strategies employed in the Wran Building have since come to be seen as typical of Postmodernist architecture.

Combined with Glendenning's approach to the new building's sympathetic placement within the context of the existing Power House buildings and Ultimo's topography (a series of linear buildings placed along the contours of the site), their adaptive reuse was the outcome of collaboration with the architect and noted exhibition designer Richard Johnson of Denton Corker Marshall, and the broad and diverse team of consultants and tradespeople brought in to assist with the project, including lighting specialists, theatre set designers, audio specialists, graphic designers (Emery Vincent) and colour consultants, among many others.

Johnson was brought on to the project in 1986 – he replaced Barry Howard, an American designer who supported an enclosed, or 'black box' design rationale. Johnson promoted a different approach, philosophically aligned to that of Glendenning – in this sense, the Powerhouse Museum was an exemplary work of design collaboration. Johnson was interested in the internal experience of the museum being like that of a city, in much the same way that Glendenning had conceived the exterior form and the diverse scale of spaces within as an extension of the broader urban context of Ultimo, Haymarket and the renewal of the Darling Harbour precinct. In 1988, Johnson observed that:

> […] here was a museum with a great range of diverse spaces, with a great diverse collection, with a whole range of thematic ideas […]. The architecture had responded to that diversity and contextualism […] the exhibition design had to follow that lead. […] I tried to build up a discipline, a way of structuring the exhibition design, based upon the way a visitor moves through the building […].
>
> The building is as it is because it evolved over such a long period of time. Like a city it has a sort of loose fit circulation, there's no classical route through it. […] We have placed what we call landmark objects in public spaces that will guide people through the museum … the Boulton/Watt Engine is a major landmark structure. These are located at key points generally with an axial approach to them so that people can see them from a distance and remember where they are […].[14]

What this meant was that the initial entry sequence to the Powerhouse Museum from Harris Street became one of the most important design aspects of the overall scheme.

A giant 'verandah' screen ran most of the length of the Wran Building along Harris Street, terminating in a

14 Colin Wood Lionel Glendenning and Richard Johnson, Powerhouse', *Design World: The International Journal of Design* 14, 1988, pp. 18-31.

bow-fronted portal (see Figure 13 and Figure 14) that opened onto the entry forecourt – this feature was truncated as part of works undertaken in 2011-13. The paving of the forecourt was an angled grid pattern that 'turned' pedestrians towards the glazed entry doors of the museum. A steel lattice screen re-emphasised this point of entry and also directed visitors to perceive the three main spatial elements of the Wran Building. All three were linear extrusions.

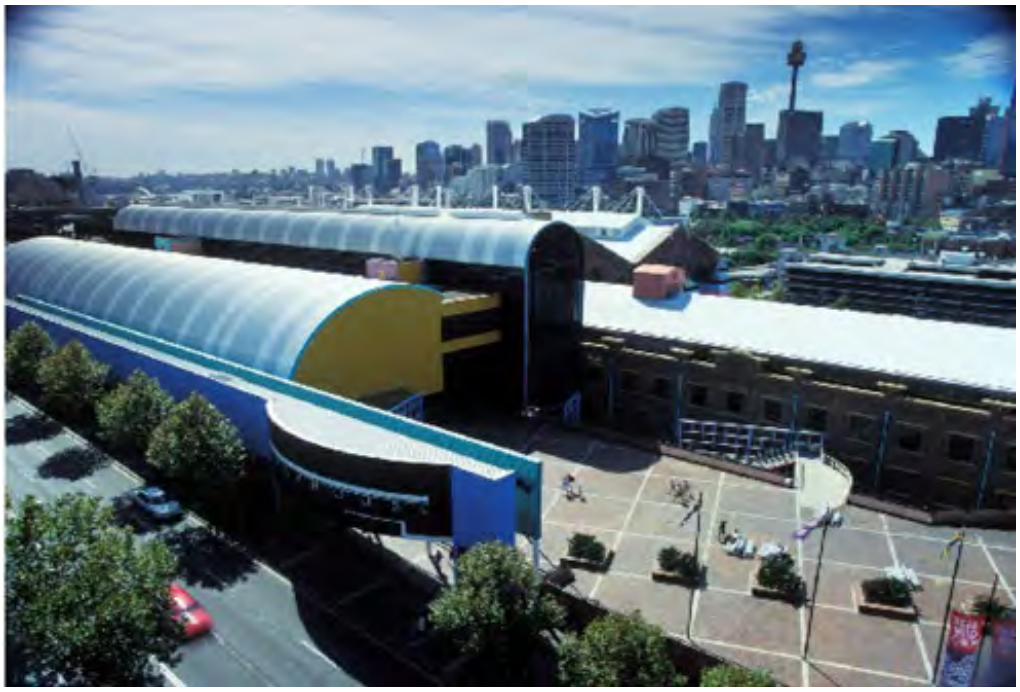

Figure 13
Elevated view of the entry forecourt and the Harris Street 'verandah', c. 1988

Source: Extract from paper given by Jennifer Sanders and Kylie Winkworth, Australia ICOMOS 2019, Sydney Talk Series No. 6, 1 October 2019 (original source not cited)

Figure 14 The bow-fronted portal that opened onto the Harris Street forecourt

Source: *SD Magazine*, 89/02

The first was a long, giant vaulted space – glazed at ground level – with solid upper end walls painted as 'blue sky murals' as if open to the air. Lined internally with 'Ripplefoil' and externally with corrugated steel roofing painted in stripes, its form evoked nineteenth century exhibition structures and railway terminus sheds like the famed carriage shed (1889) at Normanton Railway Station in outback Queensland, a reference acknowledged by Glendenning.[15] At the building's opening, this long tall exhibition space featured a series of designed installations, including a free-standing gateway designed by Richard Johnson which outlined in silhouette, but reduced in scale, the Garden Palace exhibition hall of 1879 (referenced above). This gateway and other exhibits from the time of opening no longer exist or have been relocated (such as the copy of Lawrence Hargrave's box kite and the Strasburg Clock). But the overall volume remains as do both 'sky' murals, which had been executed by scene painters at Glendenning's instigation.

The second was a flat-roofed linear link structure that contained ticketing, pedestrian ramps to the basement and up to a mezzanine gallery overlooking the vaulted volume and the third element, a barrel-vaulted glazed galleria. The supporting columns for the mezzanine and the galleria aligned with the brick piers of the original Switch House building. This meant that the spacing of columns was not always the same but deferred directly to the rhythm and proportions of the existing structures on site. On the third level of the link structure were offices and meeting rooms that overlooked the galleria. Significantly, the ramp enabled views across spaces and differing vantage points for some objects of the collection, for example, tall museum objects and others which were suspended in space.

The third element, the galleria, was a tall, thin, barrel-vaulted linear volume. It too echoed the tall, nave-like volumes of exhibition structures of the nineteenth century such as the Crystal Palace in London (1851) as well as train departure halls of the same period. At ground level, placed deliberately in this long volume as an introductory exhibit, as if one was literally going on a journey, is 'Locomotive No. 1', the first steam locomotive to see service in NSW in the 1850s. Beyond the locomotive is another of the museum's prized exhibits, the Boulton and Watt 'Whitbread Engine' (1785), one of the first rotative steam engines ever built and the oldest surviving, with its 'distressed' wall evocative of London's Whitbread brewery, a self-conscious piece of architectural stagecraft designed by Glendenning to allow visitors to explore the upper level working of this machine that, in effect, gave birth to steam power and steam travel in the late eighteenth and nineteenth century. At the south end of the galleria, a circular lift (now removed) took visitors to the mezzanine gallery level and administrative staff to the uppermost level, where the administration offices were located. Behind the circular lift at this uppermost level of the galleria was one of Glendenning's 'buildings within buildings'. Designed like a miniature of the Switch House, this gable-roofed, timber-veneer faced structure sits independent of the barrel-vaulted roof of the galleria (Figure 15). It contains the boardroom of the Powerhouse Museum. Entry to this temple-like structure was through a 'Tardis'-like, pyramid roofed structure, aligned at the same angle of the forecourt grid pattern, an orientation that matched exactly that of the Garden Palace (1879). The roof of the boardroom has a vaulted ceiling with a Tiepolo-like painted fresco depicting clouds, blue sky and a *putto* (a winged infant) wielding a bow and arrow.

The significance of all of these elements was their reference to memory, time and travel, evocative not just of the industrial nature of the collection and its new location in a series of structures originally devoted to transport but also an analogy to a museum visitor's experience of memory, time and travel as they would make their way around the diverse volumes and spaces of the whole museum complex.

In the Turbine Hall, Richard Johnson designed another 'building within a building': a plaster-clad architectural form containing within it a miniature recreation of an Art Deco cinema from the Kings Cinema chain, using doors, lights and fittings from the Queen Victoria

15

Building's 1930s renovations and seats from the Manly Odeon (1932, demolished 1985). This 'building within a building' remains. Another architectural form – a white, open 3x3 gridded cube structure – also sat within the Turbine Hall but has since been removed. However, the floating 'top' of this 3x3 cube, which sat above the Kings Cinema form remains.

Other key 'Postmodern' design elements within the Powerhouse Museum that remain, include the two striped escape stair towers in the former Grace Bros courtyard with their bold yellow and green interiors, the basement theatrette ('Target') with its Art Deco-inspired black, silver and mirror finishes, and the main lecture theatre ('Coles'), also in the basement, with its c. 1920s colour scheme by George Freedman, and across the complex, various kitchen and bathroom interiors decorated in black and white checkerboard ceramic tiles.

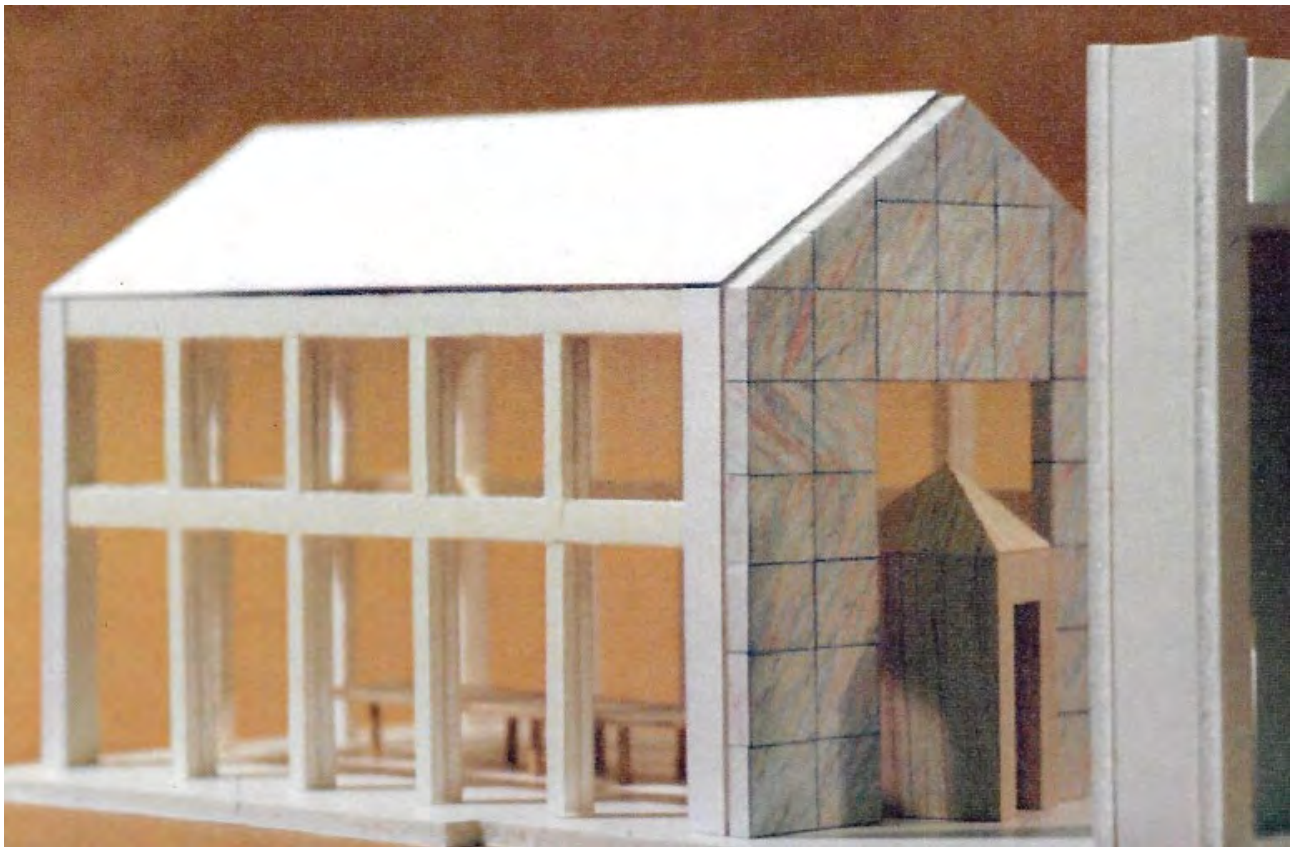

Figure 15 Model of the board room: a building within a building
Source: Courtesy of Jennifer Sanders and Lionel Glendenning

2.6 Response and community sentiment

In 1988, peer recognition at a national level of the design qualities of the Powerhouse Museum was overwhelming. It was the first project ever to have been nominated for three categories in the RAIA National Architecture Awards: the President's Award for Recycled Buildings; the *Belle Interiors* Award for Interior Design; and the Sir Zelman Cowen Award. It won all three.

At the State level, it was the co-recipient of the RAIA NSW Chapter's top award, the Sulman Award for 1988. An excerpt from the national jury's citation is evidence of that contemporary acclaim:

> The interiors at the Powerhouse are dazzling. A *tour-de-force* of form, colour, shape, pattern and texture. Scope remains for change and growth, yet one is never left with a sense of incompleteness.
>
> In an era which demands the separation of architecture, interiors and exhibition design, this project demonstrates that they are very much part and parcel of the same family. The result is stunning. Public acceptance and enthusiasm is overwhelming.
>
> The Sydney Powerhouse is a powerful exhibit, an exhibition and a design centre. It will make a significant contribution to architecture in raising the general design consciousness of all its visitors in an entertaining and memorable way.[16]

The Museum has also been a great popular success. It drew approximately 21 million in-person visitors between its opening in March 1988 and is closure in February 2024.[17]

It is also noted that the success of the Museum is reflected in the popularisation of its name. 'Powerhouse Museum' was a site-specific reference to the place and its new use as premises for MAAS. In recent times, as noted in Appendix A, it has become a brand – i.e. Powerhouse Parramatta.

2.6.1 Social value

Based on a limited review of available information and evidence[18] communities and groups with an attachment to the place include communities of divergent scale, structure, relationships with each other and relationships with the place.

For the purposes of the following, these may variously be characterised as communities of identity, interest and practice.[19]

Members of communities of identity are, in generalised terms, tied to each other through socio-cultural characteristics, including education, values, demographics and social class. Some may have a formal structure (i.e. membership organisations), but the majority are informal. As associated with the Powerhouse Museum, members of communities of identity may derive pride (or a sense of identity) from knowing that the Powerhouse exists.[20] This pride may be associated with an appreciation that the Powerhouse is a museum with few equivalents in Australia or elsewhere that is known worldwide and has contributed positively to perceptions of Sydney and NSW. It may likewise be associated with the Museum's strong connection with MAAS, itself an institution (and collection) of considerable significance. Communities of identity associated with the Powerhouse also include those that have been

16 National Awards Issue, *Architecture Australia* (1988), p. 46.

17 Estimate calculated from visitor data obtained from MAAS annual reports.

18 Sources referenced for this Heritage Assessment include press coverage, advocacy campaigns, MAAS annual reports and the 'What We Heard' Consultation Report prepared by Aureon in March 2022.

19 These typologies draw on Chris Harrington, Allan Curtis and Rosemary Black, 'Locating communities in natural resource management' Journal of Environmental Policy and Planning, Vol 10, 2008, Issue 2.

20 For background on 'existence value' see, for instance, Robin Attfield, 'Existence Value and Intrinsic Value', *Ecological Economics*, Volume 24, Issues 2–3, February-March 1998, pp.163-68.

supported (or represented) by the Museum, including migrant and LGBTQI communities.[21]

Communities of interest include collectives or groups with a 'stake' in a particular issue, space, or practice. They may have formal structures (i.e. be membership based, hold regular meetings or have recognised figureheads) or have informal networks. Communities of interest associated with the Powerhouse Museum include special interest groups, perhaps including retired members of the Rail Tram and Bus Union, the Australian Society for the History of Engineering and Technology, Engineers Australia and the National Trust of Australia, NSW Chapter. Communities of interest also include groups that formed (or mobilised) following the NSW Government's 2014/5 announcement of plans to replace the Powerhouse Museum in Ultimo with a new facility in Sydney's western suburbs. These include, but are not limited to, the Powerhouse Alliance and Save the Powerhouse. Members and supporters of these relatively new communities of interest include museum professionals, curators, architects, heritage specialists, benefactors of the Museum and former MAAS trustees. Core activities of these groups have included challenging the NSW Government's plans and the rationale behind them and drawing attention to the Powerhouse Museum as a place deserving of protection and support.

Communities of practice include groups arranged around an activity or common practice, usually involving interaction, learning and shared interests and/or expertise. Communities of practice associated with the Powerhouse Museum may include but are unlikely to be limited to present and former MAAS staff, Powerhouse Museum staff and volunteers.

21 'Absolutely Queer' was held at the Powerhouse in 2023-24, and the Museum's association migrant history dates to 2003. The impetus behind the Migrant Heritage Centre (established in 1998, but relocated to the Powerhouse in 2003) derived from a recognition that collecting, research and programming in cultural institutions did not reflect the cultural diversity of NSW, and that action was needed to record the memories and experiences of post war migrants.

3.0 ASSESSMENT OF SIGNIFICANCE

The following considers the heritage significance of the Powerhouse Museum complex and its setting. The study area has been the subject of heritage analysis and assessment since the 1980s (see section 1.6), and the application of statutory heritage controls has evolved considerably over that period. The first building at the site to be included in NSW State Heritage Register (SHR) was the Post Office, in 1999; the Power House followed in 2020. Prior to its inclusion in the SHR the Power House was included in LEP ('Powerhouse Museum former warehouse buildings, including interiors'). At the time of writing, the NSW Heritage Department had recommended the expansion of the SHR entry for the Power House to include the Harwood and Wran buildings.

Until recently, heritage assessments of the study area and particular buildings within it have placed emphasis on the significance of the Power House complex for its historical associations with the generation of electricity and Sydney's tramways network, and for reasons of architectural/aesthetic and technical significance.

Consistent themes in the LEP Statement of Significance for the Power House and the present SHR Statement include (in summary) its:

- Historical significance as the original generating station for the supply of electricity to power Sydney's tramway network, and with the reticulation of electrical power generally;
- Historical significance as of the largest and most important generating stations in NSW for many years;
- Technological significance as the first place where turbine driven alternators were used in Australia (in 1905), among other innovations; and
- Local historical significance as a building associated with (and representative of) the Pyrmont Peninsula's late nineteenth century industrial heritage.

Concluding comments in the LEP and SHR entries note, respectively, that:

- Alterations undertaken for the building's conversion to the Powerhouse Museum are significant for its re-use of the buildings and as a 'modern design', awarded the Sulman Medal; and
- The Powerhouse is of museological and architectural significance as a landmark early example of the adaptive reuse of a large-scale industrial heritage site, which was then a radical and exhilarating new approach to museum making for NSW. The transformation of the Power House through conservation and adaptation was recognised with several awards and was influential in the urban design of the later buildings in the precinct.

Other assessments have variously acknowledged the chimneys (demolished) as Sydney landmarks for many years,[22] and the Powerhouse Museum as a place of social value.[23]

3.1 Assessment (2024)

The following assessment is based on *Assessing heritage significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, prepared by Department of Planning and Environment, NSW, 2023. This document guides processes of assessment against the criteria developed in 1999 by the Heritage Council of NSW. The criteria were gazetted following amendments to the *Heritage Act* 1977. The guidelines promote a standard of practice for identifying, understanding and assessing places of heritage value. They also assist in determining thresholds for significance (i.e. State or local).

Evidence relied upon in this assessment is included in Appendices A and B and at Section 2.0.

22 See, for instance, National Trust nomination of Ultimo Power House to NSW State Register, 2015.

23 See, for instance, National Trust nomination of Ultimo Power House to NSW State Register, 2015.

Consistent with s. 33(3)(b) of the *Heritage Act* 1977 a place or item should, in typical circumstances, satisfy more than one criterion to warrant inclusion in the SHR.

3.1.1 Criterion 'a': Historic significance

An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).

As stated in the NSW guidelines framework:

> A place or object is important in the course or pattern of an area's history if it:
>
> - is the product of
> - is an example of
> - was influenced by
> - has influenced
> - is associated with
> - has a symbolic association with
>
> something that has made a strong contribution to the course or pattern of development of our culture, society or environment.
>
> Places or objects that meet criterion (a) might include:
>
> - those that demonstrate strong associations with past customs, cultural practices, philosophies or systems of government, regardless of the intactness of the place or any structure on the place;
> - those that are associated with significant historical events, regardless of the intactness of the place or any structure on the place;
> - cultural landscapes and other evidence demonstrating overlays of the continual pattern of human use and occupation where the physical fabric (above or below ground) demonstrates any of the points described above.

Comment

The Powerhouse Museum complex, including the Wran Building, former Ultimo Tram Depot (Harwood Building) and the former Ultimo Power House buildings, is important in the course of the history of NSW, Sydney and the Pyrmont Peninsula. (*Note*: Ultimo Post Office, which is included in the SHR in its own right, is not considered to derive additional significance for its association with the Powerhouse Museum.)

The former Power House and the Tram Depot demonstrate and retain associations with historic events of significance. The Power House was established in 1898/99 for the generation of electricity to power Sydney's tramway network. The tram cars were stabled in the Tram Depot, constructed concurrently on a site to the south of the Power House. The two buildings continue to share a symbiotic functional relationship.

Ultimo was selected for these major initiatives for a number of reasons, including access to a rail corridor (for delivery of coal), the relatively low cost of land, the potential for expansion (which quickly became a reality), the existing industrial character of the area and because of its proximity to Darling Harbour, which provided a reliable source of water essential for the water cooling system.

The Ultimo Power House was the first facility for the generation of electrical power in NSW, and from 1899 until the 1920s it was the largest and most technologically advanced. The Power House evolved considerably between the late-1890s and 1930s, reflecting growing demand and technical advances. The Power House finally closed in 1963. Over the following decade it was stripped of plant and machinery, and its three tall chimney stacks were truncated. By the 1970s the evolved Power House complex was in a state of dereliction.

The Ultimo Tram Depot was the first stabling facility for Sydney's electric tram network. The building, which was also enlarged over time to meet demand, closed in 1953, following which it was adapted for storage, a process that included the removal of almost all tram tracks and service pits. The building, which

was contemplated for adaptation as a Museum of Transport in the mid-1960s, was derelict by the 1970s.

In the late-1970s, the NSW Public Works Department resolved to adapt the Ultimo Power Station and Tram Depot as premises for the Museum of Applied Arts and Science (MAAS), a collection of considerable significance in its own right. The origins of MAAS date to the Sydney International Exhibition of 1879. MAAS also has strong connections with Ultimo, having been headquartered at the Technological Museum on Harris Street from 1893 to the 1980s.

The vision was for the conservation and adaptive re-use of the derelict industrial buildings, and the introduction of new works to the west of the site (Harris Street) creating a new public address. The initiative was developed by the NSW Government Architect and MAAS and drew upon expertise from a broad range of contributors (see Criterion 'b'). In terms of its programme, the ambitious undertaking was inspired by overseas precedents (including the Pompidou Centre, Paris). It was also a major expression of an emerging interest internationally in adaptive renewal (see criterion 'c'). Political impetus for the project was provided by the bicentenary of 1988 (Premier Wran stipulated completion by 1988). The project also a flagship of the regeneration of the Darling Harbour precinct.

MAAS and the NSW Government Architect were committed to delivering a new type of visitor attraction, a place of engagement, activation and broad popular appeal. Aspirations for the architectural character, conservation and internal experience (exhibition design) of the place were correspondingly ambitious. The Powerhouse Museum complex a is place that is embedded within and responsive to its setting. The decision to retain and adapt the historic buildings perpetuated their physical presence in the urban landscape, as well as their relationship and Ultimo's historic associations with industry and transport. The nature of the MAAS collection, including some of its signature items (i.e. the Boulton and Watt 'Whitbread Engine' and 'Locomotive No. 1') aligned with these thematic associations, as well as the huge scale of the buildings.

The new additions were also historically referential – the linear vaulted forms of the Wran Building, for instance, drew upon the Garden Palace, venue for the 1879 International Exhibition, the event that was foundational to MAAS.

The Powerhouse Museum has been a notable popular success and has inspired broad community support and sentiment (see criterion 'd').

The Powerhouse Museum complex satisfies this criterion at the local level (Sydney). It also satisfies the threshold for Criterion 'a' at the State level.

3.1.2 Criterion 'b': Historical association

> An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).

As stated in the NSW guidelines framework:

> A place or object has special associational value if it is associated with a person, organisation or group of people who have made an important or notable contribution to the course, pattern and development of our cultural and/or physical environment. In this context, special association may relate not only to the 'great' and well known, but also to the influential, the exemplary, and the innovative.
>
> Places or objects that meet this criterion might include those that:
>
> > demonstrate strong associations with a particular event, historical theme, people, or philosophies and ideologies
> >
> > are associated with significant historical events, regardless of the intactness of the place or any structure on the place.
>
> A place may be considered significant because an important historical figure was said to have lived there and accomplished significant achievements while living there. For example, a house and studio being of state heritage significance as it was

associated with an important artist during the most productive period of their career.

The level of heritage significance at state or local levels can only be determined by comparison with other like places. The attributes described for criteria (f) and (g) can assist in the determination of significance.

The contribution of persons or groups to an area's history must focus primarily on their individual achievement(s) or how well they are known across NSW or the local area. This generally relates to 'who/what did they ultimately influence' or 'who/what did they come to be recognised by'.

Comment

The Powerhouse Museum complex derives significance for its associations with individuals and institutions of importance in Sydney and NSW's history.

The Powerhouse Museum is notable for having been conceptualised, championed and delivered by a large and diverse group of organisations (including the NSW Labor Party, the office of the NSW Government Architect and MAAS) and individuals within them (including Neville Wran, Dr Lindsay Sharp, Norman Harwood, Lionel Glendenning), as well as others (including Richard Johnson). These individuals and institutions reflect diverse fields of endeavour, including politics, architecture, engineering, exhibition design and collections management. Some individuals are remembered in building names (the Wran and Harwood buildings). The breadth of expertise embodied in the project is consistent with the scale, complexity and prestige of the undertaking.

A test for criterion 'b' is first to demonstrate that the person or group is of importance in the history of NSW (or at the local level), and second that they have a special association with the place under assessment.

Of the notable individuals and organisations associated with the Powerhouse Museum complex, two stand out for the strength of their association with the place, and for their role in shaping its identify and evolution: MAAS and the office of the NSW Government Architect. MAAS (notably through the work of Lindsay Sharp and Norm Harwood) and the office of the NSW Government Architect (led by Lionel Glendenning). The Powerhouse Museum is perhaps the seminal work of Glendenning's career.

As related to the other individuals of note associated with the Powerhouse, Neville Wran was associated with multiple places and initiatives, including the Powerhouse Museum, during his ten-year tenure as State premier (1976-86). Evidence to indicate that the Powerhouse derives cultural significance for this association, or that the Museum is a preeminent landmark of his legacy, did not come to light during research for this report.

Similarly, evidence to suggest that the place is of cultural heritage significance for its association with Henry Deane or Walter Liberty Vernon did not come to light. Deane was associated with multiple works of major infrastructure – including the Ultimo Power House and Tram Depot – during his career as Engineer in Chief for the NSW Railways from 1891-1906 and Engineer in Chief of the Commonwealth Railways Construction Branch, 1912-14. Walter Liberty Vernon oversaw the design of a significant numbers of public buildings (including over 20 post offices) as the NSW Government Architect from 1890 to 1911.

The Powerhouse Museum complex satisfies this criterion at the local level (Sydney). It also satisfies the threshold for Criterion 'b' at the State level.

3.1.3 Criterion 'c': Aesthetic/creative/technical achievement

A place or object is important in demonstrating aesthetic characteristics and/ or a high degree of creative or technical achievement in NSW (or the local area).

As stated in the NSW guidelines framework:

> A place or object is important because of its aesthetic significance if that place or object exhibits sensual qualities that can be judged to be of significance against various ideals including beauty, picturesqueness, evocativeness, expressiveness, landmark

presence, streetscape contribution, symbolism or some other quality of nature or human endeavour.

Alternatively, a place is important in demonstrating a high degree of creative or technical achievement at a particular period if that place illustrates artistic or technical excellence, innovation, accomplishment, extension or creative adaptation in a variety of fields of human endeavour including but not exclusive to art, engineering, architecture, industrial or scientific design, landscape design, construction, manufacture, and craftsmanship or some other technical field.

Places or objects that meet this criterion might include those that:

- demonstrate creative or technical excellence, innovation or achievement
- demonstrate aspirations, tastes and fashions
- have been the inspiration for creative or technical achievement
- demonstrate distinctive aesthetic attributes in form or composition
- demonstrate a highly original and influential style, such as an important early (or seminal) work of a major architect
- are an archaeological resource
- demonstrate the culmination of a particular architectural style (known as climactic).

A place may be considered significant under this criterion if it is a major landmark in a town, or it is the first major work in a particular architectural style. The significance may be diminished if its landmark qualities have been impacted by surrounding development, or it is only one of many examples of the architectural style. The level of heritage significance at state or local levels can only be determined by comparison with other like places or objects. The attributes described for criteria (f) and (g) can assist in the determination of significance.

Comment

The Powerhouse Museum complex is significant for demonstrating aesthetic characteristics and a high degree of creative achievement.

Aesthetic value is a broad concept. As applied to heritage significance, aesthetic characteristics and qualities may relate to how we respond to sounds, smells and other factors having an impact on human thoughts, feelings and attitudes. These qualities may be associated with good design; they may also relate to concepts of beauty. Aesthetic values can be the result of the conscious design of a place or object. They can also be the outcome of the way in which a place or object has evolved and been used over time. Many places and objects combine both. Aesthetic values tend to be specific to a time and cultural context. As related to the Powerhouse Museum, this criterion relates primarily to its standing as a landmark of adaptive renewal, and its architectural and experiential qualities.

Conception of the Powerhouse Museum was contemporary with the *Heritage Act*, 1977 (NSW), as well as the first edition of the *Burra Charter* (1979). The adaptation of the former Tram Depot (1979-81) was a very early example in NSW (and Australia) of adaptive renewal of a transport/industrial building and set the tone for the adaption of the Power House buildings. The works to the Tram Depot were significant. Interventions were, however, respectful of the scale, massing, materiality and roof profile of the original structure. The outcome is a building that retains legibility as an historic industrial structure, as well as its relationship with the Power House buildings to the north.

This approach, bold, assertive while simultaneously responsive to the valued attributes and characteristics of the place continued in the Power House itself. The buildings were retained as three-dimensional forms; the spatial qualities of the buildings were celebrated; original fabric was revealed where possible; applied details and new interventions embraced colour as well as architectural diversity of the evolved building complex; and thematic synergies between the

collection and the place were optimised. Opportunities for innovation presented by the existing building were also seized. A notable example was the use of historic conduits connecting the Turbine Hall to Darling Harbour (for use in the water cooling system) in support of the Museum's air conditioning system.

Works for the adaptation of the Ultimo Power House and Tram Depot were contemporary with early examples of adaptive reuse of industrial/transport buildings as arts facilities at the national as well as international levels.

The use of the adapted buildings as premises for MAAS, while not explicitly a heritage issue, is also relevant. The coalition of the collection and the historic buildings was mutually strengthening in terms of their significance, social resonance and cultural influence. For the first time, the buildings were accessible to the public, and the collection had space to breathe and reach a broader audience.

The architectural and experiential qualities of the Powerhouse Museum were the outcome of an intensely collaborative approach, with Lionel Glendenning and Richard Johnson being lead protagonists. Glendenning, architect of record for the Powerhouse and Principal Architect within the Office of the NSW Government Architect, brought a notably plural sensibility to the project. His interest in drawing upon a diverse set of historical and symbolic references was responsive to the origins and associations of the collections and the existing buildings. It was also contemporary with the expansion of Postmodernist principles in architectural design.

Glendenning explored a series of design themes including: the layering of space through screens and structural rhythm; levels of transparency to evoke spatial depth; the insertion of buildings within buildings to rescale experience; memory and contextual reference to create dialogues between old and new, and between past and present; and grids and their rotation as compositional tactics to encourage diverse movement and experiences within a building or site.

The cumulative significance of these elements was their reference to memory, time and travel, evocative not just of the industrial nature of the collection and its new location in a series of structures originally devoted to transport but also an analogy to a museum visitor's experience of memory, time and travel as they would make their way around the diverse volumes and spaces of the whole museum complex.

The design of the exhibitions and visitor experience, overseen by Johnson, was similarly innovative. Much as Glendenning had conceived the exterior form and the diverse scale of spaces within as an extension of the broader urban context, Johnson was interested in the internal experience of the museum being like that of a city. Major exhibits – including the Boulton and Watt Engine, the Cataline and Loco No. 1 – were used as anchors, to assist visitors in navigating the large spaces.

The Powerhouse Museum has been modified since 1988, notably during the works of 2011-13. However, the core principles that underpinned the design response, and many of the sources and references that informed it, remain evident.

The design qualities of the Powerhouse Museum were highly awarded. It was the first project ever to have been nominated for three categories in the RAIA National Architecture Awards: the President's Award for Recycled Buildings; the *Belle Interiors* Award for Interior Design; and the Sir Zelman Cowen Award. It won all of them. At the State level, it was the co-recipient of the RAIA NSW Chapter's top award, the Sulman Award for 1988.

The Powerhouse Museum complex satisfies this criterion at the local level (Sydney). It also satisfies the threshold for Criterion 'c' at the State level.

3.1.4 Criterion 'd': Social, cultural and spiritual

An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons.

As stated in the NSW guidelines framework:

A place or object is important for its strong or special association with a particular community or cultural group. This could be for social, cultural or spiritual reasons that have a perceived meaning or symbolic, spiritual or moral value that is important to them and which generates a strong sense of attachment.

Alternatively, a place is important when the community exhibits strong or special feelings or attaches community identity to it, or the community gathers especially for spiritual reasons, recreation or resort.

The place or object may be Aboriginal or non-Aboriginal or a natural environment. The natural place or object does not have to be a built/ constructed/modified (culturally created) place and could be in an unmodified natural form or format.

Types of places or objects that meet this criterion might include those that:

- are esteemed by the community for their cultural values such as places that support cultural traditions or practices
- are considered sacred and/or if damaged or destroyed would cause the community a sense of loss
- contribute to a community's sense of identity such as places of reverence and worship.

A place or object does not need to be known to or valued by the whole community in an area to be significant. A 'particular' community or cultural group may be defined by such things as a common ethnic background, religious belief or profession.

Care must be taken not to confuse heritage significance with preference. For example, a community may seek to retain an older building in preference to replacing it with a more contemporary development of a site. In such cases, there must be evidence that the place or object is separately valued in accordance with this criterion or one of the other criteria to be considered a significant place.

Comment

The Powerhouse Museum is a place of social value to communities and groups for a range of reasons variously related to conceptions of identity, practice and interest (as discussed at Section 2.6.1). Based on the limited review of evidence undertaken for this assessment, communal attachment as it relates to the Powerhouses Museum resonates at the local (Sydney) level and possibly the State level.

Since its opening in 1988 the museum has been valued by people across Sydney, NSW and beyond who have shared experiences and memories of the place. The strength of public attachment to the place is demonstrated by the extent of public support and donations for its establishment, and subsequently, its consistently high visitor numbers and the strong community reaction to the NSW Government's proposal for significant change at the place.

The Museum is used and appreciated by the Pyrmont, Sydney and NSW communities. It is also valued by communities who identify with and derive a sense of pride from an appreciation that the Powerhouse is a museum with few equivalents in Australia or elsewhere that is recognised worldwide and has contributed positively to perceptions of Sydney and NSW. Communities of identity associated with the Powerhouse also include those that have been supported (or represented) by the Museum, including migrant and LGBTQI communities.

Communities of interest associated with the Powerhouse Museum include groups that formed (or mobilised) following the NSW Government's 2014/5 announcement of plans to replace the Powerhouse Museum in Ultimo with a new facility in Sydney's western suburbs. Communities of interest also include those with an interest in the site's associations with industry, transport and with MAAS.

Communities of practice associated with the Powerhouse Museum may include but are unlikely to be limited to present and former MAAS staff, Powerhouse Museum staff and volunteers.

The Powerhouse Museum complex satisfies this criterion at the local level (Sydney). It is possible that it also satisfies the threshold for Criterion 'd' at the State level.

3.1.5 Criterion 'e': Research potential

> An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).

As stated in the NSW guidelines framework:

> A place or object has potential to yield information that will contribute to an understanding of an area's history if it can be demonstrated that with further examination or research, it may reveal information that will contribute to our understanding of our past.
>
> The potential to contribute to our understanding of the past may be found in archaeological deposits, complexes, buildings and structures, gardens and plantings.
>
> Types of places or objects that meet this criterion might include those that:
>
> > have the potential to yield new or further substantial information (such as scientific, archaeological, architectural)
> >
> > are an important benchmark or reference site, place or type
> >
> > contribute evidence to our understanding of past natural and cultural patterns, development or activity that is unavailable elsewhere.
>
> Documents, oral history and other sources of evidence, in addition to a detailed examination of the surviving physical fabric, can often assist in the assessment of whether a site could reveal valuable archaeological, technical or scientific information. For example, it may become apparent that the buried footings of a colonial house have little integrity if there is historical evidence that the site has been so disturbed that there will be no additional archaeological deposits associated with the use of the house.

Comment

It is considered that further investigation of or research into the Powerhouse Museum complex has limited potential to yield evidence of cultural heritage significance that is not currently visible, well understood or available from other sources.

As noted above (Criterion 'a'), the Powerhouse Museum complex derives historical significance for its association with the generation of electrical power, initially for Sydney's tramway network, and for the redevelopment of the place as premises for MAAS in the 1980s.

Following its closure (1963) the Ultimo Power House was stripped of the majority of machinery and plant. Fixtures and items that provided evidence of the Tram Depot's original use, a comparatively simple structure, were also removed. By the late-1970s the buildings existed largely as shells.

The history of the Power House, in terms of its operation and evolution, is well known from the documentary record, as well as from analyses and assessments of the place undertaken since the mid-1980s. The same applies to the former Tram Depot.

The Powerhouse Museum complex, in terms of its design, development, opening, evolution and operations since the 1980s, has likewise been thoroughly documented.

The extent of disturbance at the site over time is such that archaeological potential at the subject site is generally limited.[24]

The Powerhouse Museum complex is not considered to satisfy this criterion at the local level (Sydney). Likewise, it is not considered to satisfy the threshold for Criterion 'e' at the State level.

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24 For further detail on areas considered to retain potential for historical archaeological resources to be present see Curio Pty Ltd, Draft Conservation Management Plan for the 'Powerhouse Ultimo', Section 3, Table 3.3.

3.1.6 Criterion 'f': Rare

An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).

As stated in the NSW guidelines framework:

> A place or object demonstrates rare, uncommon or endangered aspects of an area's cultural or natural heritage. The place or object illustrates past human activities or achievements that are at risk of being lost, and/or are of exceptional interest. Past human activities and achievements can include a way of life, custom, process, function, land use, design or some other activity or achievement that is no longer practised.
>
> Types of places or objects that meet this criterion might include those that:
>
> - provide evidence of a defunct custom, way of life or process
> - are the only example of their type
> - demonstrate designs or techniques of exceptional interest
> - show rare evidence of a significant human activity important to a community.
>
> This criterion is exclusive and is concerned with places that are few in number. Determining what constitutes 'few in number' relies on contextual study. It is difficult to make claims without knowing how many other places survive or how many places existed at some time in the past.
>
> It requires overview studies and comparative studies of place types to make judgements, although even with comparative study the historical data may be indicative rather than quantifiable.
>
> For example, a park in a country town is said to be a rare example of Victorian public garden design, but further research reveals that it is a representative example, as there are many such parks in country towns in NSW. However, if research shows that the park is one of the few remaining examples of an important 19th century garden designer, or contains species not found in similar gardens elsewhere, it may qualify as rare in the NSW context.
>
> Assuming it is the only garden of its type in the local area, it is likely it would also be rare in the local context. The level of heritage significance at state or local levels can only be determined by comparison with other like places or objects or by proving that there is no documentation on similar places. This helps in determining the heritage significance of a place.

Comment

The Powerhouse Museum is one of a large number of cultural institutions and museums in NSW.

The Power House complex is also one of a large number historic buildings adapted to new uses in Sydney and NSW, albeit a particularly large and successful example. Likewise, it is one of a large number of places and monuments in Sydney and NSW associated with the bicentenary (see also Section 2.4).

The Powerhouse Museum complex is not considered to satisfy this criterion at the local level (Sydney). Likewise, it is not considered to satisfy the threshold for Criterion 'f' at the State level.

3.1.7 Criterion 'g': Representative

An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).

As stated in the NSW guidelines framework:

> A place or object is important in demonstrating the principal characteristics of a particular class of cultural or natural places or objects if it displays:
>
> - the defining features, qualities or attributes of a type

variation within a type

evolution of a type

transition of a type

and where the type or class of cultural or natural places illustrates a range of human or environmental activities including:

a way of life

a custom

an ideology or philosophy

a process

a land use

a function

a form

a design

a style

a technique

some other activity or achievement.

Types of places or objects that meet this criterion might include those that:

demonstrate the stages of development of a class of cultural places, including experimentation

are recognised as an example of a type, style, taxonomic group, etc

demonstrate land-use influence on the geographical, financial, etc development of an area

demonstrate in their fabric the impact of an ideology, value or philosophy or association with a custom

include complexes where more than one building or structure survives, demonstrating a way of life, often with associated furniture, fittings and other objects.

A place must demonstrate its significance in its fabric to fulfil criterion (g). This criterion is concerned with the evidence found at the place. If the evidence does not survive this criterion cannot be applied.

To assist in determining whether a place satisfies criterion (g), it is important to adopt a common understanding of:

class of cultural places

principal characteristics.

Comment

The Powerhouse Museum complex does not derive cultural heritage significance as related to criterion 'g'.

Every place or building is an example of a 'type' or 'class'. A key test is whether the class of place is significant. The Powerhouse Museum, as a major public institution dedicated to conserving and displaying culturally significant objects, satisfies this test, and it displays the distinguishing attributes of this class, including diversity of experience, accessibility, mass appeal and evolution. For the reasons given above (notably at Section 2.1), the Powerhouse also represented an 'evolution' of this type.

It is considered, however, that the conceptual, museological and architectural rationale behind this evolution is adequately, and more appropriately addressed under criteria 'a' and 'c' above.

The Powerhouse Museum complex is not considered to satisfy this criterion at the local level (Sydney). Likewise, it is not considered to satisfy the threshold for Criterion 'g' at the State level.

3.2 Statement of significance (2024)

What is significant?

The Powerhouse Museum complex, including the Wran Building, former Ultimo Tram Depot (Harwood Building) and the former Ultimo Power House buildings [see Figure 16]. The buildings, their setting and the exhibition design of the Powerhouse Museum should be understood as an integrated whole.

Why is it significant?

The Powerhouse Museum complex is of historical significance (Heritage Council of NSW Criteria 'a' and

'b'), aesthetic significance (Criterion 'c') and social significance (Criterion 'd') to NSW and Sydney.

How is it significant?

The former Power House and the Tram Depot demonstrate and retain associations with historic events of significance. The Power House was established in 1898/99 for the generation of electricity to power Sydney's tramway network. The tram cars were stabled in the Tram Depot, constructed concurrently on a site to the south. The two buildings continue to share a symbiotic functional relationship.

The Ultimo Power House was the first facility for the generation of electrical power in NSW, and from 1899 until the 1920s it was the largest and most technologically advanced. It closed in 1963. The Ultimo Tram Depot (also completed in 1899, and closed in 1953) was the first stabling facility for Sydney's electric tram network.

In the late-1970s, the NSW Public Works Department resolved to adapt the Ultimo Power Station and Tram Depot – by then in a state of dereliction and largely stripped of plant and machinery – as premises for the Museum of Applied Arts and Science (MAAS), a huge collection of considerable significance in its own right. MAAS has strong connections with Ultimo, having been headquartered at the Technological Museum on Harris Street from 1893 to the 1980s.

The vision was for the conservation and adaptive re-use of the derelict industrial buildings, and the introduction of new works to the west of the site (Harris Street) creating a new public address. The undertaking was inspired by overseas precedents. Political impetus for the project was provided by the bicentenary. The project also a flagship of the regeneration of the Darling Harbour precinct. *(Criterion 'a')*

The Powerhouse is a large and complex place that is rich in ideas, ambition and associations. It is notable for having been conceptualised, championed and delivered by a large and diverse group of organisations The breadth of expertise embodied in the project is consistent with the scale, complexity and prestige of the undertaking. Of the notable individuals and organisations associated with the complex MAAS and the office of the NSW Government Architect stand out for the strength of their association with the place, and for their role in shaping its identify and evolution. The Powerhouse Museum is perhaps the seminal work of Glendenning's distinguished career. *(Criterion 'b')*

The Powerhouse Museum complex is a major, and early, outcome of an emerging interest internationally in adaptive renewal of industrial/transport buildings for the creative arts. Works for the adaptation of the Tram Depot and Power House buildings were bold, and assertive while simultaneously responsive to the distinct character of the place.

The coalition of the MAAS collection and the historic buildings was mutually strengthening in terms of their significance, social resonance and cultural influence.

The architectural and experiential qualities of the Powerhouse Museum were the outcome of a collaborative approach, with Lionel Glendenning and Richard Johnson being lead protagonists. Glendenning brought a notably plural sensibility to the project. His interest in drawing upon a diverse set of historical and symbolic references was responsive to the origins and associations of the collections and existing buildings. It was contemporary with the expansion of Postmodernist principles in architectural design.

Glendenning explored a series of design themes at the Powerhouse the cumulative effect of which was their reference to memory, time and travel, evocative not just of the industrial nature of the collection and its new location in a series of structures originally devoted to industry and transport but also an analogy to a museum visitor's experience of memory, time and travel as they would make their way around the diverse volumes and spaces of the whole museum complex.

The design of the exhibitions and visitor experience, overseen by Johnson, was similarly innovative. Much as Glendenning had conceived the exterior form and the diverse scale of spaces within as an extension of the broader urban context, Johnson was interested in the internal experience of the museum being like that of a city. Major exhibits – including the Boulton and Watt Engine, the Cataline and Loco No. 1 – were used

as anchors, to assist visitors in navigating the huge spaces.

The Powerhouse Museum has been modified since 1988, notably during the works of 2011-13. However, the core principles that underpinned the design response, and many of the sources and references that informed it, remain evident.

The design qualities of the Powerhouse Museum were highly awarded. *(Criterion 'c')*

The Powerhouse Museum is a place of social value to communities and groups for a range of reasons variously related to conceptions of identity, practice and interest. Broad communities of identity across Sydney and NSW derive a sense of pride from an appreciation that the Powerhouse is a museum with few equivalents in Australia or elsewhere that is recognised worldwide and has contributed positively to perceptions of Sydney and NSW. Communities of identity associated with the Powerhouse also include those that have been supported (or represented) by the Museum, including migrant and LGBTQI communities.

Communities of interest associated with the Powerhouse include groups that formed (or mobilised) following the NSW Government's 2014/5 announcement of plans to replace the Powerhouse Museum in Ultimo with a new facility in Sydney's western suburbs, Communities of interest also include those with an interest in the site's associations with industry, transport and with MAAS.

Communities of practice associated with the Powerhouse Museum may include but are unlikely to be limited to present and former MAAS staff, Powerhouse Museum staff and volunteers. *(Criterion 'd'.)*

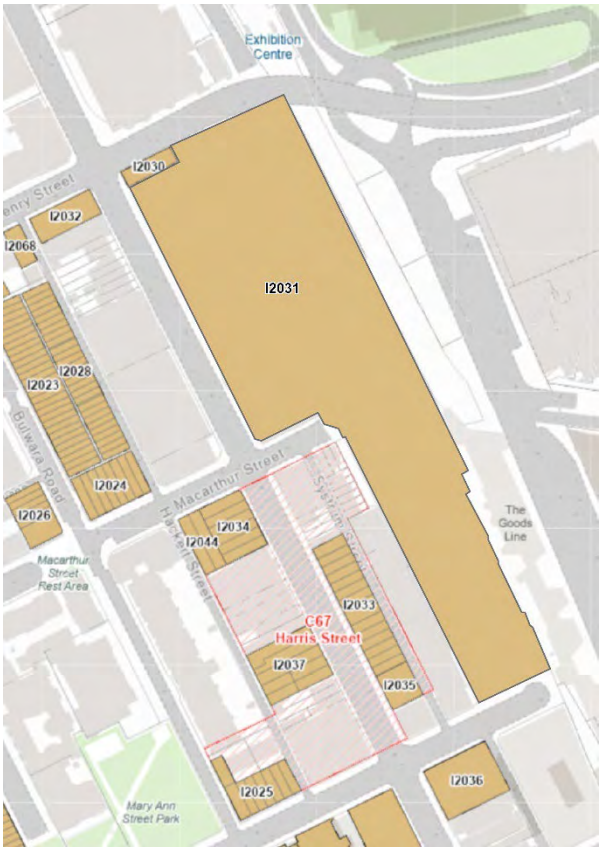
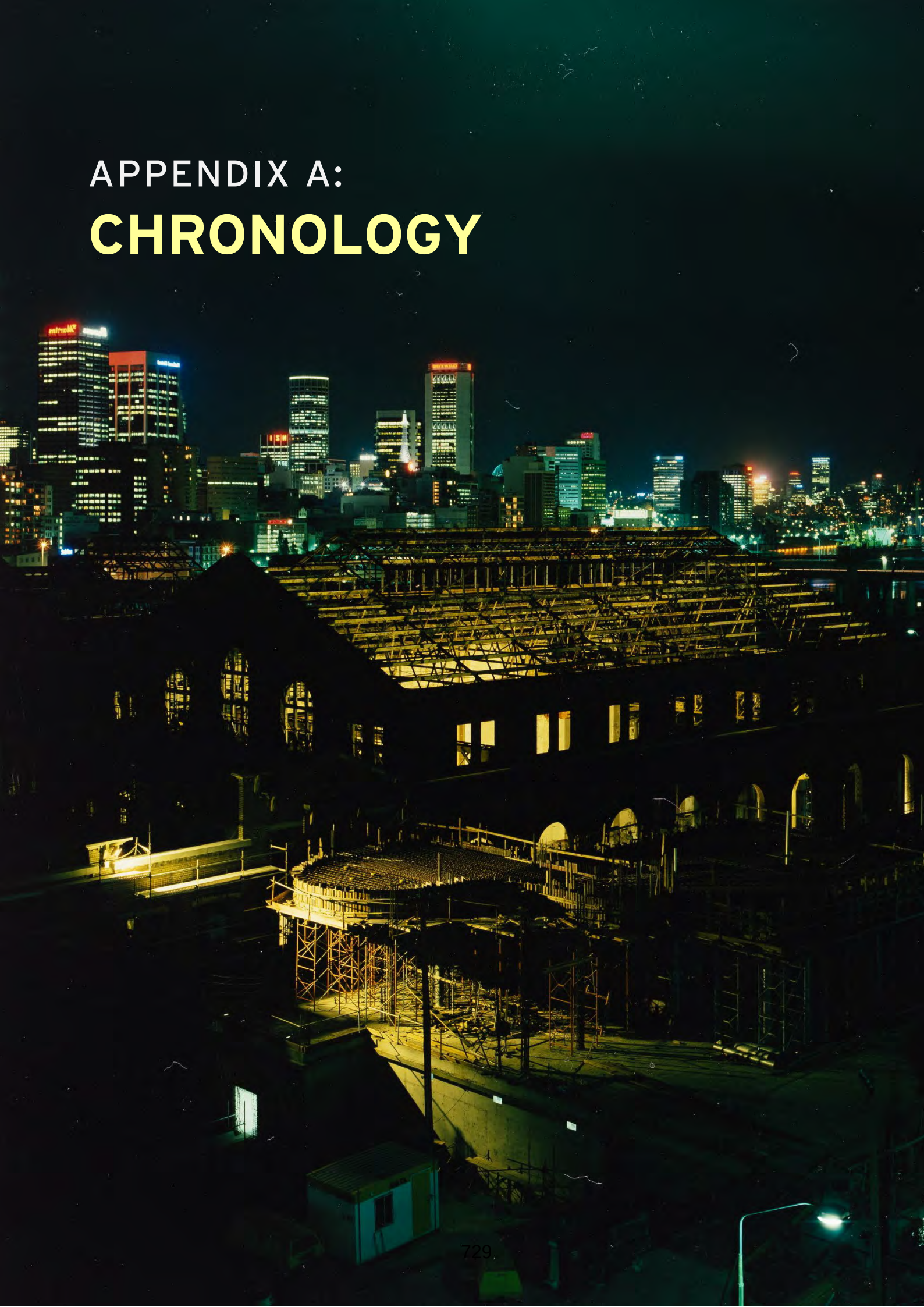
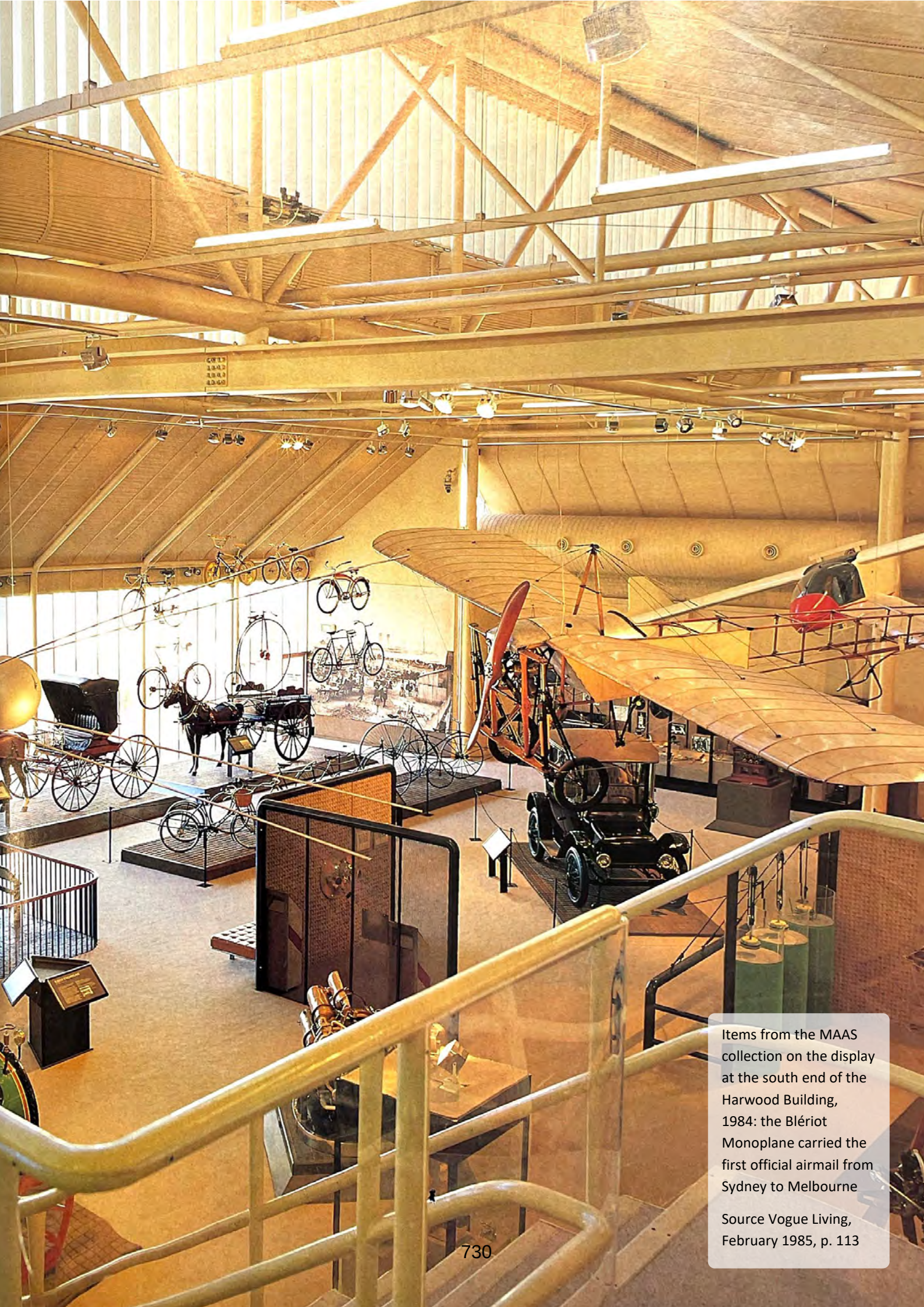


Figure 16 Proposed extent of heritage curtilage for the Powerhouse Museum complex for the Sydney LEP, Heritage Sheet 008: designated I2031

APPENDIX A:
CHRONOLOGY





Items from the MAAS collection on the display at the south end of the Harwood Building, 1984: the Blériot Monoplane carried the first official airmail from Sydney to Melbourne

Source Vogue Living, February 1985, p. 113

TABLE OF CONTENTS

INTRODUCTION

The following chronology arranged around core phases in the evolution of the Powerhouse Museum at Ultimo since the late-1970s, and the Museum of Applied Arts and Science (MAAS) since 1879. The core objective of this document is to support an understanding of the Powerhouse Museum as a place of historical significance. It does not seek to present a complete or comprehensive history of either the Powerhouse Museum of MAAS. As noted in the main report, pre-colonial land uses and associations are not addressed in this chronology.

Information included below derives, in the main, from the following sources:

Architectural Projects, *Conservation Management Plan: The Powerhouse Museum*, prepared for the Powerhouse Museum, 2003

T Brassil, *Ultimo Tram Depot (The Harwood Building), History and Significance*, National Trust of

Australia (NSW), 2019

Curio Projects, *Powerhouse Ultimo Draft Conservation Management Plan*, May 2022

Design 5 Architects, Powerhouse Museum Design Principles, May 2022 (included as an appendix to the Curio Project CMP referenced above)

Nomination of Ultimo Power House as a site for an historic engineering marker, November 1994

Parliament of New South Wales, *Upper House Inquiry into museums and galleries: Hearings and Transcripts*, 2016-2019

Parliament of New South Wales, *Upper House Inquiry into museums and galleries: Hearings and Transcripts*, 2020-2022

Parliament of New South Wales, *Legislative Council Hansard*, selected commentary and documentation, 2015-2024

View looking south towards Darling Harbour from Blues Point, c. 1880
Source: Museums of History, mhnsw.austoriesgeneraldarling-harbour)

SETTLEMENT AND INDUSTRY: 1788-1880s

Pyrmont and Ultimo developed as industrial areas with strong transport connections following European settlement, establishing themes that continue to resonate.

1803-06 Governor King grants 13.8 hectares (34 acres) to surgeon John Harris (1803). The land is named 'Ultimo Farm' by Harris. A further grant of 54.4 hectares (135 acres) is given by 1806. The Powerhouse Museum is believed to be located within this larger grant.

1830s Reclamation and development of Darling Harbour.

Development in Pyrmont and on the periphery of the Harris estate includes quarrying, manufacturing and processing works, as well as workers' housing.

1838 John Harris dies, leaving no heirs. His estate is divided equally between his brothers William and George Harris. Complications with his Will leave the brothers being able to receive rent from properties, but unable to subdivide the land, stymieing development.

1855 The Darling Harbour Goods Line is extended along the eastern boundary of Ultimo to a location close to the future Pyrmont Bridge. The presence of the Goods Line in this location severs the direct connection between Darling Harbour and Harris Street, with the Powerhouse site located in between. The isolation of the Harris land from Darling Harbour, in addition to the underutilisation of the rail line in its early years, creates tension between the Harris family and the Government.

1859 The sons of William and George Harris inherit the Ultimo Estate, meaning that subdivision of the land is now legally permissible. Built form delivered as an outcome of subdivision generally continues patterns seen elsewhere on the Pyrmont peninsula, including warehouses, industrial complexes and workers housing.

1860s-80s Consolidation of the Pyrmont peninsula as an industrial area dominated by warehouses and large factories, many associated with the wool industry. Limited residential development.

1870 The Darling Harbour Goods Yard is constructed to the north of the subject site.

THE MUSEUM OF APPLIED ARTS AND SCIENCE: 1879 - PRESENT

Established as an outcome of the Sydney International Exhibition (1879), the institution now known as the museum o Applied Arts and Science occupied various premises before taking up residence at the Technological Museum on Harris Street, Ultimo in 1893. In 1988 it relocated to the former Ultimo Power House.

1879 (17 September) Sydney International Exhibition opens at the Garden Palace, a purpose-designed exhibition venue designed by James Barnet.

1880 (January) The New South Wales Technological, Industrial and Sanitary Museum (NSWTISM) is founded and acquires exhibits which had been displayed at the International Exhibition. The Museum is housed within the Garden Palace in the Sydney Botanic Gardens.

1882 (September) A major fire at the Garden Palace destroys the building and much of the Museum collections.

1883 The Museum is re-established in the former Agricultural Hall in the Domain.

1893 The Museum moves into new premises at 651 Harris Street, Ultimo designed by William Kemp. The location, adjacent to the Sydney Technical College, is selected to attract and instruct workers.

The Museum continues to collect exhibits, specialising in Australian decorative arts, ceramics, clothing, furniture and musical instruments. It also carries out a programme of applied scientific research.

Figure 1 Technological Museum, 651 Harris Street, designed by William Kemp
Source: Dixson Library, State Library of NSW, IE12594670, FL12594912

1900s

The Museum is running out of space for collection storage and exhibitions. Over the coming decades options contemplated for new premises include the Queen Victoria Building, the Fort Macquarie Tram Depot and the Sydney University Institute.

Much of collection is stored off-site.

1906

Renovations to the Museum's interior, and opening of a gallery devoted to Australian Flora Applied to Art.

1945

Passage of the *Museum of Applied Arts and Sciences Act*. The Museum is renamed the Museum of Applied Arts and Sciences (MAAS).

1947

A 2.8-hectare site at Castle Hill was acquired for the Museum (now the 'Powerhouse Castle Hill').

1950s

The Museum presents demonstrations of new models and inventions such as X-ray and RADAR equipment, and television.

1960s-70s

Ongoing attempts to identify larger premises for the Museum. From the late 1970s, buildings at Castle Hill become the central storage facility for the collection.

1978

NSW Premier Neville Wran announces ambitious plans for the adaptive re-use of the former Ultimo Power House and the former Tram Deport as premises for MAAS. Dr Lindsay Sharp appointed Director of MAAS.

(September) Building A at Castle Hill opens, containing a workshop and conservation facilities. Buildings B, C and G are completed during the 1980s.

Figure 2 Timber exhibit, Technological Museum, 1906
Source: Government Printing Office, NSW State Archives, NRS-4481-3-[7/16331]-St3084

Figure 3
Hand loom, Technological Museum, 1927

Source: Government Printing Office,
NSW State Archives, NRS-4481-3-[7/16001]-St11616

ESTABLISHMENT OF THE ELECTRIC TRAMWAYS: 1890s

A commitment to the electrification of Sydney's tramway network results in the construction of the Ultimo Power House and the adjacent Tram Depot (Car House).

1893

Sydney's first electric-powered tram line opens on the North Shore. Its success leads to plans for adopting electricity across the whole network.

1895-96

(September) An Act of Parliament sanctions the construction of the George Street and Harris Street Electric Tramway, along with a Power House and Car House at Ultimo. Factors influencing the location of the Power House include access to the Darling Harbour Rail Corridor (the Goods Line) for coal supply and the disposal of ashes; access to Darling Harbour for adequate sea water supply for the condensers; and the relatively low cost of the land and space for expansion. While the intention was to purchase the whole city block bounded by William Henry, Harris, Macarthur and Pyrmont streets, the exclusion of the more expensive Harris Street frontage reduces the capital outlay.

1897

The majority of contracts for construction of the Power House and Car House are let between 1897 and 1898. J Stewart & Co is contracted to build the Ultimo Power House and Tram Shed, and Justin McSweeney is awarded Contract 18 to construct the water conduit connecting Darling Harbour to the Boiler House supplying seawater to the condensers (the Water Cooling System and Manifold).

1898

Construction of the Ultimo Power House and Car House commences.

1899

The Ultimo Power House opens (December), to generate electricity for Sydney's new tram network. It is the first large-scale electric power plant constructed in Australia. The complex of buildings comprises the Engine Room/House and Administrative/Office Building (North Annex), and the Boiler Hall/House and Pump Room/House. The overall building measures c. 60 metres (200 feet) by c. 30 metres (100 feet). The original pump house chimney stack is estimated to have comprised 890,000 bricks and rose to a height of c. 91 metres (300 feet).

The Ultimo Tram Depot opens the same year and is operational from 8 December. The Depot houses the fleet on the George Street, City to Harris Street, Pyrmont line and is bounded by Mary Ann Street (south), Omnibus Lane (west); the Darling Harbour Railway Goods Yard (east); and the Power House (north). As originally built, the Tram Depot comprises 12 tracks and nine bays, and measures c. 83 metres (275 feet) by c. 39 metres (130 feet). The structure, with capacity for 108 tram cars, is the first of 12 electric tram depots to open across the tram network between 1899 and 1915. A Store and Repair Shop adjoining the rear of the depot features the same sawtooth design of the Car House.

Figure 4
Power House under construction, c. 1898: view looking north-east with the William Henry Street iron bridge visible at rear

Source: NSW State Archives, NRS-4481-2-[4/8645]-1227

Figure 5
Power House under construction, c. 1898: view looking north to the pump room and stack

Source: NSW State Archives, NRS-4481-2-[4/8645]-1228

Figure 6
Power House under construction, 1898: the Engine House and North Annexe

Source: NSW State Archives, NRS-4481-2-[4/8645]-122

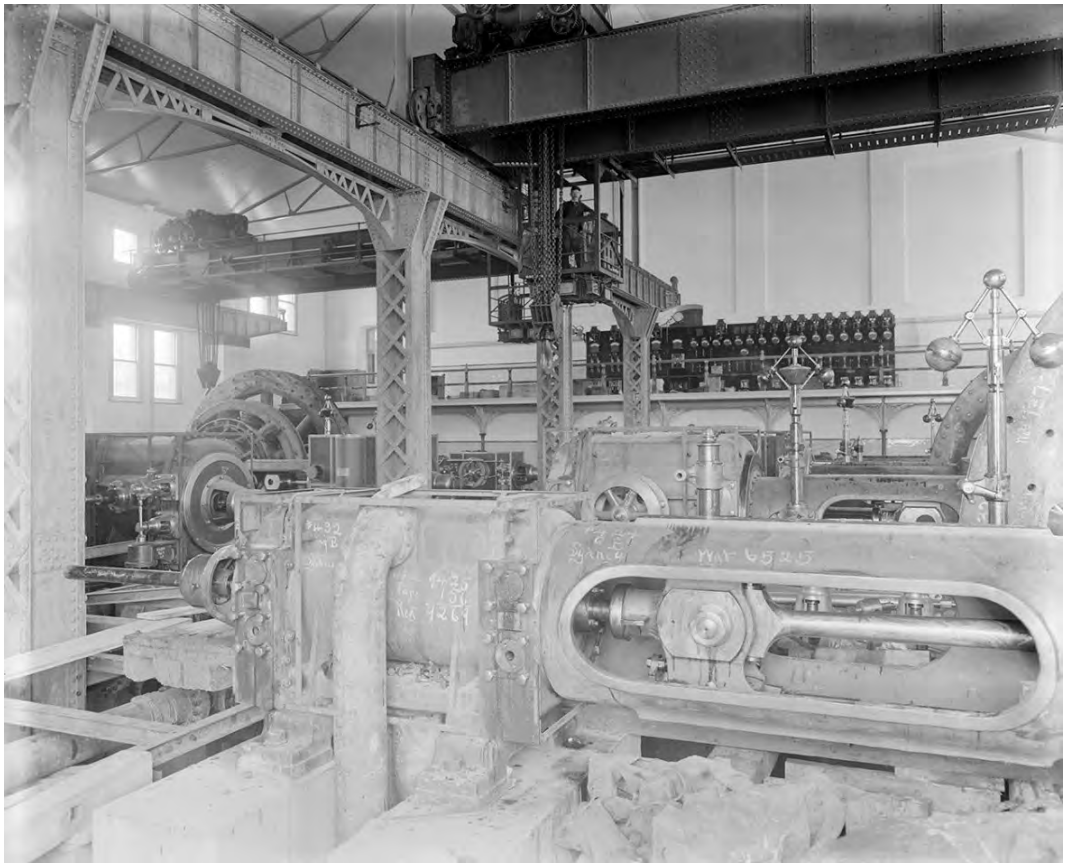


Figure 7
Ultimo Power House interior, 1899: Engine Hall

Source: NSW State Archives, NRS-4481-4-523-[AF00224579]

Figure 8
First electric tram, Ryde lines, Ultimo Depot, 1899

Source: NSW State Archives, NRS-17420-2-49-2009/011

EXPANSION: 1900s -1930s

Expansion and modernisation of the Ultimo Power House and Tram Depot.

1901

Designed by the Public Works Department's Government Architect's Branch under W L Vernon in 1900, the Ultimo Post Office is constructed at 484 Harris Street, Ultimo. The building opens on 16 July and operates until the 1980s when it is converted to a childcare centre.

1902-05

With rapid demand for electricity, the Power House is expanded just three years after opening. The works are significant, including extension of the Engine House (later renamed the Turbine Hall) to the south; and construction of a new and larger Boiler House. The Boiler House, with 24 boilers installed at the peak of capacity, is designed to produce high-pressure for conversion to electricity, and to use seawater taken from Darling Harbour to cool its condensers. Two chimney stacks, each c. 68 metres high (224 feet), are built for the new boilers. Extensions to the Engine House accommodate the new alternating current plant with higher voltage capacity allowing substations were built around the Sydney tramway system.

Ultimo is the largest generating power station in the Southern Hemisphere with an output of c. 13,274 kilowatts (17,800 horsepower).

1904

The Pyrmont Power Station begins operations less than a mile away, further consolidating the peninsula's identity as an industrial area.

1908

The Tram Depot is extended with five additional bays spanning c. 46 metres (150 feet) north along the Darling Harbour Goods Line.

1909

With increasing demand for electricity, two additional turbo-alternators are installed at the Power House.

1912

Construction begins on a new Power House at White Bay (operational by 1913).

1913

To accompany the operations of the Tram Depot, a Tramway Instruction Room is constructed at the northwestern extent of the site between the Turbine Hall and the Post Office. This siting of the Tramway Instruction Room amongst Power House buildings and away from the Tram Depot speaks to the intertwined processes of both and the connected nature of operations throughout the site. The Tramway Instruction Room is a purpose-built facility housing specialist equipment used for the training of electric tram drivers.

1920s

Expansion and improvements to Ultimo Power House associated with electrification of the suburban rail network.

1922-27

A new Switch House is constructed to support upgrades to Sydney's tram network beyond the capacity of existing switchboard facilities in the Engine Room and Turbine Hall. It is located to the south of the Turbine Hall and houses high tension switch gear, transformer banks, and a new control room.

1923 Power output at the White Bay Power House exceeds that of Ultimo for the first time.

1923-28 New water conduits constructed from the Power House to Darling Harbour.

1927 Until 1927, one of the depot's tram tracks (known as '10 Road') connected the Tram Depot with the railway line running from Darling Harbour Goods Yard to the Power House. This connection originally streamlined the movement of materials associated with the Power House's operational infrastructure and the Darling Harbour Goods Line. This railway line would later be removed to accommodate the construction of a coal storage bunker which allowed the Power House to continue operating through the 1940s supply chain issues of coal related to industrial action.

1927-32 Modernisation and remodelling of the Power House to achieve greater efficiency of operation, including replacement and upgrade of equipment and plant, installation of a new pneumatic coal handling plant, and construction of a new concrete coal store to the south of the Boiler House.

Figure 9 View from Pier Street towards the Boiler House and Pump House stack, 1937
Source: City of Sydney Archives, A-00029703

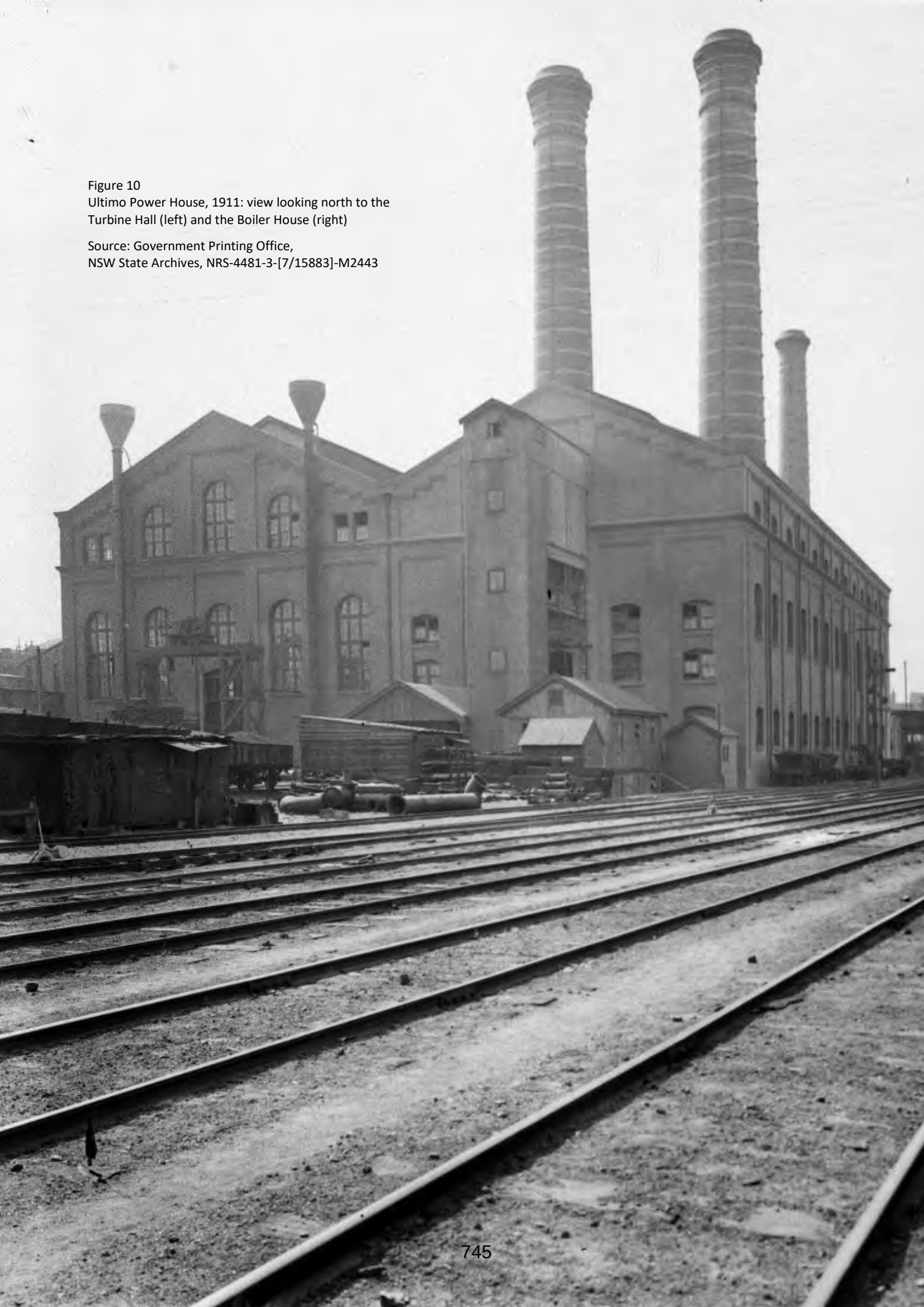


Figure 10
Ultimo Power House, 1911: view looking north to the Turbine Hall (left) and the Boiler House (right)

Source: Government Printing Office,
NSW State Archives, NRS-4481-3-[7/15883]-M2443

Figure 11
the Engine house during adaptive works (1980s)

Source: Powerhouse Museum

DECLINE AND CLOSURE: 1940s-70s

Following World War II, industry shifted away from the inner suburbs, including Pyrmont and Ultimo. The de-industrialisation process results in widespread redevelopment.

1939-45	During World War II, air raid shelters are constructed at the Ultimo Power House complex.
1947	Interruptions to coal supply in the 1940s, a result of industrial action at the coalfields, result in conversion of the boilers to operate on fuel oil.
1948	(April) The Commissioner of Railways purchases 550 Harris Street, providing a street frontage to the west.
1953	(June) The Ultimo Tram Depot ceases operations, the first of Sydney's 12 tram depots to shut down. Until 1956, it is used to store surplus tramcars awaiting scrapping. The Tramway Instruction Room is vacated when a new training school opens in Randwick. By 1954 it is being used as a storeroom for the Electrical Commission of NSW.
1960s	The Tram Depot is used for storage for the Museum of Applied Arts and Sciences (MAAS) and Brambles Industries Ltd.
1960	Demolition begins on the 1898-99 Pump House chimney stack.
1963	(October) Closure of the Power House; the replacement of Sydney's tram network in favour of buses is complete.
1964	The former Tram Depot is vested in the Board of Trustees of the MAAS for the purposes of establishing a transport museum. The Government Architect prepared plans for the construction of the Museum.
1967	Plans to establish a transport museum in the Tram Depot are suspended, associated with consideration of the Western Distributor being routed on its path (plans for the freeway were abandoned in 1977).
1967-68	Extensive demolition of the Pump House to allow for widening of the William Henry Street Bridge.
1975-77	Most of the Power House plant machinery and equipment is removed. Demolition of the two 1902 Boiler House chimney stacks to below roofline heights.

RENEWAL: 1970-80s

Adaptation of the Power House for the Museum of Applied Arts and Sciences.

1977

Passage of the *Heritage Act*, NSW – this legislation framed the works to the former Tram Depot and Power House.

1978

Feasibility study (Powerhouse Relocation Study) for adaptive re-use of the Power House prepared by Dr Lindsay Sharp and Lionel Glendenning (see also page 20) under the aegis of Premier Neville Wran and the Minister for Public Works. This document references the adaptation of Gare O'Orsay in Paris as a museum, in addition to the adaptation of Hyde Park Barracks and the Royal Mint. It is anticipated that the museum would require 38,000sqm of space to accommodate its requirements.

1979

(13 August) NSW Premier Neville Wran announces plans to adapt the Power House and Tram Depot as premises for MAAS, with final completion by the bi-centenary in 1988.

Figure 12 Interior of the Turbine Hall, facing south, during adaptive works
Source: Powerhouse Museum

Figure 13 View looking north from the Turbine Hall, during adaptive works (1980s)
Source: Powerhouse Museum

Figure 14 View of the Power House looking northeast (1980s)
Source: Powerhouse Museum

Figure 15 View looking south from the Post Office, c. mid-1980s: the footings of the Wran Building are in the foreground
Source: Powerhouse Museum

1981

(September) Stage One of the redevelopment – the Ultimo Tram Depot opens – a foretaste of what is to come. The former Tram Depot is adapted for use by MAAS, and as a temporary display space for exhibits, at a cost of $5.2 million with much modification to the existing building.

The site is opened on 4 September by NSW Premier Neville Wran.

1982-87

Redevelopment of the Power House buildings as Stage Two of the Powerhouse Museum continues.

Works to adapt the Power House were significant. Plant and equipment were removed, new internal floors introduced, and new buildings constructed on the west side.

1984

The former Tram Depot is renamed the 'Harwood Building' in honour of former MAAS curator Norman Harwood.

The Darling Harbour Goods Line is decommissioned, after port functions and wool stores moved away from Sydney in the 1960s.

1985 The former Ultimo Post Office is adapted as a childcare centre.

1986 Richard Johnson of Denton Corker Marshall Architects is appointed as exhibition designer for the Powerhouse Museum (see page 20).

1988 Ultimo Powerhouse Museum opens (March). The Harwood Building becomes storage, office space, workshops and studios/laboratories to support the Powerhouse Museum.

Peer recognition for the design qualities of the Powerhouse is overwhelming. It is the first project ever to have been nominated for three categories in the RAIA National Architecture Awards (the President's Award for Recycled Buildings; the Belle Interiors Award for Interior Design; and the Sir Zelman Cowen Award). It wins all three. At the NSW level, it is the co-recipient of the RAIA NSW Chapter's top award, the Sulman Award.

Figure 16 Oblique aerial view looking north along Harris Street, 1988
Source: Australian Heritage Photographic Library (Dragi Markovic, Barcode rt65910)

LIONEL GLENDENNING (1941-)

Lionel Glendenning graduated in architecture from the University of New South Wales in 1966. The winner of multiple scholarships including the Byera Hadley Travelling Scholarship, a Fulbright Travel Grant and the inaugural Robert Gordon Menzies Scholarship, he gained an M.Arch from the Graduate School of Design (GSD) at Harvard University in 1969. At Harvard, formative influences were the architectural history lectures of Eduard Sekler (1920-2017), the environmental ideas of landscape architect Ian McHarg who regularly visited the GSD, and the focus on urbanism in the design studios.

Glendenning had earlier commenced work as a student in the office of the NSW Government Architect in 1958, rising to Principal Architect in 1984. Key projects on which he worked as principal designer included the Claymore Public School (1980), Bicentennial Park, Homebush (1983-8, with landscape architect Lorna Harrison), and the Sulman Award-winning Powerhouse Museum (1978-88).

In 1988, Glendenning joined the Sydney firm of Edwards Madigan Torzillo Briggs Pty Ltd as Managing Director, where he worked until his retirement in 2012. Key EMTB projects, with which Glendenning was closely associated include a proposal for a Multifunction Polis, Adelaide, SA (1989-90, unbuilt), IMAX Theatre, Darling Harbour, Sydney (1996) and Caves Beachside, NSW (2009).[1]

RICHARD JOHNSON (1946-)

Richard Johnson graduated in architecture from the University of New South Wales in 1969, then worked for the Commonwealth Department of Housing and Construction from 1969 until 1985, rising to the position of Principal Architect. He developed special expertise in exhibition design and was responsible for a number of Australian exhibition pavilions overseas, including Expo 74 in Spokane, Washington, USA (1974), Expo 75, Okinawa, Japan (1975) and Expo 85 in Tsukuba, Japan (1985).

In 1985, he became the Sydney director of the Melbourne-based firm of Denton Corker Marshall (DCM), and became heavily involved in DCM's design consultancy to the Powerhouse Museum project, working directly with Lionel Glendenning and museum director Lindsay Sharp.

Later projects undertaken with DCM included the Australian Embassy, Beijing (1982-92), Australian Embassy, Tokyo (1986-90), and the Governor Phillip Tower/Governor Macquarie Tower/Museum of Sydney complex, Sydney (1990-95). In 2001, he established the firm of Johnson Pilton Walker, completing further projects associated with gallery and exhibition design, including the Asian Gallery, Art Gallery of NSW, Sydney, NSW (2004), National Portrait Gallery, Canberra, ACT (2008), Zoology Wing of the Australian Museum, Sydney, NSW (2008) and Chau Chak Wing Museum, University of Sydney, Sydney (2020). Johnson was awarded the RAIA Gold Medal in 2008.

1 Paul Walker, 'The multifunction polis: an urban idea and its end', in Julie Miao & Tan Yigitcanlar, eds, *Routledge Companion of Creativity and the Built Environment* (London: Routledge, 2024), pp. 467-9; interview with Lionel Glendenning, by Robert Freestone and Paul Walker, unpublished transcript, undated (c. 2023). [Thanks to Paul Walker for sharing this transcript]

The Switch House (left), Turbine Hall (right) and pedestrian walkway linking the Powerhouse and Harwood Building, 1988
Source: *Architecture Australia Awards,* 1988, p.47

POWERHOUSE MUSEUM: 1990s-2013

Until the major 'Revitalisation Project' of 2011-13, works at the Powerhouse Museum were generally small-scale and localised.

1994

The brasserie on Level 5 of the Switch House is redesigned, with wall and ceiling murals depicting floral motifs by Ken Done. The restaurant is renamed the 'Garden Restaurant.'

1997-2002

The Inner West Light rail opens at the former Darling Harbour Goods Line in 1997. The monorail station adjacent to the museum is later renamed the Powerhouse Museum Station in 2002.

2000

Localised, small-scale alterations at Level 3 of the Wran Building.

Earthquake damage prevention project sees the completion of works on the outer wall of the Boiler Hall.

2003

The first Conservation Management Plan for the Powerhouse Museum is prepared (by Architectural Projects).

Also in 2003, the Migration Heritage Centre relocate to the Powerhouse Museum.

2004

A bridge connecting the Turbine Hall and Boiler House at Level 2 is constructed.

2005-08

Powerhouse Museum's 'Refresh Program' includes alterations to the Wran Building's Harris Street façade which is repainted white, and the yellow logo replaced. Further changes include a restructuring of the museum's wayfinding and upgrades to the Level 1 courtyard.

2007-09

The Powerhouse Museum partners with NSW Department of Commerce to undertake the 'Centenary Stonework Program'.

The former Ultimo Post Office undergoes stone conservation works including the replacement of deteriorating sandstone, damaged carvings, and the slate roof. Structural works focusing on seismic stabilisation are completed for the front gable and chimneys. New floor finishes, kitchen, and bathroom amenities are provided for the building's 2008 reopening as the Powerhouse Volunteer Centre.

In 2009, a covered walkway is constructed connecting the former Post Office with the Wran Building.

The Boiler Hall, North Annex, and Turbine Hall undergo extensive safety and external maintenance works. Masonry and cement render mouldings as posing a potential risk due to structural instability are subsequently removed.

2011-13

Powerhouse Museum begins a major phase of works referred to as the 'Revitalisation Project', the first major upgrade of facilities since 1988.

The project involved the demolition of brick parapets; partial demolition of the colonnade to Harris Street; removal of stairs and handrails from the forecourt; dismantling of the Turbine Hall's large interior cube structure; removal of the glass lift

from the Wran Building; and demolition of two pairs of escalators (formerly connecting levels 1-3).

Major construction works for the Revitalisation Project include: the construction of new steps and handrails with LED lighting; the addition of a new main entrance linking the forecourt to the Switch House; the relocation of the panoramic glass visitor lift to the Turbine Hall; relocation of the shop and café near the Switch House exit; replacement of Turbine Hall escalators; upgrades to the fire sprinkler system; construction of toilet facilities on level 2. Plans for the installation of canopy structures on the forecourt were never realised.

The Wran Building as seen from the Harris Street forecourt
Source: *Architecture Australia*, September 1988, p. 62

PUBLIC DEBATE AND COMMUNITY ADVOCACY: 2014-PRESENT

The NSW Government's plans to close the Powerhouse Museum at Ultimo and construct a new facility at Parramatta provoke sustained public debate.

2014

MAAS Director Rose Hiscock (appointed 2013) announces a new direction for the Powerhouse, including rationalisation of 'teams' and staff reductions; stronger links with the Darling Harbour precinct; and a new 'address' to the east (Goods Line public realm).

In November, NSW Premier Mike Baird announces that the Powerhouse Museum will relocate from Ultimo to Parramatta.

The Powerhouse Museum Alliance is formed in response to the announcement.

2015

Redevelopment of the Goods Line is complete – the Goods Line reinterprets former railway infrastructure as public greenspace.

(February) The NSW Government announces plans to raise funds for the new Powerhouse in the western suburbs through the sale of the Powerhouse in Ultimo.

The Government's plans stimulate sustained public debate and community activism. Dominant themes in the discourse include but are not limited to: broad support for a new facility in the western suburbs (Parramatta); advocacy for revitalising the Powerhouse at Ultimo, as opposed to replacement; calls for greater transparency in the decision-making process; and questions about the absence of consultation.

Community groups formed in response to the announcement include, but are not limited to, the 'Powerhouse Alliance' and 'Save the Powerhouse' (see also Appendix C).

The National Trust announces its opposition to the NSW Government's plans, and subsequently (December) nominates the Power House to the NSW State Heritage Register. The nomination is limited to the remnant late-nineteenth and early-twentieth century fabric of the Power House itself.

2016-24

On-going public debate, lobbying and protest about the Government's plans for the Powerhouse Museum in Ultimo and Parramatta.

(June) It is announced that there will be an Upper House Inquiry into the relocation of the Powerhouse Museum as a part of a broader inquiry into NSW museums and galleries. The committee is originally intended to report by 24 November 2016 – this deadline is periodically pushed back with a final report date of 28 February 2019.

2017

(January) Premier Mike Baird announces retirement.

Gladys Berejiklian is elected as leader of the NSW Liberal party. Berejiklian expresses commitment to following through on Baird's promise of moving the Powerhouse Museum from Ultimo to Parramatta at an estimated cost of $1 billion.

(July) The NSW Government announces plans to retain the Powerhouse Museum at Ultimo as well as building the new facility at Parramatta. A business case to determine the future of the site is in train.

2020-21

A heritage assessment of the 'Ultimo Tramways Power House Museum' (prepared for Heritage NSW, Department of Premier and Cabinet by Cracknell & Lonergan) is completed. The assessment finds that the Powerhouse does not meet a threshold for State significance.

(4 September) The inclusion of the Powerhouse in the NSW State Heritage Register (02045) is gazetted. The entry excludes the Harwood and Wran buildings.

(29 September) The NSW State Heritage Register Committee discuss the merits of extending the Powerhouse register entry to include the Harwood Building. The Committee finds that the State threshold is not met (consistent with s.33(3)(b) of the *Heritage Act* 1977).

During 2020, Design 5 Architects is engaged to prepare a Conservation Management Plan for the Powerhouse Museum by Create NSW and MAAS. A Final Draft Report is issued in June 2021.

Curio Projects Pty Ltd engaged to prepare an 'updated' Conservation Management Plan for the Powerhouse. The document includes 'research undertaken by Design 5 Architects' (Draft CMP issued in April 2022).

2022

(Sept) Committee for the Upper House Inquiry into the government's management of the Powerhouse Museum and other museum and cultural projects in New South Wales releases its final report. It includes the recommendation that the NSW Government prioritise listing the entirety of the Ultimo Powerhouse Museum site (including the Wran and Harwood buildings) on the State Heritage Register.

(December) A team led by Durbach Block Jaggers is announced as the winner of a competition for a major (c. $480 million) expansion of the Powerhouse Museum complex. Major outcomes include the replacement of the Wran Building with a new multi-level annexe to Harris Street and public realm improvements, notably to the Harris Street Forecourt and Grace Bros Courtyard.

2023

It is announced that the Powerhouse Museum is to be closed for conservation works prior to the opening of the new museum in Parramatta.

(September) An amended scheme for the renewal of the Powerhouse complex scheme is announced. The proposal, which retains and adapts the Wran Building, is estimated to cost $250 million.

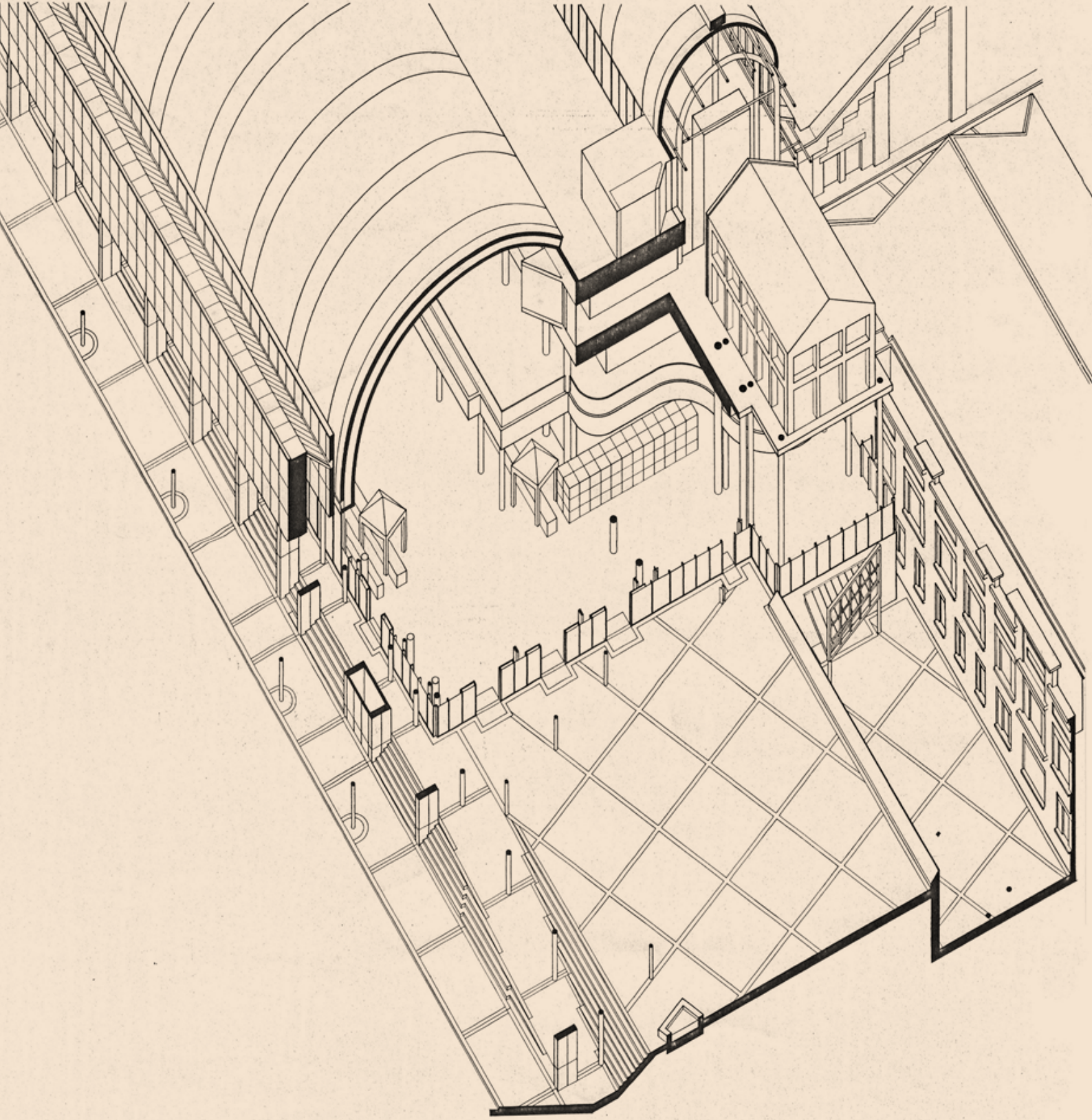
(November) NSW State Heritage Register Committee resolves to amend (expand) the registration for the Powerhouse to include the Wran and Harwood buildings.

2024

(5 February) the Powerhouse Museum closes for three years.

(28 February) NSW State Heritage Register Committee issues a draft State Heritage Register listing for the expanded Powerhouse Museum complex.

Figure 17 Perspective of proposed works to eastern arrival to the Powerhouse Museum, including new landscape treatment in place of the Grace Bros Courtyard and activation of the Switch House. ground level: note retention of Wran Building, visible art rear (September 2023)
Source: https://architectureau.com/, accessed 6 May 2024



APPENDIX B:

PHYSICAL ANALYSIS

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LEGEND

1	ENGINE HOUSE (1899)
2	BOILER HOUSE (1899-1902)
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5	POST OFFICE (1901) AND COURTYARD
6	TURBINE HALL (1902)
7	SWITCH HOUSE (1927)
8	HARWOOD BUILDING, FORMER TRAM DEPOT (1981)
9	WRAN BUILDING (1988)
10	HARRIS STREET FORECOURT
11	GRACE BROS COURTYARD
12	CAFÉ

INTRODUCTION

The following provides a description of the Powerhouse Museum complex as it presented in early 2024. A primary objective is to identify alterations undertaken since the major adaptive renewal works of the 1980s.

Visual inspections were undertaken in September 2023 and February 2024. The latter visit took place following the closure of the Museum for three years – decanting works were underway at that time.

Documentation referenced in the preparation of this analysis included, but was not limited to:

- Historic photography (including photography included in Appendix A)
- Architectural drawings (various) provided by the Powerhouse Museum
- Drawings/documentation included in the Curio Pty Ltd, *Powerhouse Ultimo Draft Conservation Management Plan*, 2022
- Summary of changes to Wran Building 1988-2022, provided by the Powerhouse Museum
- Plans and existing conditions photos of the upper levels of the North Annex, provided by the Powerhouse Museum

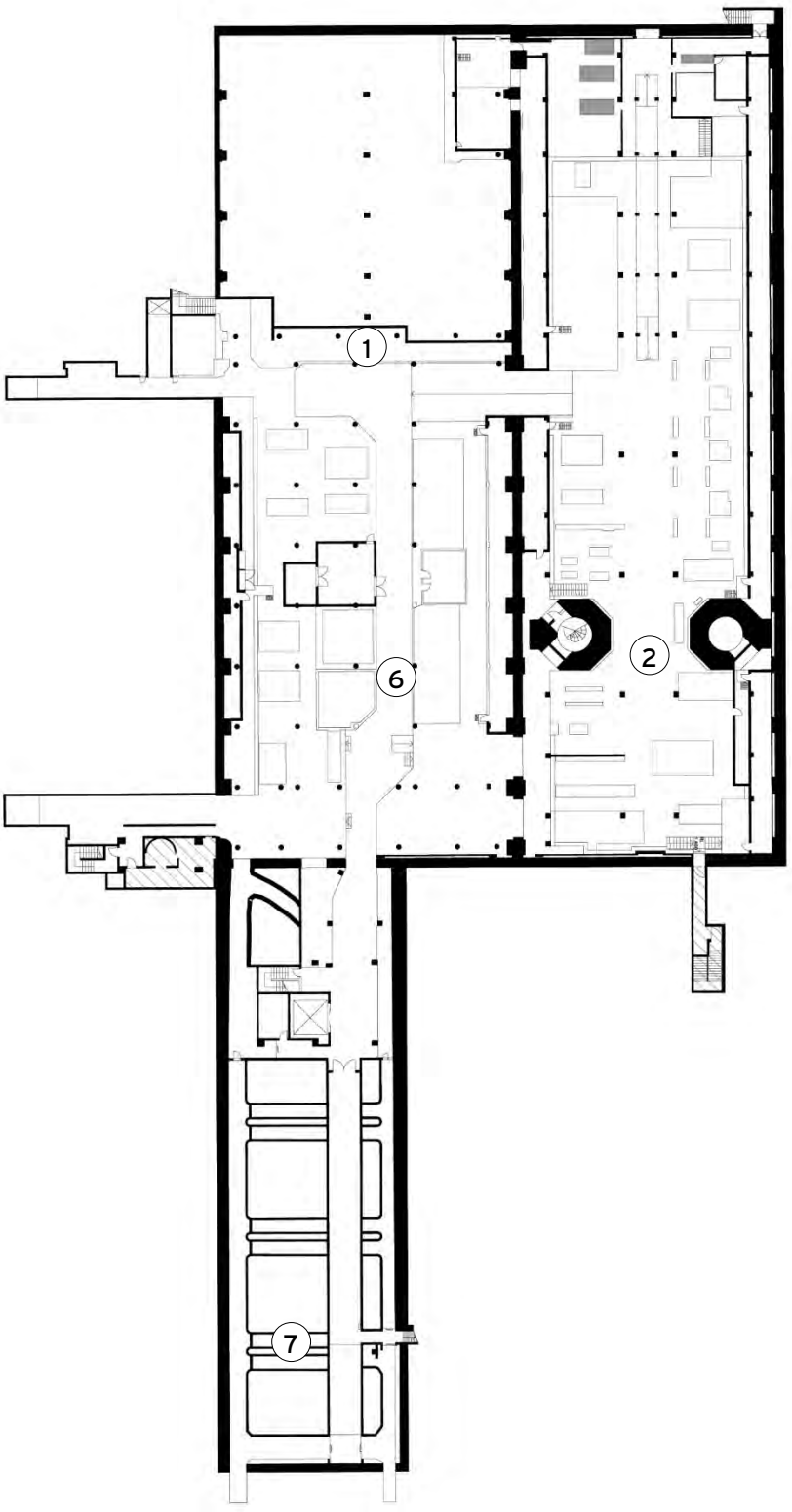
The existing conditions plans at pp. B4-B12 derive from documentation prepared by Design 5 Architects and reproduced in the Curio Pty Ltd CMP referenced above. The floor plans also include graphic representations of the various levels at the complex which – identified as 'basement' and Levels 1-5. The primary entry from Haris Street is at Level 3.

All photography is by Lovell Chen and was taken in February 2024 unless otherwise stated.

Using this document

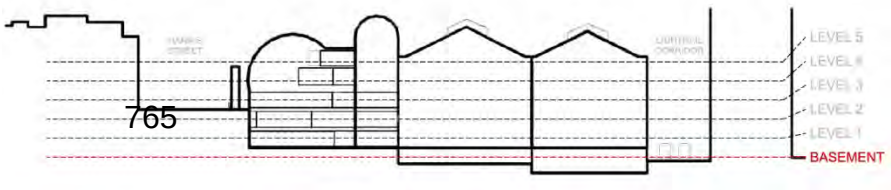
If using a PDF version of the Physical Analysis, the buildings can be found by clicking the labels on the site plans at pp. B4-B12. Each of these labels is hyperlinked to the relevant location. Click on the 'Home' icon at the bottom of each page to return to the Table of Contents.

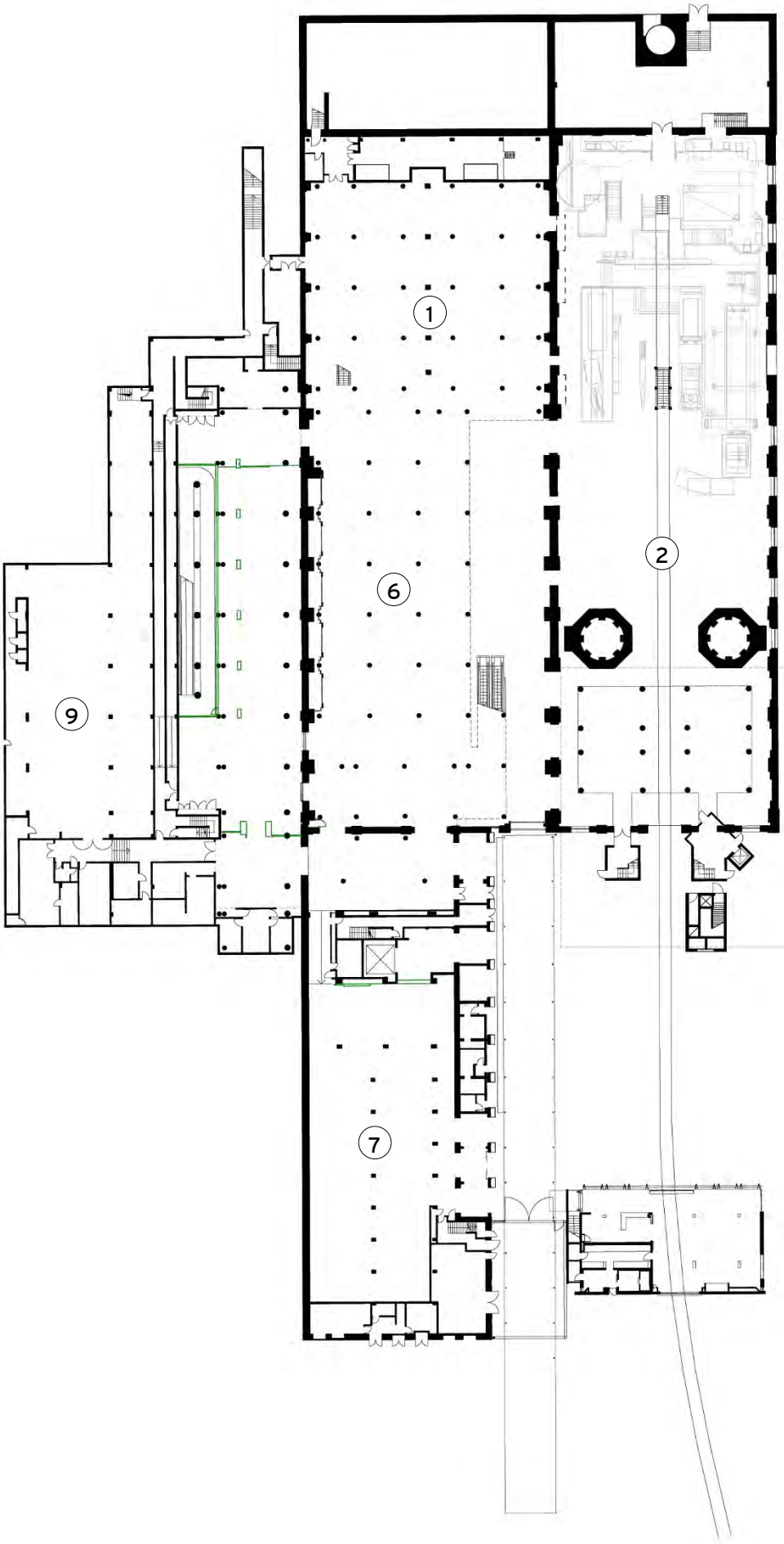
EXISTING CONDITIONS PLANS

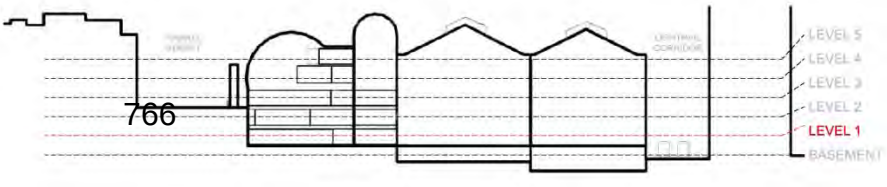


POWERHOUSE MUSEUM

BASEMENT FLOOR PLAN

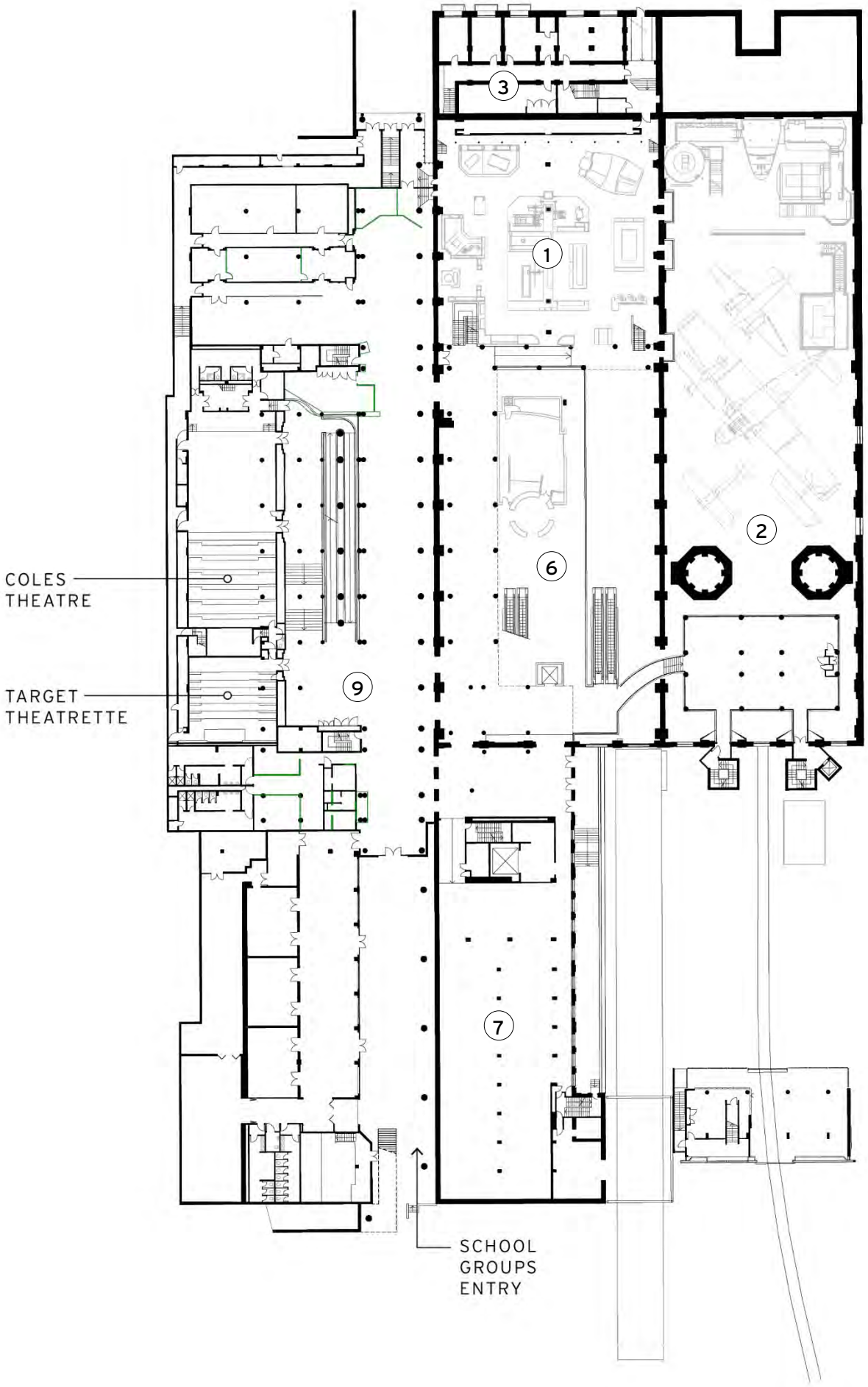






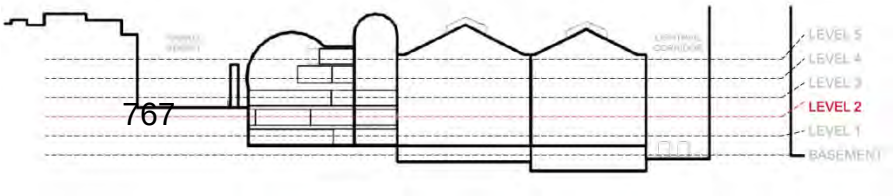
POWERHOUSE MUSEUM

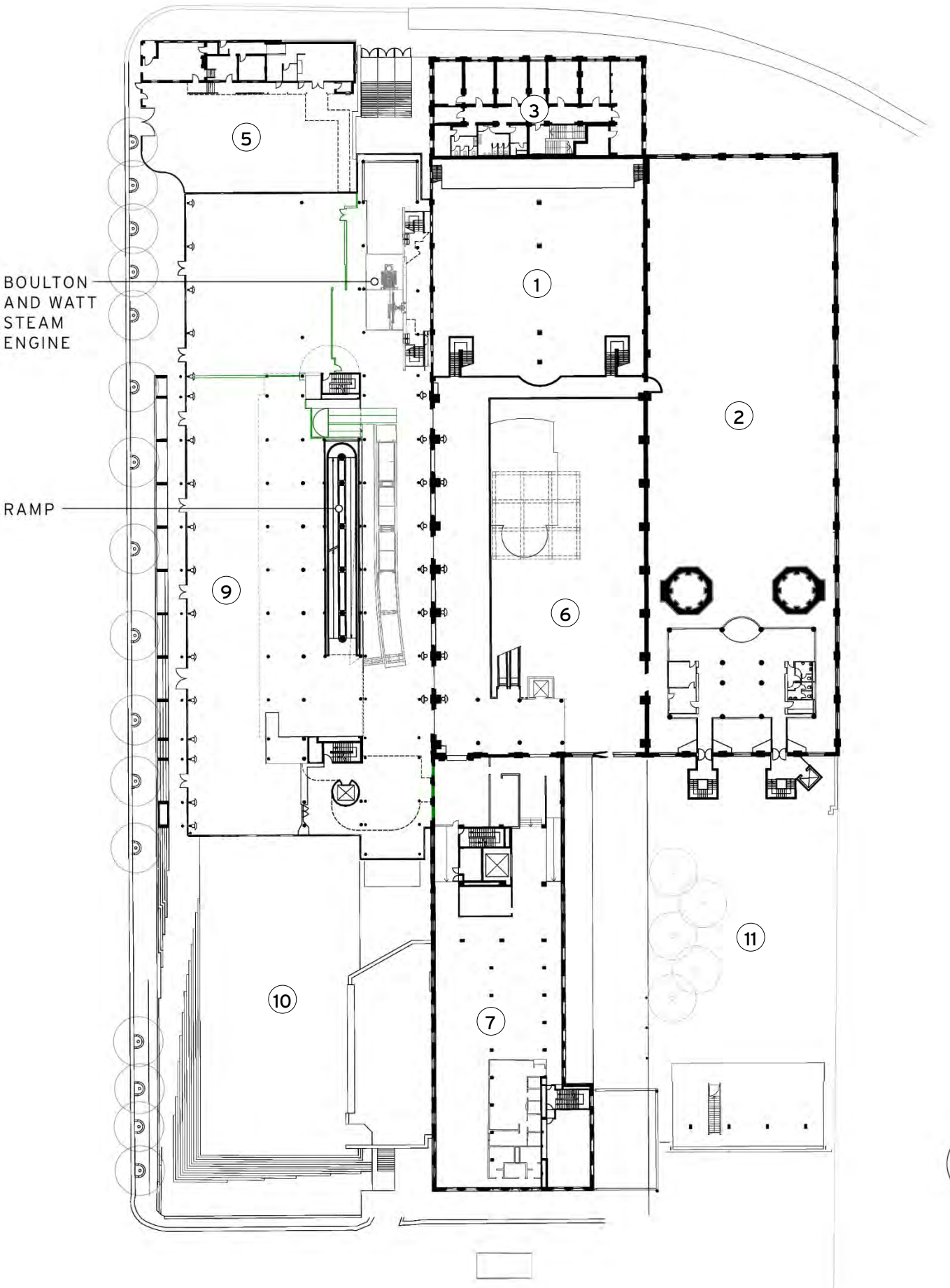
LEVEL 1 FLOOR PLAN



POWERHOUSE MUSEUM

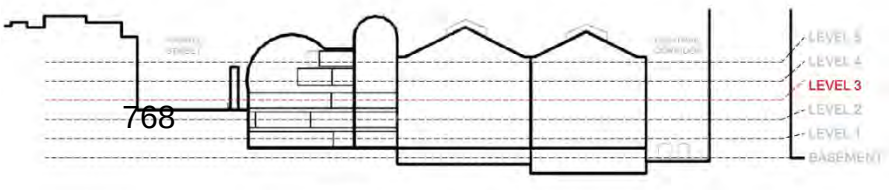
LEVEL 2 FLOOR PLAN

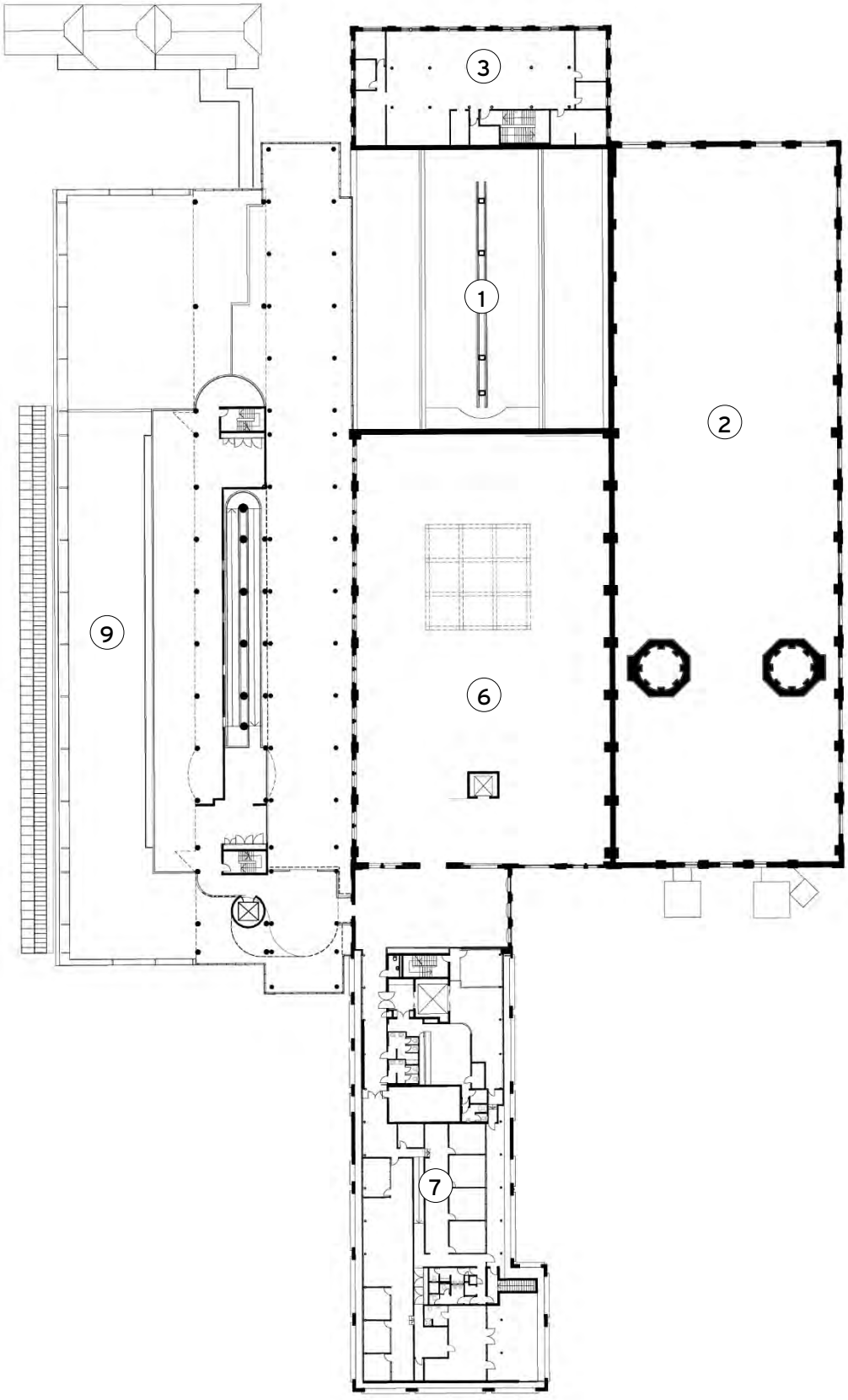




POWERHOUSE MUSEUM

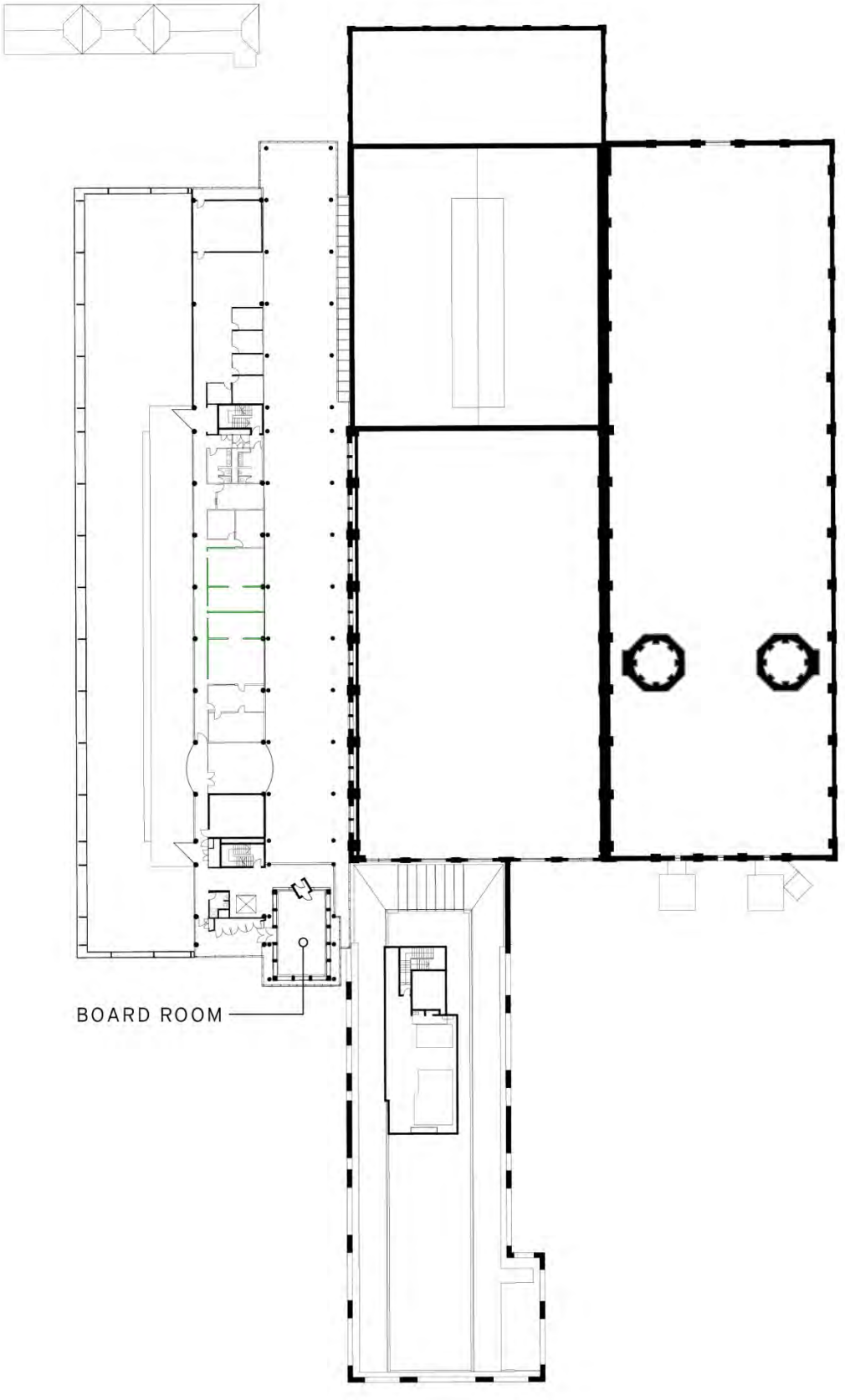
LEVEL 3 FLOOR PLAN





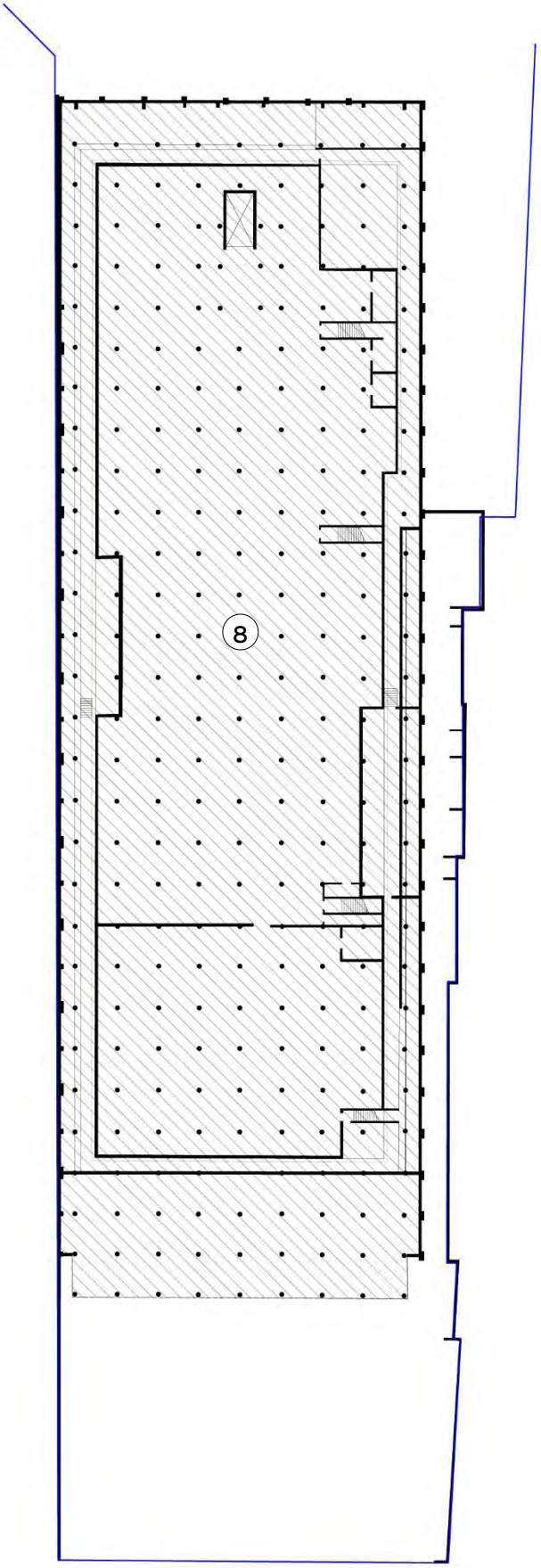
POWERHOUSE MUSEUM

LEVEL 4 FLOOR PLAN



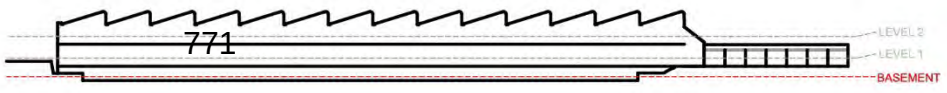
POWERHOUSE MUSEUM

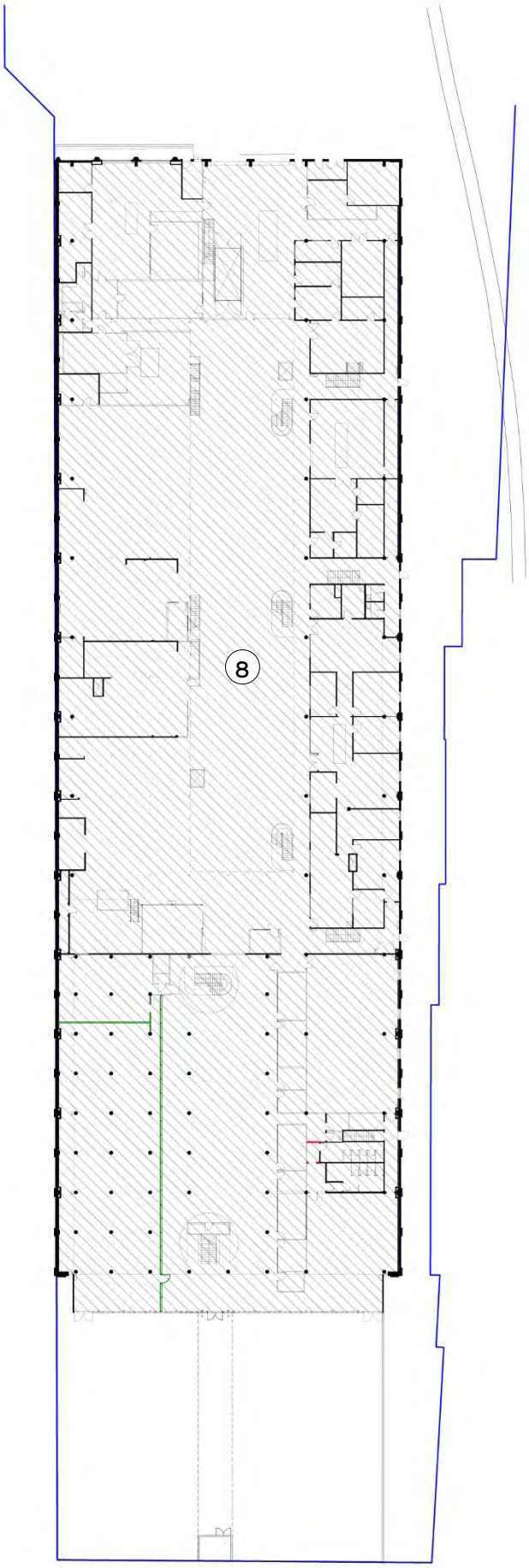
LEVEL 5 FLOOR PLAN



HARWOOD BUILDING

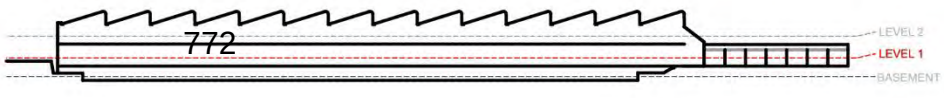
BASEMENT FLOOR PLAN

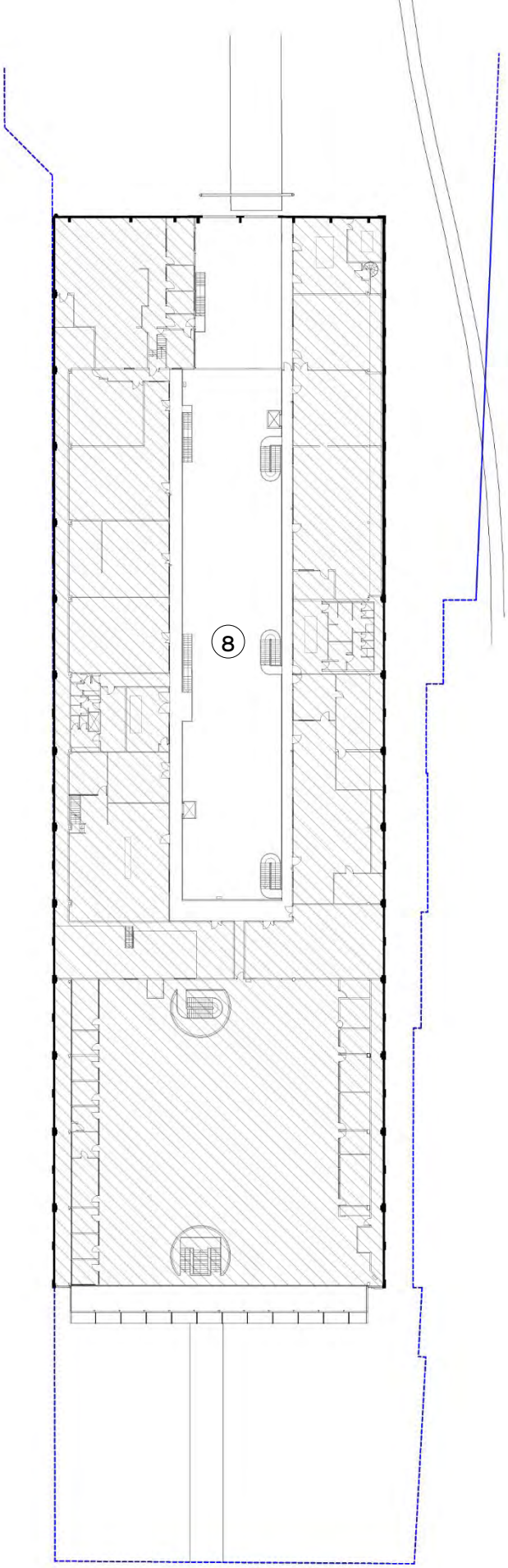




HARWOOD BUILDING

LEVEL 1 FLOOR PLAN





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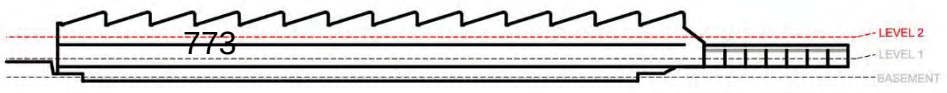
LEVEL 2 FLOOR PLAN



01 | ENGINE HOUSE (1899)

Dates of construction and alteration

1898-99	Construction of Engine House
1902	Alterations and additions, including new switchboard gallery mezzanines to the north and to the south, for direct current (DC) and alternating current (AC) respectively, and integration with the new Turbine Hall
1913	Alterations and additions, including installation of a substation with a new switchboard and construction of a gallery level to the west
1926	Removal of southern gallery mezzanine
1930	Minor alterations and additions
1960s	Machinery/plant associated with electricity production largely removed
1982-88	Adaptive re-use works, involving the removal of electrical equipment and machinery, concrete engine pads, tiled walkways, cast iron floor grates, and the western gallery. Alterartions to the west elevation to integrate the Engine House with the Wran Building

Past and present uses		Functions
1899-1963	Power station	Generating electricity
1988-2024	Museum	Exhibition/museum spaces

History

1899	The first iteration of the Engine House was built with a DC switchboard gallery to its northern end overlooking a hall of Allis-Corliss Horizontal Cross Compound Steam Engines, which were powered by the steam produced in the Boiler House adjoining to the east, and an electric travelling crane supported by metal columns and girders
1901	The switchboard caught fire, causing non-structural damage to the Engine House and temporary cessation of electricity production
1902	A new DC switchboard gallery was built at the northern end and the southern end was extended and altered to accommodate a new AC switchboard gallery and integration with the new Turbine Hall
1913	A new substation with rotary converters was installed to convert AC generated by the turbines to DC, with its marble switchboard being accommodated by a new gallery at the western end
1926	Following the construction of the new Switch House, the AC gallery was removed
1932	Flooding caused by a burst water main resulted in damage to machinery
1963	Ultimo Power House closed and the Engine House subsequently fell into disrepair
1980s	The Engine House was adapted for museum use as part of Stage II of the Powerhouse Museum project. The original permanent exhibition designed for the space, which continued to 2024, was ‘Steam Revolution’

Description

The Engine House is approximately 32 metres long and 30 metres wide, with brick walls mostly consisting of original and early fabric, and a gable roof with a curved ridge mounted lantern. The structure is accessible at various levels from the abutting North Annexe to the north, Boiler House to the east, Turbine Hall to the south and Wran Building to the west.

Exterior

- The brick perimeter walls of the Engine House are almost entirely concealed by adjacent built form,
- The gable roof and lantern are clad with corrugated metal sheeting, the latter with louvres to the west and east

Interior

The Engine House has an internal volume spanning Powerhouse Museum levels 2-4 (no floor to level 4) and an enclosed level 1, in addition to a partial basement. The building can be accessed from the North Annexe at levels 1 and 2, the Boiler House at basement level and level 1, the Turbine Hall at basement level and levels 1, 2 and 3, and the Wran Building at level 2.

Basement

- The accessible basement, which is of concrete construction, is limited to ancillary spaces adjacent to the basements of the Turbine Hall and Boiler House

Level 1

- Level 1 is flexible exhibition space for temporary exhibitions and was displaying ‘Experimentations’ in 2024
- Original openings in the level 2 floor slab, through which steam engines would rise from their concrete bases on the level below, have been infilled so the level 1 ceiling is completely enclosed
- The bases to the lattice columns, which supported the gantry crane in the space above, have been retained

Levels 2-3

- The exhibition hall for the permanent exhibition ‘Steam Revolution’ comprises an open space between level 2 and the underside of the roof
- At the northern end there is a mezzanine, consisting mostly of the original DC switchboard gallery, accessible via stairs from level 2
- Three openings in the eastern wall at level 2 lead to viewing balconies in the Boiler House
- At the south end, stairs from level 2 lead up to a bridge, at level 3, which runs across the intersection of the Engine House and Turbine Hall and extends through an opening to create a viewing balcony in the Boiler House
- The northern, western and eastern walls are painted in a lilac colour and a white-tiled dado runs at level 2 of the latter two walls and up to the northern mezzanine
- At the approximate height of level 4, there is a row of windows to the western wall, which was an external wall prior to the construction of the Wran Building
- The metal roof truss structure and timber lining boards are visible and painted in a mint green colour
- The original gantry crane, including its plate girders and lattice columns, all painted yellow, spans the space, supported by pilasters to the western and eastern walls

Integrity

The Engine House has a high level of intactness to its 1988 adaptation. The original features which were incorporated into the 1980s adaptation include:

- The brick outer walls and pilasters to the western and eastern internal faces
- The gantry crane and structure
- The white-tiled dado
- The northern gallery
- The metal truss roof structure

Nearly all of the alterations and additions which were implemented as part of the adaptive reuse design remain. Changes since 1988 include:

- The removal and infill of a stair at the northern end between levels 1 and 2
- Reconfiguration of exhibits

Images

Figure 1
View of the Engine House from the bridge at level 3

Figure 2
The Engine House, level 2

02 | BOILER HOUSE (1899-1902)

Dates of construction and alteration

1898-99	Construction of Boiler House (initial stage)
1902-05	Significant expansion, including extension to the south, increase in height, construction of two large brick chimney stacks and relocation of coal and ash handling structures to the south
1927-32	Modernisation of industrial equipment
1960s-70s	Plant/infrastructure associated with industrial processes largely removed
1976-77	Chimneys demolished down to roof level
1982-88	Adaptive re-use for Powerhouse Museum

Past and present uses		Functions
1899-1963	Power station	Generating steam by burning fossil fuels to heat water in boilers
1988-2024	Museum	Exhibition spaces

History

1899	The first iteration of the Boiler House was designed to allow for future expansion. Its pipes and flues were reticulated to the chimney in the adjoining Pump House to its north and the steam it produced powered the engines in the adjoining Engine House to its west
1902-05	The Boiler House was substantially expanded to accommodate additional Babcock and Wilcox boilers to provide sufficient energy for the Parson's Steam Turbo Alternator installed in the new Turbine Hall extension to the Engine House and to incorporate a pump room and a pair of 65-metre-high chimney stacks
1927-1932	Industrial plant in the Boiler House was modernised. Subsequent equipment updates were predominantly the replacement and addition of boilers
1947	In response to coal supply issues caused by industrial action in New South Wales, the boilers were converted to run on fuel oil
1963	Ultimo Power House closed and the Boiler House subsequently fell into disrepair
1976-77	The upper parts of each of the chimneys were demolished, causing damage to roof fabric
1980s	The Boiler House was adapted for museum use as part of Stage II of the Powerhouse Museum project. Its original permanent exhibitions, the display of which continued to 2024, included 'Transport', designed by Desmond Freeman Associates, and 'Space', designed by Iain Halliday of Neil Burley Designs

Description

The Boiler House is 83 metres long, 23 metres wide and approximately 23.5 metres high. Its outer walls are brick and comprise fabric from the two key phases of construction. The gable roof with a gabled ridge-mounted lantern was clad in corrugated sheet metal in the 1980s. The Boiler House abuts the Engine Room and Turbine Hall to the west and can be accessed through openings in the shared wall. To the north, the open area enclosed by the remnant external walls of the former Pump House can be accessed via the Boiler House basement. Adjacent to the south, the Grace Bros Courtyard can be accessed at level 1 via the central roller door or vertical circulation shafts. Sydney Light Rail tracks are located to the east (outside study area).

Exterior

- The face brick elevations are articulated with recessed window bays framed by pilasters and stepped corbels
- There is a shadow of the previously abutting Pump House at the lower level of the north elevation
- To the south elevation, a pair of stair enclosures, clad with metal sheeting with alternating pink and blue horizontal banding and topped with pyramid skylights, flank the central window bay, with a lift shaft adjoining the eastern stair shaft
- A relatively small extent of each of the chimneys project, to different heights, beyond the roofline

Interior

The Boiler House has an internal volume spanning Powerhouse Museum levels 1-4 (no floor to level 4), in addition to a basement level

Basement

- The basement is of concrete construction and accommodates modern services, integrated with the extant bases of the chimneys

Levels 1-3

- The exhibition hall is a huge volume, rising to full height from level 1 (ground) to the metal truss roof structure, which is mostly comprised of 1902-1905 fabric and was strengthened in 1988 for exhibit display purposes
- The flooring to level 1 is concrete, installed in the 1980s
- The bases of the white-painted brick chimneys project just beyond the roof line
- To the west elevation, there are three viewing balconies at level 2. accessed via the Engine House, and one at level 3, accessed via the bridge demarcating the Engine House and Turbine Hall. The balconies have perforated metal balustrades of the same type as the ramps in the Wran Building, and elsewhere within the complex
- At the south end there are two mezzanines, at levels 2 and 3, supported by two rows of cylindrical columns
- To the interior of the southern stair shafts, the visible steel I-beam structure is lilac, the walls are yellow and the stair stringers, posts and rails are mint green

Integrity

The Boiler House has a high level of intactness to its 1988 adaptation. Its remnant chimneys and most of its brick outer walls and roof structure are original or early fabric which were incorporated into the 1980s adaptation. Nearly all of the alterations and additions which were implemented as part of the adaptive reuse design remain.

Changes since 1988 include:

- Reconfiguration of openings in shared wall with Engine House and Turbine Hall at level 1
- Installation of a new ramp, running through a new wall opening, to provide circulation to the level 2 mezzanine from level 2 of the Turbine Hall
- Infill of the void in the centre of the column grid to the level 2 mezzanine floor

Images

Figure 3
North and east (part) elevations of the Boiler House as seen from William Henry Street

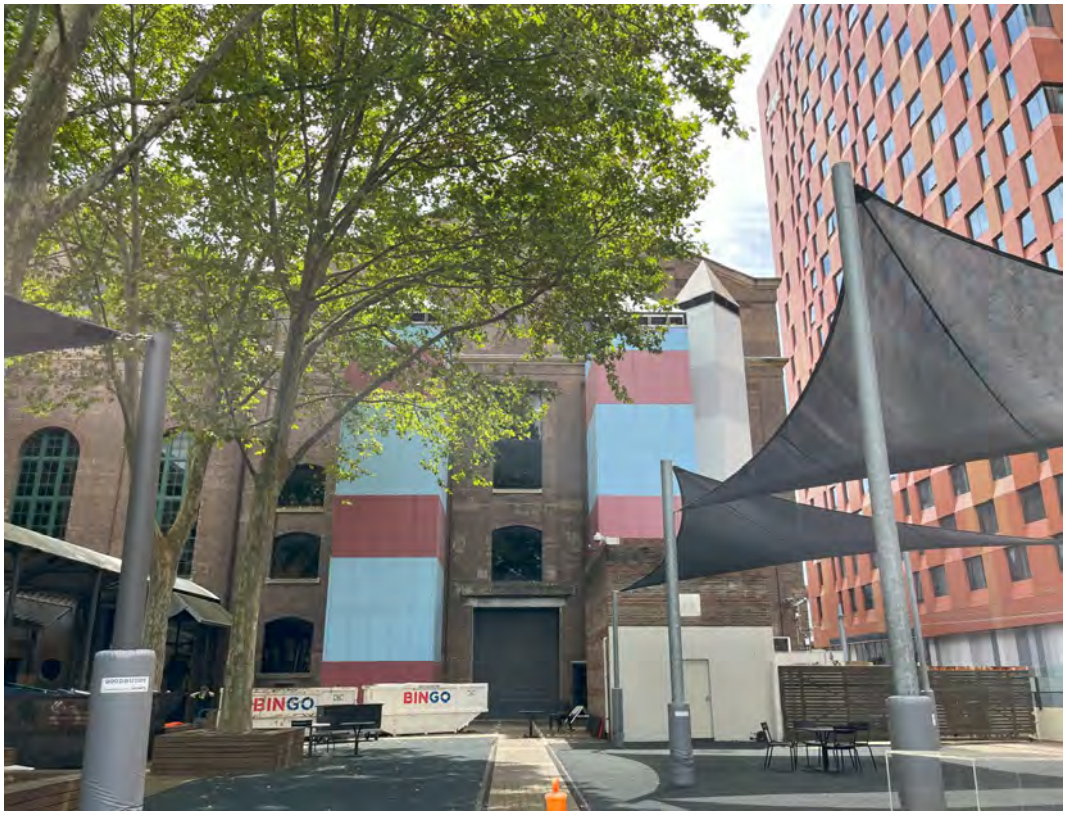


Figure 4
South elevation of the Boiler House from the Grace Bros Courtyard: the two vertical circulation shafts were added in the 1980s

Figure 5
View from level 2 mezzanine of the Boiler House, looking north: the Catalina flying boat (foreground) had been lowered by February 2024

Figure 6
View looking south through the Boiler House from ground level

03 | NORTH ANNEXE (1899)

Dates of construction and alteration

1898-99	Construction of North Annexe
c. 1931	Installation of water tanks to roof
1936	Conversion of accumulator room to recreation and shower rooms
1968	The widening of the William Henry Street Bridge transformed the setting for the North Annexe
1980s	Upgrades were carried out, including replacing the original spiral stair with a new stair

Past and present uses

Functions

1899-1963	Office and administration for power station	Offices, worker amenities, emergency water supply and power storage
1940s	Temporary works for air raid defence	War time precautions
2024	Offices	Offices and creative studios

History

1899	The 'Office' building was built to accommodate administration offices, staff accommodation and the accumulator (battery) room, with a flat roof to allow for extensions and additions
c. 1931	New South Wales Government Railways installed four cast iron water tanks to the flat roof of the North Annexe; two were used for water supply to the Ultimo Tram Depot and two were used for emergency water supply to the Power House boilers
c. 1936	The single room on the top floor, which housed the accumulators, was adapted for use as recreation and shower rooms by Power House workers
1963	Ultimo Power House closed and the North Annexe subsequently fell into disrepair
1980s	The North Annexe was restored and adapted for office uses

Description

The North Annexe is a symmetrically composed three-storey building of sandstone and brick construction. It is the most architecturally ornate building of the late nineteenth and early twentieth group at the Powerhouse Museum, adopting Italian Renaissance references. The seven-bay north elevation is in face brickwork with sandstone dressings defining the openings, string courses and cornices.

Exterior

- The external elevations are composed of a sandstone base to the semi-basement and ground levels, with a rusticated finish (except for the extent of the east elevation which previously abutted the Pump House), and red face brick to the upper levels and parapet, which rises above a sandstone entablature
- The symmetrical north elevation is articulated with window bays to the upper two levels, recessed by brick pilasters, with carved sandstone detailing

- A sandstone portal, which was the original main entrance to the Power House complex, is in the centre of the north elevation and rises to the height of the second storey, topped with a pediment; within the opening there is a modern roller door and above there is an original *bas-relief* spandrel with a sign reading 'N.S.W.G.T POWERHOUSE 1899' against a background of electric bolts
- To the north of the North Annexe there is a narrow paved walkway, partially overhung by the William Henry Street bridge

Interior

- The flooring is generally tiled in a checkerboard pattern of terracotta and mahogany colours, with carpets to office and studio spaces
- White-painted suspended ceilings and bulkheads accommodate modern services
- To the lower level, most of the stone and brick walls are exposed, whereas, to the upper levels, the walls are generally plastered and painted
- The door and window joinery is cedar, most of which is painted in a grey-green colour
- To the upper level, there are cast iron columns with decorative capitals within the workshop spaces
- Two doors on the ground level have WWII-era stencils – it is possible that they are remnants of the WWII-era air raid precautions

Integrity

The North Annexe retains a high level of integrity to its 1988 refurbishment. This includes a combination of original and restored fabric, such as the:

- Masonry walls, externally and internally
- Cedar door and window joinery
- Tiled flooring
- Cast iron columns

Images

Figure 7 The upper levels of the North Annexe, as seen from William Henry Street

Figure 8
Paved laneway to the north

Figure 9
The original entry has been infilled with a roller door: note decorative spandrel panel

Figure 10

04 | PUMP HOUSE, REMNANTS (1899)

Dates of construction and alteration

1898-99	Construction of Pump House, chimney and seawater conduits
1902-05	Modifications for integration with extended Boiler House
1907-08	Upgrades to seawater conduits and pumps
1959-60	Substantial dismantling of chimney
1967-68	Further demolition of chimney and Pump House to enable construction of the new William Henry Street bridge
1970s-2000s	Further demolition of the Pump House and construction of asphalt paving, concrete access stairs and brick infill of arched openings to northern wall
c. 2010s	Demolition of remnant roof structure

Past and present uses		Functions
1899-1932	Pump house for power station	Pumping water to and conveying exhaust from the boilers
1960s-1970s	Dump	City of Sydney waste handling
2024	N/A	Site access and egress

History

1898-99	The Pump House was built adjoining the Boiler House with a primary elevation of similar design to the North Annexe. In the centre of its north elevation, in alignment with the central window bay of the Boiler House behind, a brick chimney stack was constructed to a height of c. 61 metres. Underground water conduits were constructed between Darling Harbour and the Pump House; the inlet conduit supplied seawater to the Pump House for pumping to the boilers in the Boiler House and the outlet conduit would discharge the heated water back to Darling Harbour
1902-05	The Pump House was integrated into the expanded Boiler House
1907-08	The water conduits and pumps were upgraded to meet the increased capacity of the complex
1927-32	Following the modernisation works to the Boiler House, including the reticulation of new seawater conduits, the Pump House was decommissioned
1958	One of the retaining bands on the chimney failed
1959-60	The chimney stack was dismantled down to the height of approximately 7.5 metres
1967-68	The stack was further demolished to make way for the William Henry Street bridge, which replaced the 1886 iron bridge
1970s-2000s	The Pump House continued to deteriorate
c. 1980s-2000s	The courtyard is secured and altered to allow access and egress for the Boiler House basement

Description

The footprint of the former Pump House is an open area with asphalt paving. The perimeter consists of fragments of the former Pump House brick eastern wall and northern wall and chimney base, the eastern external wall of the North Annexe and the northern external wall of the Boiler House. William Henry Street bridge cuts over the north-eastern corner of the courtyard. Two modern concrete stairs with metal handrails – one coming up from the Boiler House basement and one leading up to emergency exit doors in the northern wall – create an egress path.

Integrity

The remnant fabric of the original Pump House comprises brick elements of its 1898-1899 construction. The northern and eastern external walls, with some brickwork detailing to their external and internal faces, are partly extant, and the remainder of the outer perimeter has been infilled with brick walling. The two arched window openings with carved keystones in the north elevation, to the west of the chimney base, have been infilled with red brick but remain legible. The upper parts of the northern and external walls and the northern part of the chimney base were partially demolished to facilitate the construction of the new William Henry Street bridge and the remaining fabric has continued to deteriorate. The remnants of the former Pump House read as a ruin.

Images

Figure 11
View looking west into the Pump house remnants from William Henry Street: note the chimney base at right

Figure 12
Arched openings, infilled, to the north of the former Pump House

Figure 13
The remnants of the chimney stack (left) and the underside of William Henry Street (right)

05 | POST OFFICE (1901) AND COURTYARD

Dates of construction and alteration

1900-01	Construction of Ultimo Post Office
c. 1940s	Reconstruction of column at William Henry Street and Harris Street corner
1985	Alterations to interior and exterior, and construction of addition to the east
1992	Renovations, including new amenities for use childcare centre use
2008	Conservation/restoration works

Past and present uses

Functions

1901-1985	Post Office	Postal services and Postmaster's residence
c. 1914-1930s	Commonwealth Savings Bank	Savings and general banking
1980s-2008	Childcare centre	Childcare
2008-2024	Amenities for Museum staff	Volunteer Centre

History

1859	The Ultimo Estate, which encompassed the land of the subject site, was subdivided. The development and population growth that followed gave rise to demand for a post office
1900	The vacant land at 494 Harris Street was acquired for the construction of a post office and Postmaster's residence, to the design of Walter Liberty Vernon, the New South Wales Government Architect at the Department of Public Works
1901	The Ultimo Post Office opened
c. 1914-1930s	The Ultimo Post Office was used for customer banking services by the Commonwealth Savings Bank
c. 1944	A motor car collided with the column at the street corner, later reinstated
1985	The Ultimo Post Office closed. MAAS acquired the former Ultimo Post Office site and adapted the building for use as a childcare centre. As well as alterations and the additions to the buildings, these works included a hard-paved courtyard to the south.
2008	The building was opened as the Volunteer Centre for the Powerhouse Museum in 2008

Description

The former Ultimo Post Office occupies a prominent location at the south-east corner of William Henry Street and Harris Street. The structure is comprised of three elements, each with a slate-clad hipped roof form and each stepping down the slope of William Henry Street. Extending from the west these elements are: the former Post Office, the former Postmaster's residence and a 1980s addition. The street-facing elevations of the former Post Office and Postmaster's residence present as low-scale and picturesque foreground elements in views of the Powerhouse Museum from the north.

Exterior

- The Post Office and Postmaster's residence, to the extent of their street-facing elevations, are in a Federation Free Style with Romanesque details, including a broad column and ashlar rounded arches to the corner recess. The cartouche above further defines the entry to the former Post Office.
- Distinguishing details to the former Postmaster's residence are a pair of ashlar oculi flanking the main entry.
- The rear (south) elevations of the former Post Office and residence generally lack decoration and applied details and have been modified over time, notably for the adaptation of the buildings for use as a childcare facility.
- The east addition is sympathetic to the earlier buildings, with slate-clad hipped roof and face brick external walls.

Interior

- Original features of the former Post Office include its plan form, ribbed metal ceiling lining, sash windows with coloured upper lights and the marble chimney with decorative tile reveals.
- Extensive alterations have carried out to the former residence. Original fabric/details generally survive as fragments.

Integrity

The street-facing elevations of the former Ultimo Post Office and Postmaster's residence retain relatively high levels of integrity as built in 1900/01, its period of significance. The Post Office interior also retains original details and finishes. Significant additions and alterations occurred in the 1980s, but do not demonstrate the architectural aesthetic of the balance of the Powerhouse Museum complex.

Images

Figure 14
View of the Post Office looking south-east from the intersection of William Henry and Harris streets

Figure 15
Elevated view of the rear (south) elevation of the Post Office

Figure 16
Rear (south) elevation of the 1980s addition (right) and the 1900-01 buildings (left)

06 | TURBINE HALL (1902)

Dates of construction and alteration

1902	Construction of extension to Engine House
1905	Installation of turbine
1909	Installation of additional turbines
c. 1914	Installation of additional turbines
1927-31	Upgrades to industrial equipment, including replacement of turbines and further excavation of basement, and integration with newly constructed Switch House
1982-88	Adaptive re-use works, involving the removal of concrete engine pads and tiled walkways. Alterartions were made to the western wall to integrate the Engine House with the Wran Building.
2011013	Internal alterations and conservation works to south elevation

Past and present uses		Functions
1902-1963	Power station	Generating electricity
1988-2024	Museum	Exhibition spaces

History

1902	The southern extension to the original Engine House was constructed to house reciprocating engines. A travelling crane (extant) was installed in 1902
1905	The first steam turbine, a 2,240kW Parson's Steam Turbo Alternator, was installed, supplied with steam by the additional boilers in the extended Boiler House
1909	Two additional Parson's Steam Turbo Alternators were installed
c. 1910	The building was referred to as the 'Turbine Hall' instead of the 'Engine House extension'
c. 1914	The reciprocating engines are removed to allow for the installation of four additional Parson's Steam Turbo Alternators
1923-1928	A new well and pump were installed to the basement of the Turbine Hall, connected to new inlet and outlet seawater conduits which were constructed, at the Darling Harbour end by the Sydney Harbour Trust and at the Power House end by New South Wales Government Railways, to increase water circulation to the boilers
1927-1931	As part of modernisation works, turbine units were upgraded, necessitating additional excavation, and the southern end of the building was integrated with the new Switch House
1963	Ultimo Power House closed and the turbines were removed from the Turbine Hall, which subsequently fell into disrepair
1980s	The Turbine Hall was adapted for museum use as part of Stage II of the Powerhouse Museum project The water circulation system was adapted for use for air conditioning

Description

The Turbine Hall is 56 metres deep and 31 metres wide, with brick outer walls mostly consisting of original and early fabric, and a gable roof with a gabled lantern. The structure is accessible at various levels from the abutting Engine House to the north, Boiler House to the east, Switch House to the south and Wran Building to the west. To the east of the Switch House, the Turbine Hall faces the Grace Bros courtyard.

Exterior

- The only external elevation to the south (partly concealed by the Switch House). The face brickwork is relieved by arched window openings and recessed bays framed by pilasters and stepped corbels
- The gabled roof and lantern are clad with corrugated metal sheeting, the latter with louvres to west and east

Interior

The internal volume of the Turbine Hall is huge, spanning levels 1-4 of the Powerhouse Museum. Level 1 extends the full width of the plan; levels 2 and 3 successively step back to the west. At the south end, there is circulation between levels 1-4 via escalators and a lift. Additionally, there is a full basement level.

Basement and water cooling system and manifold

- The basement is of concrete construction and accommodates modern services
- The seawater pit and pumps, which connect to the inlet and outlet conduits running to Darling Harbour, are located in the centre of the basement plan

Levels 1-4

- Level 1 is used for temporary exhibitions, including '1001 Remarkable Objects' in 2024, with its eastern third being a full height space for large scale exhibits and its western part being enclosed for small and light sensitive exhibits
- On level 2 there is a 'building within a building' – the Kings Cinema – with a highly decorative interior which references Art Deco motifs
- On level 3 there is a narrow gallery space running adjacent to the junction with Wran Building and extending out to form a roof level to the Kings Cinema, the plan being similar to a keyhole shape, as well as a bridge extending to the Boiler House at the intersection with the Engine House
- At the south a ramp at level 2 provides access to the Boiler House mezzanine
- A mezzanine at level 4 provides access to the Switch House
- At the approximate height of level 4, there is a row of windows to the western wall, which was an external wall prior to the construction of the Wran Building
- The walls and ceiling lining boards are painted in white
- To the eastern wall, a white-tiled dado, comprised of mostly original tiles, runs at the equivalent height of level 2
- The original gantry crane, finished in a dark grey colour, spans the space at the approximate height of level 4, supported by pilasters, rising from level 1 to the eastern wall and rising from level 3 to the western wall
- The original roof truss structure, which was strengthened in the 1980s, is finished in a dark grey colour
- A large, square grid with glazing is suspended from the ceiling at the northern end

Integrity

The Turbine Hall has a high level of intactness to its 1988 adaptation. The original features which were incorporated into the 1980s adaptation include:

- The south wall
- The brick outer walls and pilasters to the eastern internal face
- The gantry crane and associated rails and infrastructure
- The white-tiled dado to the eastern wall
- The metal truss roof structure

The circulation spaces to the south end have been substantially altered and added to, but the overall spatial arrangement of the 1980s design remains legible. Changes since 1988 include:

- Reconfiguration of openings in shared wall with the Boiler House
- Reconfiguration of the circulation zone to the southern end, including removal of the multi-level, steel grid cube, installation of a lift, and construction of level 2 walkway to the Boiler House mezzanine

Images

Figure 17
View of the Turbine Hall south elevation (part) from the Switch House (left)

Figure 18
View looking through the Turbine Hall from level 2

Figure 19
Seawater pit and valves in the basement

07 | SWITCH HOUSE (1927)

Dates of construction and alteration

1922-27	Construction of Switch House
1928-63	Minor modifications
1982-88	Adaptive re-use, including gabled upper-level addition
2011-13	Partial enclosure of the west elevation following bridging of a void to the east of the Harris Street Forecourt

Past and present uses

Functions

1927-63	Power station	Control room, switchgear and battery storage
1988-2024	Part of the museum complex	Exhibition spaces, offices and retail

History

1922-1927	The Switch House was built to accommodate modernised switchgear to service the upgraded Sydney tram network, superseding the switchboards and transformers in the Engine House
1963	Ultimo Power House closed and the Switch House subsequently fell into disrepair
1980s	The Switch House was adapted for museum and ancillary uses as part of Stage II of the Powerhouse Museum project, involving substantial internal refurbishment, construction of an additional level and highlighting elements of the facades with yellow paint to match the Wran Building

Description

The Switch House was the major built outcome of the significant expansion works of the 1920s/30s. The four-level building is 61 metres long, 23 metres wide and 17 metres high. It abuts the south elevation of the Turbine Hall, and addresses Macarthur Street (south), the Grace Bros Courtyard (east) and the Harris Street Forecourt (west, at Level 3).

Exterior

The building is constructed of face brick and concrete in a simplified Federation commercial style. Distinguishing details include brick pilasters, dentilled string courses, decorative parapets and flat arched openings. Dressings, sills, lintels and caps are in concrete, painted yellow (in the 1980s). There are false gables to the east and west elevations, and a gabled rooftop addition (1988).

Interior

Internal finishes at the Switch House almost all date to the 1980s, or more recently. As refurbished in 1988, there was exhibition space on levels 2 and 3, with a brasserie and offices in level 4 (the addition). The most recent uses were a café and shop on level 3, with studio accommodation for artists above.

Vertical circulation is via a lift and stair core at the north of the building.

Integrity

The Switch House, to the extent of its external presentation and internal planning, retains relatively high levels of integrity to the adaptive reuse works of the 1980s. The presentation of the building from the west has been compromised through the bridging of the original void in that location.

Images

Figure 20 South and east (part) elevations of the Switch House

Figure 21 View of the Switch House (right) from the Harris Street Forecourt

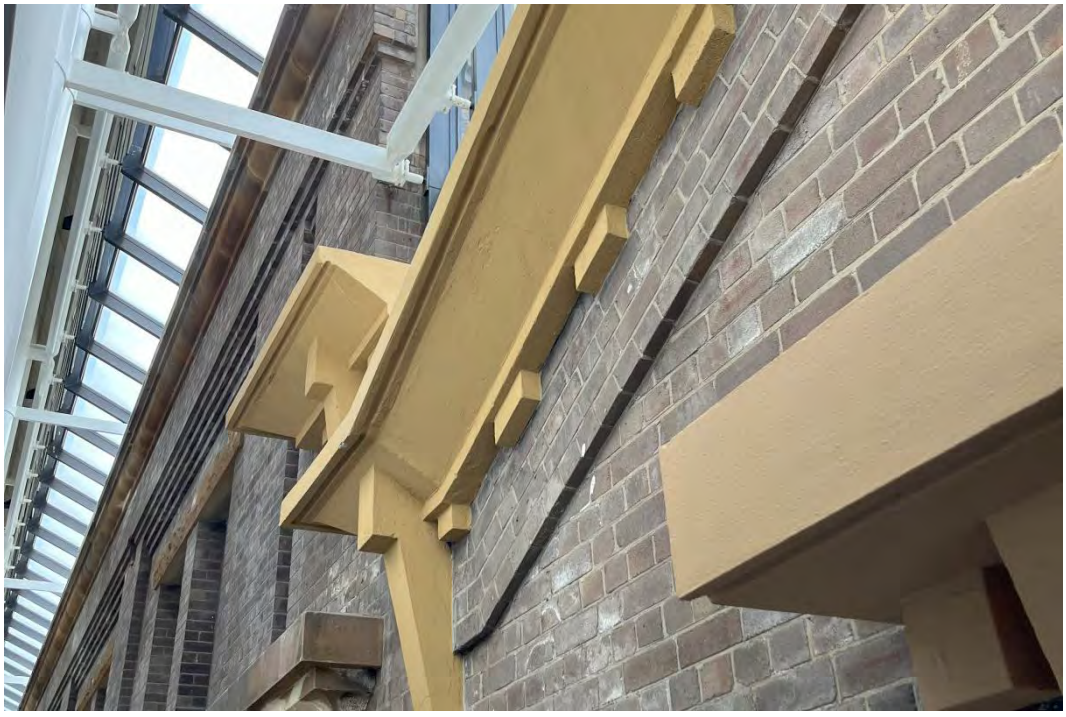


Figure 22
Detail of the interface between the Switch House and the Wran Building roof (Vault 1)

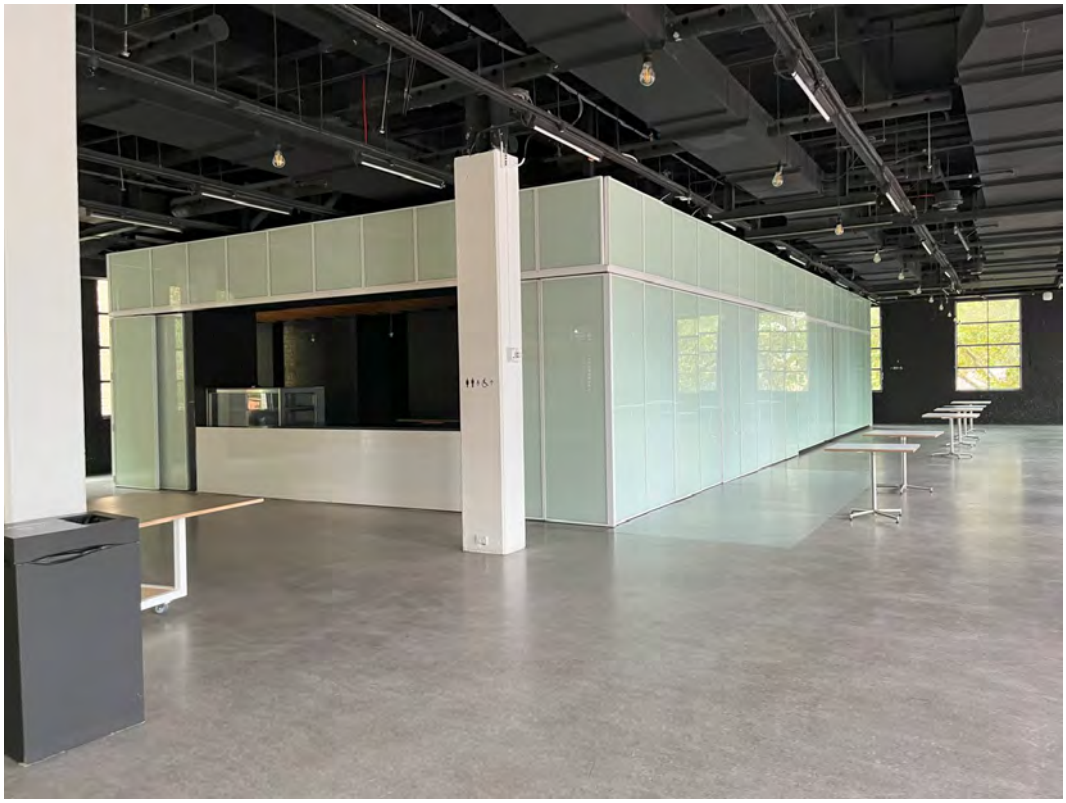


Figure 23
Level 3 of the Switch House

08 | HARWOOD BUILDING, FORMER TRAM DEPOT (1981)

Dates of construction and alteration

1898-99	Construction of the Ultimo Car House
1908	Car House extended to the north by approximately 45 metres (four saw tooth bays)
1953-56	Following the closure of the electric tramways, the Car House was stripped of tracks, pits and associated infrastructure for use as storage
1980-81	Adaptive re-use of the Car House for Phase 1 of the Powerhouse Museum

Past and present uses

1899-1953	Tram Car House
1981-present	Part of the Powerhouse Museum complex

Functions

1899-1953: Facility for stabling and maintenance of electric tram cars

1953-56	Store for redundant trams
1981-88	Temporary Museum (for display of MAAS exhibits); office space; collections store; curational workshops
1988-present	Museum function discontinued following opening of Powerhouse Museum Phase 2

History

The Tram Car House was adapted to the Harwood Building (aka Phase 1 of the Powerhouse Museum) in 1980-81.

1899-1953	The Tram Car House was operational from 8 December 1899 until 1953, when Sydney's electric tram network was closed. For much of its operational life, the tram network was powered by electricity generated at the Ultimo Power House.
1953-77	In the years following the closure of the tram network the former Car House was used as a store for redundant trams. During the 1960s the building was contemplated for adaptation as a Transport Museum. By the late-1970s, when Premier Neville Wran announced plans for the Powerhouse Museum, the former Car House had been largely stripped of tracks and infrastructure associated with its original use, and was in a state of semi-dereliction.
1980-81	A major package of works saw the former Car House adapted as a multi-functional facility to support the operations of MAAS and the Powerhouse Museum complex.
1984	The former Car House was renamed the Harwood Building, in honour of the Norm Harwood, a highly regarded former curator of MAAS.

Description

Works undertaken for the adaptation of the former Car House were extensive. Original fabric (i.e. dating to 1899-1908) includes the east elevation, west elevation (largely enclosed by a walkway, Omnibus Lane) and part of the north elevation. Works included excavation to create a basement (for storage), the introduction of a new ground level and construction of a mezzanine at the south end of the volume. The height of the roof was increased, to optimise useable space. The new roof referenced the saw tooth profile of the original building, with south-facing lights.

Exterior

The Harwood Building occupies the approximate footprint of the former Tram Car House, covering an area of c. 5,000 square metres. The primary entry is at the south, accessed from Mary Ann Street. The south elevation dates to 1981. A skillion profile roof form clad in corrugated sheet steel connects the southernmost saw tooth light and the modern glazing at ground level. During its operation as a tram depot the south face was unenclosed. A covered walkway with a wave-like roof profile extends from Mary Ann Street across a hard paved courtyard.

The brickwork east elevation (which comprises 14 saw tooth bays) dates, in the main, to the 1899 works. Details include a moulded string course, engaged pilasters and brick capping. The five bays at the north end were reconstructed in the 1980s to align with the south end – the 1899 and 1908 sections were originally staggered. The lower sections of the east elevation have been overpainted. The Goods Line public open space in this location enables a reading of the full length of the building, as well as the saw tooth roof profile. The roof form references the original, although it is raised higher to create a more generous internal volume and the saw tooth forms have curved ridges. To the east and west the corrugated steel sheeting splays out to align with the masonry walls below.

The three westernmost bays of the north elevation are original, the balance was constructed in 1980-81. Two of the three windows in the retained section have been reframed; the other has been infilled. The west elevation is original, albeit enclosed by the adjacent raised walkway (Omnibus Lane).

At the north, a covered walkway links the Harwood Building with the base of the Switch House.

Interior

The Harwood building has two levels, with mezzanines to the west and south. The basement is a single open volume that is used for collection storage. The ground floor, at the north end, includes a security office and a loading bay, to the south of which is a double-height workshop space (for conservation). The south end of the ground floor includes offices and a library, with further office accommodation on the mezzanine level above. (Between 1981 and 1988 the south end of the building was the principal exhibition space for the Powerhouse Museum.)

Integrity

The Harwood Building has a high level of integrity to its adaptive re-use and remodelling of 1980-81.

Images

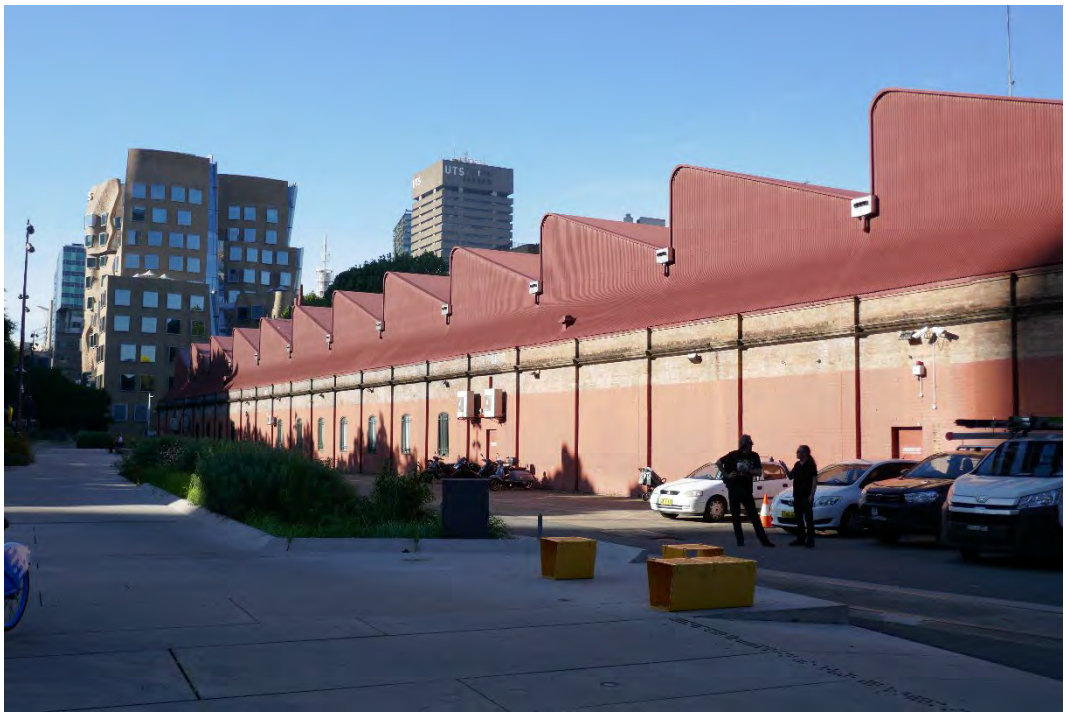


Figure 24
East elevation of the Harwood Building (part), looking south: the nine brick bays at the south date to 1899, and the roof form dates to 1981

Figure 25
The south elevation as seen from Omnibus Lane

Figure 26
North elevation of the Harwood Building

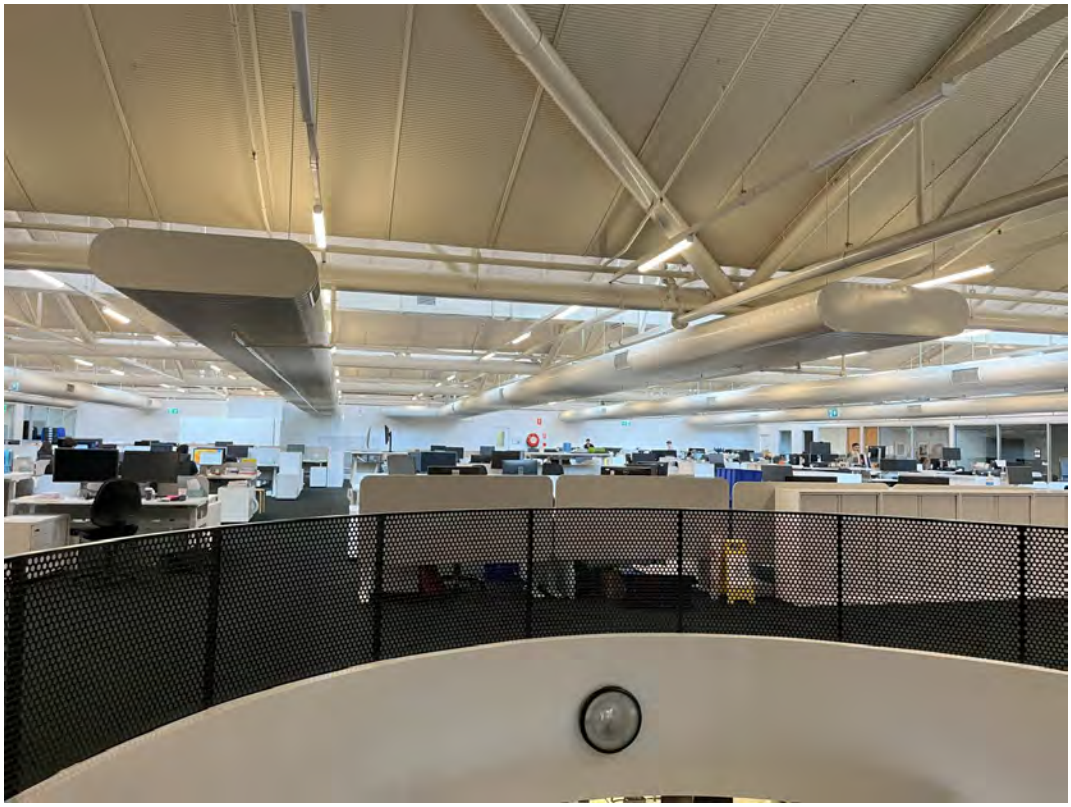


Figure 27
View of the mezzanine at the south end of the Harwood Building

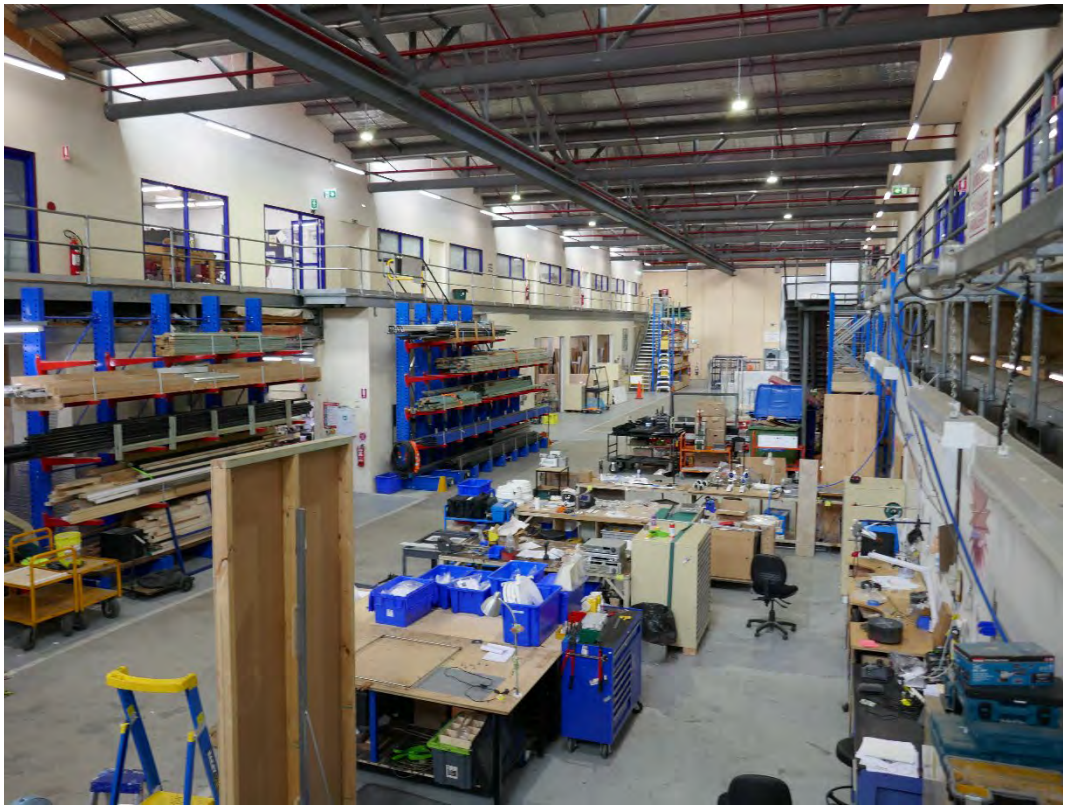


Figure 28
Workshop

09 | WRAN BUILDING (1988)

Dates of construction and alteration

1980s	Construction of the West Building (later named the Wran Building)
2005-06	Yellow finishes to north and south elevations changed to white
2011-13	Alterations as part of the 'Powerhouse Museum Revitalisation Project', including blocking of glazing to Harris Street to create a 'black box', truncation of the screen that extended south of Vault 2 and removal of glass lift from the south elevation to accommodate a remodelled entry

Past and present uses

1988-2024	Museum, exhibition spaces, board room, office/administrative accommodation

Description

Exterior

The Wran Building (1980s) was the major new-build component of the Powerhouse Museum complex. It comprises two parallel vaulted forms that enclose large open volumes, with a three-level linking element in between.

Vault 1 (the 'Galleria'), adjacent to the Turbine Hall and Engine Room, forms the primary entry to the museum from the Harris Street Forecourt at the south. The tall steel-framed structure has a partially glazed roof, with glazed facades to the north, south and west. The west elevations of the Turbine Hall and Engine Room are expressed within the Galleria; this is achieved by the vaulted roof extending over the parapets of the former industrial buildings. The north elevation addresses the Post Office courtyard and an emergency egress that opens to a sunken paved area and an external stair.

Vault 2, which was originally used for touring exhibitions, extends approximately 90 metres along Harris Street, the southern extent is screened by a freestanding colonnade (truncated in 2011-13). The broad roof form, clad in corrugated sheeting, is an incomplete vault. Overpainted fibre cement sheets clad the north and south elevations.

The three-level link element between the two vaults is articulated to the north and south as bands of full-width glazing and solid panels.

Interior

The vaulted roof is carried on slender circular profile columns that extend through the space. Original fittings and finishes in the Galleria include nougat marble to the floor areas (some areas damaged) and a ramp with perforated metal balustrades for vertical circulation; a lift at the south connects levels 3-5. Permanent exhibits displayed in the Galleria included Locomotive No. 1 close to the entry and the Boulton and Watt Beam Engine at the north.

A major feature of Vault 2 (Exhibition Hall) are the murals of the Australian sky to the north and south. Changes to Vault 2 have altered its original character, including the blocking of natural light from the south, the subdivision of the volume into two spaces and painting of the ceiling in black (the original Renfoil was reflective).

Studios, offices, stores and service spaces in the link element are generally intact as built, including the bathrooms (which have a distinctive black and white tile finish throughout) and the cashier's office. North-south passageways on each level variously provide viewing points into the vaults to either side. At the south end of Level 4 is the board

room, conceived by Glendenning as a 'building within a building'. Board room … The vaulted ceiling is painted *** with a nymph – the work was done by the same theatre set paints who completed the murals in the Touring Hall.

Level 2 of the Wran Building (below the main entrance) was used for temporary exhibitions, and included two theatres to the west of the plan – Target Theatrette, finished in mirrors and the larger Coles Theatre, an almost entirely intact post-modernist space. Level 2 also provides access for school groups, via the Switch Room basement to the south. The perforated ramps extend to Level 2.

The basement includes plant, service and storage spaces.

Key collection objects

The Galleria (Vault 1) is a key orientating space. As noted, Locomotive No. 1 is at the entry and rthe Boulton and Watt Beam Engine anchors the north end.

Integrity

The Wran Building, although modified (notably in 2011-13) retains a high level of integrity, including the overall form, planning and materiality of the tri-partite building.

Images

Figure 29
South elevation, February 2024

Figure 30
North elevation of the Wran Building: Ultimo Post Office (part) is in the foreground

Figure 31
Detail of Harris Street elevation of the Touring Hall: the freestanding colonnade is visible at rear

Figure 32
View looking north through Vault 1: Locomotive No 1 is in the foreground and the west elevation of the Turbine Hall is at right

Figure 33
Sky mural at north end of the Touring Hall

Figure 34 View looking south through Vault 1 (the Galleria): the Board Room, clad in orange tiles,is visible at rear

Figure 35 Bathrooms and wet areas are finished in black and white tiles throughout

Figure 36
Board room

Figure 37
'Nougat' marble flooring on the ground floor (Level 3) of the Wran Building

Figure 38
The Target Theatrette

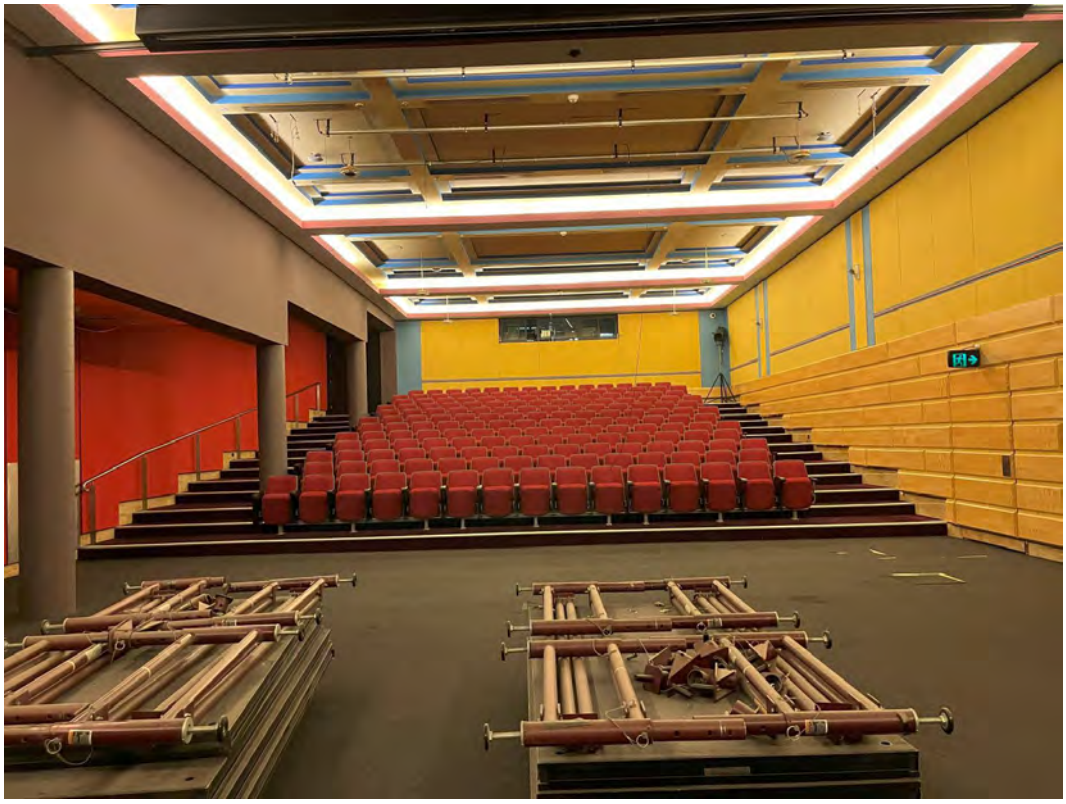


Figure 39
The Coles Theatre

10 | HARRIS STREET FORECOURT (1988)

Dates of construction and alteration

Late-1980s	Construction of the forecourt
2011-13	Alterations as part of the 'Powerhouse Museum Revitalisation Project', including the truncation of the colonnaded screen that extended south of the Wran Building (Vault 2) along the Harris Street boundary, and roofing of a void to the west of the Switch House – replaced with a raised platform

Past and present uses

1988-2024	Public open space, and forecourt to the primary entry to the Museum

Description

The forecourt was constructed in the 1980s as part of the Powerhouse Museum complex. It is a brick paved area accessed from Harris and Macarthur streets. Concrete steps and ramps manage the level change from street level. A face brick wall defines the south end of the space. The concrete platform outside the Switch House was constructed in 2011-13.

Integrity

The Harris Street Forecourt is a simply finished and hard-wearing space that retains high levels of integrity as completed in 1988. The major alteration is the reduced sense of enclosure as a consequence of the truncation of the colonnade.

Images

Figure 40
Harris Street forecourt looking north towards the Museum entry: the Switch House is at right (February 2024)

Figure 41
View looking towards the Wran Building from the platform outside the Switch House (September 2023)

Figure 42
Steps leading from Harris Street up to the forecourt (September 2023)

11 | GRACE BROS COURTYARD (1988)

Dates of construction and alteration

1890s-1920s	Service/storage/transit area supporting the activities of the Power House
c. 1927-31	A coal bunker was constructed in the approximate location of the courtyard
1988	Grace Bros Courtyard formed as part of the 1980s works
1997	Café constructed at south of the courtyard

Past and present uses		Functions
1890s-1960s	Power station	Service area traversed by rail tracks
1988	Public outdoor space	Café and seating area

Description

The Grace Bros Courtyard is a hard-paved open space that is framed by the Switch House to the west, the Light Rail line to the east, the Boiler House to the north and the café to the south. The striped stairs attached to the south elevation of the Boiler House are a prominent backdrop at the north of the space. Trees (species and age not determined), extending north-south through courtyard, soften the space and provide some level of canopy enclosure.

Integrity

The integrity of the café has not been established.

Images

Figure 43
View from the Grace Bros Courtyard looking towards the Switch House

Figure 44
View from the covered walkway looking north towards the Boiler House

12 | CAFÉ (1997)

Dates of construction and alteration

1997	Construction of 'Café Junction'

History

1996-97	The café replaced an earlier kiosk in a similar location.

Description

The single-level flat-roofed café is of steel and concrete construction. It is rectangular in plan and extends between the covered walkway that runs parallel to the Switch House and the light rail line, forming the south boundary of the Grace Bros Courtyard.

Exterior

The south elevation is finished in grey-coloured metal sheeting. There is a large top-hung sliding doorway in the approximate centre. This entry, clad in silver coloured metal panels, is aligned with rail (or tram) tracks embedded in the asphalt. Except for three openings at the base of the top-hung entryway the south elevation is windowless.

The north elevation is almost entirely glazed, with panels set in steel frames of varied dimensions.

Interior

The café was not inspected internally.

Integrity

The integrity of the café has not been established.

It is a building of utilitarian character and presentation that post-dates the major phase of construction for the Powerhouse Museum complex.

Images

Figure 45
South elevation of the café

Figure 46
North elevation of the café (part)