

Attachment E

<p>Draft Inventory Sheet - Powerhouse Museum and interiors</p>

Heritage nomination form

A. Nominated item

1. Name

Name*	Powerhouse Museum, including interiors
Other or former names	Powerhouse Museum former warehouse buildings, including interiors, Ultimo Powerhouse, Powerhouse Ultimo, Museum of Applied Arts & Sciences

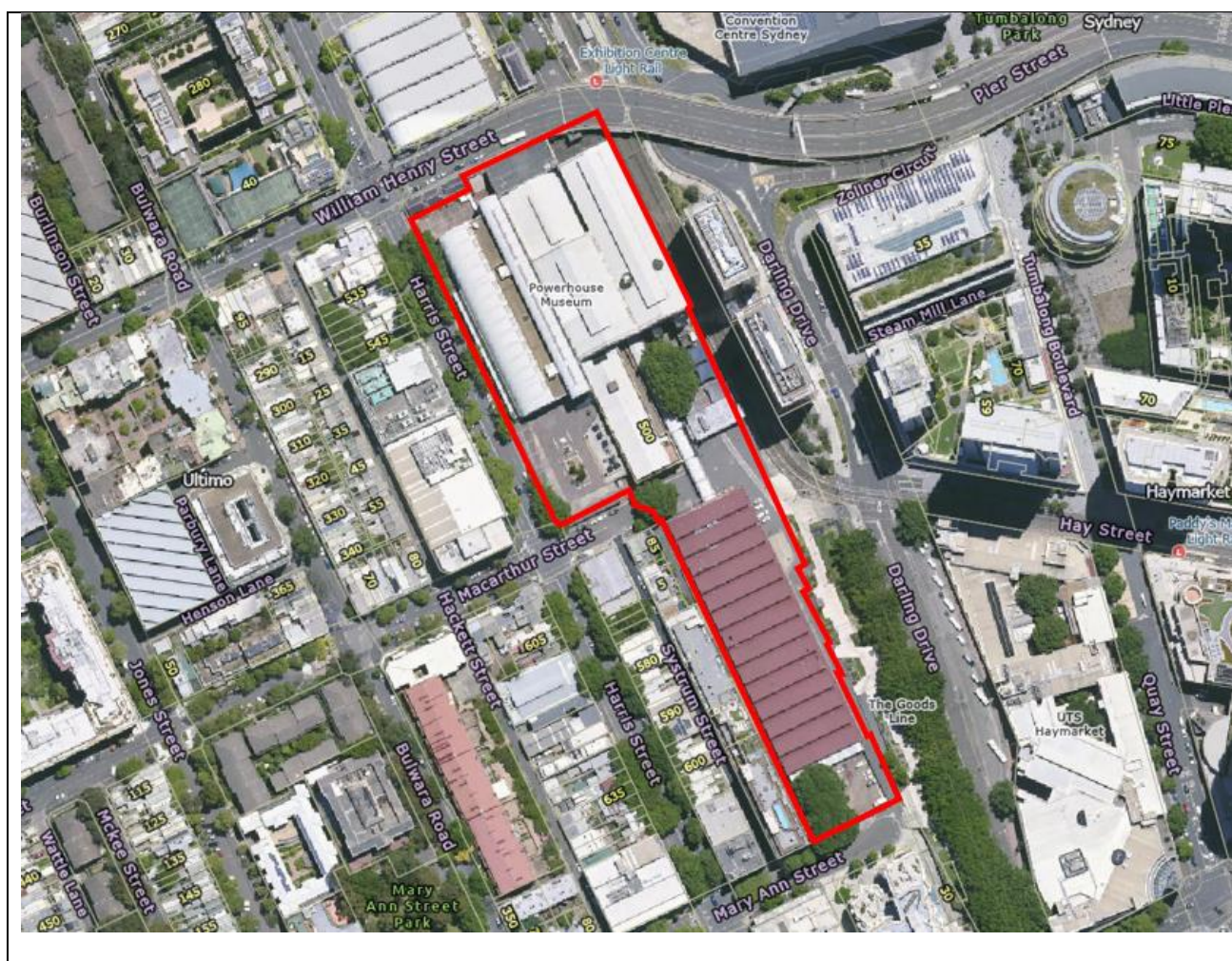
2. Location

Street address*	500 Harris Street ULTIMO NSW 2007
Alternate street address	
Local government area*	City of Sydney

Land parcels*	Lot	Lot 3	DP	216854	Building reference / name	Harwood Building (former Tram Depot)
		Lot 1 & 3		631345		Powerhouse Museum and part of the Harris Street forecourt
		Lot 1		781732		Wran Building (includes paved courtyard to north)
		Lot 37		822345		Harris Street forecourt (part)

Coordinates	
Latitude	-33.878517
Longitude	151.199773
Datum	GDA94

3. Extent of nomination



Source of map or plan	Geocortex
Description of the boundary, if required	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. The extent of proposed listing is denoted in red above.

4. Ownership

For organisations / company, please provide both the name of the business and a contact.

Name of owner(s)*	TRUSTEES of THE MUSEUM of APPLIED ARTS
Business / organisation name, if applicable	
Address	
Phone	
Email	
Ownership explanation, if required	

B. Significance

5. Why is it important in NSW?

Refer to the guideline [Assessing heritage significance](#) when completing this section.

Statement of significance*
<p>The Powerhouse Museum complex historical significance, historical association, aesthetic /creative/technical achievement and social, cultural, and spiritual significance to NSW and Sydney.</p> <p>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.</p> <p>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. MAAS has strong connections with Ultimo, having been headquartered at the Technological Museum on Harris Street from 1893 to the 1980s.</p> <p>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.</p> <p>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 the project architect Lionel Glendenning's distinguished career.</p> <p>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 valued characteristics of the place.</p> <p>The coalition of the MAAS collection and the historic buildings was mutually strengthening in terms of their significance, social resonance and cultural influence.</p> <p>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</p>

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 Catalina 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. 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.

C. Description

6. Describe the existing item

Description*	<p>The Powerhouse Museum complex comprises the former Ultimo Power House and Tram Depot (which adapted an earlier Car House) being the, engine house, boiler house, north annex, pump house, turbine hall, switch house buildings. These buildings have undergone ongoing change to support the evolving needs of the museum functions. Later addition buildings are the Wran Building, Harris Street forecourt, Café and Grace Bros courtyard. The building envelopes are generally intact, with varying degrees of intervention for the museum in 1988.</p> <p>ENGINE HOUSE (1899)</p> <p>The Engine House is approximately 32 metres long and 30 metres wide. Its brick walls mostly consist of original and early fabric, and its gable roof has 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.</p> <p><i>Exterior</i></p> <ul style="list-style-type: none"> • 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
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Interior

The Engine House has an internal volume spanning Powerhouse Museum levels 2-4 (no floor to level 4), an enclosed level 1, and a partial basement. The building can be accessed from the North Annexe at levels 1 and 2, the Boiler House at the basement level and level 1, the Turbine Hall at the 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 a flexible exhibition space for temporary exhibitions and was displaying 'Experimentations' in 2024
- The 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 lilac, 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 mint green
- 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.

BOILER HOUSE (1899-1902)

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 the item boundary).

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.

NORTH ANNEXE (1899)

The North Annexe is a symmetrically composed three-storied 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 and carved with 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 it 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 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 grey-green
- 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

PUMP HOUSE, REMNANTS (1899)

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.

TURBINE HALL (1902)

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 the 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 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 King's Cinema – with a highly decorative interior that 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 dark grey.
- A large, square grid with glazing is suspended from the ceiling at the northern end.

SWITCH HOUSE (1927)

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 made of concrete and 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. When it was refurbished in 1988, it had exhibition space on levels 2 and 3, a brasserie, and offices on 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.

HARWOOD BUILDING, FORMER TRAM DEPOT (1981)*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, and to the south 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).

WRAN BUILDING (1988)*Exterior*

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

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, 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 boardroom, conceived by Glendenning as a 'building within a building'. The vaulted ceiling is painted with a nymph – the work was done by the same theatre set painters who completed the Touring Hall murals.

Level 2 of the Wran Building (below the main entrance) was used for temporary exhibitions. It included two theatres to the west of the plan – Target Theatre, 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 the Boulton and Watt Beam Engine anchors are at the north end.

HARRIS STREET FORECOURT (1988)

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.

GRACE BROS COURTYARD (1988)

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 the courtyard, soften the space and provide some level of canopy enclosure.

	<p>CAFÉ (1997)</p> <p>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.</p>
Condition of fabric and/or archaeological potential*	<p>The extent of disturbance at the site over time is such that archaeological potential at the subject site is generally limited (Curio Pty Ltd, Draft Conservation Management Plan for the 'Powerhouse Ultimo', Section 3, Table 3.3)</p>
Integrity / intactness*	<p>Despite later alterations and additions, the Powerhouse Museum building retains a high degree of integrity.</p> <p><i>Ultimo Power House and Tram Depot (original complex)</i></p> <p>ENGINE HOUSE (1899)</p> <p>The Engine House has a high level of intactness to its 1988 adaptation. The original features which were incorporated into the 1980s adaptation include:</p> <ul style="list-style-type: none"> • 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 <p>Nearly all the alterations and additions that were implemented as part of the adaptive reuse design remain. Changes since 1988 include:</p> <ul style="list-style-type: none"> • The removal and infill of a stair at the northern end between levels 1 and 2 • Reconfiguration of exhibits <p>BOILER HOUSE (1899-1902)</p> <p>The Boiler House is highly intact compared to its 1988 adaptation. Its remnant chimneys, most of its brick outer walls, and roof structure are the original or early fabric that was incorporated into the 1980s adaptation. Nearly all of the alterations and additions implemented as part of the adaptive reuse design remain.</p> <p>Changes since 1988 include:</p> <ul style="list-style-type: none"> • 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 <p>NORTH ANNEXE (1899)</p> <p>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:</p> <ul style="list-style-type: none"> • Masonry walls, externally and internally • Cedar door and window joinery • Tiled flooring • Cast iron columns

PUMP HOUSE, REMNANTS (1899)

The remnant fabric of the original Pump House, built in 1898-1899, includes partially extant northern and eastern walls with some brick detailing. Two arched window openings with carved keystones in the north elevation have been infilled with red brick but remain visible. The upper parts of the walls and part of the chimney base were partially demolished for the construction of the new William Henry Street bridge, and the remaining structure has continued to deteriorate, reading as a ruin.

TURBINE HALL (1902)

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 the 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

SWITCH HOUSE (1927)

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.

HARWOOD BUILDING, FORMER TRAM DEPOT (1981)

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 the 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.

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

Redevelopment as the Powerhouse Museum (new addition Wran Building, Harris Street Forecourt, café and Grace Bros Courtyard)

- 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.

	<ul style="list-style-type: none"> ▪ 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 caused by the truncation of the colonnade. ▪ The café is a building of utilitarian character and presentation that post-dates the major phase of construction for the Powerhouse Museum complex. ▪ The integrity of the café and Grace Bros courtyard is unknown.
Modification dates	<p>ENGINE HOUSE (1899)</p> <ul style="list-style-type: none"> • 1898-99 Construction of Engine House • 1902 Alterations and additions, including new switchboard gallery mezzanines to the north and 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 reuse involves removing electrical equipment and machinery, concrete engine pads, tiled walkways, cast iron floor grates, and the western gallery. Alterations to the west elevation to integrate the Engine House with the Wran Building <p>BOILER HOUSE (1899-1902)</p> <ul style="list-style-type: none"> • 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 reuse for Powerhouse Museum <p>PUMP HOUSE, REMNANTS (1899)</p> <ul style="list-style-type: none"> • 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 the chimney and Pump House to enable the 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 the northern wall • c. 2010s Demolition of remnant roof structure <p>TURBINE HALL (1902)</p> <ul style="list-style-type: none"> • 1902 Construction of extension to Engine House • 1905 Installation of turbine • 1909 Installation of additional turbines • c. 1914 Installation of additional turbines

	<ul style="list-style-type: none"> • 1927-31 Upgrades to industrial equipment, including replacement of turbines and further excavation of the basement, and integration with newly constructed Switch House • 1982-88 Adaptive reuse works involving the removal of concrete engine pads and tiled walkways. Alterations were made to the western wall to integrate the Engine House with the Wran Building. • 2011-13 Internal alterations and conservation works to the south elevation <p>SWITCH HOUSE (1927)</p> <ul style="list-style-type: none"> • 1922-27 Construction of Switch House • 1928-63 Minor modifications • 1982-88 Adaptive reuse, 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 <p>HARWOOD BUILDING, FORMER TRAM DEPOT (1981)</p> <ul style="list-style-type: none"> • 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 reuse of the Car House for Phase 1 of the Powerhouse Museum <p>WRAN BUILDING (1988)</p> <ul style="list-style-type: none"> • 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 <p>HARRIS STREET FORECOURT (1988)</p> <ul style="list-style-type: none"> • 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 <p>GRACE BROS COURTYARD (1988)</p> <ul style="list-style-type: none"> • 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 south of the courtyard
When was the last time you inspected the item?	February 2024
Current use	Museum
Original or former use/s	Electrical – Coal Power Station

D. History

7. Origins and historical evolution

Years of construction*	Start	1897	End	1997
Designer or architect*	<p>Ultimo Power House and Tram Depot The NSW Railway Commissioners are responsible for the original design of the Ultimo Power House and Tram Depot (now named Harwood Building). It is possible the design has some association with Henry Deane who was Engineer in Chief for the NSW Railways from 1891-1906.</p> <p>Modifications to the Power House and Tram Depot and additions (Wran building, Harris Street Forecourt, Café and Grace Bros courtyard) <i>Redevelopment as the Powerhouse Museum</i></p> <p>The Government Architect's Branch, Public Works Department and MAAS design team all closely collaborated on the later-stage developments, which included alterations to the original Ultimo Power House buildings and Tram Depot (now named Harwood Building) and new additions, including the Wran Building, Harris Street forecourt, Café, and Grace Bros courtyard.</p> <p>The primary individuals responsible were Lionel Glendenning, Principal Architect within the Office of the NSW Government Architect and architect of record for the Powerhouse; Richard Johnson of Denton Corker Marshall Architects, Director of Design for the Powerhouse Museum; and Lindsay Sharp, Director of both the MAAS and later Powerhouse museums</p>			
Maker or builder*	<p>J. Stewart and Co. Sydney was the builder responsible for the construction of the Ultimo Power House complex, which was known as the 'Ultimo Power House and Tram Shed' and comprised the Engine House, Boiler House, Pump House, North Annexe, Tram Depot (now named Harwood Building).</p> <p>Justin McSweeney (builders responsible for the water-cooling system and manifold located within the 1902 Turbine Hall).</p> <p>Stage II Powerhouse Museum exhibitions (on display until 2024) included:</p> <ul style="list-style-type: none"> ▪ 'Transport,' created by Desmond Freeman Associates ▪ 'Space,' designed by Iain Halliday of Neil Burley Designs 			
Historical outline*	<p>FIRST NATIONS HISTORY - THE EORA NATION The site sits on the land originally occupied by Aboriginal people of the Cadigal, Gommerigal and/or Wangal clans of the Eora Nation.</p> <p>The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as whether the coastal peoples spoke a separate language "Eora" or whether this was a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters (Anita Heiss, "Aboriginal</p>			

	<p>People and Place", Barani: Indigenous History of Sydney City http://www.cityofsydney.nsw.gov.au/barani).</p> <p>With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s.</p> <p>Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney</p> <p>Ultimo forms the southern half of the Pyrmont peninsula, bounded by Darling Harbour on the east, Blackwattle Bay on the west and Broadway on the south. It became part of the estate of the surgeon John Harris in 1803. The sandstone ridge that is the spine of the Pyrmont peninsula was covered at the Ultimo end by rich alluvial soil. This had attracted some early market gardens, however Harris's vision for his property was not development, but the creation of a country seat.</p>
1803-06	<p>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.</p>
1830s	<p>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.</p>
1838	<p>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.</p>
1855	<p>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.</p>
1859	

	<p>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.</p>
	<p>1860s-80s</p> <p>Consolidation of the Pyrmont peninsula as an industrial area dominated by warehouses and large factories, many associated with the wool industry. Limited residential development.</p>
	<p>1870</p> <p>The Darling Harbour Goods Yard is constructed to the north of the subject site.</p>
	<p>THE MUSEUM OF APPLIED ARTS AND SCIENCE: 1879 – PRESENT</p> <p>Established as an outcome of the Sydney International Exhibition (1879), the institution now known as the Museum of 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.</p>
	<p>1879</p> <p>(17 September) Sydney International Exhibition opens at the Garden Palace, a purpose-designed exhibition venue designed by James Barnet.</p>
	<p>1880</p> <p>(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.</p>
	<p>1882</p> <p>(September) A major fire at the Garden Palace destroys the building and much of the Museum collections.</p>
	<p>1883</p> <p>The Museum is re-established in the former Agricultural Hall in the Domain.</p>
	<p>1893</p> <p>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.</p> <p>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.</p>

	1900s	<p>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.</p> <p>Much of collection is stored off-site.</p>
	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 Depot as premises for MAAS. Dr Lindsay Sharp appointed Director of MAAS.
	1978	(September) Building A at Castle Hill opens, containing a workshop and conservation facilities. Buildings B, C and G are completed during the 1980s.
	<p>ESTABLISHMENT OF THE ELECTRIC TRAMWAYS: 1890s</p> <p>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).</p>	
	1893	<p>Sydney's first electric-powered tram line opens on the North Shore. Its success leads to plans for adopting electricity across the whole network.</p>

	<p>1895-96</p> <p>(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.</p> <p>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.</p> <p>1897</p> <p>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).</p> <p>1898</p> <p>Construction of the Ultimo Power House and Car House commences.</p> <p>1899</p> <p>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).</p> <p>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.</p>
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	<p>EXPANSION: 1900s -1930s Expansion and modernisation of the Ultimo Power House and Tram Depot.</p> <p>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.</p> <p>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).</p> <p>1904 The Pyrmont Power Station begins operations less than a mile away, further consolidating the peninsula's identity as an industrial area.</p> <p>1908 The Tram Depot is extended with five additional bays spanning c. 46 metres (150 feet) north along the Darling Harbour Goods Line.</p> <p>1909 With increasing demand for electricity, two additional turbo-alternators are installed at the Power House.</p> <p>1912 Construction begins on a new Power House at White Bay (operational by 1913).</p> <p>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.</p>
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	<p>1920s Expansion and improvements to Ultimo Power House associated with electrification of the suburban rail network.</p> <p>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.</p> <p>1923 Power output at the White Bay Power House exceeds that of Ultimo for the first time.</p> <p>1923-28 New water conduits constructed from the Power House to Darling Harbour.</p> <p>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.</p> <p>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.</p> <p>DECLINE AND CLOSURE: 1940s-70s Following World War II, industry shifted away from the inner suburbs, including Pyrmont and Ultimo. The deindustrialization process results in widespread redevelopment.</p> <p>1939-45 During World War II, air raid shelters are constructed at the Ultimo Power House complex.</p> <p>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.</p> <p>1948 (April) The Commissioner of Railways purchases 550 Harris Street, providing a street frontage to the west.</p>
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	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.

	<p>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.</p>
1979	<p>(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.</p>
1981	<p>(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.</p> <p>The site is opened on 4 September by NSW Premier Neville Wran.</p>
1982-87	<p>Redevelopment of the Power House buildings as Stage Two of the Powerhouse Museum continues.</p> <p>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.</p>
1984	<p>The former Tram Depot is renamed the ‘Harwood Building’ in honour of former MAAS curator Norman Harwood.</p> <p>The Darling Harbour Goods Line is decommissioned, after port functions and wool stores moved away from Sydney in the 1960s.</p>
1985	<p>The former Ultimo Post Office is adapted as a childcare centre.</p>
1986	<p>Richard Johnson of Denton Corker Marshall Architects is appointed as exhibition designer for the Powerhouse Museum.</p>
1988	<p>Ultimo Powerhouse Museum opens (March). The Harwood Building becomes storage, office space, workshops and studios/laboratories to support the Powerhouse Museum.</p> <p>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.</p>

	<p>POWERHOUSE MUSEUM: 1990s-2013 Until the major 'Revitalisation Project' of 2011-13, works at the Powerhouse Museum were generally small-scale and localised.</p> <p>1994</p> <p>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.'</p> <p>1997-2002</p> <p>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.</p> <p>2000</p> <p>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.</p> <p>2003</p> <p>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.</p> <p>2004</p> <p>A bridge connecting the Turbine Hall and Boiler House at Level 2 is constructed.</p> <p>2005-08</p> <p>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.</p> <p>2007-09</p> <p>The Powerhouse Museum partners with NSW Department of Commerce to undertake the 'Centenary Stonework Program'.</p> <p>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.</p> <p>In 2009, a covered walkway is constructed connecting the former Post Office with the Wran Building.</p> <p>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.</p>
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	<p>2011-13</p> <p>Powerhouse Museum begins a major phase of works referred to as the 'Revitalisation Project', the first major upgrade of facilities since 1988.</p> <p>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).</p> <p>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.</p> <p>2014-PRESENT</p> <p>The NSW Government's plans to close the Powerhouse Museum at Ultimo and construct a new facility at Parramatta provoke sustained public debate.</p> <p>2015</p> <p>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.</p> <p>2020-21</p> <p>(4 September) The inclusion of the Powerhouse in the NSW State Heritage Register (02045) is gazetted. The entry excludes the Harwood and Wran buildings.</p> <p>2023</p> <p>(November) NSW State Heritage Register Committee resolves to amend (expand) the registration for the Powerhouse to include the Wran and Harwood buildings.</p> <p>2024</p> <p>(5 February) the Powerhouse Museum closes for three years.</p> <p>State Heritage Register listing expanded</p>
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8. Historical themes represent

Themes indicate the broad historical context in which an item is significant. Themes help to identify related or comparative items contributing to the same theme.

Refer to the document [NSW Historical Themes](#) if completing this section.

Relevant National / Australian themes	<p>3 Developing local, regional, and national economies</p> <p>4 Building settlements, towns, and cities</p> <p>8 Developing Australia's cultural life</p>
Relevant NSW / State themes	<p>3 Developing local, regional, and national economies</p> <p><i>Science:</i> Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena</p> <p><i>Technology:</i> Activities and processes associated with the knowledge or use of mechanical arts and applied sciences represents artifacts such as engines, computers, and telecommunications devices that chart technological progress.</p> <p>4 Building settlements, towns, and cities – Utilities</p> <p>Activities associated with the provision of services, especially on a communal basis. As a former powerhouse, the museum inherently represents utilities and energy generation as a critical urban service.</p> <p>8 Developing Australia's cultural life</p> <p><i>Creative Endeavour:</i> Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities. The Powerhouse Museum's exhibits include architectural styles, design objects, and public art displays reflecting Australia's creative industries.</p> <p><i>Social Institutions:</i> Activities and organisational arrangements for the provision of social activities. The Powerhouse Museum itself operates as a hub for public engagement and education.</p>

E. Criteria for assessing heritage significance in NSW

9. Assessment under Heritage Council criteria of State 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) (Criterion A)

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 huge 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 is a 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.

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) (Criterion B)

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 identity 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 was 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.

An item is important in demonstrating aesthetic characteristics and/ or a high degree of creative or technical achievement in NSW (or the local area) (Criterion C)

The Powerhouse Museum complex is significant at the local (Sydney) 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. 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 RIAA 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 RIAA NSW Chapter's top award, the Sulman Award for 1988.

The Powerhouse Museum complex satisfies this criterion at the local level.

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 (Criterion D)

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.

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) (Criterion E)
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>The Powerhouse Museum complex, in terms of its design, development, opening, evolution and operations since the 1980s, has likewise been documented extensively.</p> <p>The extent of disturbance at the site over time is such that archaeological potential at the subject site is generally limited.</p> <p>The Powerhouse Museum complex is not considered to satisfy this criterion at the local level.</p>
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) (Criterion F)
<p>The Powerhouse Museum complex does not satisfy this criterion. It is one of a large number of cultural institutions and museums in NSW.</p> <p>The Power House complex, while a large and particularly successful example, is one of a number historic buildings adapted to new uses in Sydney and NSW.</p> <p>Likewise, it is one of a large number of places and monuments in Sydney and NSW associated with the bicentenary.</p> <p>The Powerhouse Museum complex is not considered to satisfy this criterion at the local level.</p>
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) (Criterion G)
<p>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. 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.</p> <p>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.</p> <p>The Powerhouse Museum complex is not considered to satisfy this criterion at the local level</p>

F. Heritage listings

10. Existing heritage listings

Listing Name	Listing Title	Listing Number	Gazette Date	Gazette No.	Gazette Page.
Heritage Act - s.170 NSW State agency heritage register	Water Cooling System and Manifold				
Heritage Act - s.170 NSW State agency heritage register	The Darling Harbour Rail Corridor				
Heritage Act - State Heritage Register	Powerhouse Museum Complex	02045	12/07/2024	268	2 - 8
Institution of Engineers (NSW) Historic Engineering Marker	Powerhouse Museum National Engineering Marker				
Local Environmental Plan	Powerhouse Museum former Warehouse Buildings, incl	12031			
National Trust of Australia register	Former Ultimo Tram Depot Tram Shed (Powerhouse Mus	S10611	30/07/1997		
National Trust of Australia register	Ultimo Power House (former Turbine Hall, Boiler Ho	S11648	24/06/2015		
National Trust of Australia register	Powerhouse Museum		29/07/2015		

G. Photograph

Caption*	Powerhouse Museum as seen from Harris Street (Ian Thorpe Aquatic Centre to the left)
Date of photograph*	12/15/2020
Name of photographer*	Sagar Chauhan
Copyright holder, if known	No Credit

Recommended Management

The Powerhouse Museum and interiors at 500 Harris St, Ultimo should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan/Strategy, should be prepared for the place prior to any major works being undertaken and shall be in accordance with the relevant planning controls.

An Archaeological Assessment should be prepared prior to any significant ground disturbing works being undertaken and shall be in accordance with the relevant planning controls.

All conservation and future modifications should be undertaken in accordance with the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter).

H. Author details**12. Primary author of this form***

Name	Lovell Chen
Position and organisation, if applicable	
Contact phone number	
Email address	
Date form completed	

13. References used to complete this form*

Author	Date Published	Title
Architectural Projects	2003	Conservation Management Plan: The Powerhouse Museum, prepared for the Powerhouse Museum
T Brassil	2019	Ultimo Tram Depot (The Harwood Building), History and Significance, National Trust of Australia (NSW)
Curio Projects	May 2022	Powerhouse Ultimo Draft Conservation Management Plan
Design 5 Architects	May 2022	Powerhouse Museum Design Principles (included as an appendix to the Curio Project CMP referenced above)
	November 1994	Nomination of Ultimo Power House as a site for an historic engineering marker
Parliament of New South Wales	2016-2019	Upper House Inquiry into museums and galleries: Hearings and Transcripts
Parliament of New South Wales	2020-2022	Upper House Inquiry into museums and galleries: Hearings and Transcripts
Parliament of New South Wales	2015-2024	Legislative Council Hansard, selected commentary and documentation
Lovell Chen	2024	Powerhouse Museum, Heritage Assessment, No. 500 Harris Street, Ultimo, Sydney, New South Wales 2007
Anita Heiss and Melodie-Jane Gibson	Accessed November 18, 2024	"Aboriginal People and Place," Barani Sydney's Aboriginal History, < https://www.sydneybarani.com.au/sites/aboriginal-people-and-place/ >.
State Government	Accessed November 18, 2024	"Powerhouse Museum Complex," State Heritage Inventory, [SHR #02045], https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5068313

I. Additional photographs and images



Caption*	Undated city archives taken from Darling Drive
Date of photograph*	No date
Name of photographer*	No author
Copyright holder, if known	No credit



Caption*	Powerhouse Museum
Date of photograph*	No date
Name of photographer*	No author
Copyright holder, if known	No credit



Caption*	Ultimo Power House and its immediate surrounds, 2018
Date of photograph*	Unknown
Name of photographer*	TDK Architects
Copyright holder, if known	TDK Architects



Caption*	Powerhouse lintel with name and date of building
Date of photograph*	No date
Name of photographer*	No author
Copyright holder, if known	



Caption*	Powerhouse Museum under construction in 1985
Date of photograph*	No date
Name of photographer*	Helen Grant
Copyright holder, if known	City of Sydney Archives & History Resources



Caption*	The Harris Street entrance of the Powerhouse Museum in 1988.
Date of photograph*	No date
Name of photographer*	No author
Copyright holder, if known	The Sydney Morning Herald