11.1 HISTORY OF THE TURBINE HALL

The Turbine Hall was constructed in 1902 as a southern extension/addition to the Engine House (Figure 11.3). Originally referred to as the Engine House Extension, the Turbine Hall was initially constructed to house reciprocating engines and did not house turbines until 1905. Part of the original construction of the Turbine Hall included installation of the overhead travelling crane that remains in the Hall today.

The first steam turbine was installed in the Hall in 1905 - the 2,240kW Parson's Steam Turbo Alternator ('Turbine No. 6') – prompting a requirement to also install an additional sixteen water tube boilers in the neighbouring Boiler House, which itself was extended at the time as a result (Figure 11.4). The rapid expansion of Sydney's tramway system in the early 20th Century led to installation of two additional Parson's turbines in 1909, and by 1910 the building was officially referred to as the Turbine Hall.[1] By 1914, the Turbine Hall housed a total of seven turbine units, necessitating the removal of the original three reciprocating engines to make space for the new machinery. By 1918, the seven turbo-alternators could generate 36,000kW per hour.

Modernisation and remodelling of the Ultimo Power House between 1927 and 1931 involved replacement of many of the turbine units for improved efficiency and generating capacity (Figure 11.7), as well as the construction of the new Switch House building along the southern side of the Turbine Hall. Installation of the new turbines required some additional excavation below the Turbine Hall (Figure 11.6), particularly to accommodate the unit's ancillaries. Construction of the Switch House in 1927 also required some alterations to some of the Turbine Hall southern façade windows to accommodate the new building. The modernisation works also included installation of a 60 ton crane in the Turbine Hall in 1930.[2]

Previous Names	The Engine Room Extension
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP631345
Built	1902
Heritage Listings	SHR 02045 "Ultimo Power House"
	LEP I2031, "Powerhouse Museum Former Warehouse Buildings, including interiors"
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage Two), Place ID 100690
	National Trust of Australia (NSW) Register (S11648, 24/10/2015)

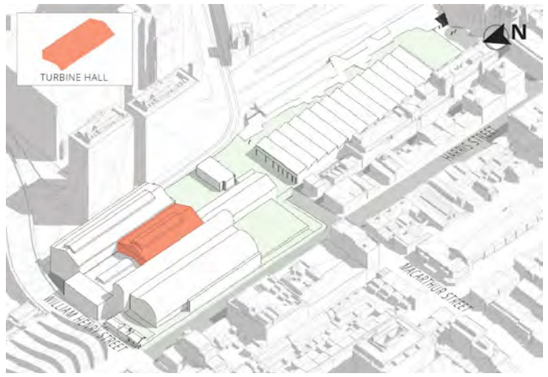


Figure 11.1 Location of the Turbine Hall. (Source: John Wardle Architects with Curio Projects overlay).

Figure 11.2 Current interior of the former Turbine Hall (Source: Powerhouse, 2022)

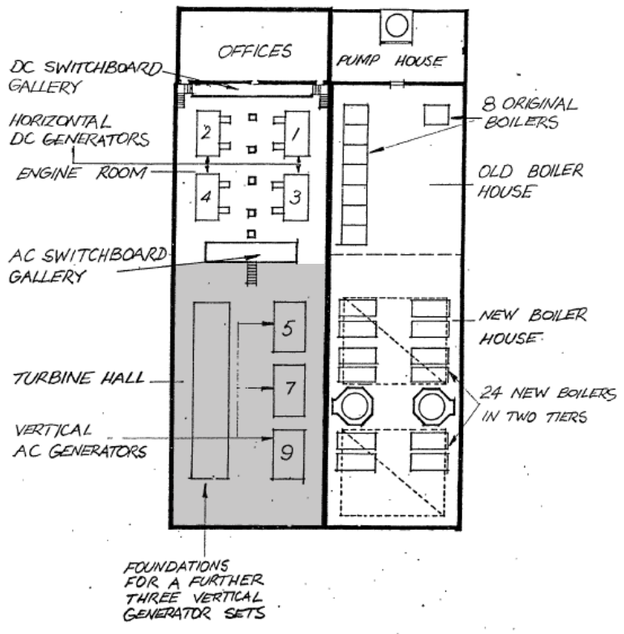


Figure 11.3: 1902 Layout of the Turbine Hall (Engine House southern extension) in grey (Source: Godden et al. 1984 p. 104)

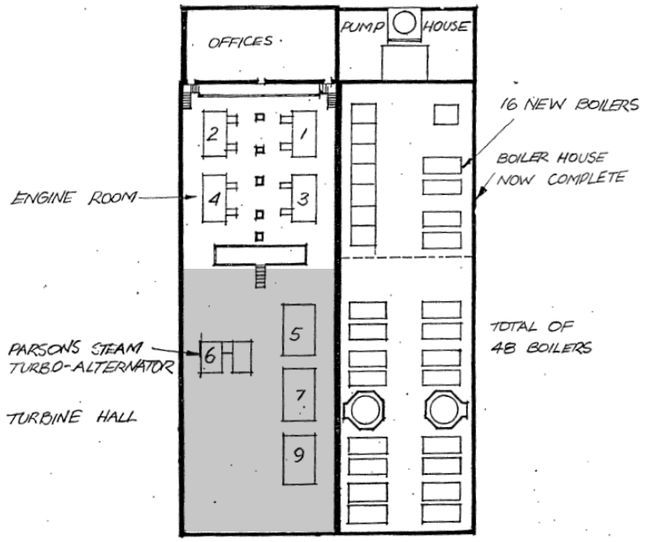


Figure 11.4: 1905 Layout of the Turbine Hall after installation of Parsons Steam Turbo Alternator (Source: Godden et al. 1984 p. 104)

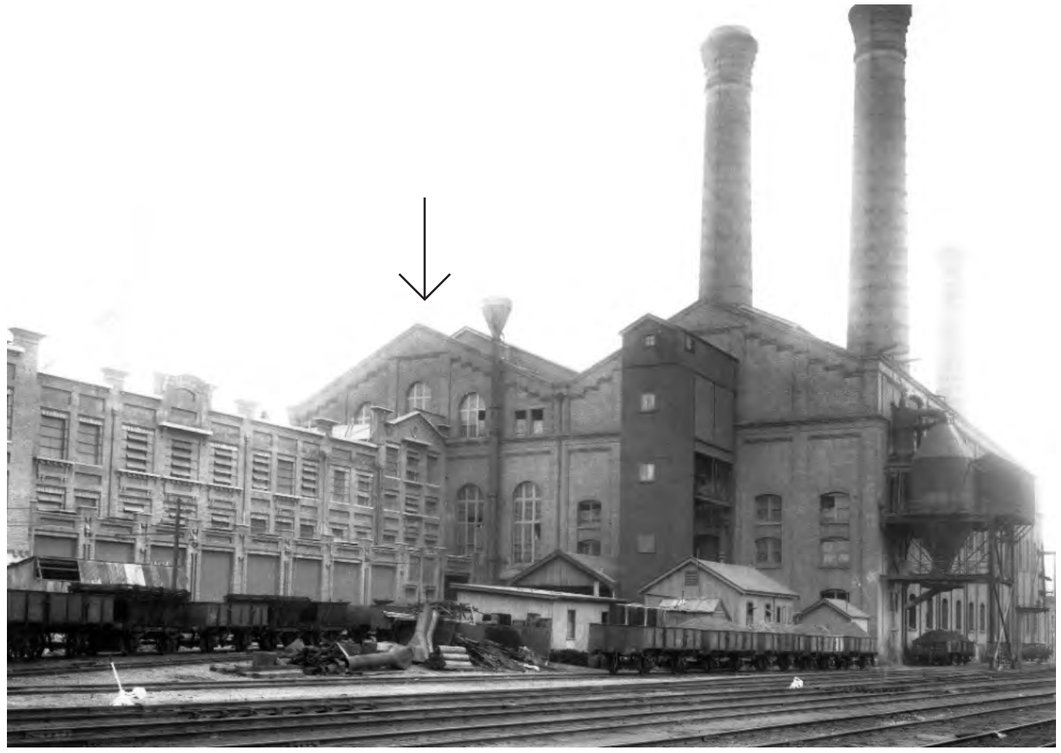


Figure 11.5 Location of Turbine Hall marked by arrow (Source: City of Sydney Archives)

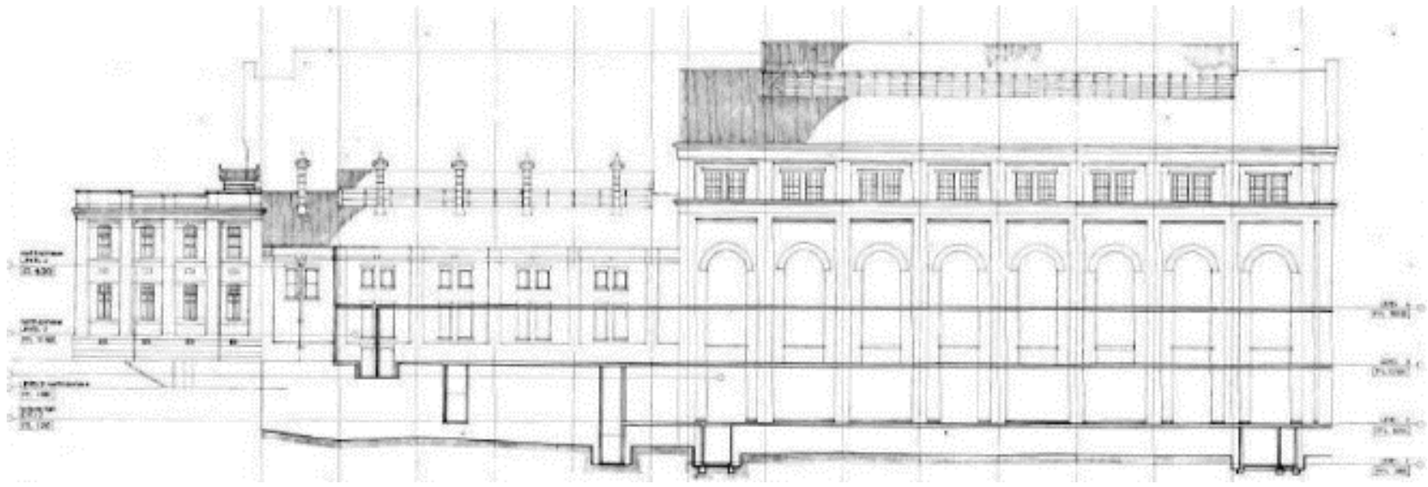


Figure 11.6 West section of the Ultimo Power House Buildings, North Annexe, Engine Hall and Turbine Hall (pictured left to right). The basement of the Turbine Hall is 3.2m deep. (Source: AMBS 2018, from 1984 Museum of Applied Arts and Sciences Construction plans)

When the Ultimo Power House closed on 11 October 1963, the Turbine Hall, along with the other Power House buildings, fell into disrepair and was subsequently damaged by decay, squatters, and vandals. The turbo alternators were removed from the Hall shortly after closure. In the early 1980s, works in the Turbine Hall in preparation for the adaptive re-use of the building for the Powerhouse Museum included removal of the majority of the interior features of the Hall (engine beds and bases, structures, and floors), such as removal of the concrete engine pads that had once supported the Parson's turbines, and their surrounding terracotta tiled walkways[3] (Figure 11.10 and Figure 11.11). It was noted during the course of the 1980s works that little of the original 1902 Turbine Hall floor survived by this time, with many areas of the floor having been progressively repaired, upgraded and modified throughout the operation of the Power House to accommodate the various upgrades and replacements of equipment. The majority of the original tile wall in the Turbine Hall remained at the time of the 1980s works, with some general alterations and renewals along with equipment upgrade.[4]

The adaptive reuse of the Turbine Hall for the Powerhouse Museum included creation of three levels within the Hall, the design of which was divided between several designers—Level 2 and 3 designed by Powerhouse's in-house design team, while Level 4 was designed by museum designers Denton Corker Marshall.[5] The construction of the new Wran Building in 1988 along the western side of the Turbine Hall enveloped the western façade of the building, making this façade an internal wall within the museum space. Other additions to the Turbine Hall as part of the 1980s museum fit out included construction of mezzanine levels, escalators, and various services and amenities (Figure 11.12).

As part of the Powerhouse Museum revitalisation project in 2011–2013, further changes to the Turbine Hall included the dismantling of the 1988 cube structure in the Turbine Hall (Figure 11.12), relocation of a glass lift from the Wran Building into the Turbine Hall (Figure 11.13), and replacement of the escalators with new eco-friendly models.[6] Restoration works to the Turbine Hall's southern façade was undertaken in 2012–2013.[7]

In 2022, the Turbine Hall remains in use as exhibition spaces for the Powerhouse Museum.

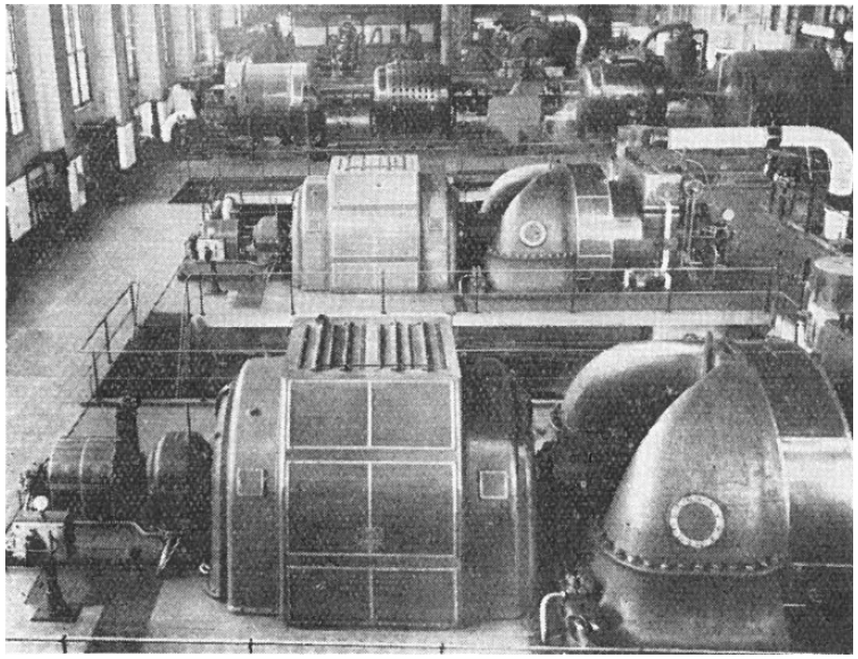


Figure 11.7 Interior of the Turbine Hall c.1933 (Source: Myers, 1933, p. 266)

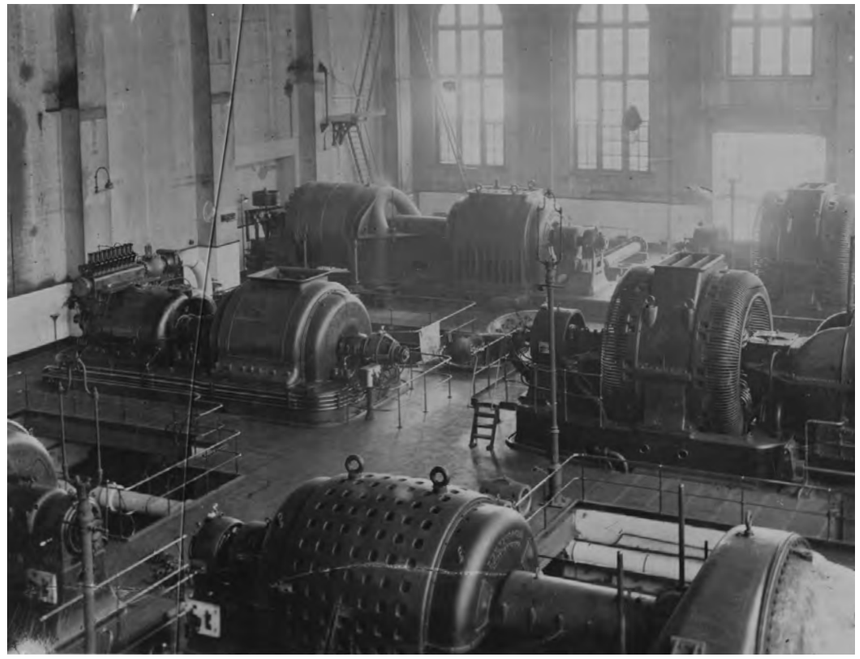


Figure 11.8 Interior of the Turbine Hall looking South, 1963 (Source: State Archives NSW NRS-21573-2-10-PR5322)

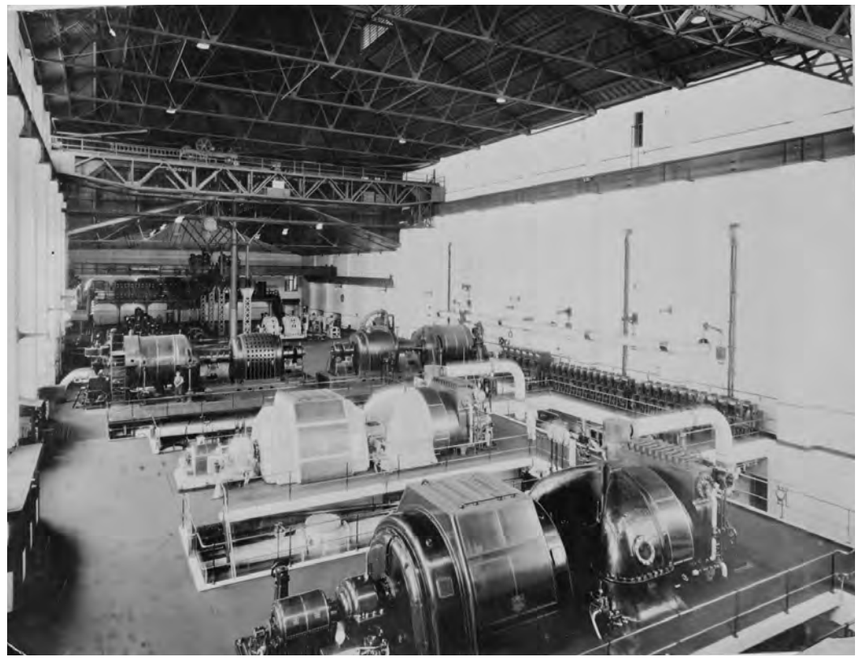


Figure 11.9 Interior of the Turbine Hall and Engine House looking North, 1963 (Source: State Archives NSW NRS-21573-2-10-PR5315)

Figure 11.10 Interior c. 1986 prior to the construction of the Powerhouse Museum (Robert Pearce- from SMH 6 Dec 2018)

Figure 11.11 Turbine Hall and Engine House during Construction
(Source: Design World 1988)

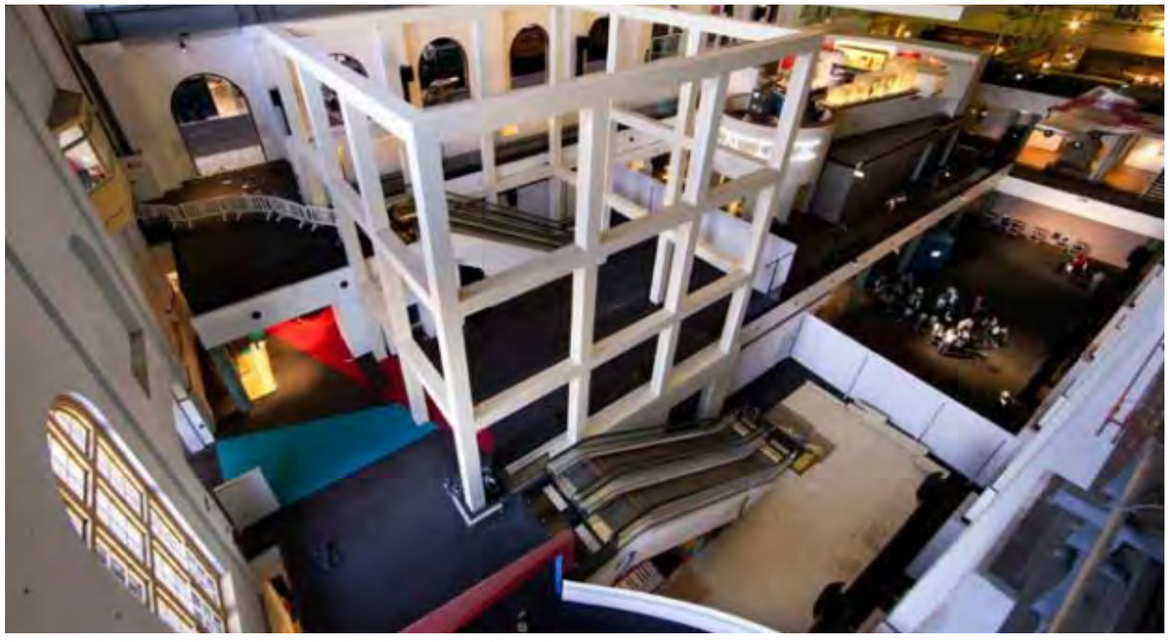


Figure 11.12 The Turbine Hall prior to Stage 1 of the Revitalisation Project (Source: Powerhouse)

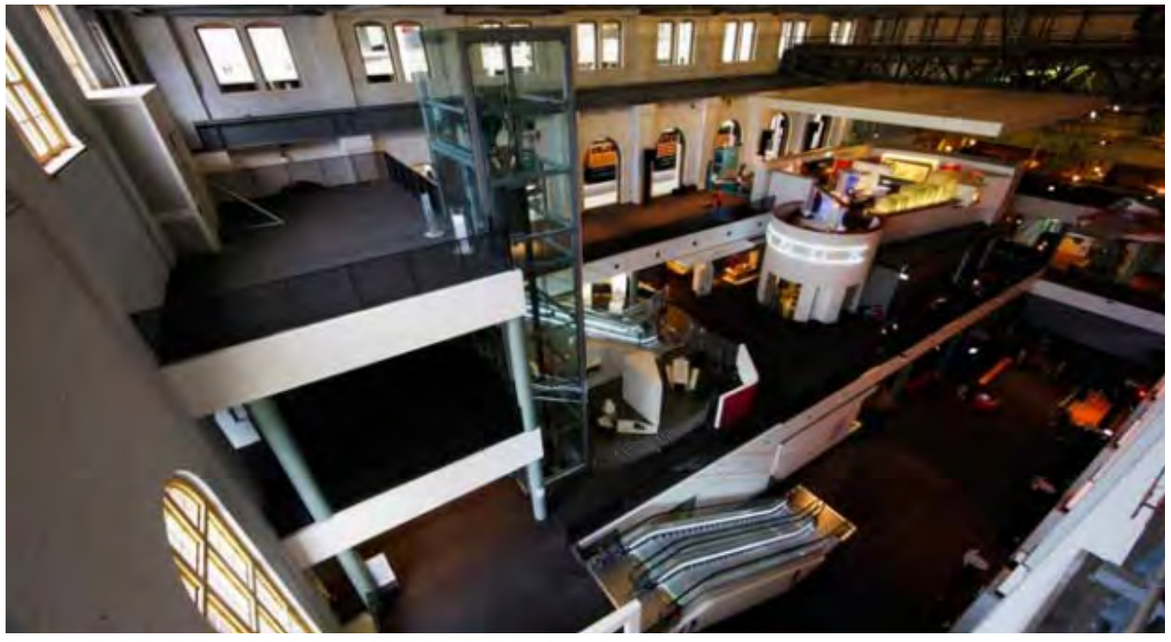


Figure 11.13 The Turbine Hall in 2012 following Stage 1 of the Revitalisation Project (Source: Powerhouse)

11.2 PHYSICAL ANALYSIS OF THE TURBINE HALL

An overall photo register and images of the Turbine Hall as of 2021 is presented in Section 11.6.

11.2.1 Site and Setting

The Turbine Hall forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo. Within the Powerhouse Ultimo site, the Turbine Hall is bordered to the north by the Engine House, along the east by the Boiler House, southeast by the Level 1 museum courtyard, south by the Switch House, and west by the Wran Building. As is the case for the Engine House, the Turbine Hall never had a street frontage.

11.2.2 Built Elements

The 1902 Turbine Hall measures 56m wide by 31m deep, and is a very simple, very strong expression of the utilitarian architecture of the early 20th Century and one of the prime large examples of Edwardian industrial architecture in Sydney. The SHR listing describes the Turbine Hall as:

> The façade is divided into eight bays which are further proportioned by a horizontal band which divides the façade into sixteen elements. The west facade's principal quality is its sheer scale which is enhanced by very carefully controlled simplicity. Emphasising the main articulation of the facade is a moulded stone stringcourse at the sill level of the upper windows and a moulded stone cornice capping the top of the parapet. The main elements are the very tall, semi-circular headed windows. These main windows have stone sills and the window bays, flanked by pilasters, terminate in stepped brick corbels and are surmounted by a stone gable cornice. The overhead Goninan gantry crane that served the Turbine Hall is still in place, complete with the high-level rails along which it ran.[8]

The exterior of the Turbine Hall remains relatively intact, and retains a prominent roof monitor as per the original design (although modified and reconstructed during 1980s works). Like the Engine House, the Turbine Halls' one original external (western) façade has become an internal wall of the museum following the construction of the 1988 Wran Building. The upper section of the southern façade faces the Museum Level 1 courtyard located to the southeast of the building.

The Turbine Hall is notable for its sheer size, particularly its height and volume, which is an important architectural feature that reflects the size of machines the building was designed to house. While the Turbine Hall currently consists of three levels (constructed as part of the 1980s adaptive reuse of the site for the Powerhouse Museum), the overall volume and space of the building has mostly been retained and remains readable, particularly in the eastern side of the building (Figure 11.14). Some original wall tiles remain along the eastern interior wall. The pump of the Water Cooling System and Manifold is located in the basement of the Turbine Hall (this item is discussed in further detail in Part C: Section 16). At the time of site inspection in 2021, museum exhibitions and collections had been removed from the Turbine Hall, leaving the modern fit out works and extant structure only.

Figure 11.14 Interior of the Turbine Hall 2020 (Source: Powerhouse)

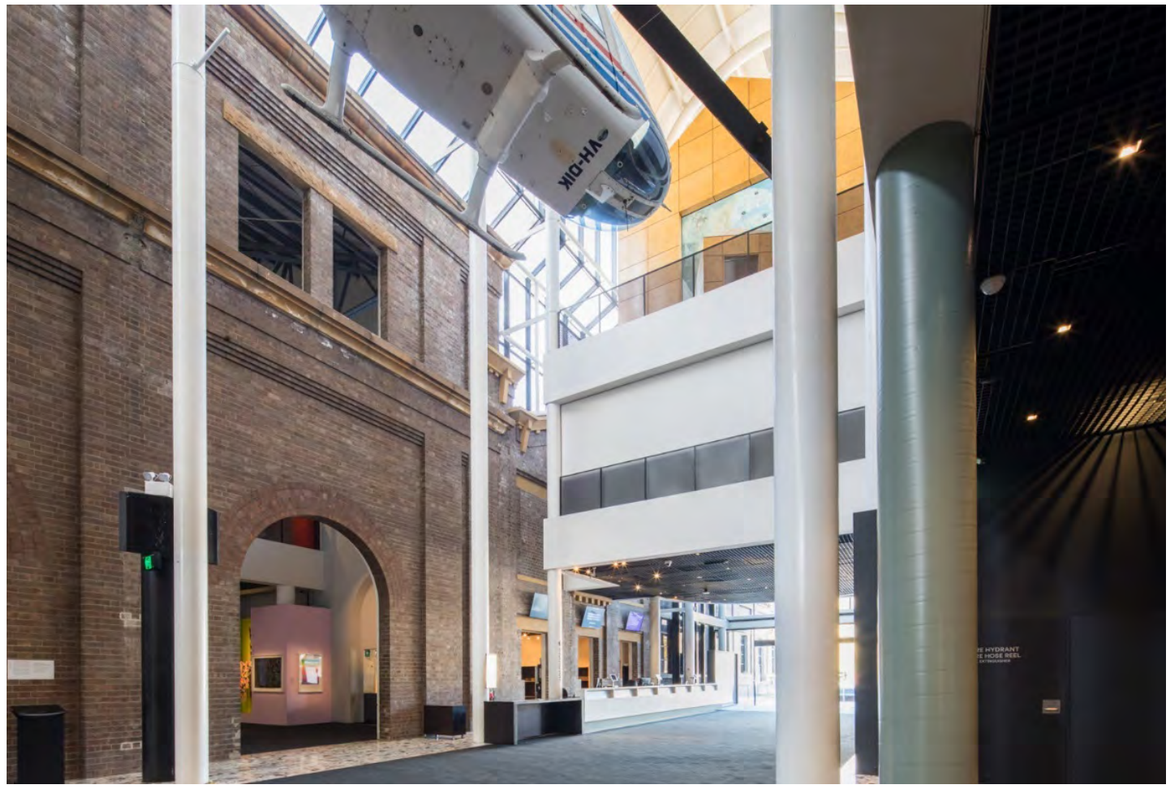


Figure 11.15 Turbine Hall western façade, now integrated as an internal wall within the Museum (Source: Powerhouse)

11.3 HERITAGE SIGNIFICANCE

The Turbine Hall, as part of the Ultimo Power House, is included within the following statutory heritage register listings:

- State Heritage Register (NSW), The Ultimo Powerhouse, SHR 02045, gazetted 04 Sep 2020.
- Sydney LEP 2012, The Powerhouse Museum Former Warehouse Buildings, including interiors, I2031.

The Turbine Hall is also included on two non-statutory registers; the Register of the National Estate Powerhouse Museum (Stage Two) (Listing 100690); and the National Trust (NSW) Register Powerhouse Museum (Stage Two) (S11648).

11.3.1 Summary of Significance—Turbine Hall

The former Ultimo Power House is historically significant as the first state-owned, large electricity generating station constructed in Sydney. Built in 1899, it was the first power station constructed to provide electricity for Sydney's "new" electric tram system. As one of the early Power House buildings the Turbine Hall is part of one of the most important and intact group of power station buildings in the State. The Turbine Hall has historical significance as one of Sydney's earliest buildings constructed with large unsupported spans, and the immense, internal volume of the Turbine Hall is aesthetically significant for its ability to convey the scale of the original Power House buildings. The exterior of the Turbine Hall is relatively intact whilst the majority of the interior was removed with the 1988 adaptive reuse of the building.

11.3.2 Views

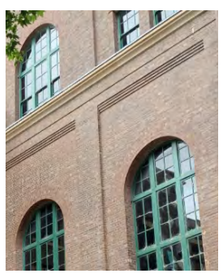
Similar to the Engine House, the Turbine Hall never had a street frontage, and was always located behind buildings on Harris Street. Construction of the Wran Building in the 1980s enclosed the Turbine Hall's western façade as an internal wall within the museum space. The eastern side of the southern wall of the Turbine Hall is open to the Level 1 courtyard, however is mostly concealed by the courtyard café and the modern covered walkway connecting the former Power House buildings to the Harwood Building in the south (Figure 11.16). Removal of these visually obstructive elements would improve views of the Turbine Hall from within the site, particularly from the Level 1 courtyard, and from the Macarthur Street/Goods Line entry to the Powerhouse Museum.

11.3.3 Grading of Significant Components

The key components and elements of the fabric and form of the Turbine Hall have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 11.1 and depicted in Figure 11.17 to Figure 11.22.

Figure 11.16 View north across the Powerhouse Ultimo Site. Turbine Hall in centre, concealed by the Switch House, and modern constructions (Level 1 courtyard café and covered walkway) (Source: Powerhouse)

Table 11.1 Grading of Significance for the Turbine Hall

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish		● HIGH	While modified and replaced during the 1980s museum adaptive reuse, the prominent roof monitor roof finish is consistent with and representative of the original design of the roof, and is of high significance.
Roof Structure		● EXCEPTIONAL	The roof structure is original and of exceptional significance.
External Façade and Walls (Original)		● EXCEPTIONAL	The original walls of the Turbine Hall are original fabric of the building, and highly intact with only minor modifications. While the original western external façade has been integrated into the 1988 adaptation for the Powerhouse Museum, including some modifications to existing windows and doorway arches to connect with the Wran Building, the façade remains predominantly intact and of exceptional significance.
Windows (Original)	 	● EXCEPTIONAL	The tall semi-circular headed windows with stone sills are one of the main original elements of the Turbine Hall and are of exceptional significance.
Windows (Later additions)		● MODERATE	Some of the windows along the southern facade were altered to allow the switch house to abut the building.

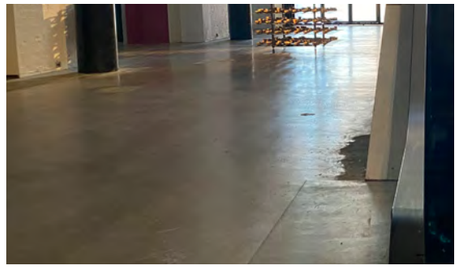
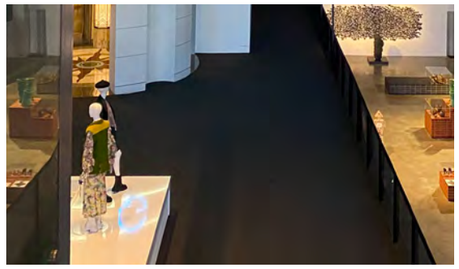
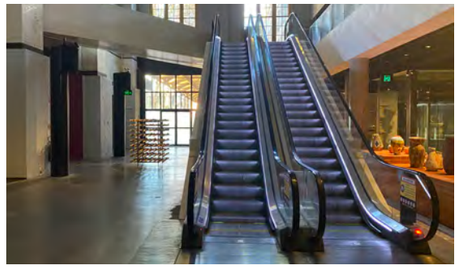
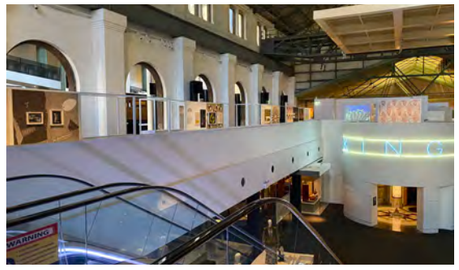
ELEMENT	IMAGE	GRADING	NOTES
Floor		● HIGH	Any remains of original flooring beneath existing floor structures and coverings would be of moderate to high significance dependent on extent, integrity and intactness. Godden et al refer to terracotta tiles in the Turbine Hall, yet mentions it was predominantly destroyed by the time of the 1980s works.[9]
Floor Coverings		● LITTLE	Modern floor coverings including carpet tiling etc date to the 1980s and are of little significance.
Escalator		● LITTLE	The escalator is modern and of little significance. IMAGE TO BE UPDATED
Mezzanine Levels		● LITTLE	The mezzanine levels are modern and of little significance. IMAGE TO BE UPDATED
Wall Tiles		● EXCEPTIONAL	The wall tiles in the Turbine Hall, particularly along the eastern interior wall, are part of the original fabric of the building (albeit repaired over time during the operation of the Power House) and are of exceptional significance.

Figure 11.17 Turbine Hall Grading of Significance (Basement) NB: Exceptional component shown in this figure is the Water Cooling System and Manifold pump, assessed separately in the relevant section below of Part C (Source: John Wardle Architects plan with Curio Projects overlay)

Figure 11.18 Turbine Hall Grading of Significance (Level 1) (Source: John Wardle Architects plan with Curio Projects overlay)

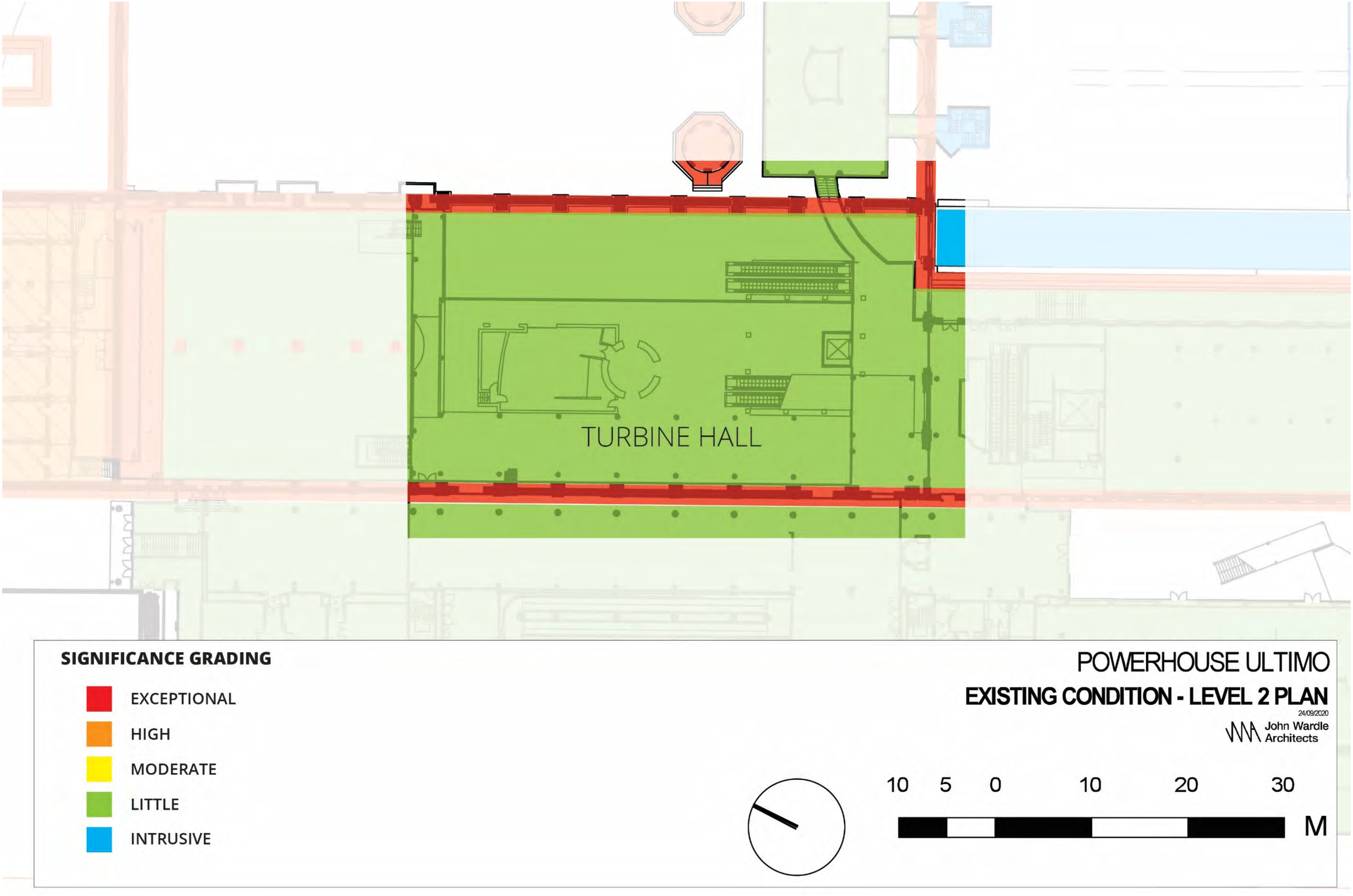


Figure 11.19 Turbine Hall Grading of Significance (Level 2) (Source: John Wardle Architects plan with Curio Projects overlay)

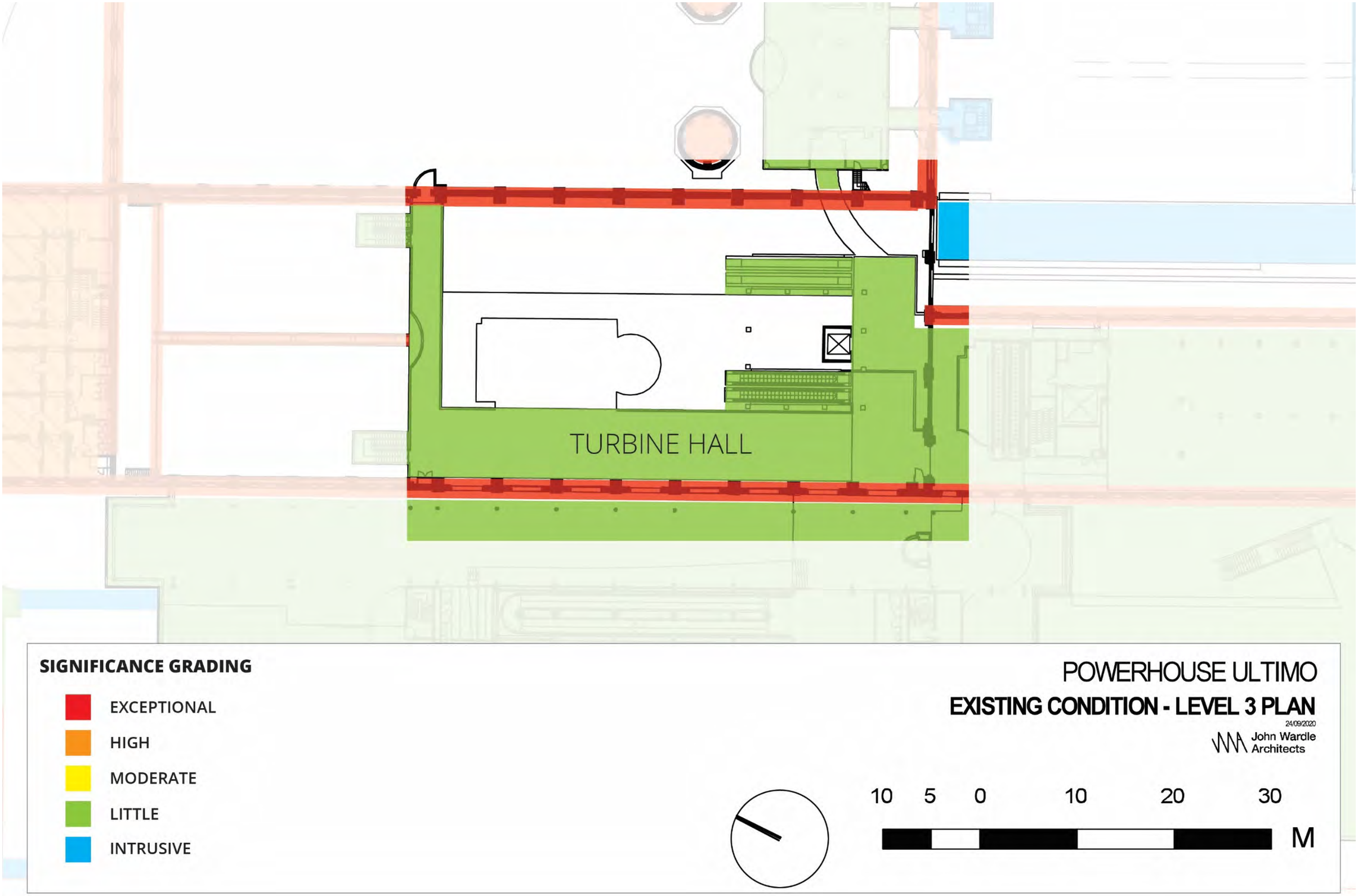


Figure 11.20 Turbine Hall Grading of Significance (Level 3) (Source: John Wardle Architects plan with Curio Projects overlay

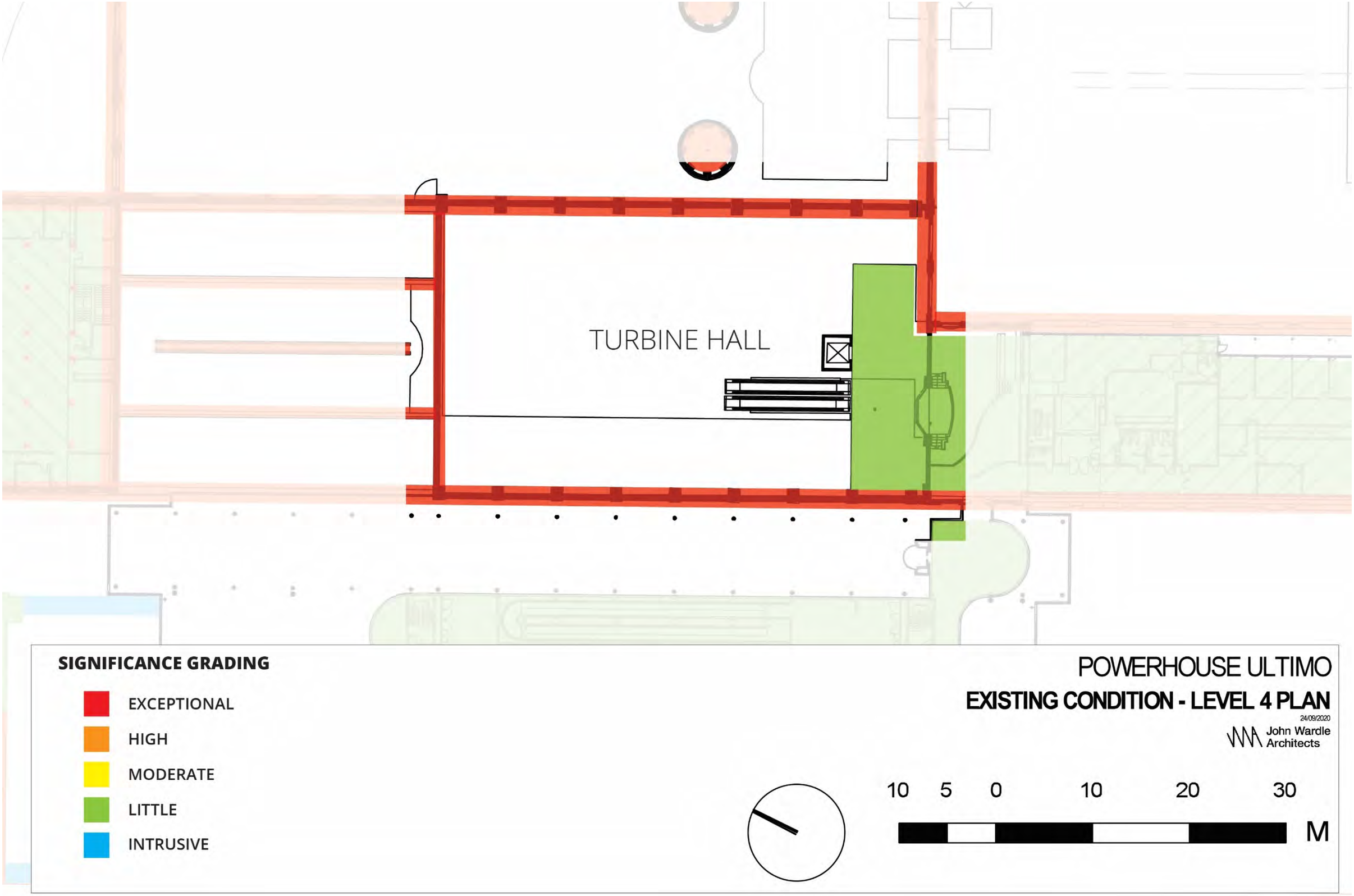


Figure 11.21 Turbine Hall Grading of Significance (Level 4) (Source: John Wardle Architects plan with Curio Projects overlay

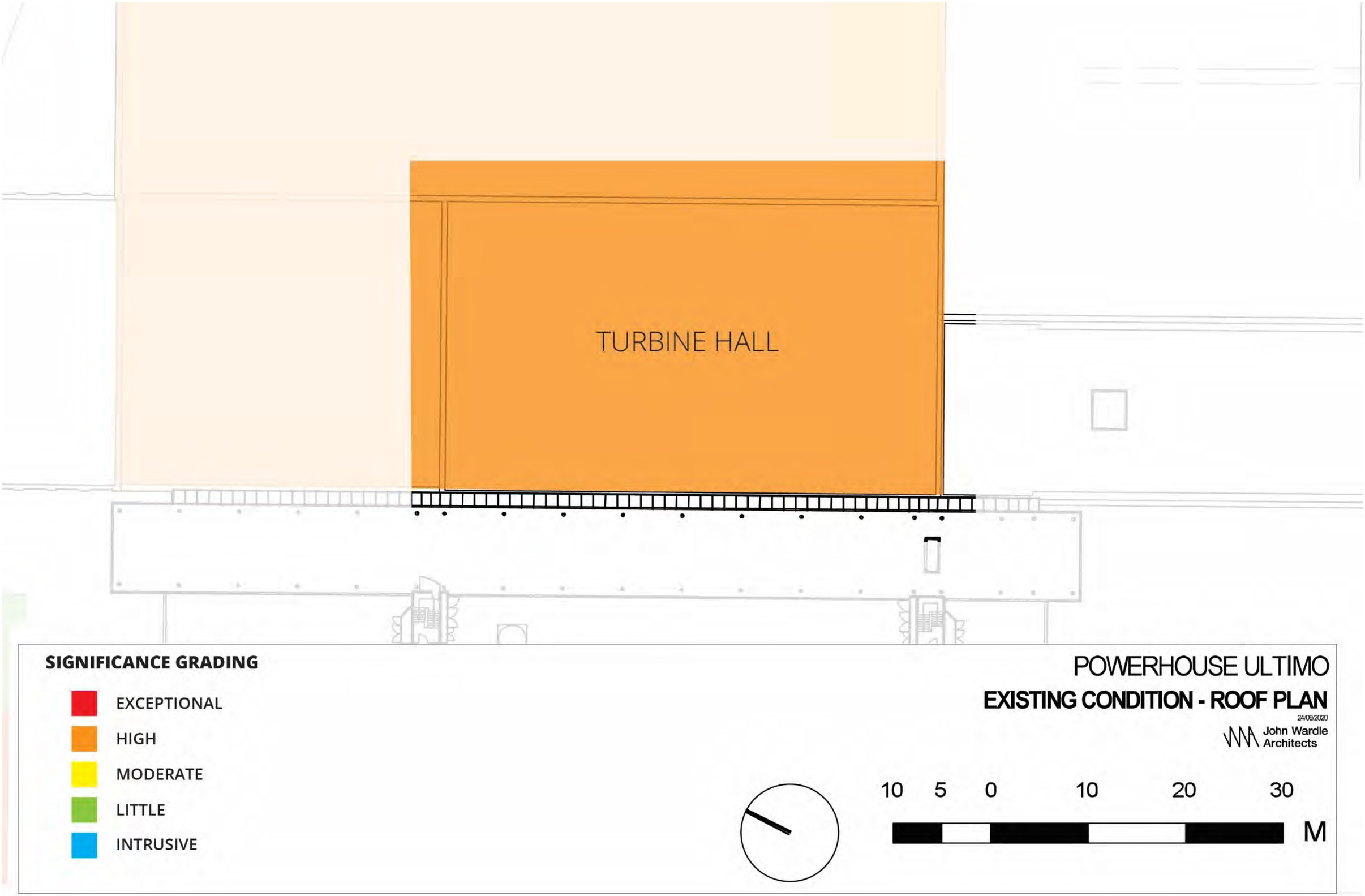


Figure 11.22 Turbine Hall Grading of Significance (Roof) (Source: John Wardle Architects plan with Curio Projects overlay

11.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Turbine Hall include:

Opportunities

- To improve the industrial legibility and scale of the space by removing mezzanine incursions.
- Interpretation of the history and former use of the Turbine Hall as part of the Ultimo Power House.
- The connectivity between the Wran Building to the west, and the Boiler House in the right, via the Turbine Hall, has contributed to the exhibition parts of the Turbine Hall having a feel of a slightly transient space/a passageway to other parts of the museum. There is the opportunity to enhance and make more legible the individual space of the Turbine Hall by exploring options for future use of the Hall that make the space dominant in its own right (e.g. as has been done for the Tate Modern Turbine Hall, Casula Powerhouse, see Figure 11.23 to Figure 11.25), and supporting use for large scale exhibitions.

Constraints

- It is important to retain the feeling of space and readability of the open architectural volume of the Turbine Hall. Any activity that would require closing in the open roof plan (i.e. such as a false ceiling) would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space
- Additional penetrations between the Turbine Hall and the Boiler House should be avoided, traditional access routes should be retained and used.

11.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 5—Buildings and Structures: The readability and presentation of the interior open space of the Engine House, Turbine Hall, and Boiler House is a significant feature of these former Power House buildings, and should be retained.

Policy 15—Compatible Use: Any activity in the open spaces of the Turbine Hall that would require closing in the open roof plan (i.e. such as a false ceiling), would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space unless for a temporary exhibition, installation or event.

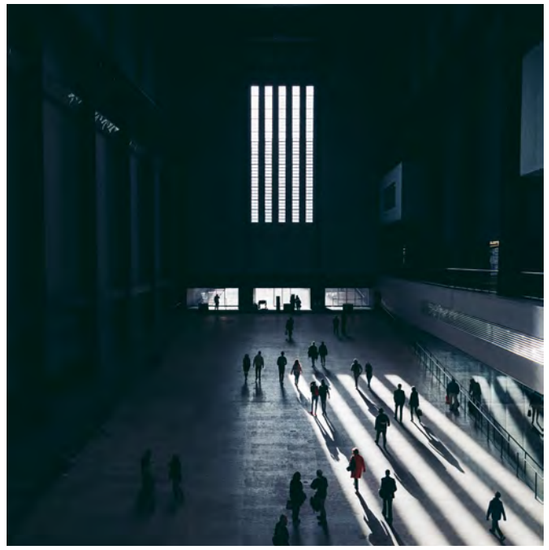


Figure 11.23 Tate Modern Turbine Hall (Source: Tom Eversley - stock.adobe.com)

Figure 11.24 Casula Powerhouse Turbine Hall (Source: Chantal Bann)

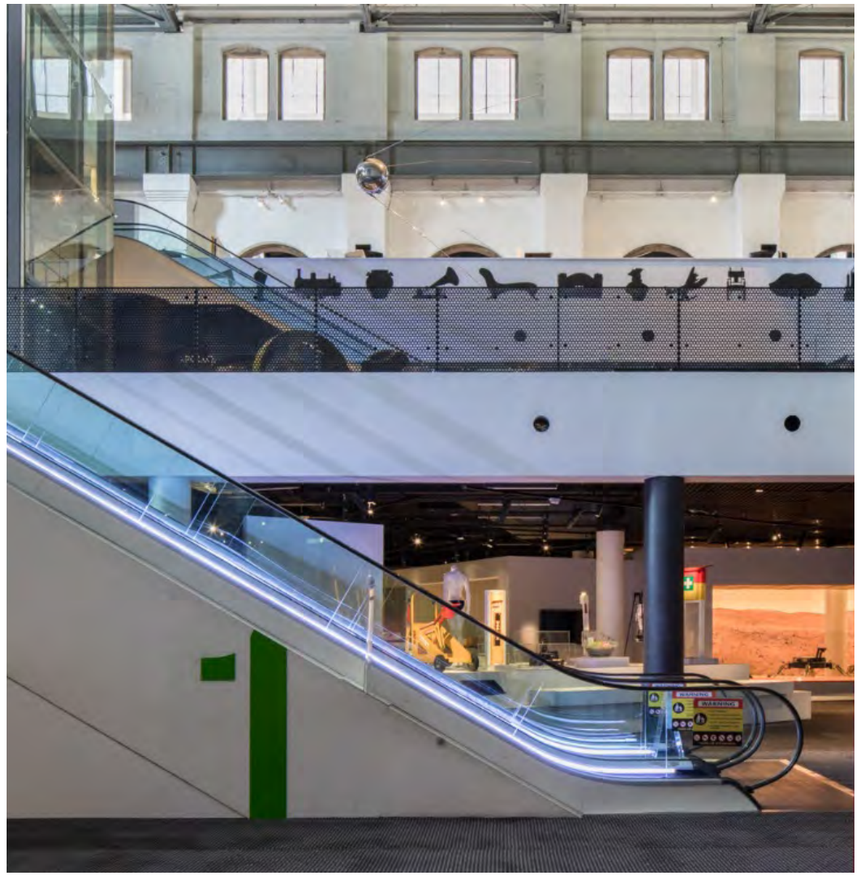


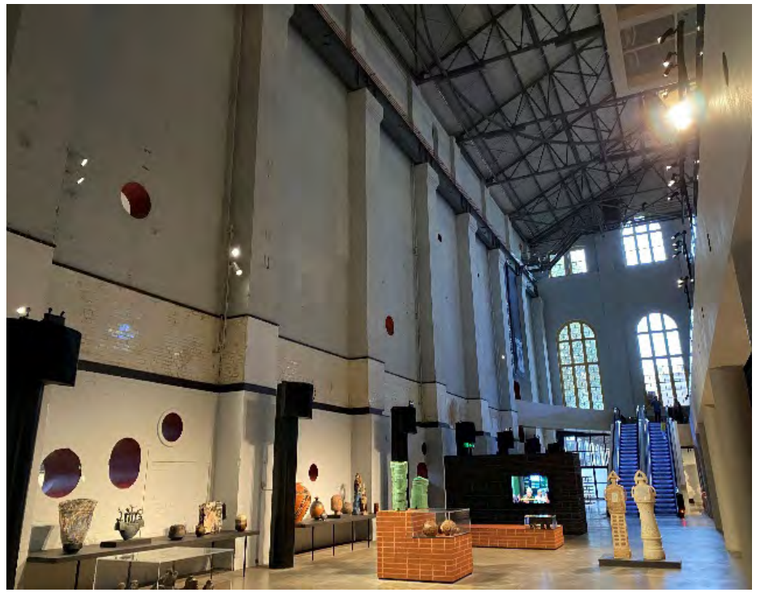
Figure 11.25 View from the Wran Building through the Turbine Hall to the Boiler House, with a feel of a more transitory space that detracts from the ability of visitors to appreciate the Turbine Hall as a significant space in its own right (Source: Powerhouse)

11.6 PHOTO REGISTER FOR THE TURBINE HALL

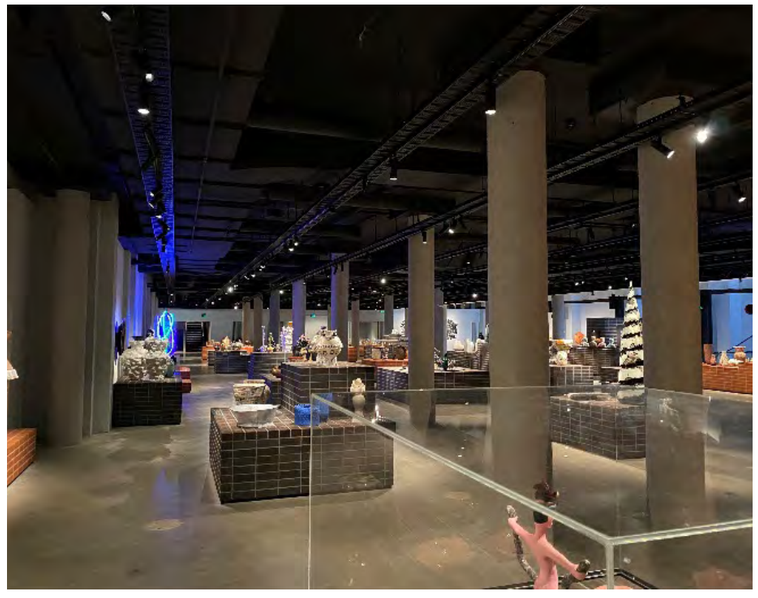
Figure 11.26 Turbine Hall Photo Register (Level 1)

Turbine Hall Viewpoint 1: Level 1

Turbine Hall Viewpoint 2: Level 1



Turbine Hall Viewpoint 3: Level 1

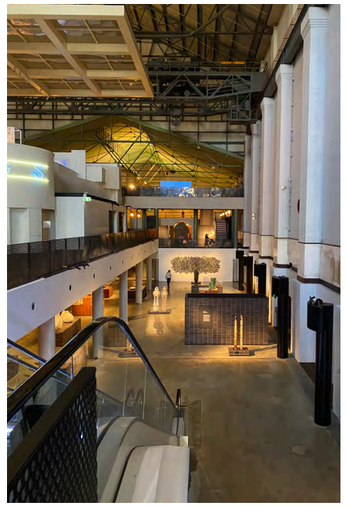


Turbine Hall Viewpoint 4: Level 1

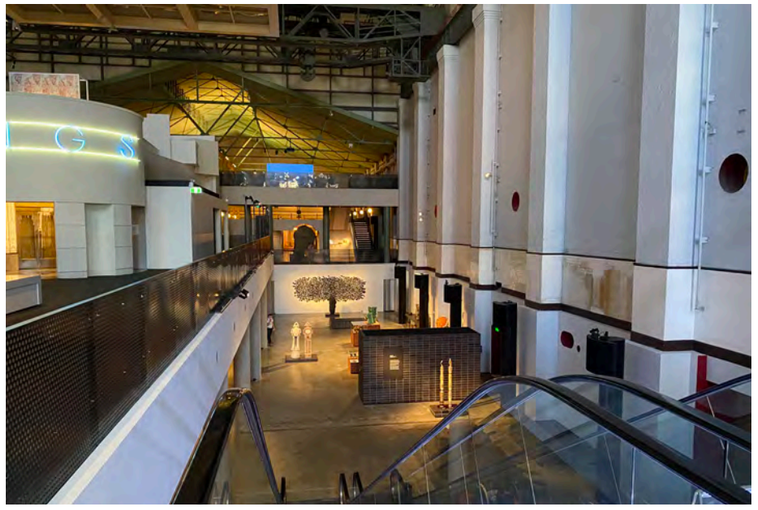
Turbine Hall Viewpoint 5: Level 1

Turbine Hall Viewpoint 6: Level 1

Figure 11.27 Turbine Hall Photo Register (Level 2)



Turbine Hall Viewpoint 7: Level 2



Turbine Hall Viewpoint 8: Level 2

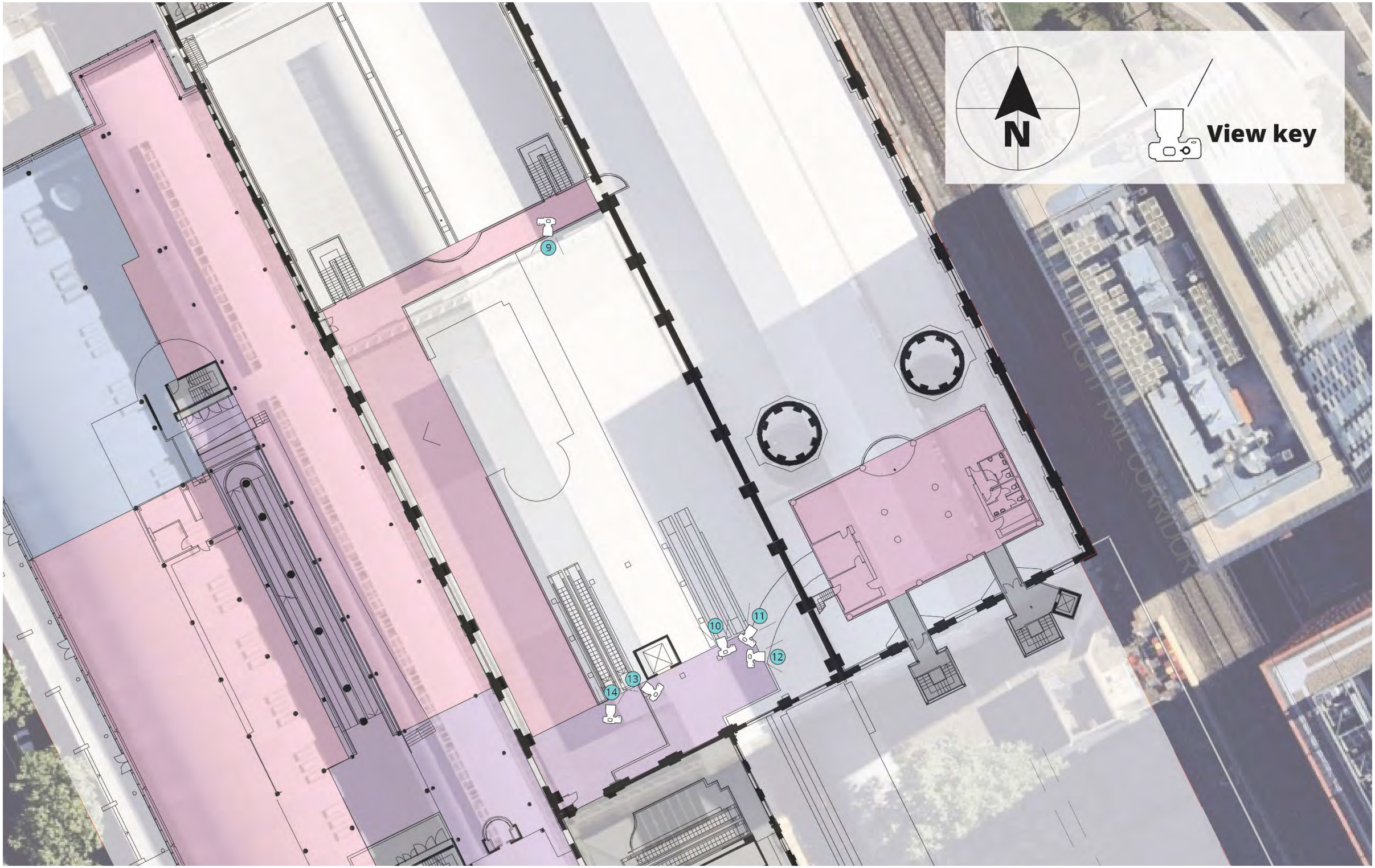
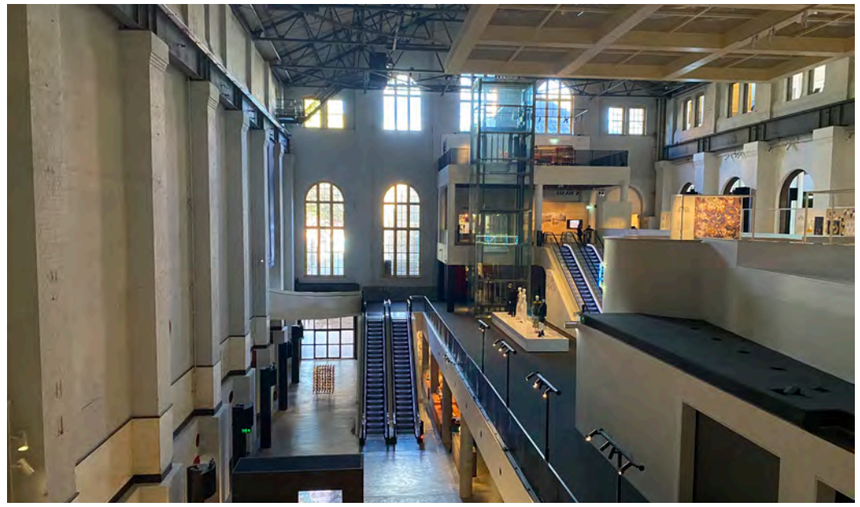
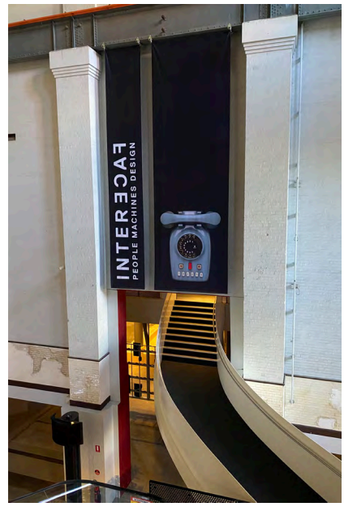


Figure 11.28 Turbine Hall Photo Register (Level 3)



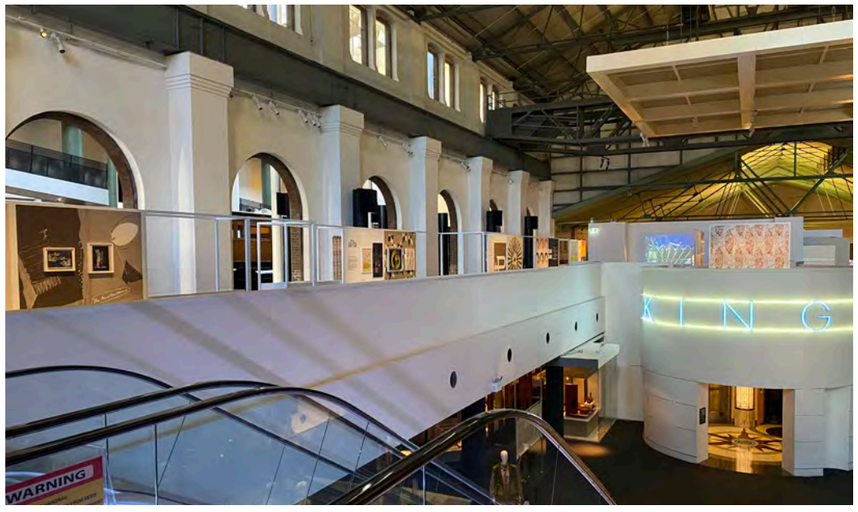
Turbine Hall Viewpoint 9: View from level 3

Turbine Hall Viewpoint 10: View from level 3

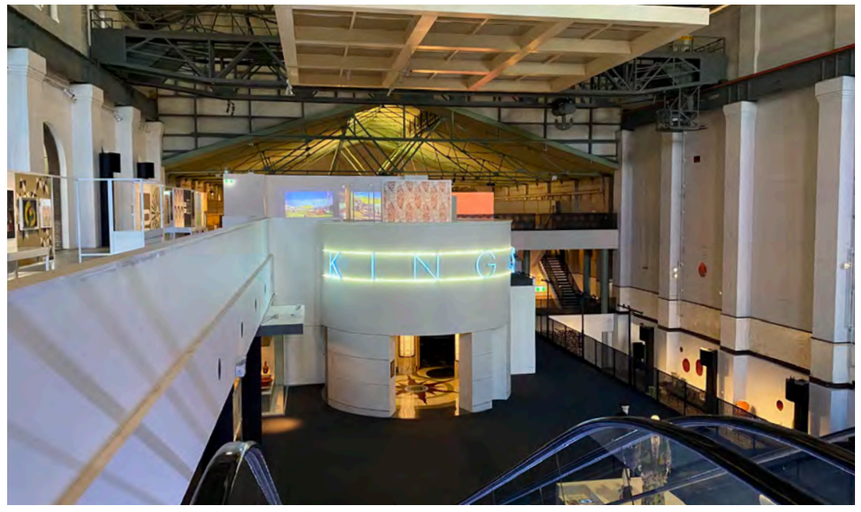


Turbine Hall Viewpoint 11: View from level 3

Turbine Hall Viewpoint 12: View from level 3



Turbine Hall Viewpoint 13: View from level 3



Turbine Hall Viewpoint 14: View from level 3

11.7 ENDNOTES

1 Godden et al, 1984, pp. 108-109.
2 ibid, p. 36.
3 ibid, p. XX.
4 ibid, p. 18.
5 Architectural Projects, 2003, p. 59.
6 Museum of Applied Arts and Sciences, Annual Report 2011–2012, pp. 8-9; see also Development Application D/2011/242
7 Museum of Applied Arts and Sciences, Annual Report 2012–2013, p. 16.
8 State Heritage Inventory, NSW Office of Environment & Heritage, *Ultimo Power House* (State),
9 Godden et al, 1984, p. 18.

12 BOILER HOUSE

12.1 HISTORY OF THE BOILER HOUSE

Previous Names	New Boiler House / Second Boiler House
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP631345
Built	1902–1905
Heritage Listings	SHR 02045 “Ultimo Power House”
	LEP I2031, “Powerhouse Museum Former Warehouse Buildings, including interiors”
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage Two), Place ID 100690
	National Trust of Australia (NSW) Register (S11648, 24/10/2015)

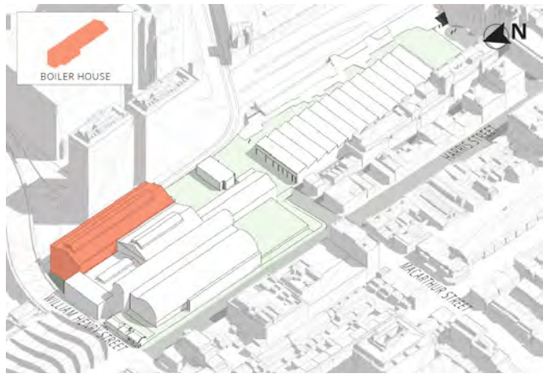


Figure 12.1 Location of the Boiler House (Source: John Wardle Architects with Curio Projects overlay)

The Boiler House was one of the original buildings constructed as part of the Ultimo Power House in 1899 (Figure 12.3). Originally measuring 105 feet x 86 feet (c. 32m x 26m), the first Boiler House was constructed as a utilitarian style brick building, adjoining the eastern side of the Engine House, and was purposefully designed to allow for future extension. At the commencement of operation of the Ultimo Power House in 1899, the Boiler House housed fourteen Babcock and Wilcox boilers, twelve of which were fed by hand from hoppers of coal delivered to the boiler fronts on rails, whilst two were mechanically fired. The main flues of each of the boilers extended along either side of the Boiler House, converging in the chimney located in the Pump House building that adjoined the Boiler House to the north.

Almost immediately following its completion in 1899, it became apparent that the Ultimo Power House required expansion to increase its output capacity, and thus a substantial southern extension of the Boiler House was constructed between 1902-1905 (an extension of 54m from the original length of the building), with the new volume of the ‘second’ Boiler House at the site encompassing and incorporating the structure and form of the original 1899 Boiler House (Figure 12.3). The installation of the Parson’s Steam Turbo Alternator in the Turbine Hall at this time required additional boilers, necessitating construction of a second floor to the Boiler House to accommodate a further twenty-four Babcock and Wilcox boilers, requiring a corresponding height increase to the Boiler House building, to a new height of 23.5m (Figure 12.3). The new and extended Boiler House included a new pump room integrated into the main building itself (unlike the earlier northern Pump House treated as a separate entity to the Boiler House – see Part C: Section 9), along with construction of two new, 65m tall chimney stacks, each capped with a cast iron crown, at the southern end of the extended Boiler House (Figure 12.5 and Figure 12.6).

The 1902–1905 expansion of the Power House generation capacity and increased number of boilers obviously created a corresponding increase in demand for coal to fuel the boilers, as well as an improved method to manage, store, and use this coal. Thus, an upgrade of the Power House’s coal handling plant (coal was originally stored at the southern end of the boiler house) was undertaken around this time, whereby railway trucks would dump coal directly into a crusher, crushed coal was fed to a chain bucket elevator, which delivered the coal into two steel bunkers (with a total storage capacity of 2,500 tonnes/two weeks of coal consumption) located above the upper boiler room (Figure 12.8). Coal was then supplied direct to the boilers for firing via chutes from overhead coal bunkers.[1] In 1912, a new pneumatic ash handling system was constructed at the southern end of the Boiler House, serving to reduce the number of staff involvement required in the removal of ashes.

Modernisation and upgrade works to the Power House undertaken between 1927-1932, included installation of additional and replacement of boilers, supported by installation of a new pneumatic coal handling plant, and a new concrete coal store with a storage capacity of 10,000 tonnes to the south of the Boiler House.[2] (Figure 12.9). After the modernisation works of the early 1930s, the Boiler House remains relatively consistent in form, with revisions mostly including replacement and addition of boilers over time. A severe impact to NSW coal supply in the 1940s as a result of industrial action at the coalfields, resulted in conversion of the boilers to operate on fuel oil in 1947.[3]

Figure 12.2 North-eastern exterior elevation of the Boiler House (Source: Curio Projects)

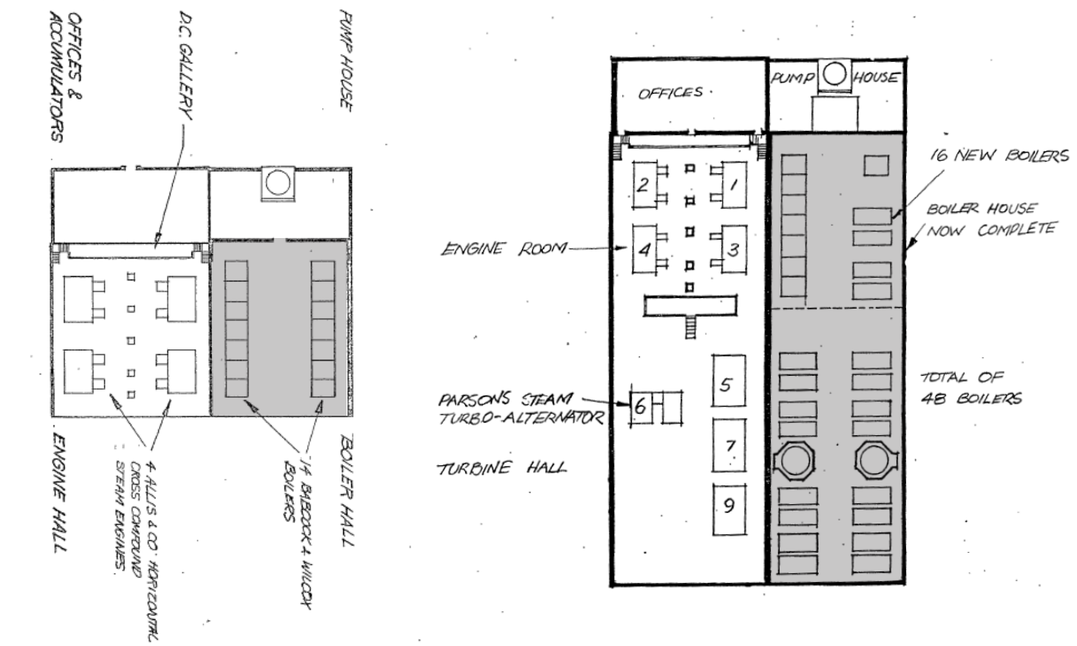


Figure 12.3 1899 Layout of the Power House layout (left) and 1902 (right). Boiler House in grey (Source: Godden et al. 1984 p. 98 & 104)

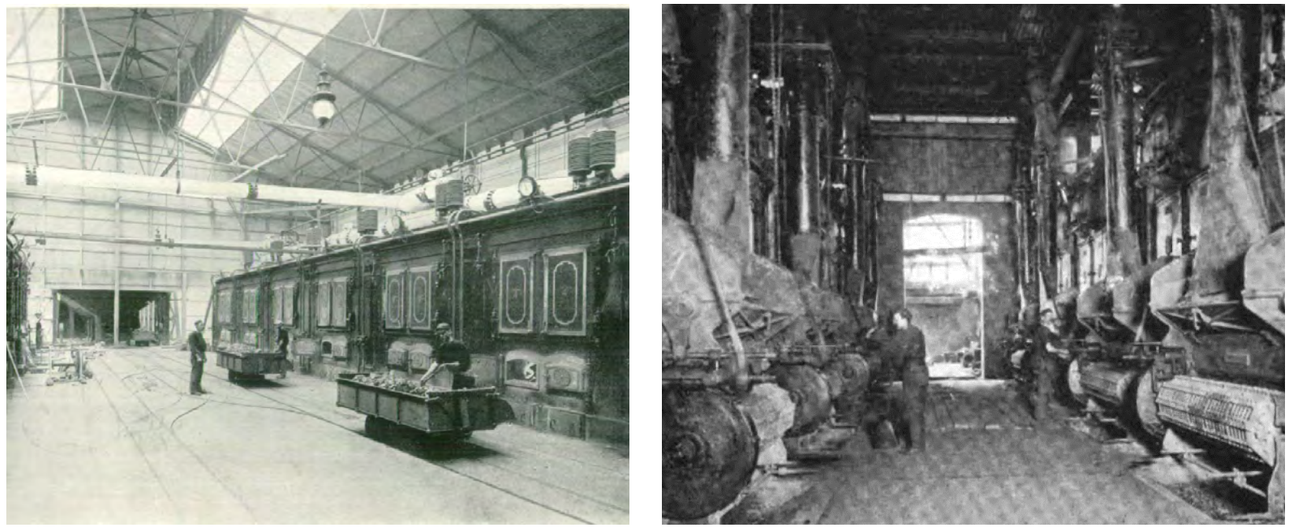


Figure 12.4 Left: Interior of the original Boiler House in 1900, prior to the extension (Source: NSW Public Works Department 1900)
Right: Interior of the "New" Boiler House 1902 (Source: Electrical World and Engineer 1902 p. 890)

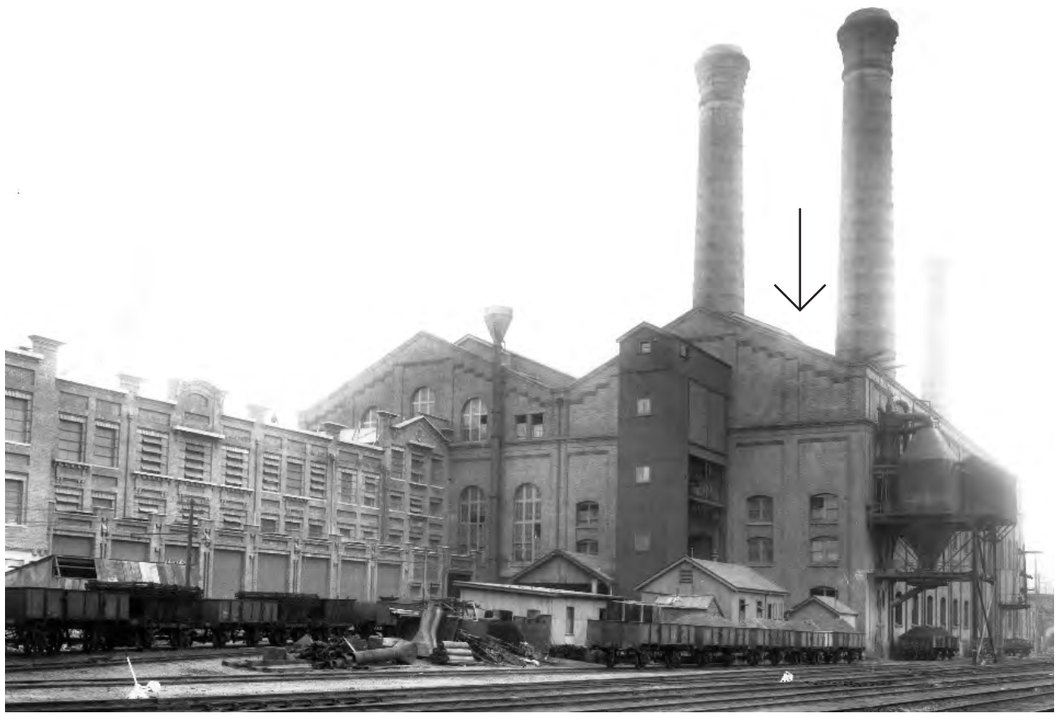


Figure 12.5 Location of the former Boiler House marked by arrow (Source: City of Sydney Archives)

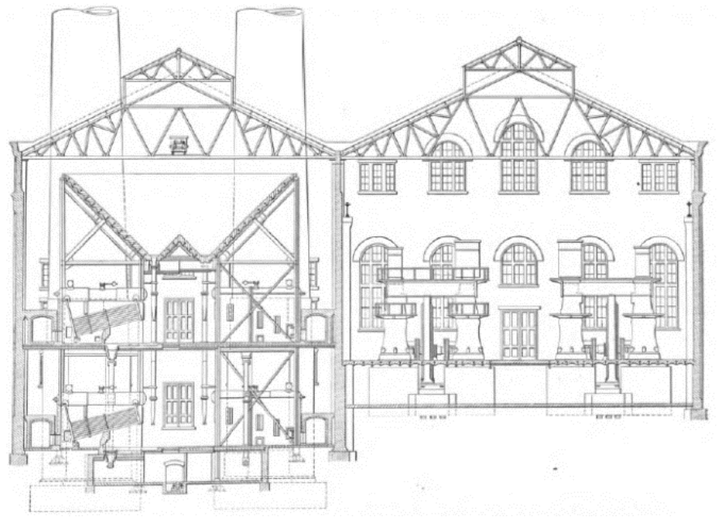


Figure 12.6 Sectional View of Boiler (L) and Engine (R) Rooms c.1902 (Source: Electrical World and Engineer 1902 p. 889)

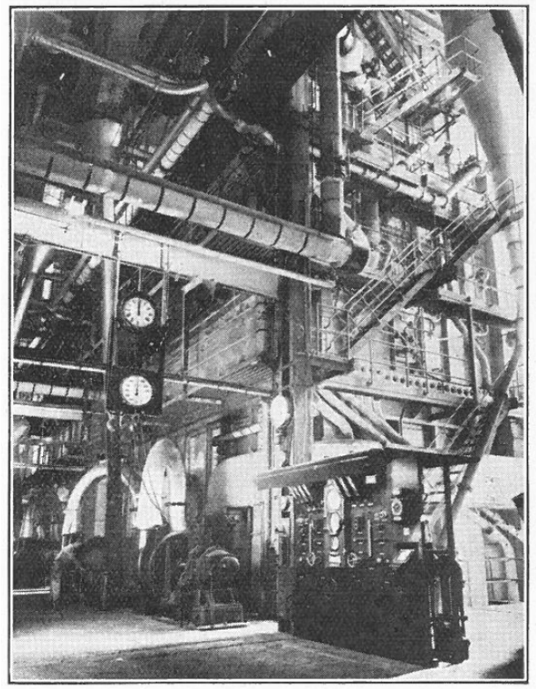


Figure 12.7 Interior of the Boiler House c. 1932 (Source: Myers, 1933, p. 265)

When the Ultimo Power House closed on 11 October 1963, the Boiler House, along with the other Power House buildings, fell into disrepair and was subsequently damaged by decay, squatters, and vandals. In 1976-77, the two brick chimneys were demolished to above the roof line, causing severe damage to the Boiler House roof and resulting in the loss of an important built element that identified the Ultimo Power House from significant distances.[4] The 1930s concrete coal store remained in its location south of the Boiler House until 1984, at which time it was demolished as part of the conversion of the site for the Powerhouse Museum.[5]

The Godden et al (1984) heritage study of the former Power House site undertaken in preparation for the redevelopment of the site as the Powerhouse Museum, made a number of recommendations for retention of the industrial equipment and machinery of the Boiler House in its adaptive re-use:

> It is essential that the hoppers, fan floors, chimney, six columns, the small dry coal hopper and the personnel elevator be conserved. These are the only remaining artifacts in the boiler house and form a substantial part of the total surviving from the electricity generating period.[6]

However, these recommendations eventually came to be predominantly overridden in the design process, and the internal features of the Boiler House were removed to create the Boiler House as a large open space capable of housing large-scale exhibitions.

> The hoppers in the Boiler House originally envisaged by Lionel Glendenning to remain were removed because the opportunities to utilise the soaring space to house the exhibits took precedence over the interpretation of the remaining structures. This decision was the result of extensive debates. The mezzanine spaces, the external lift and stairs and the interpretative graphics on the east elevation were designed to refer to the scale of the hoppers that were removed.[7]

The adaptive reuse of the Boiler House as part of the Powerhouse Museum in the 1980s included conversion works to create three levels across the space, including a large exhibition space and a new mezzanine at the southern end of the building. The 1980s design for the adaptive reuse of the Boiler House was divided between several designers, including Desmond Freeman Associates ('Transport' section) and Iain Halliday of Neil Burley Designs – responsible for the 'Space' exhibition.[8] Other 1980s works within the Boiler House included construction of modern mezzanine spaces and inserts, and construction of external lift and stairs along the building's southern façade. In 2020 the Boiler House continues to be used as an exhibition space for the Powerhouse Museum.

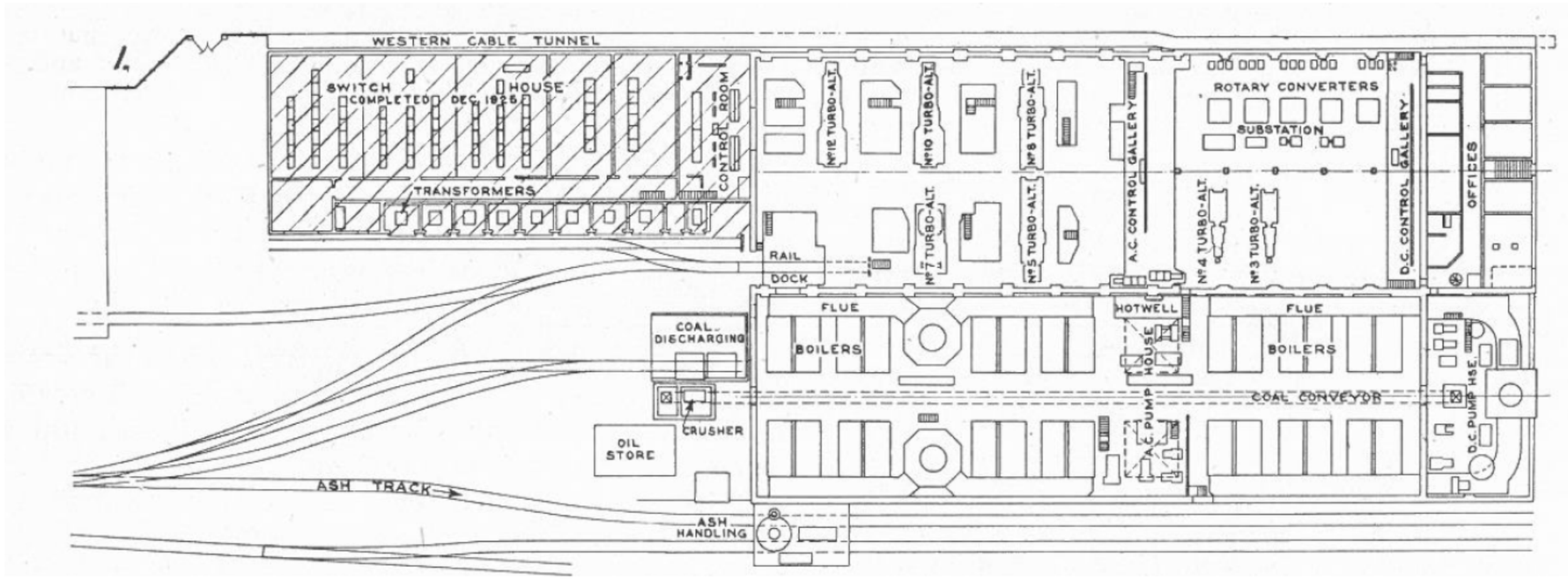


Figure 12.8 Pre 1933 Configuration of the Boiler House (Source: Myers, 1933 p.254)

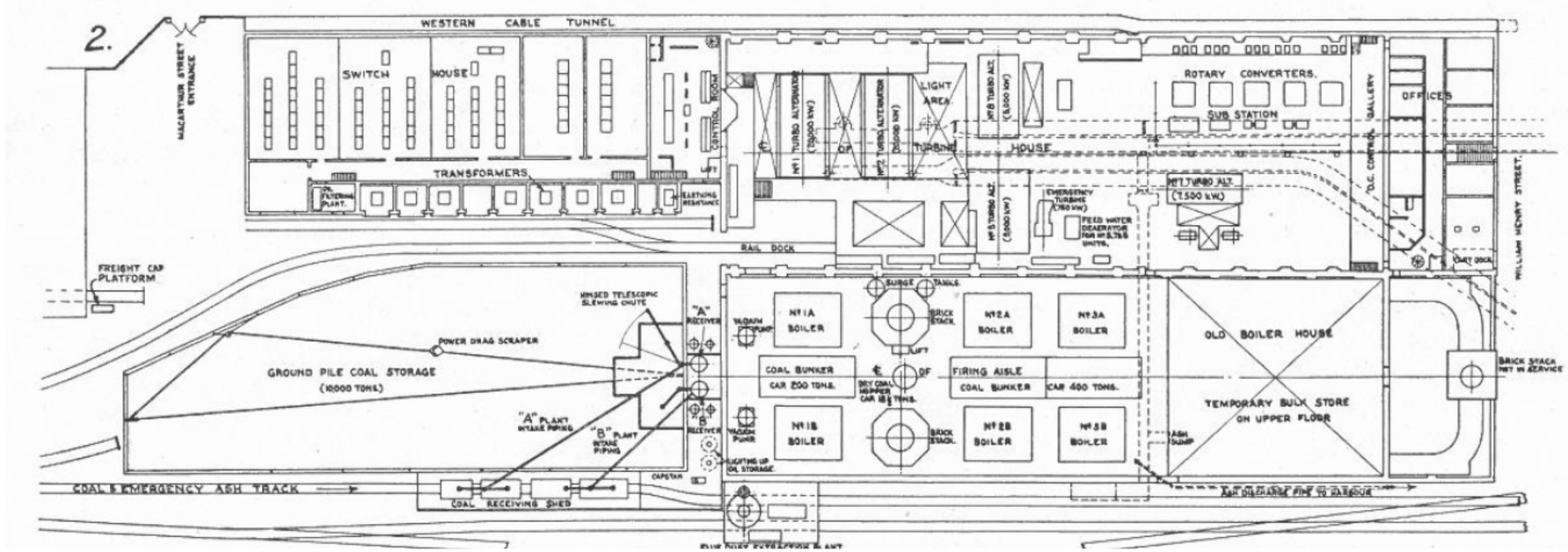


Figure 12.9 1933 Reconstruction of the Boiler House, including new concrete coal store (Source: Myers 1933, p. 254)

12.2 PHYSICAL ANALYSIS OF THE BOILER HOUSE

An overall photo register and images of the Boiler House as of 2020 is presented in Section 12.6.

12.2.1 Site and Setting

The Boiler House forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo. Within the Powerhouse Ultimo site, the Boiler House northern facade faces the William Henry Street bridge, bounded to the north by the remains of the former Pump House, to the east by the Light Rail line, in the south by the 'Level 1' courtyard, and by the Engine House and Turbine Hall to the west.

12.2.2 Built Elements

With its large continuous eastern façade divided into thirteen bays, and measuring 83m x 23m, the Boiler House is the largest of the former Ultimo Power House buildings. The building is largely utilitarian in style, with the overall design reflective of the original two-tiered boiler arrangement for the old boiler house (Pump House). The SHR listing describes the Boiler House as:

> The Second Boiler House is the largest building in the complex, 83m long and 23m wide, and has the largest continuous facade to the east. The three tiers of windows, arranged in thirteen bays, are a vigorous architectural solution to the problem of dealing with a very tall facade. The height from string course to plinth is much greater than on the west facade of the Turbine Hall, which it complements. The thirteen bays are evident on the top tier of the building, above the string course. Below that, the fourth and fifth bays from the north end were combined to form a tripartite entrance bay, which allowed access to rail trucks on the east siding. The south facade of the Boiler House, although abutting the Turbine Hall and matching it in size, was treated somewhat differently, preserving the individuality of the building. The pilasters, their terminations in stepped corbels and the gable cornices are the same but the windows are smaller, arranged in two tiers and segmental-headed, as on the east facade.
>
> The tall, roof-high stumps of two of the three brick chimneys are still in place (the upper parts having been demolished before the museum project was proposed) and in excellent condition, towering over the Boiler House. One is used as part of the museum's air-conditioning system, and the other houses stairs that allow access to the roof.[9]

Externally, the Boiler House is highly intact, with the exception of the external sections of the original chimneys stacks that were demolished to the roof line in the mid 1970's. New roller doors have been installed along the southern façade to the Level 1 courtyard, and the northern windows facing the William Henry Street bridge have been covered. Plaques from the Institute of Engineers and the Royal Australian Historical Society have been installed on the southern external façade, and a new round window has been installed in the former pipe opening.

Internally, the original structure of the roof trusses of the Boiler House remains visible across the open exhibition space (designed to house the Transport Gallery of the Powerhouse Museum), and the bases of the two brick chimneys in the south of the building remain – although the chimney bases have been partially concealed by museum exhibits and displays at floor level, with the bases painted white to match the modern inserts. An infill structure/southern mezzanine have been constructed behind the chimney bases. The basement is used for storage and services, with many modern services installed throughout the level. The top level of the southern mezzanine (Level 4) overlooks the open space of the Boiler House exhibition hall, and houses meeting space.

12.3 HERITAGE SIGNIFICANCE

The Boiler House, as part of the Ultimo Power House, is included within the following statutory heritage register listings:

- State Heritage Register (NSW), The Ultimo Powerhouse, SHR 02045, gazetted 04 Sep 2020.
- Sydney LEP 2012, The Powerhouse Museum Former Warehouse Buildings, including interiors, I2031.

The Boiler House is also included on two non-statutory registers; the Register of the National Estate Powerhouse Museum (Stage Two) (Listing 100690); and the National Trust (NSW) Register Powerhouse Museum (Stage Two) (S11648).

12.3.1 Summary of Significance—Boiler House

As one of the early Ultimo Power House Buildings, the Boiler House, constructed initially in 1899 with major extensions and renovations in 1902, is historically significant as part of the original electricity generating station for the Sydney tramway network. The Boiler House has historical significance as one of Sydney's earliest buildings constructed with large unsupported spans. As the largest of the former Power House buildings, with extant remains of the two large chimneys and immense internal volume, the Boiler House is aesthetically significant for its ability to convey the industrial nature of the site and the scale of the original Power House buildings. While the Boiler House was stripped of its industrial equipment and machinery as part of the 1980s adaptive reuse for the Powerhouse Museum, the external structure of the Boiler House remains mostly intact, along with the original southern chimneys to the roof line.

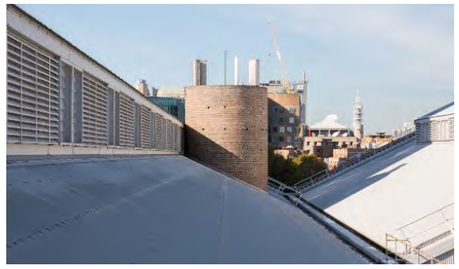
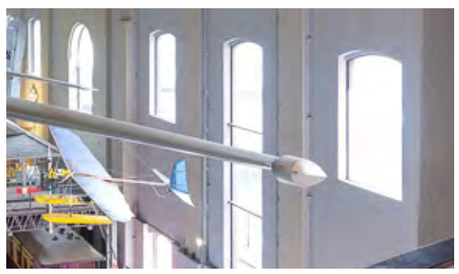
12.3.2 Views

The Boiler House is the most visible of the former Power House buildings remaining at the site, with primary elevations visible in the north from the William Henry Street bridge, and east and south east from Darling Drive and the Goods Line. Views to the southern facade of the Boiler House has been partially concealed and obstructed by a number of modern elements including the coloured covers over the modern lift and stairs, the structure of the café in the level 1 courtyard, and the covered walkway from the Harwood Building. It would be preferable to remove these obtrusive elements to establish a strong visual connection to Boiler House from the Level 1 courtyard and the Macarthur Street / Goods Line entry to the Powerhouse Museum.

12.3.3 Grading of Significant Components

The key components and elements of the fabric and form of the Boiler House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 12.1 and depicted in Figure 12.10 to Figure 12.14.

Table 12.1 Grading of Significant Components for the Boiler House

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish		● HIGH	While modified and replaced during the 1980s museum adaptive reuse, the prominent roof monitor roof finish is consistent with and representative of the original design of the roof, and is of high significance. The remnant fabric of the brick chimneys is of exceptional significance.
Roof Structure		● HIGH	The roof structure is original and is of high significance.
External Façade and Walls (Original)		● EXCEPTIONAL	The main walls and external facades of the Boiler House are original fabric from the 1899 construction and 1902 extension.
Windows (Original)		● EXCEPTIONAL	The brick archways of the windows are original features of the Boiler House (1899–1902).

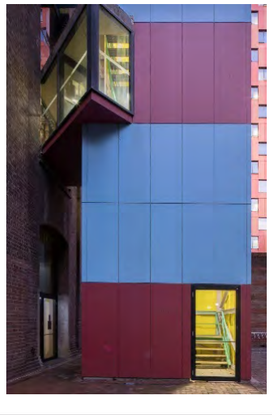
ELEMENT	IMAGE	GRADING	NOTES
Mezzanine		● LITTLE	The existing infill mezzanine structure at the southern end of the building and infill near the chimneys is modern fabric installed as part of the 1980s adaptive reuse of the site for the Powerhouse Museum. The mezzanine itself presents an overall neutral visual impact in the context of the Boiler House interiors.
Floor (Modern)		● LITTLE	All floor coverings observed during the 2020 site visit in the preparation of this CMP were of modern fabric including tile, wood. and carpet, installed since the 1980s as part of the museum use, and are of little significance. No remnants of the original floor were observed during site visits. However, should any remains of the original Boiler House floor remain within the building, beneath modern floorings, these floor finishes would likely be of moderate or high significance.
Chimneys		● EXCEPTIONAL	The chimneys are original (1902) and of exceptional significance.
Vertical Stair/Lift covers		● INTRUSIVE	The original design intent of the vertical lift and stair covers along the southern façade of the Boiler House was as a modern response/interpretation of the original coal chute located in a similar location on the Boiler House wall. The bright colouring applied to these structures are a reflection of the playful use of colours in the original design intent of the 1988 development of the Powerhouse Museum, reminiscent of the Post-Modernist architectural style. The bright colours applied to these structures have resulted in this element being visually intrusive and impactful to the Boiler House, detracting from the appreciation and visibility of the original brick fabric and form of the Boiler House from the south. This is particularly the case in 2020, when many of the brighter more colourful aspects of the original 1988 museum design have since been overhauled and removed from the site, most notably during the 2011-2012 revitalisation works.

Figure 12.10 Boiler House Grading of Significance (Basement) (Source: John Wardle Architects plan with Curio Projects overlay)

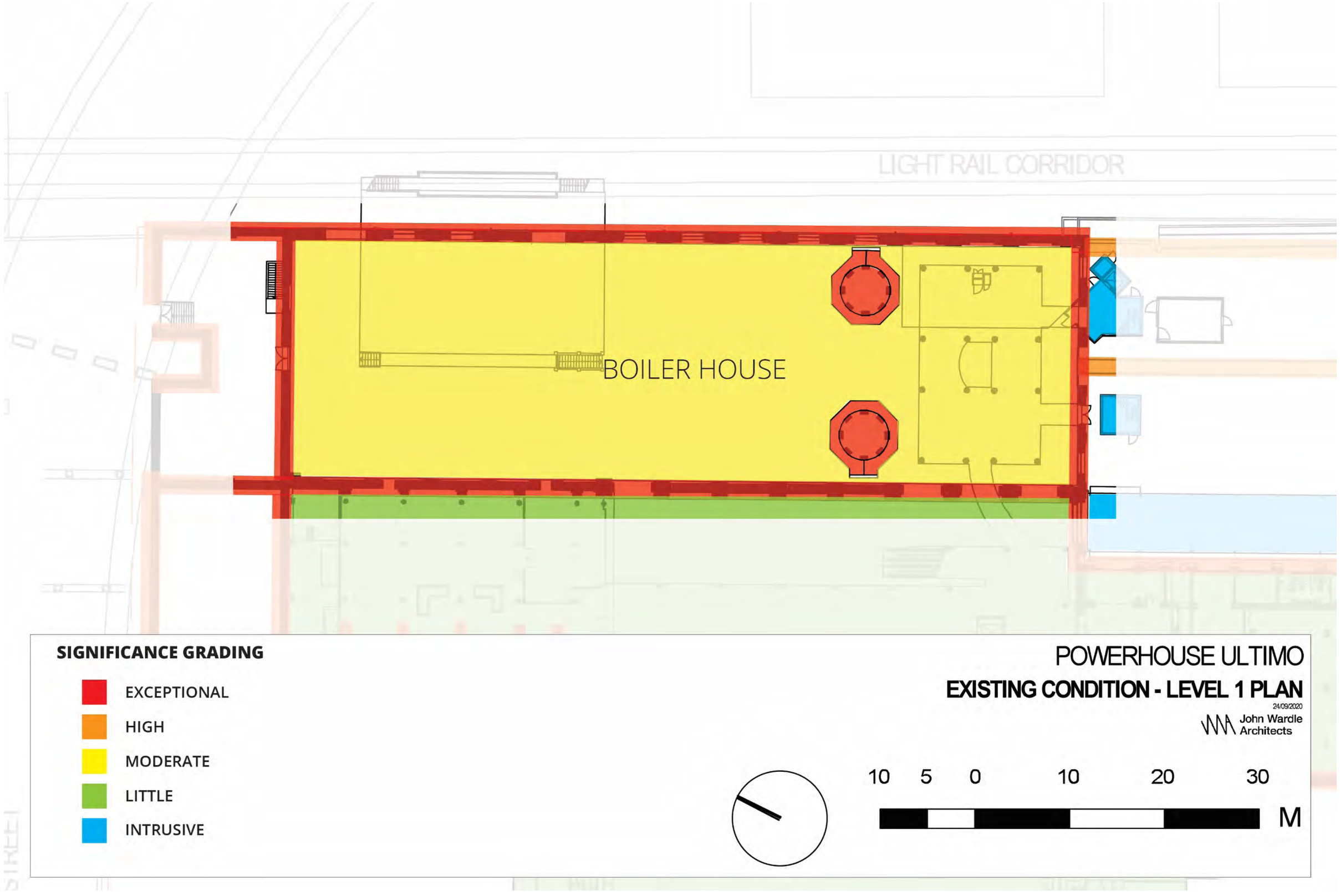


Figure 12.11 Boiler House Grading of Significance (Level 1) (Source: John Wardle Architects plan with Curio Projects overlay)

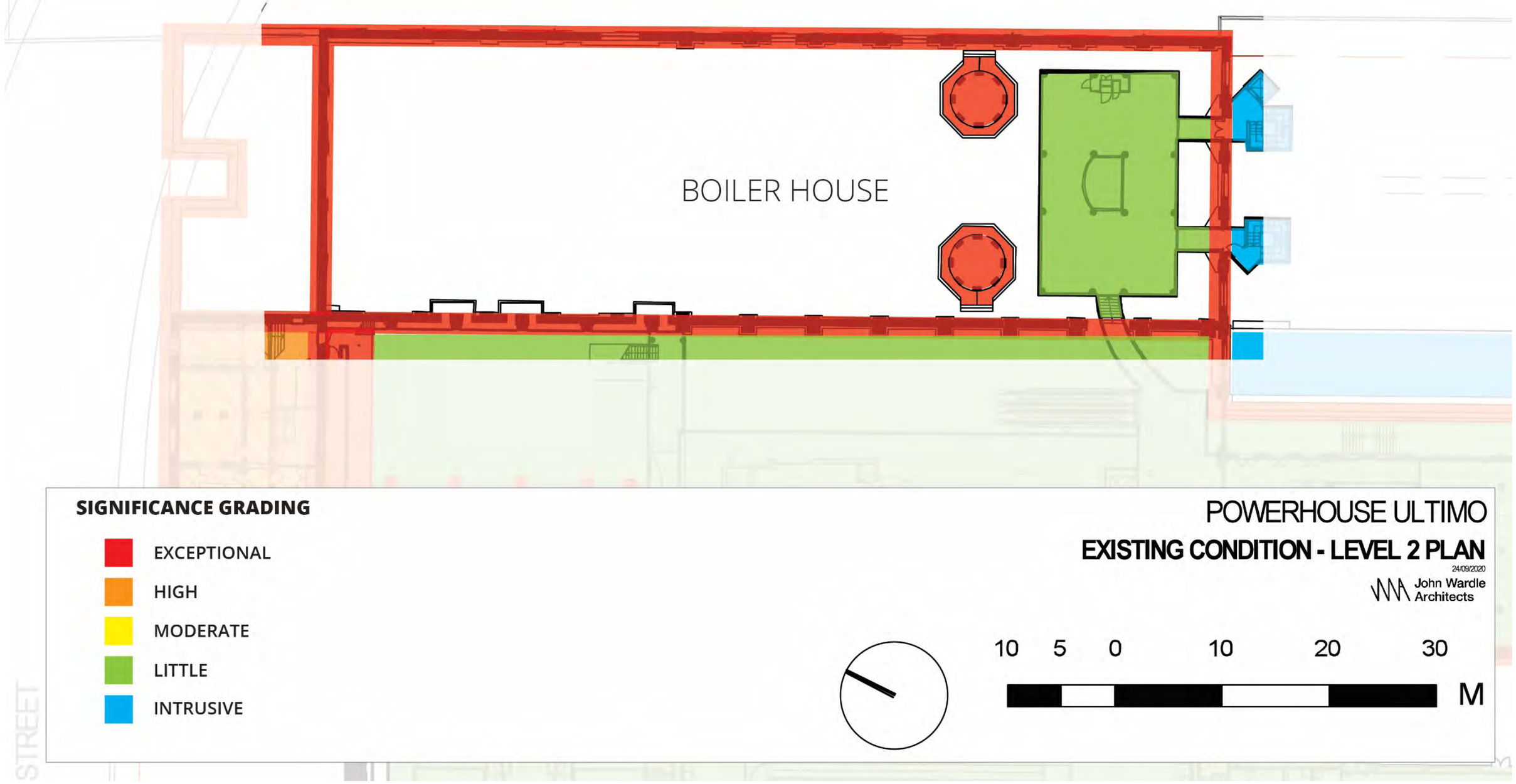


Figure 12.12 Boiler House Grading of Significance (Level 2) (Source: John Wardle Architects plan with Curio Projects overlay)

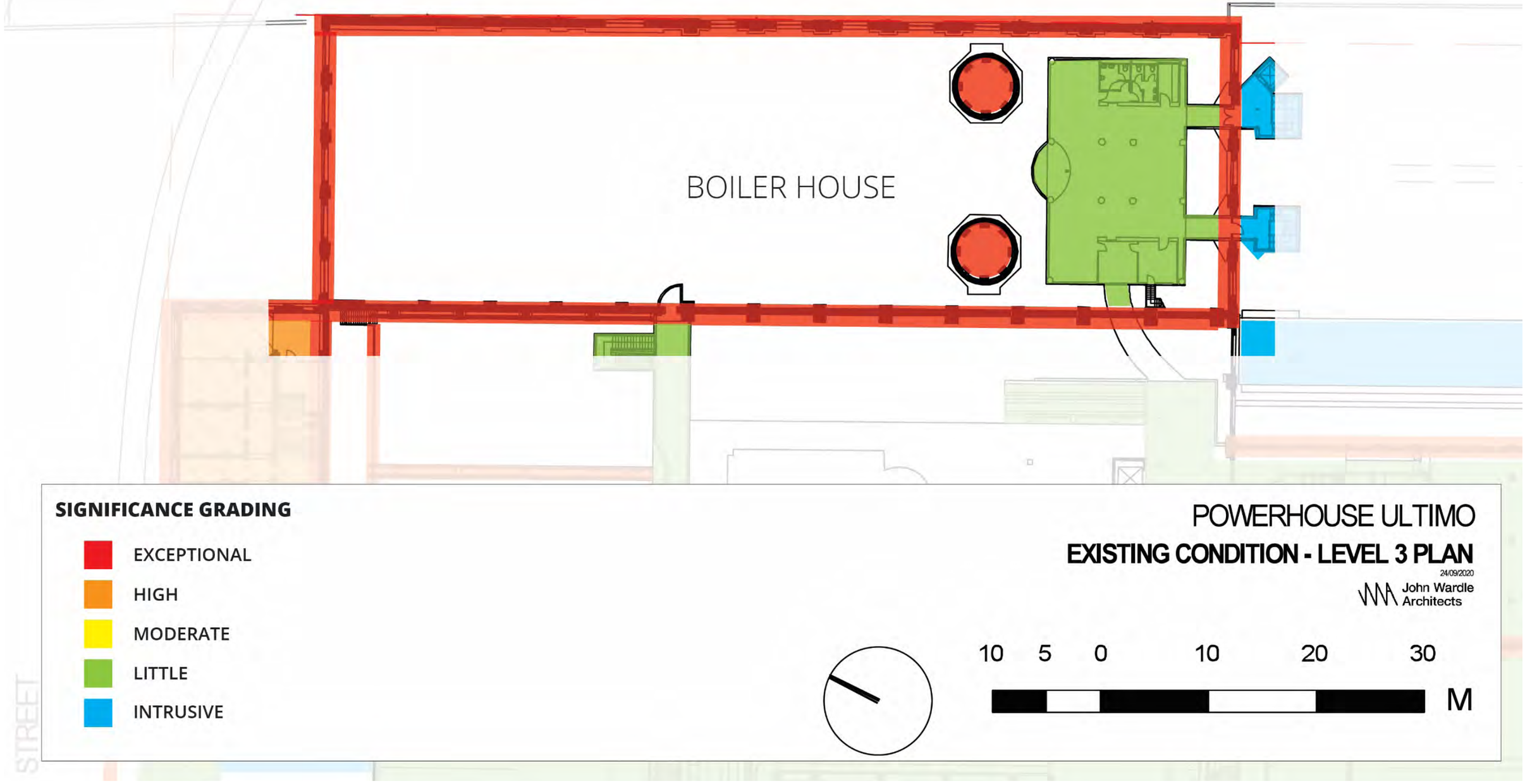


Figure 12.13 Boiler House Grading of Significance (Level 3) (Source: John Wardle Architects plan with Curio Projects overlay)

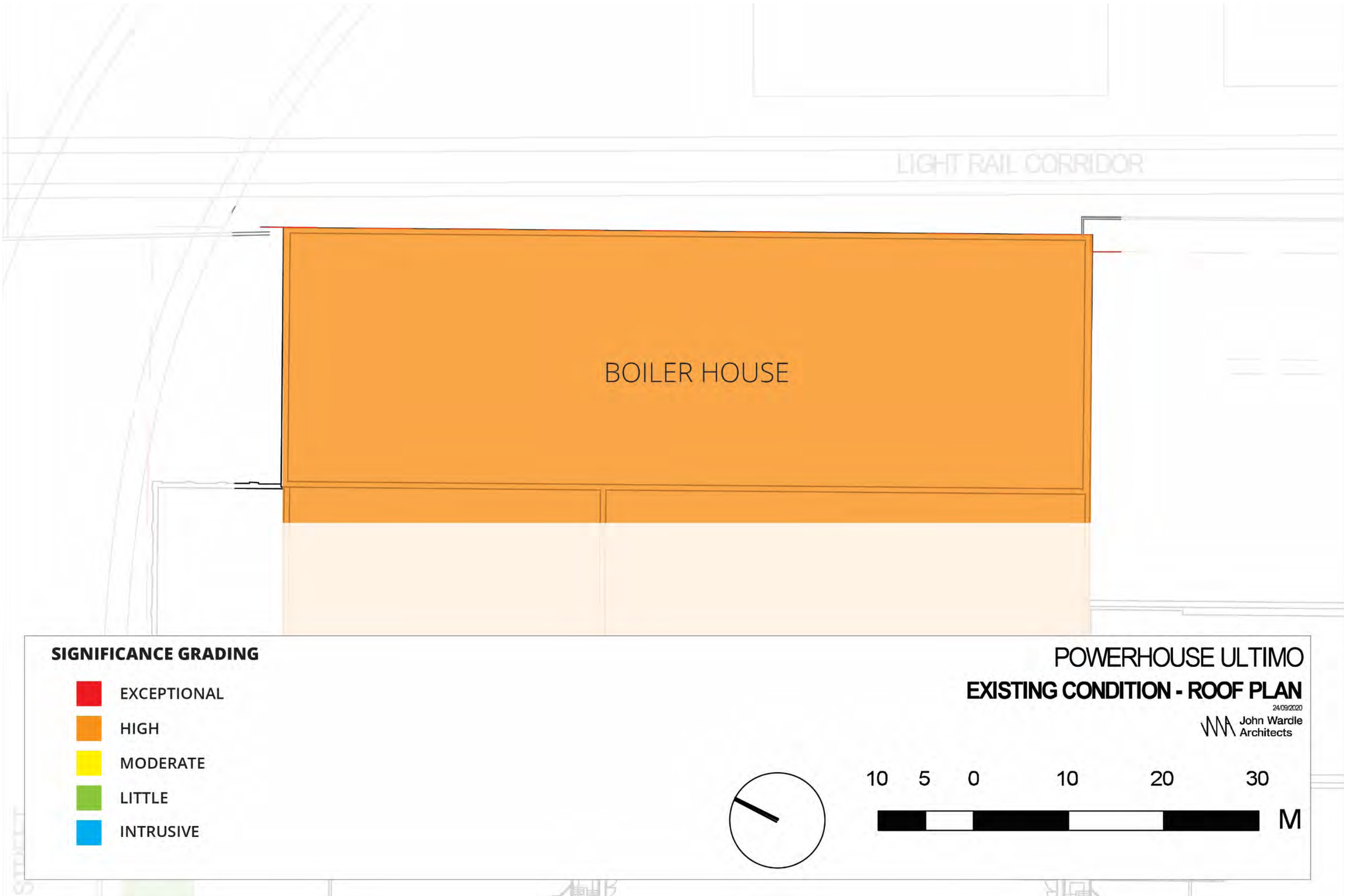


Figure 12.14 Boiler House Grading of Significance (Roof) (Source: John Wardle Architects plan with Curio Projects overlay)

12.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Boiler House include:

Opportunities

- Creation of a museum entry through the Level 1 forecourt directly into the southern end of the Boiler House would encourage access into the Powerhouse site from the east via the Light Rail and Good Line.
- The demolition of the majority of the Boiler House chimneys in the 1970s resulted in the loss of an element whose scale and form allowed the Ultimo Power House to be identified from a great distance. There is an opportunity to enhance what remains of the chimneys within the Boiler House.
- The replacement or removal of the existing vertical coloured structures along the southern façade of the Boiler House with structures, materials, or colour palette more sympathetic to the heritage aesthetics of the Boiler House would impact positively on this area of the heritage item.
- Possibility for removal or replacement of the existing neutral infill structure in the southern interior of the building as part of any future management or redevelopment of the site.
- The scale of the building and vastness of interior space allows for the introduction of new sympathetic elements, provided that introduction of new elements still allow readability of the building's height, volume and roof form, from key internal locations within the building..
- Programmatic Interpretation of the history and former use of the Boiler House.

Constraints

- Any future works to convert the space will need to consider how to manage elements such as partitioning, division of space, light spill and acoustics so that there are no detrimental impacts to the original fabric of the building, including its spatial volume, and overall visual aesthetic.
- Views to and from the existing remnant chimneys, windows and associated infrastructure should be retained without significant obstruction.

12.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 5—Buildings and Structures: The readability and presentation of the interior open space of the Engine House, Turbine Hall, and Boiler House is a significant feature of these former Power House buildings, and should be retained. The Boiler House, including its spatial volumes and remnant fabric of the chimneys form part of the significant fabric of the building. These elements should be retained, conserved and interpreted as part of any future use of the site unless for a temporary exhibition, installation or event.

- Any new insertions within the key heritage items of the former Ultimo Power House (Engine House, Turbine Hall, and Boiler House) should retain and encourage visibility of significant industrial heritage features and elements such as gantry beams & cranes, columns, overhead tracks, etc, and respect the internal scale and sense of space. New elements, if required to be introduced into heritage spaces, should act as stand-alone lightweight elements that can be readily reversed in the future.

Policy 15—Compatible Use: Any activity that would require closing in the open roof plan (i.e. such as a false ceiling), covering and/or impacts to the remnant chimney bases would have a detrimental visual and physical impact on the significance of the building and would not be compatible or consistent with the remnant significant fabric and space. Should light, sound, and division of spatial volumes be required, then no permanent visual or physical obstructions that obstruct views to the chimneys, windows, walls and/or roof trusses should be applied.

12.6 PHOTO REGISTER FOR THE BOILER HOUSE

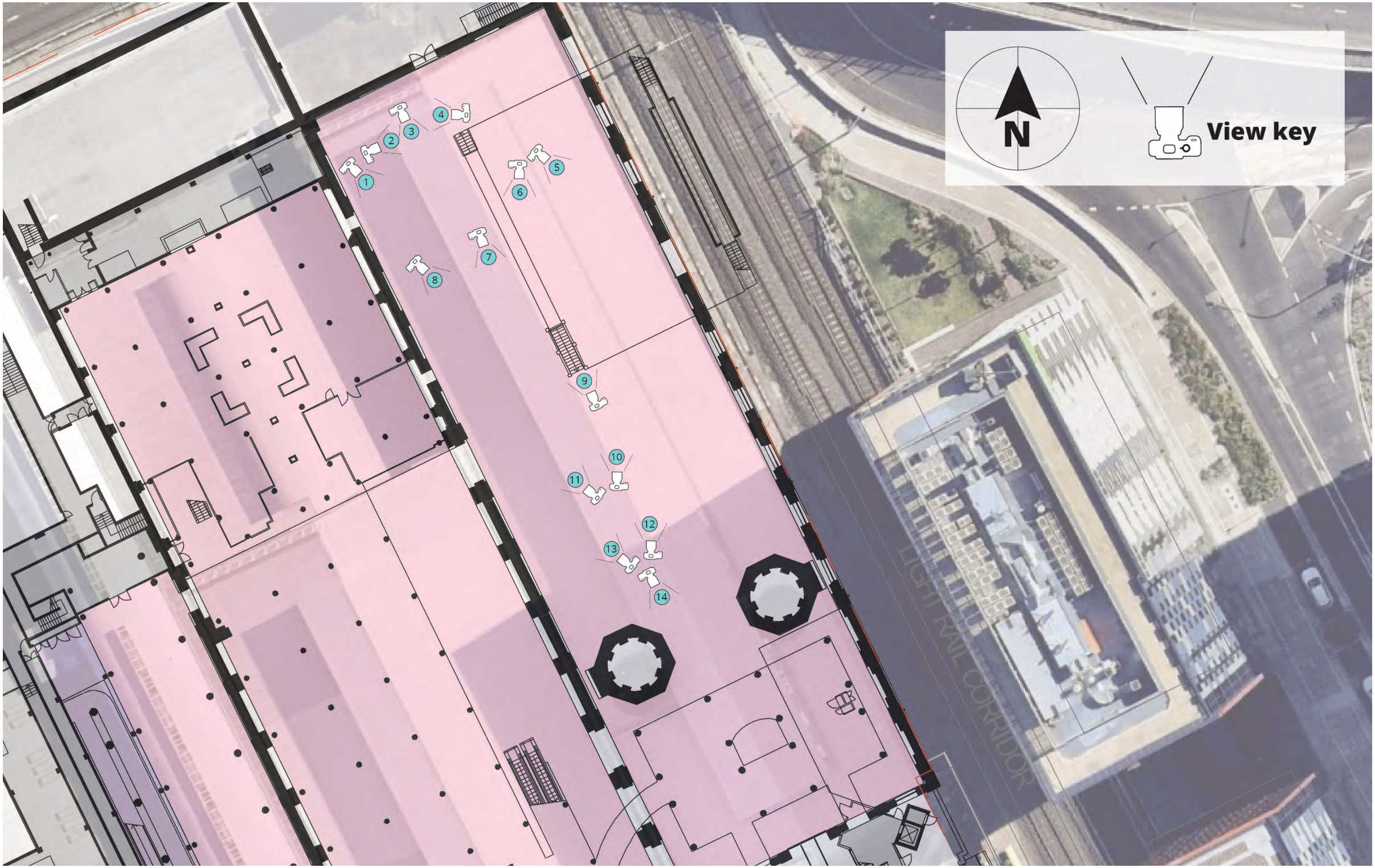
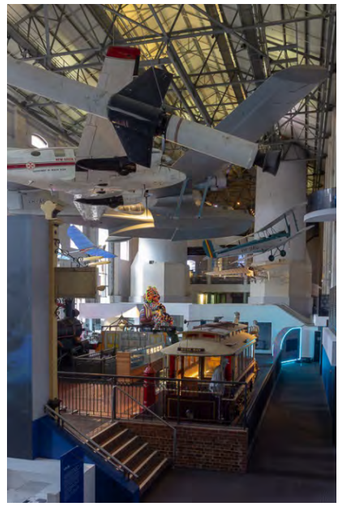
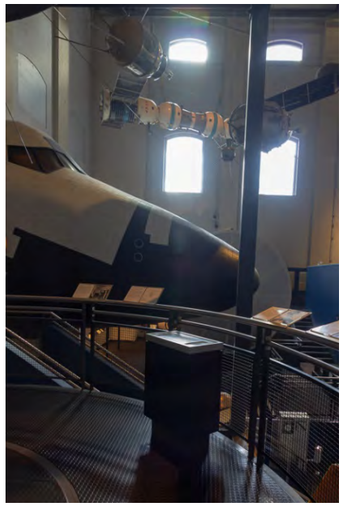


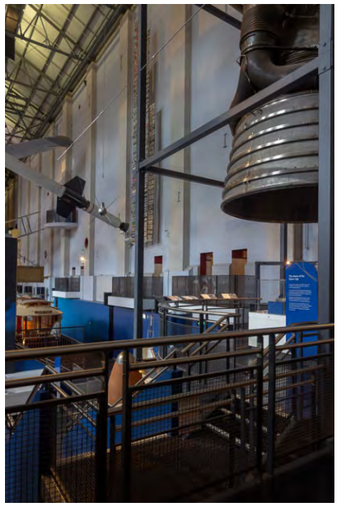
Figure 12.15 Boiler House Photo Register (Level 1)



Boiler House Viewpoint 1: Level 1



Boiler House Viewpoint 2: Level 1



Boiler House Viewpoint 3: Level 1

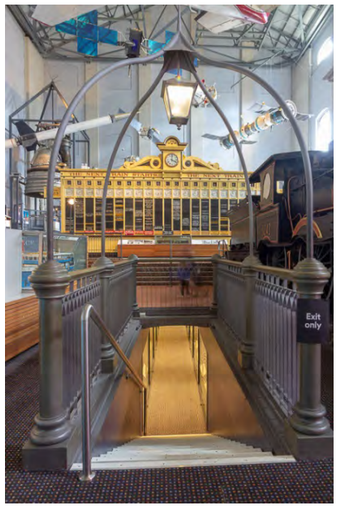
Boiler House Viewpoint 7: Level 1

Boiler House Viewpoint 4: Level 1

Boiler House Viewpoint 5: Level 1

Boiler House Viewpoint 6: Level 1

Boiler House Viewpoint 8: Level 1



Boiler House Viewpoint 9: Level 1

Boiler House Viewpoint 10: Level 1

Boiler House Viewpoint 11: Level 1

Boiler House Viewpoint 12: Level 1

Boiler House Viewpoint 13: Level 1

Boiler House Viewpoint 14: Level 1

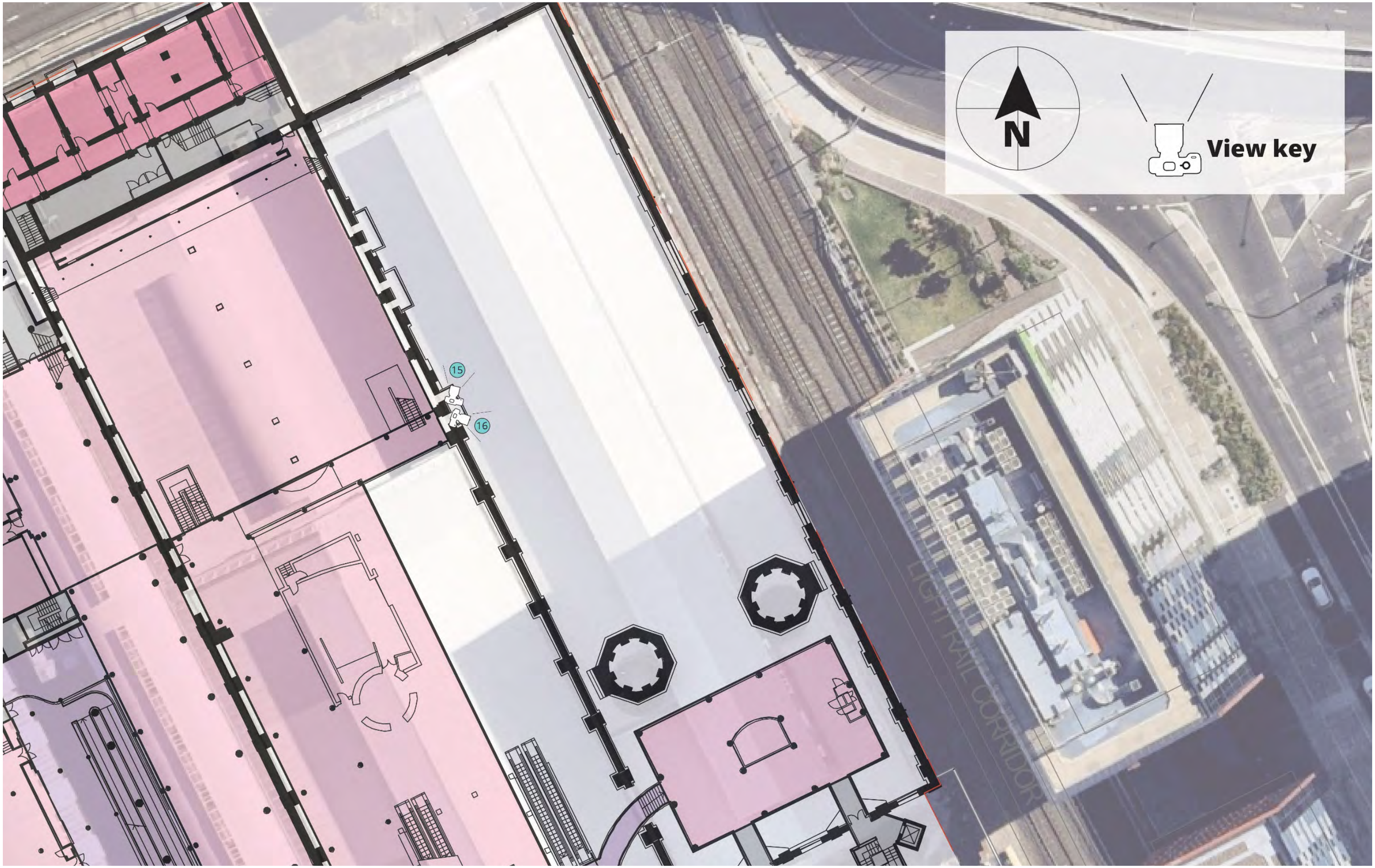


Figure 12.16 Boiler House Photo Register (View from Level 2 across open exhibition space)

Boiler House Viewpoint 15: View from Level 2

Boiler House Viewpoint 16: View from Level 2

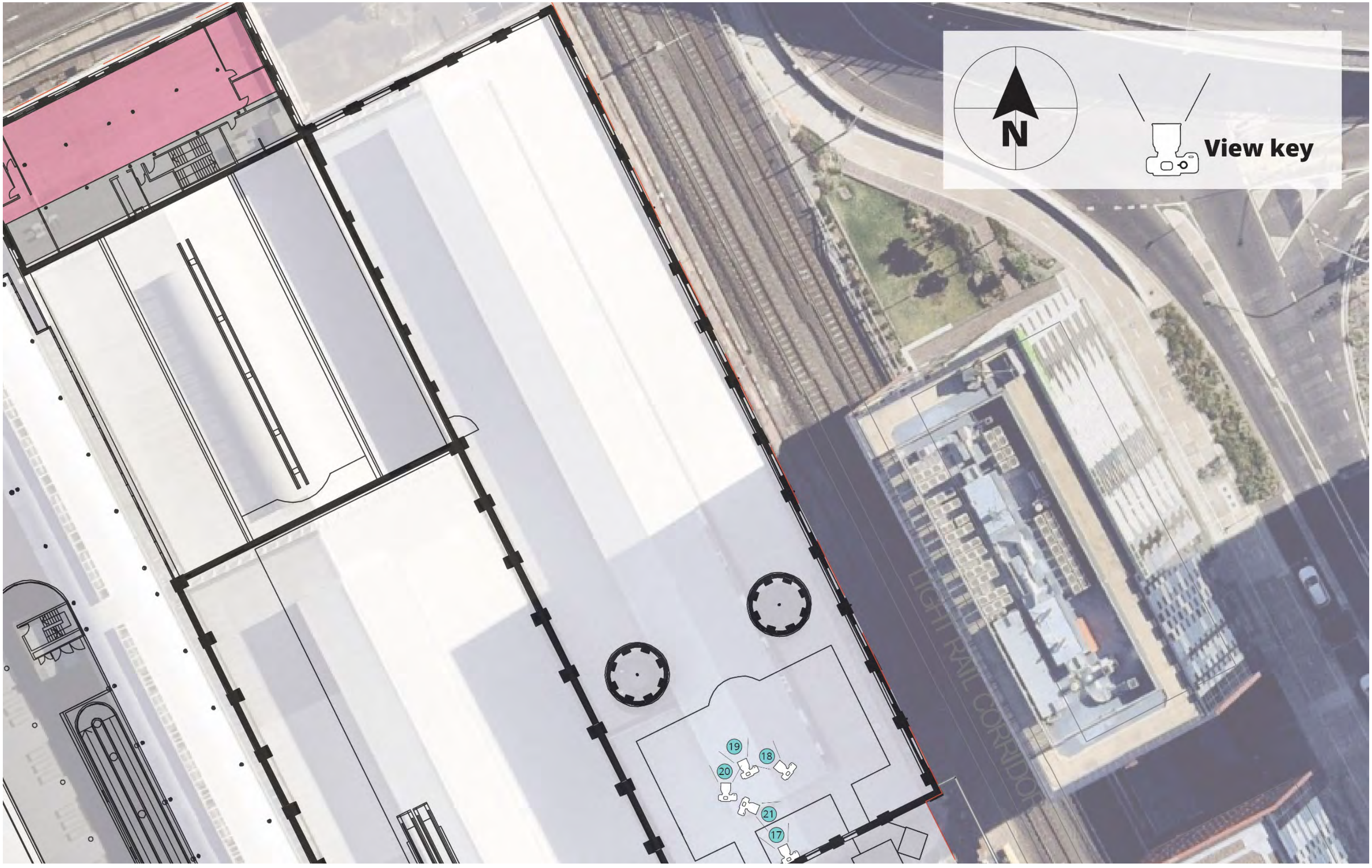
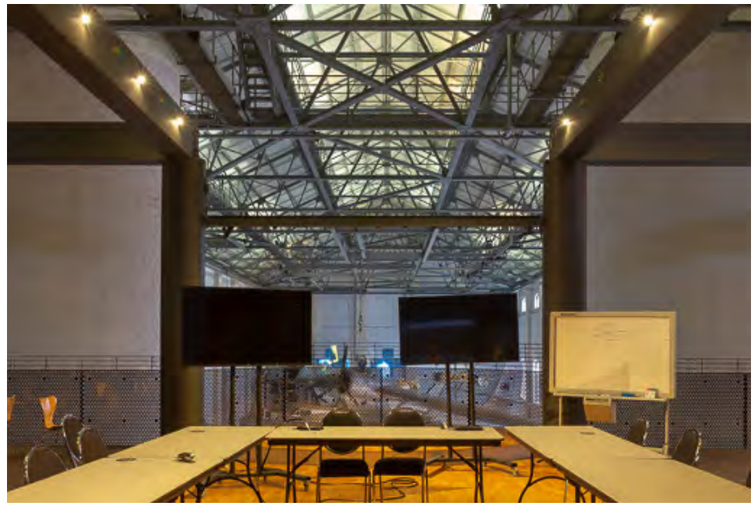


Figure 12.17 Boiler House Photo Register (View from Level 4 mezzanine)

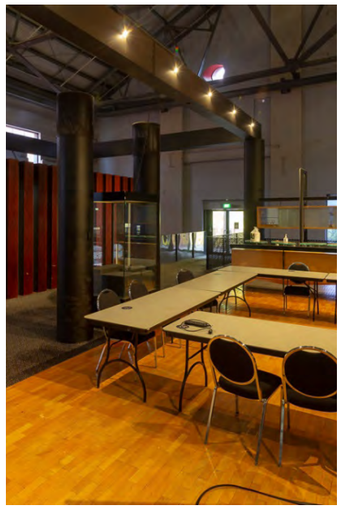


Boiler House Viewpoint 17: Level 4

Boiler House Viewpoint 18: Level 4

Boiler House Viewpoint 19: Level 4

Boiler House Viewpoint 120: Level 4



Boiler House Viewpoint 21: Level 4

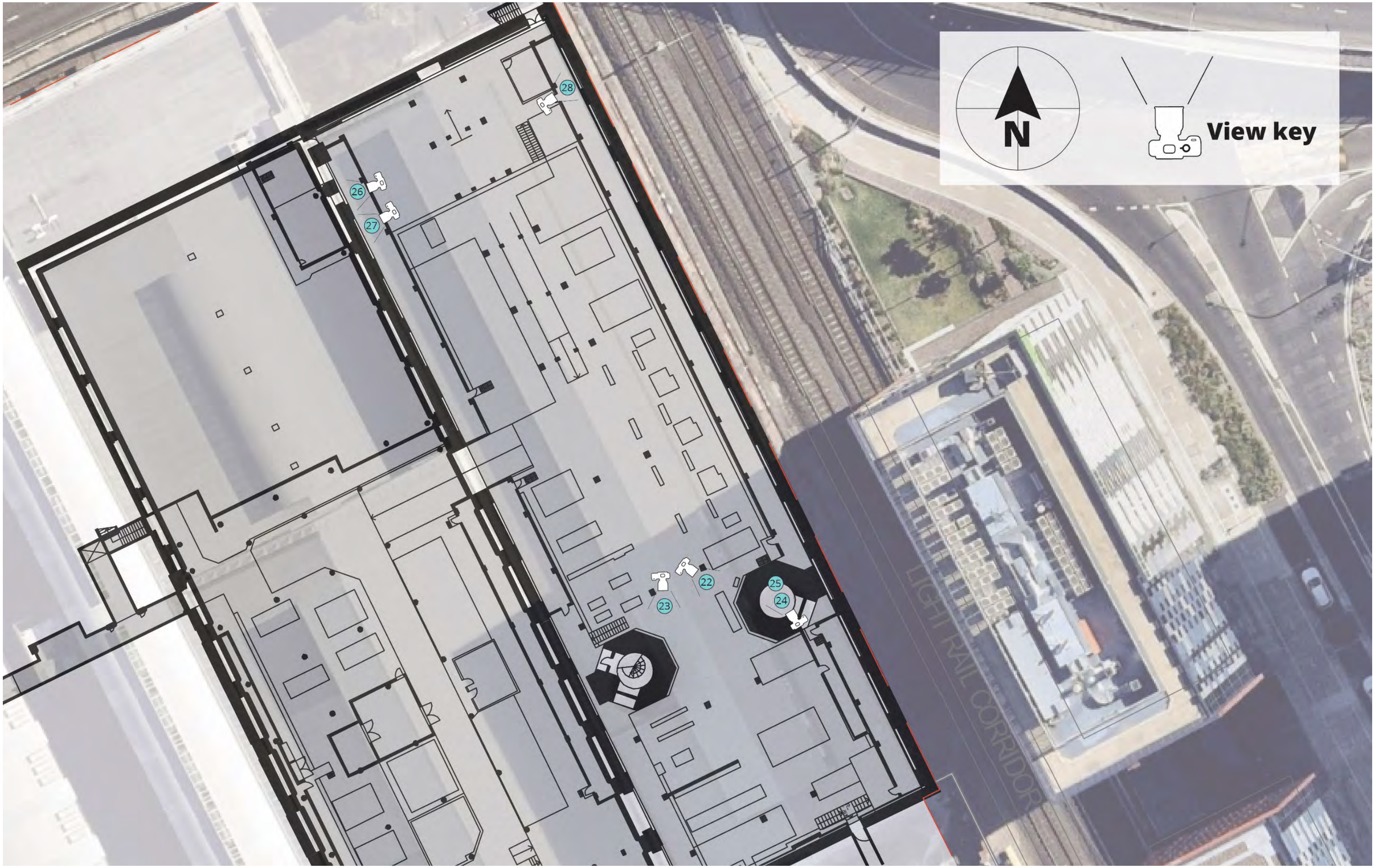
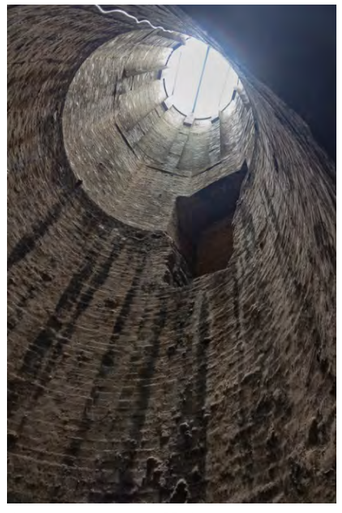


Figure 12.18 Boiler House Photo Register (Basement)

Boiler House Viewpoint 22: Basement

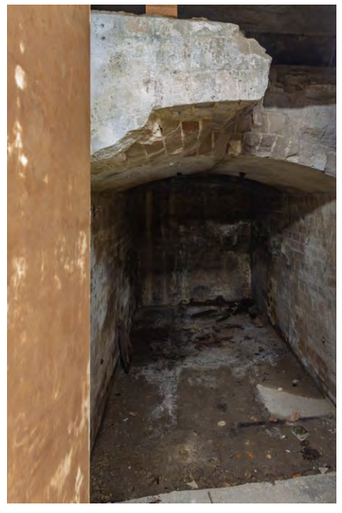
Boiler House Viewpoint 23: Basement

Boiler House Viewpoint 24: Basement



Boiler House Viewpoint 25: Basement

Boiler House Viewpoint 26: Basement



Boiler House Viewpoint 27: Basement

Boiler House Viewpoint 28: Basement

12.7 ENDNOTES

1 Godden et al, 1984, p. 105
2 ibid, p. 35.
3 ibid, p. 144.
4 Rowe, 1988, p. 12.
5 ibid, p. I
6 ibid, p. XXX.
7 Architectural Projects, 2003, p. 50.
8 Ibid, p. 59
9 State Heritage Inventory, NSW Office of Environment & Heritage, *Ultimo Power House* (State).

13 SWITCH HOUSE

13.1 HISTORY OF THE SWITCH HOUSE

The Switch House was constructed adjacent to the southern wall of the Turbine Hall between 1922 and 1927, measuring 23m wide and 61m long and 17m in height. The Switch House was purpose built to house a new control room, high tension switch gear and transformer banks required to facilitate a major upgrade to the switching gear of the Sydney tramway network, as the existing switchboard facilities in the Engine House or Turbine Hall had reached capacity for expansion. The site for the new Switch House was initially cleared and prepared for construction in 1922 with the building complete and operational by 1927.[1] Construction of the brick building included excavation for the building foundations and below ground cable trenches. A small battery house was located on the roof of the switch house.[2] Throughout its operation as part of the Ultimo Power House, the Switch House remained as originally constructed with minimal modifications.

When the Ultimo Power House closed on 11 October 1963, the Switch House, along with the other Power House buildings, fell into disrepair and was subsequently damaged by decay, squatters, and vandals. While the original 1980s museum design proposed demolition of the Switch House and replacement with a new building, budget constraints resulted in the retention and adaptive re-use of the building as part of the Powerhouse Museum.[3]

Adaptations to the Switch House as part of the adaptive reuse for the Powerhouse Museum resulted in the majority of the interior features of the building being removed and replaced with modern elements for the museum fit out. The Switch House originally had moulded concrete cabinets which carried the cables and bus-bars, yet these were removed between 1982 and 1984.[4] A new roof annex addition was constructed as part of the adaptive reuse of the Switch House, which appears to have been initially designed to function as a café.[5] In 1988, parts of the Switch House façade were painted yellow to match the new museum entry facade.[6] Construction of the Harris Street forecourt as part of the 1980s museum site obstructed visibility of the lower levels of the western façade of the Switch House.

When the Sydney monorail opened in 1988, a pedestrian walkway connected the southern end of the Switch House (Figure 13.7) to the nearby monorail station- renamed the Powerhouse Museum Station in 2002.[7] The monorail ceased operation in 2013, with demolition and removal of its associated infrastructure, including the pedestrian connection to the Switch House, completed by April 2014.

The Powerhouse Museum Revitalisation Project of 2011–2013 included works to link the Switch House with the Harris Street forecourt - initially constructed with a partial void between the Switch House and the bulk of the forecourt, affording access to the lower level of the site (Figure 13.5 and Figure 13.6). The museum exit was relocated to the Switch House at this time.[8] In 2012 the new Museum shop was opened in the Switch House, and a new café with seating in the Harris Street forecourt in 2013.[9] In 2022, the Switch House is used as an exhibition space, café and shop for the Powerhouse Museum as well as a Creative Residency space.

Previous Names	Switch House
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP631345
Built	1927
Heritage Listings	SHR 02045 “Ultimo Power House”
	LEP I2031, “Powerhouse Museum Former Warehouse Buildings, including interiors”
Non-Statutory Listings	Register of the National Estate (Powerhouse Museum (Stage Two), Place ID 100690
	National Trust of Australia (NSW) Register (S11648, 24/10/2015)

Figure 13.1 Location of the Switch Houses (Source: John Wardle Architects with Curio Projects overlay)

Figure 13.2 The Switch House (Source: Curio Projects, 2020)

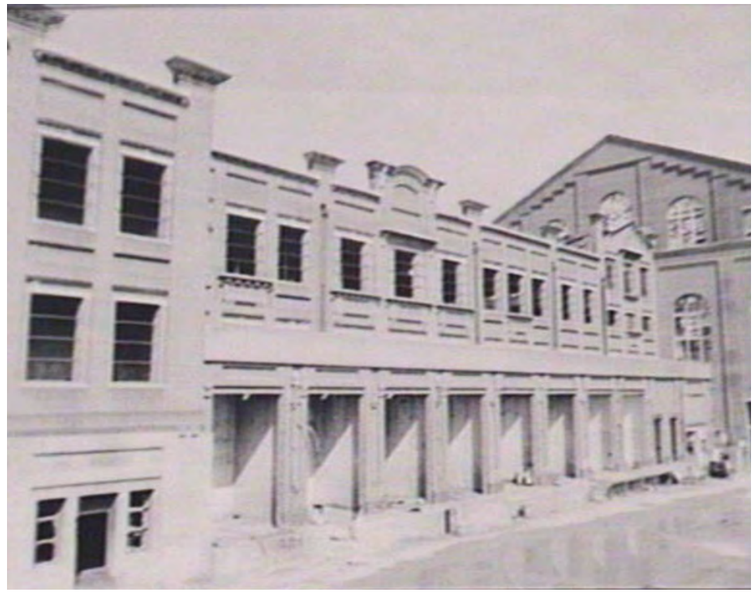


Figure 13.3 The Switch House 1980s (Source: State Library)

Figure 13.4 The Eastern façade of the Switch House c.1984 (Source Godden 1984 after p. 8)

Figure 13.5 Sunken courtyard facing south, 2011 (Source: DA D/2011/242)

Figure 13.6 Void between the forecourt and Switch House, 2011 (Source: DA D/2011/242)

Figure 13.7 Site Image showing the Pedestrian Railway Bridge prior to demolition (Source: HMUP 2014 p. 1)

13.2 PHYSICAL ANALYSIS OF THE SWITCH HOUSE

An overall photo register and images of the Switch House as of 2020 is presented in Section 13.6.

13.2.1 Site and Setting

The Switch House forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo. Within the Powerhouse Ultimo site, the northern elevation of the Switch House adjoins the southern wall of the Turbine, while the eastern façade remains open to the Level 1 courtyard to the east. The southern facade faces Macarthur Street and the Level 3 forecourt and Harris Street are to the west.

13.2.2 Built Elements

The Switch House is less utilitarian than the other Power House buildings, constructed in an art deco style which is particularly evident along the western facade. The SHR listing describes the Switch House as:

> The Switch House is a brick building, three stories on the east and two stories above ground level on the west. The west facade is divided into seven bays, the northernmost of which is given emphasis by means of a dentillated gable which incorporates a centrally-placed circular motif with herringbone infill. The remainder of the building features a dentillated segmented extension of the parapet. The brickwork between each pair of windows extends even higher and terminates in dentillated bracketed caps. All dressings, sills, lintels and caps are of rendered concrete.
>
> The viewing window from the Switch House, which allowed control staff to keep watch over the generating equipment, is still in place. Decorative stonework and brickwork on the on the Switch House are still in very good condition.[10]

While the Switch House is a three storey building, the natural slope of the Powerhouse site towards the east means that from Harris Street, the Switch House presents as a single storey building with the modern roof top addition, whereas from the Goods Line and Hay Street, the building is visible as the full three storeys. Whilst the Switch House never fronted the street during is use as part of the Ultimo Power House, it has a highly decorative façade, part of which may have been visible above the skyline.[11] Along the eastern façade, the lower section of the Switch House has a simple, strong, architectural style with eight openings which once housed transformers, covered by roller shutters.

Figure 13.8 Presentation of the Switch House from the south, level change along Macarthur Street apparent (Curio 2020)

Figure 13.9 The Switch House western elevation after the extension of the Harris Street courtyard (Curio 2020)

Figure 13.10 Switch House eastern elevation, obscured by the modern covered walkway (Curio 2020)

13.3 HERITAGE SIGNIFICANCE

The Switch House, as part of the Ultimo Power House, is included within the following statutory heritage register listings:

- State Heritage Register (NSW), The Ultimo Power House, SHR 02045, gazetted 04 Sep 2020.
- Sydney LEP 2012, The Powerhouse Museum Former Warehouse Buildings, including interiors, I2031.

The Switch House is also included on two non-statutory registers: the Register of the National Estate Powerhouse Museum (Stage Two) (Listing 100690); and the National Trust (NSW) Register Powerhouse Museum (Stage Two) (S11648).

13.3.1 Summary of Significance—Switch House

As one of the Ultimo Power House buildings, the Switch House is part of one of the most important and intact group of power station buildings in the State. The Switch House has aesthetic significance as the most ornate of the Power House Buildings featuring an art deco style that is unusual and rare for an industrial building. Built in 1927, the Switch house provides tangible evidence of the 1920s upgrades to the Sydney tram system. The exterior of the Switch House is relatively intact.

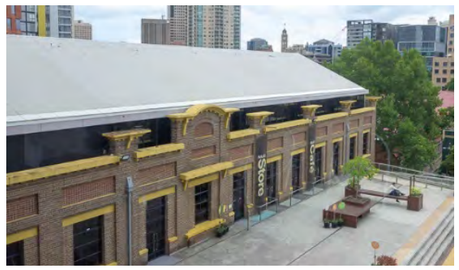
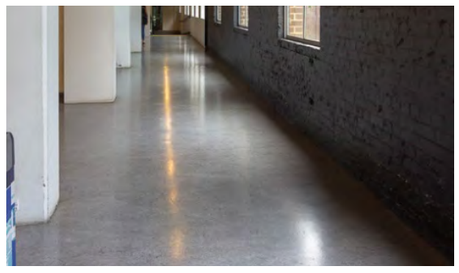
13.3.2 Views

The Switch House is visible from the south and southeast from Macarthur Street, Darling Drive, the Harwood Building and the Goods Line. The eastern wall of the Switch House is partially concealed by the covered walkway from the Harwood Building. It would be preferable to remove this obtrusive element to establish a stronger visual connection between the Switch House and the rest of the site.

13.3.3 Grading of Significant Components

The key components and elements of the fabric and form of the Switch House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 13.1 and depicted in Figure 13.11 to Figure 13.16.

Table 13.1 Grading of Significance for the Turbine Hall

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish (Original)		● EXCEPTIONAL	The roof finish is original and is of exceptional significance.
Roof Structure (Original)		● EXCEPTIONAL	The roof structure is original and is of exceptional significance.
Roof Annex		● LITTLE	The Switch House was originally constructed with a flat roof. The modern roof annex was constructed as part of the 1980s museum adaptation, and is of little significance.
External Walls (Original)		● HIGH	The external walls are original and are of exceptional significance.
Windows (Original)		● HIGH	The original windows are of high significance.
Windows (Later additions)		● LITTLE	Later windows on the 1980s annex are of little significance.
Floor		● LITTLE	The internal flooring all appears to have been modified and is of little significance.

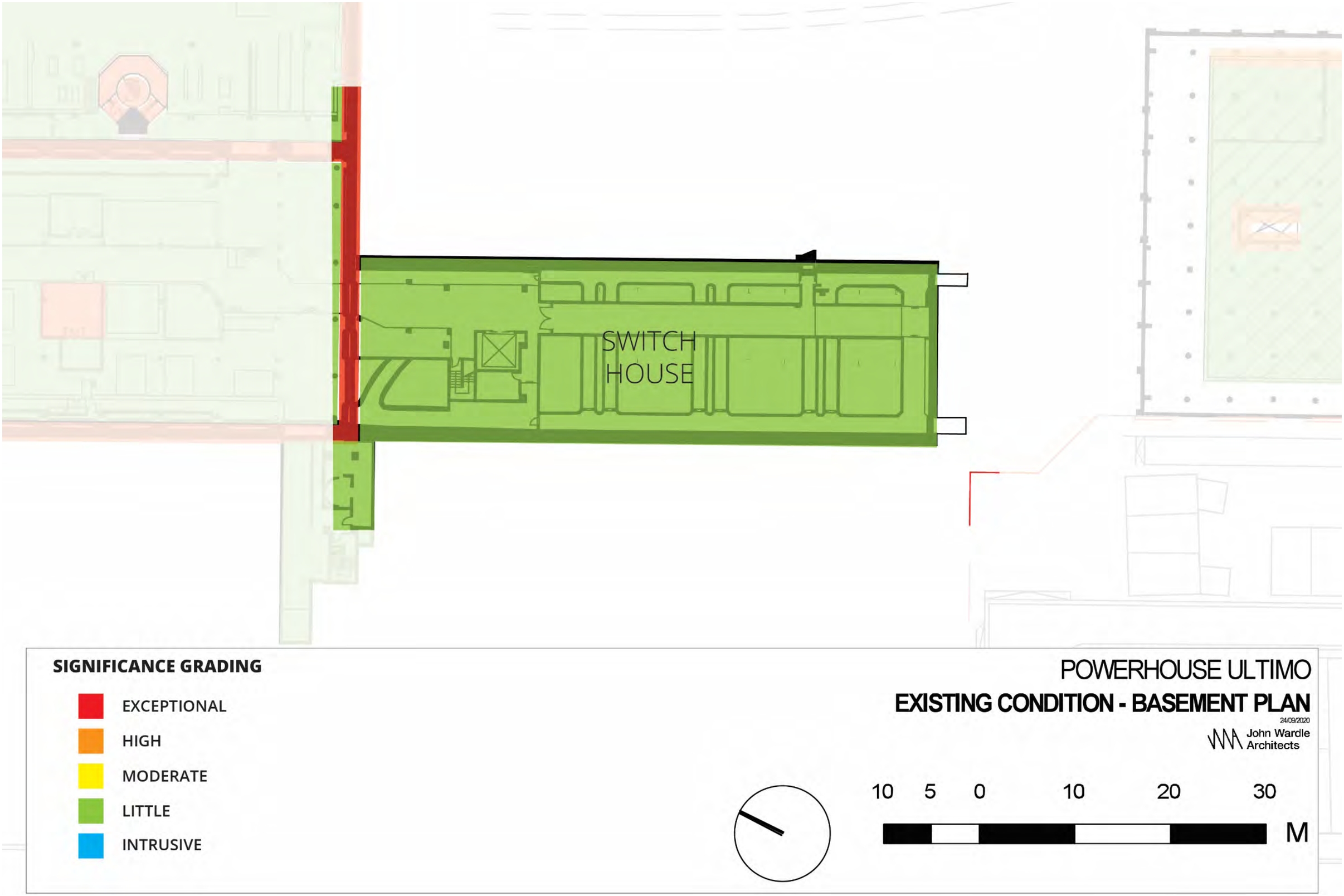


Figure 13.11 Switch House Grading of Significance (Basement) (Source: John Wardle Architects plan with Curio Projects overlay)

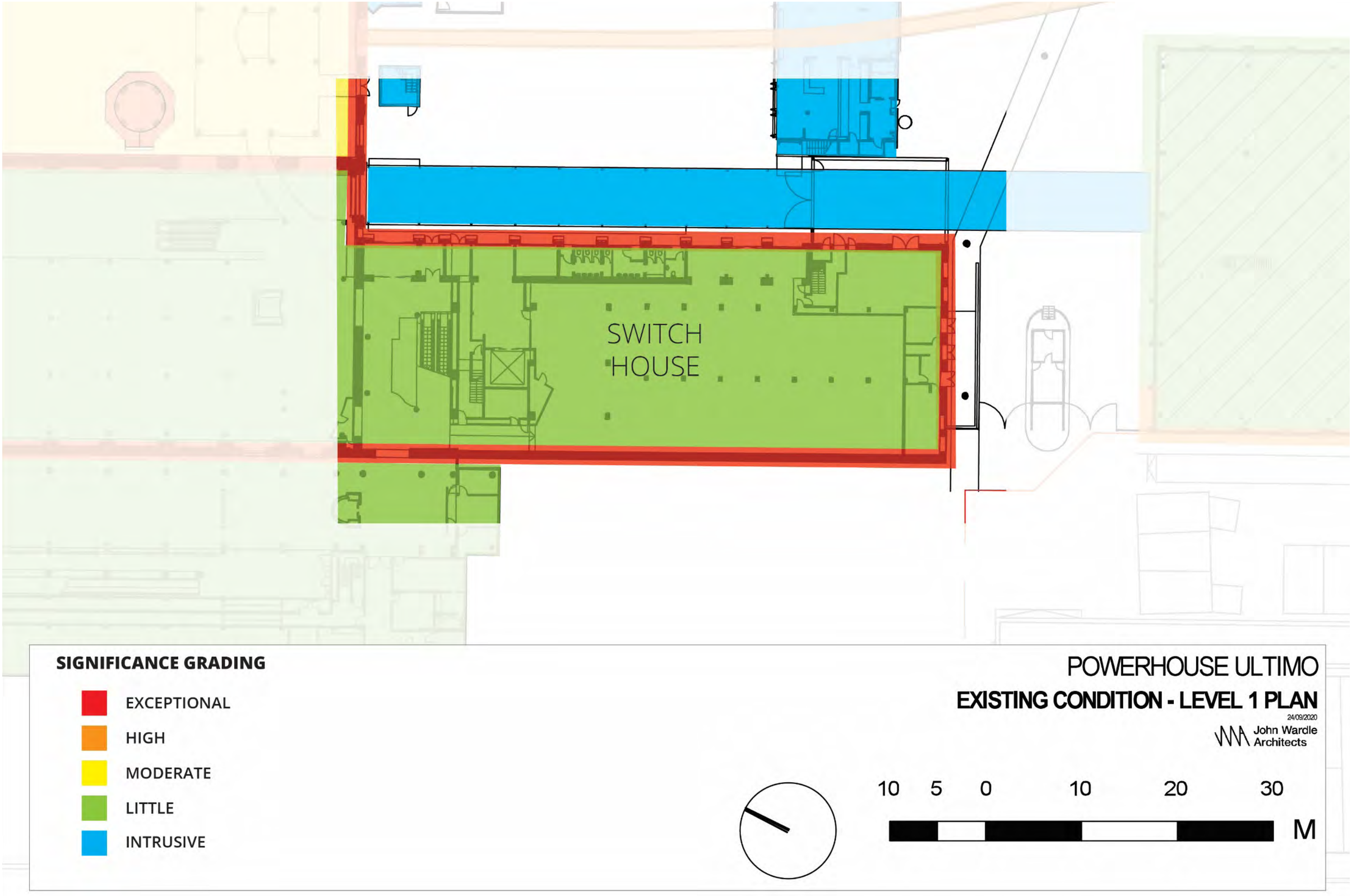


Figure 13.12 Switch House Grading of Significance (Level 1) (Source: John Wardle Architects plan with Curio Projects overlay)

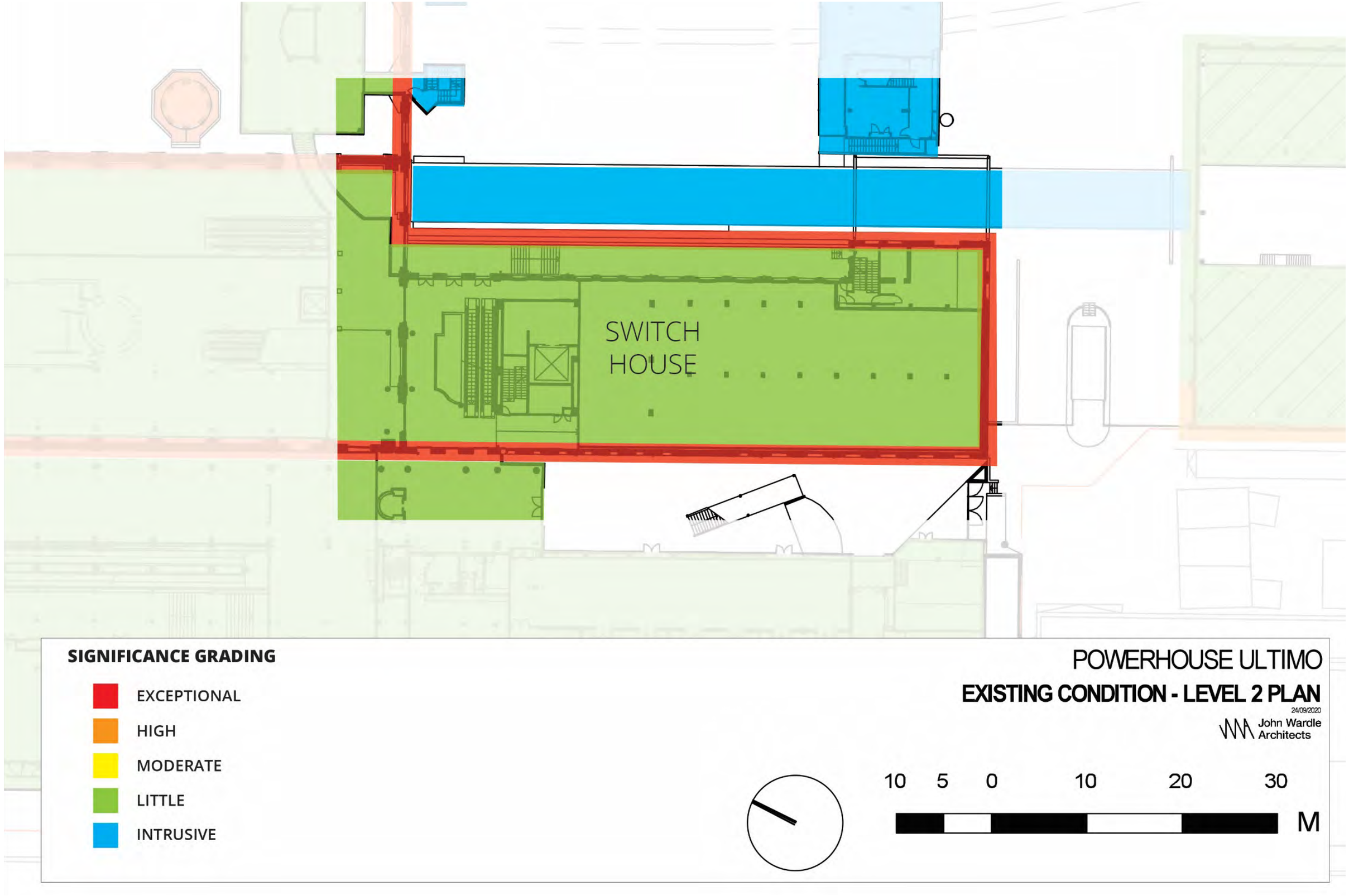


Figure 13.13 Switch House Grading of Significance (Level 2) (Source: John Wardle Architects plan with Curio Projects overlay)

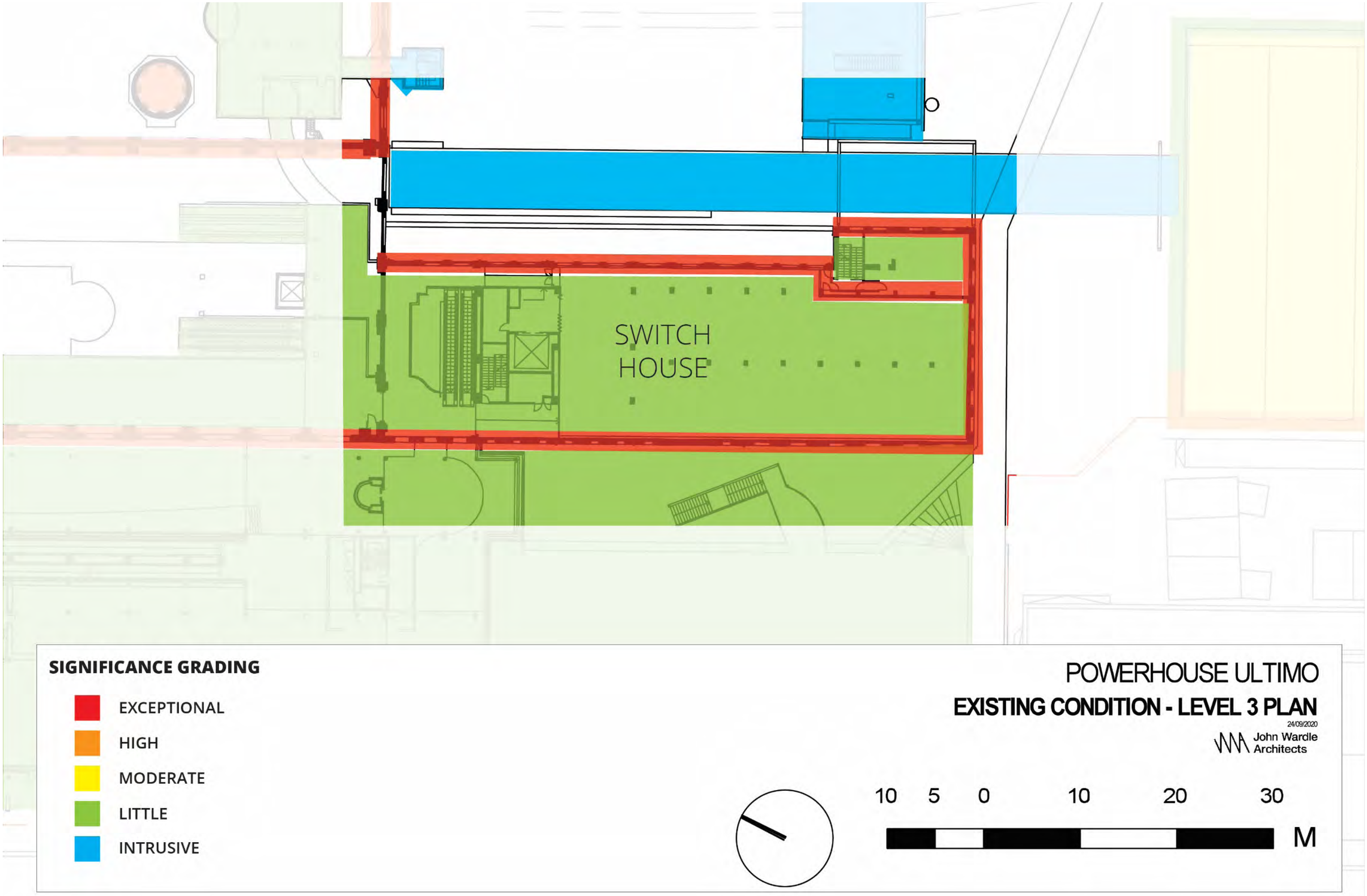


Figure 13.14 Switch House Grading of Significance (Level 3) (Source: John Wardle Architects plan with Curio Projects overlay)

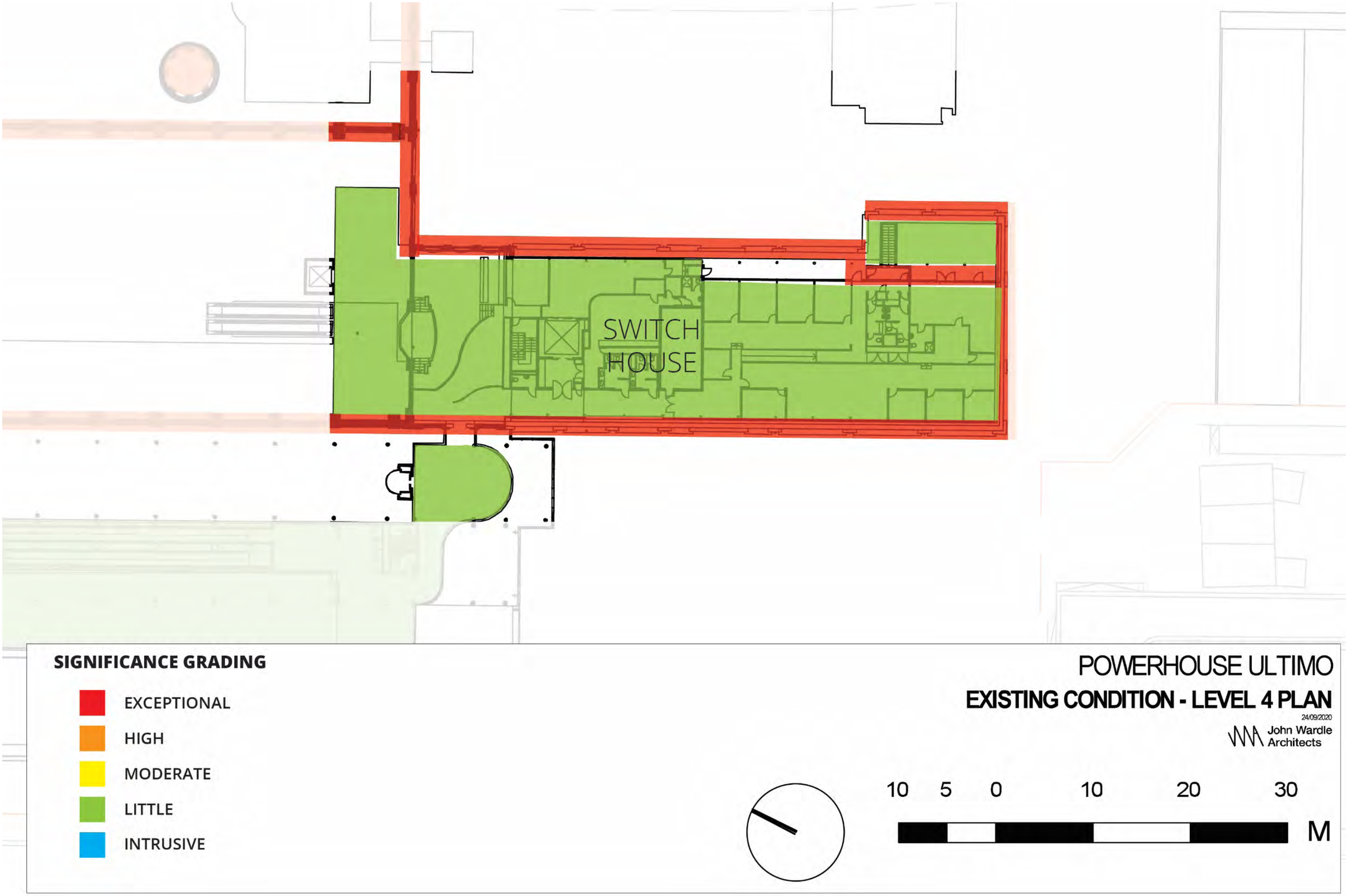


Figure 13.15 Switch House Grading of Significance (Level 4) (Source: John Wardle Architects plan with Curio Projects overlay)

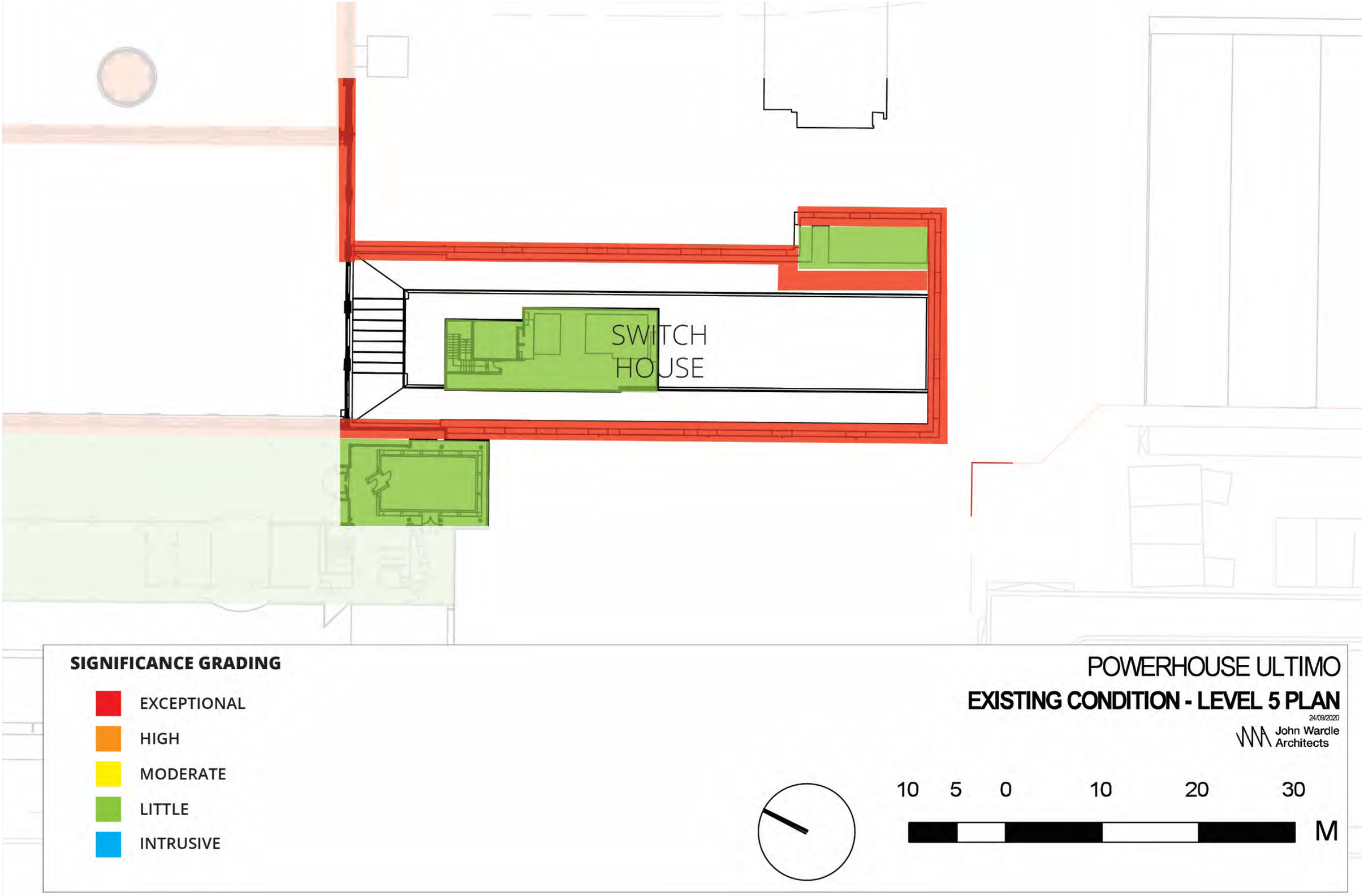


Figure 13.16 Switch House Grading of Significance (Level 5) (Source: John Wardle Architects plan with Curio Projects overlay)

13.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Switch House include:

Opportunities

- The original switch house had a flat roof. The present roof top terrace was added as part of the museum adaptations and is considered to have no historical significance. There is the opportunity to improve or replace this addition with a less visually intrusive alternative that complements the heritage building and allows its form to be understood.
- The lower level space between the Switch House and the Wran Building beneath the Harris Street forecourt is currently underutilised. This space has the potential to be explored in improving the design of the site, possibly as an access way.
- As the majority of the interiors of the Switch House were altered as part of the 1980s museum adaptations, the interior of the building has tolerance for change.
- Programmatic interpretation of the original function of the Switch House and connection to its history and use.

Constraints

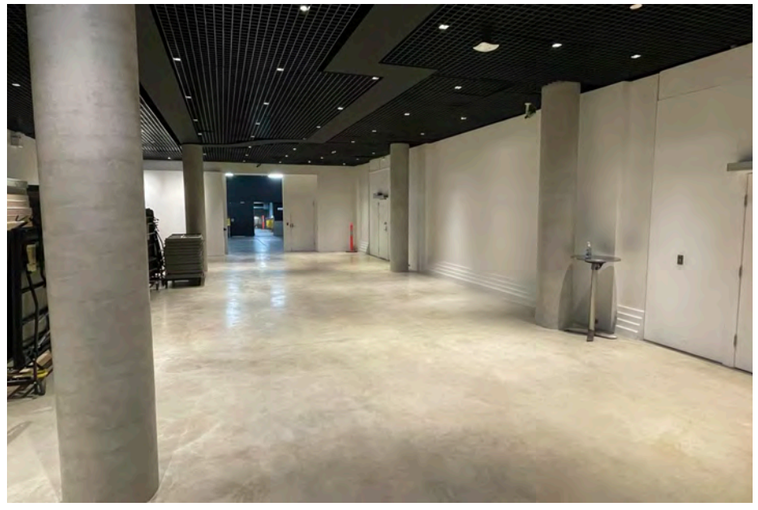
- The Switch House, including its original structure and heritage fabric should be conserved within the Ultimo Powerhouse site, with potential for further adaptive reuse.
- The Switch House is visual obstructed along its western façade by the presence of the 1980s museum elements including the Harris Street forecourt and the Wran Building.
- The box gutter around the perimeter of the Switch House remains prone to overflowing, causing damage to the walls.

13.5 ITEM-SPECIFIC CONSERVATION POLICIES

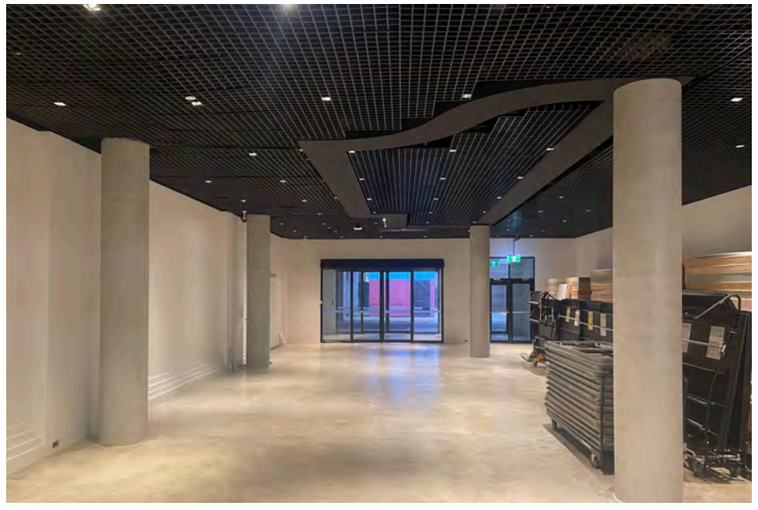
Policy 5—Buildings and Structures: The readability and presentation of the Switch House, including its original structure and heritage fabric should be conserved within the Ultimo Powerhouse site, with potential for further adaptive reuse.

13.6 PHOTO REGISTER FOR THE SWITCH HOUSE

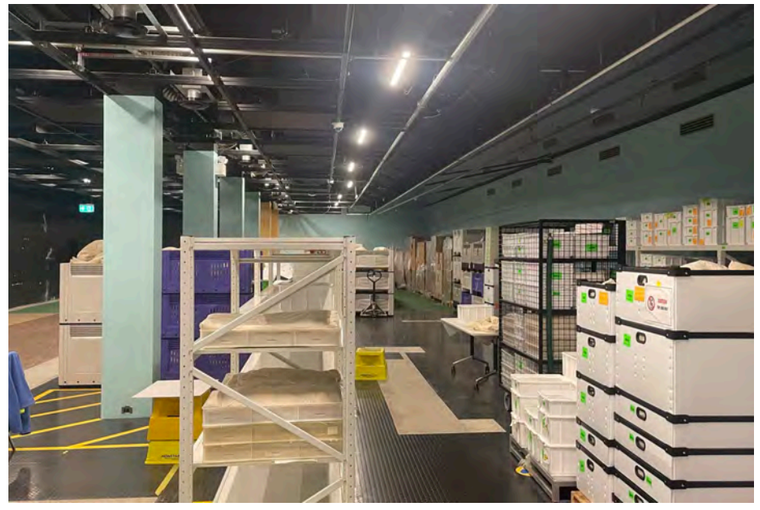
Figure 13.17 Switch House Photo Register (Level 1)



Switch House Viewpoint 1: Level 1



Switch House Viewpoint 2: Level 1



Switch House Viewpoint 3: Level 1

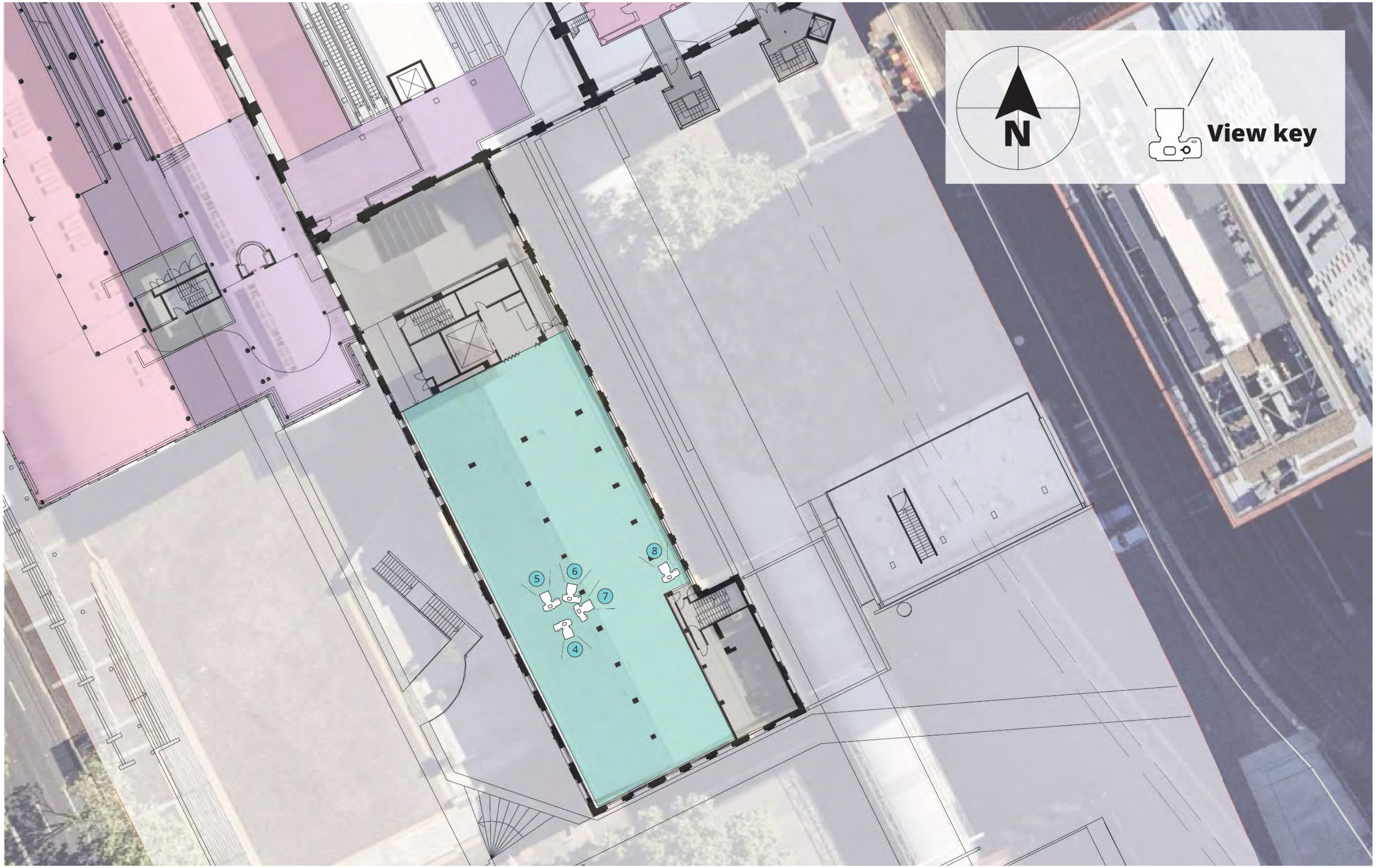
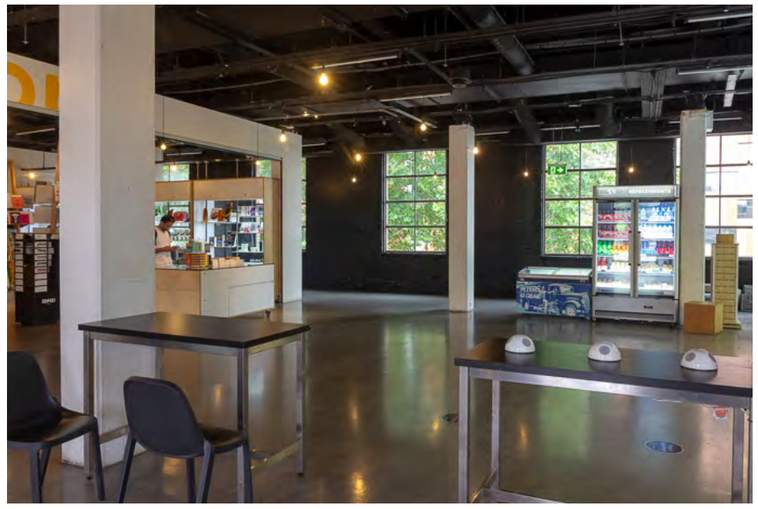


Figure 13.18 Switch House Photo Register (Level 3)

Switch House Viewpoint 4: Level 3

Switch House Viewpoint 5: Level 3

Switch House Viewpoint 6: Level 3


Switch House Viewpoint 7: Level 3

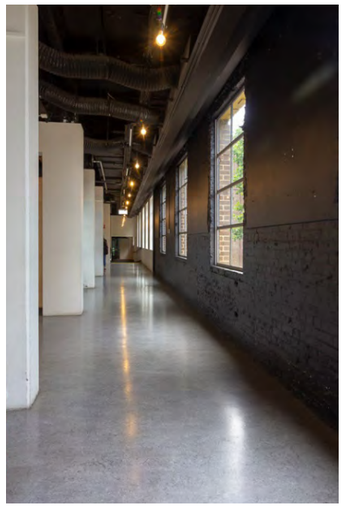

Switch House Viewpoint 8: Level 3

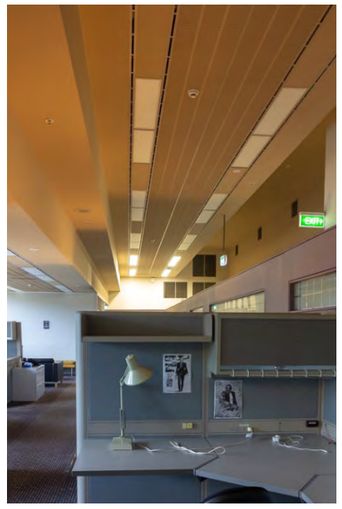
Figure 13.19 Switch House Photo Register (Level 4)

Switch House Viewpoint 9: Level 4

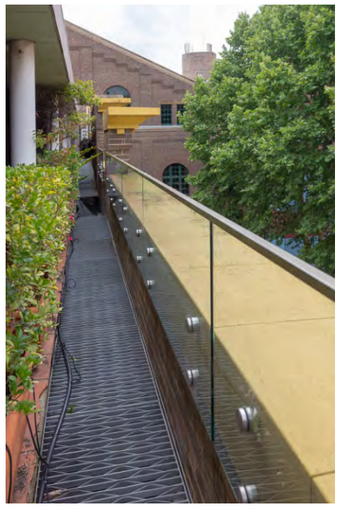
Switch House Viewpoint 10: Level 4

Switch House Viewpoint 11: Level 4

Switch House Viewpoint 12: Level 4



Switch House Viewpoint 13: Level 4



Switch House Viewpoint 14: Level 4

Switch House Viewpoint 15: Level 4

Switch House Viewpoint 16: Level 4

Switch House Viewpoint 17: Level 4

13.7 ENDNOTES

1 Architectural Projects, 2003, p. 25. (N.B. AP 2003 also refers to “the 1929 Switch House” and TKD Architects, 2018, p. 10 gives a completion date of December 1926)
2 *The Ultimo Power House Monographs*, 5: The Switch House, MAAS Archives, p. 11.
3 Wood, C., ‘Powerhouse’ in Design World, No.14, 1988, p. 20
4 Godden et al, 1984, p. 20.
5 Wood, 1988, p. 20.
6 Architectural Projects, 2003, p. 56.
7 Powerhouse Museum, Annual Report 2002–2003, p. 1
8 Museum of Applied Arts and Sciences, Annual Report 2011–2012, pp. 8-9; see also Development Application D/2011/242
9 Museum of Applied Arts and Sciences, Annual Report 2012–2013, p. 16.
10 State Heritage Inventory, NSW Office of Environment & Heritage, *Ultimo Power House* (State).
11 Architectural Projects, 2003, p. 73.

14 ULTIMO POST OFFICE

14.1 HISTORY OF THE ULTIMO POST OFFICE

Previous Names	Darling Harbour Child Care Centre
Address	494 Harris Street, Ultimo
Lot & DP	Lot 1 DP770031
Built	1901
Heritage Listings	SHR 00502 “Ultimo Post Office”
	Sydney LEP #I2030, “Former Ultimo Post Office including interior”
Non-Statutory Listings	Register of the National Estate (#2381)
	National Trust (NSW) (S9302)

Figure 14.1 Ultimo Post Office Location Map (Source: John Wardle Architects with Curio Projects overlay)

The Ultimo Post Office is located at 494 Harris Street, Ultimo, on the south-east corner of Harris Street and William Henry Street, located on the land that originally formed part of Block 23 of the Ultimo Estate 1859 subdivision. (Figure 14.3), inherited by John Harris’ descendant, Margaret Harris.[1] The subdivision of the Ultimo Estate and subsequent development and increasingly population of Ultimo in the late 1800s resulted in establishment of a branch of the Government Savings Bank opening in Ultimo in rented premises in 1881. While the current Post Office site was suggested for resumption as early as 1892 (Figure 14.4), this proposal was initially rejected in favour of the leasing an existing building located a couple of doors down at 484 Harris Street. The property was leased from Mr J. Coffill for a period of five years, and in 1893, the Ultimo Post Office and Telegraph commenced official operation out of 484 Harris Street, with W. F. Burgess as the postmaster.[2]

The land at 494 Harris Street remained vacant until 1900, at which time government funds were finally acquired for construction of a purpose-built Post Office at Ultimo, and the land was resumed, for which Margaret Harris was compensated £600.[3] The Ultimo Post Office was designed in the Federation Queen Anne style by the Public Works Department’s Government Architect’s Branch under Walter Liberty Vernon, and constructed for a cost of a little over £800 by contractor G. W. Brewer. The Ultimo Post Office was constructed with the main post office area on the corner, and postmaster’s residence adjacent to the east, and opened for occupation and operation in July 1901. Ultimo Post Office was one of a group of approximately 32 buildings erected between 1890 and 1910 to designs by W L Vernon.[4]

A Commonwealth Savings Bank operated out of the Post Office from c.1914 to the 1930s.[5] Newspaper reports of several incidents at the Post Office over the years included the suspicious death of the postmaster, John Batty at the residence above the Post Office in September 1930,[6] while in November 1944, there was a report of a car that crashed into the front of the Post Office, knocking the corner pillar off its base and onto the bonnet of the car[7] (Figure 14.8). The pillar was later reconstructed.

Figure 14.2: Ultimo Post Office 2020. (Source: Curio 2020)

The Post Office continued operating until 1985, at which time it was acquired by the Museum of Applied Arts and Sciences (MAAS) for use as a 20-place occasional child care centre. Conversion of the Post Office to the childcare centre in 1985 included alterations and additions to the building both internally and externally, including construction of new eastern addition to the building[8] (Figure 14.10 and Figure 14.11). The childcare centre commenced operation from 1 January 1990 under a 21 year lease.[9] Further works to the Post Office the building were undertaken in 1992, including general renovations and the installation of new amenities.[10]

By 2008 the Post Office no longer operated as a childcare centre, and was being used by the Powerhouse Museum. On the 10th of March, 2008 a new volunteer centre was opened in the restored Post Office building, coinciding with the 20 year anniversary of the Museum at the Ultimo site.[11] A modern covered walkway connecting the modern eastern addition of the Post Office building to the Wran Building to the south was constructed in 2009–2010. In 2020 the former Ultimo Post Office remains in use as the Volunteer Centre for the Powerhouse Museum volunteers.

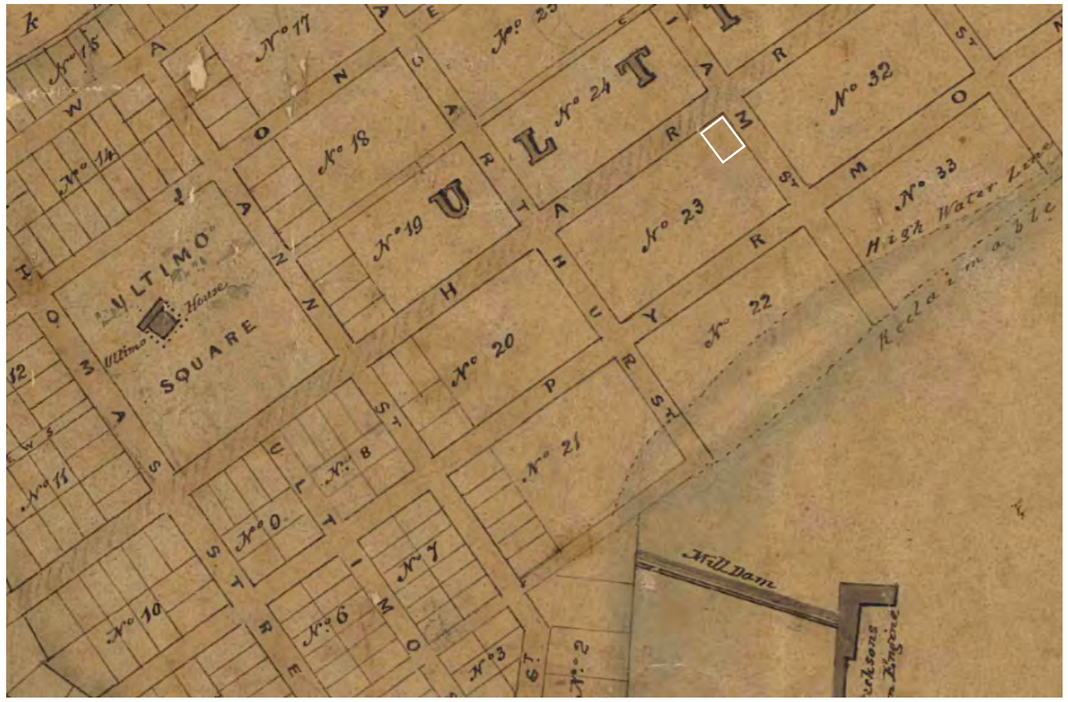


Figure 14.3 c.1859 plan of Post Office site within Ultimo subdivision

Ultimo Post Office.

The Postmaster-General (Mr. Kidd) accompanied by Messrs. Kelly and Davis, Ms.L.A., visited Ultimo yesterday for the purpose of inquiring into local requirements, but more particularly to inspect the district post office, which, it was urged, was totally inadequate for the requirements of the place. Mr. Kidd fully concurred in this view of the matter, and afterwards inspected a site at the corner of William Henry and Harris streets, which is available for the erection of a new building. The Union-street branch office was also originally visited and the party then proceeded to Mr. R. Saunders's quarries, where they were entertained.

During the visit, several local grievances were brought under ministerial notice by the members, and attention thereto was promised.

Figure 14.4 Evening News, Wed 10 Aug, 1892 p. 6

Figure 14.5 Ultimo Post Office, early 1900s (Source: SANSW NRS-4481-2)

Figure 14.6 Ultimo Post Office 1947 (Source: National Archives)

Figure 14.7 Ultimo Post Office 1955 (Source: National Archives)

Figure 14.8 Daily Telegraph, 30 Nov 1944 p. 5

Figure 14.9 Ultimo Post Office in 2020 (Curio 2020)

Figure 14.10 1980s eastern addition to the Ultimo Power House as part of development for Childcare Centre (Curio 2020)

Figure 14.11 Rear of 1980s eastern addition to Ultimo Post Office, modern rear porch alterations (Source: Curio 2020)

14.2 PHYSICAL ANALYSIS OF THE ULTIMO POST OFFICE

An overall photo register and images of the Ultimo Post Office as of 2020 is presented in Section 14.5.

14.2.1 Site and Setting

The Ultimo Post Office House, located at 494 Harris Street also forms part of the Powerhouse site- referred to by the primary address of 500 Harris Street, Ultimo. The former Post Office is located on the south-eastern corner of William Henry and Harris Streets, bounded to the east by the North Annex, and to the south by the Wran Building. The humble scale of the single storey brick Federation Post Office building, located on a prominent intersection, serves to further accentuate and emphasise the large scale of the former Power House buildings. The position of the Ultimo Post Office provides a clear visual link between the predominantly two storey residential Victorian buildings in Pyrmont, and the larger industrial buildings and function of the Ultimo Power House.

14.2.2 Built Elements

The Post Office is a single storey brick building, designed by Government Architect Walter Liberty Vernon in the Federation Queen Anne architectural style with classical and Romanesque elements. Aside from the reconstruction of the one pillar following the 1944 car crash, the Ultimo Post Office appears to have remained relatively intact with minimal modification from its completion in 1901, until its closure and acquisition by the Powerhouse in the 1980s. The SHR listing describes the Post Office as:

> ...a single storey brick building with ashlar and moulded stone dressings and a slate clad roof. The Harris Street (western) end has a parapeted gable which has stone coping finishing in segmental shoulders and topped with a frustum apex stone. On the gable there is a quarry faced frieze above a chink with a stone sill. At the eastern end the roof is of gabled hip form
>
> Windows are mainly double hung sashes with highlights above. A major feature is the stone, arched entry porch on the corner. It is double faceted and has ornate impost mouldings and archivolts. Above the corner is an embellished cartouche. The eastern section of the building (lower than the post office due to the falling ground) was originally the postmaster's residence. The former entrance here is flanked by oculi each with stone reveal and label mould. This elevation continues easterly as a stepped brick wall (with stone coping) to the back yard. A corbelled chimney with two pots rises from the roof of the building.

The Ultimo Post Office consists of three main sections, stepped down along William Henry Street to the east. The western two sections of the building constitute the original, State Heritage Listed Post Office constructed in 1901. A third eastern section of the building was constructed in the 1980s as part of the conversion of the former Post Office to a childcare centre. While constructed in the 1980s, the later rear addition has been designed and constructed to be appropriately sympathetic in style, form and scale to the heritage item.
A section of brick boundary wall, contemporary with the 1901 construction of the Post Office, extends from the eastern end of the original postmasters residence, stepping down east along William Henry Street, fronting the modern addition.
A metal lattice security fence painted red and green has been constructed at the eastern end of the brick boundary wall, securing a minor private entry to the Powerhouse Museum via a set of concrete steps from William Henry Street between the North Annex and the Post Office site. A second metal lattice security fence is located on the eastern side of the Post Office lot along Harris Street, securing the entrance to the rear yard between the Post Office and the Wran Building.

The post office featured a hipped roof with slate tiles and a corbelled brick chimney with two terracotta pots. The slate tiles on the original building are grey, whilst they are purple slate on the 1988 addition. The brick is red-brown and the southern walls of the building have been painted cream. There is sandstone coursing, parapet capping and trim. A modern covered walkway has been constructed across the rear yard of the Post Office lot, connecting the rear modern addition to the Wran Building.

The main entry to the Post Office from Harris Street features a recessed corner porch with a stone arch and an embellished cartouche above the corner. The original ‘Post Office” designation signage has been removed from the sandstone porch face, although the imprint of the letter is still evident. The Post Office retains original double hung sashed windows with highlights along the northern and western elevation, as well as the two bullseye windows on the northern elevation flanked the original entry to the postmaster’s residence. Internally, the ceilings, cornices and fireplace in the original portions of the building appear to be original.

Overall, in despite of 1980s conversion works, the Ultimo Post Office remains in good condition with a high degree of original fabric intact. The majority of the alterations to the building have occurring internally, of which, the majority are easily reversible.[12]

14.3 HERITAGE SIGNIFICANCE

14.3.1 Summary of Significance

The local heritage listing for the Ultimo Post Office provides the following Statement of Significance:

> The building dates from one of the key period of layers for the development of Ultimo/Pyrmont as a direct result of subdivision of the Harris and Macarthur Estates. It is a good example of a Federation Post Office on a prominent corner site which makes a positive contribution to the streetscape.
>
> The former Ultimo Post Office, built in 1901, is historically significant for its associations with the development of Ultimo/Pyrmont as a predominantly industrial and warehouse precinct by the turn of the century. Construction of the post office helps to reflect the degree of development and consolidation by that time. The building reflects characteristics of Federation Classical and Federation Romanesque architectural styles and is important for its connection with NSW Government Architect W L Vernon. Owing to its styling and its location on a major intersection, the former post office is an important element in the Ultimo streetscape. Further, it emphasises the scale of the former Ultimo Power House (now the Power House Museum) behind.[13]

14.3.2 Views

The primary view of the Ultimo Post Office is from Harris and William Henry Streets, readily apparent within views south towards the Powerhouse site from William Henry and Harris Streets. It is important to maintain the view of the Post Office from Harris Street and William Henry Street. The views from these frontages could be improved significantly through updated fencing which allows visibility whilst ensuring the security of the corner.

Despite its prominent corner position, the connection of the Post Office building has been severed both physically and visually by the construction of the Wran Building (Figure 14.12 to Figure 14.14). Visually, the Wran Building blocks the connection of the Ultimo Post Office to the original Power House buildings, dominating the landscape around the Post Office, impacting its readability and presence on site. While the Post Office and the Power House functioned as separate entities without any formal crossover in operation, the construction of the Ultimo Post Office in its current position was directly influenced by the increasing residential population of Ultimo resulting firstly from the subdivision of the Harris land, and secondly from the increasing population of workers and residents moving to the areas following the opening of the Power House.

14.3.3 Grading of Significant Components of the Ultimo Post Office

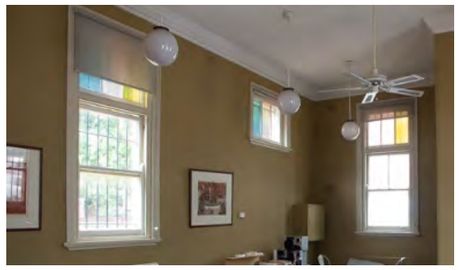
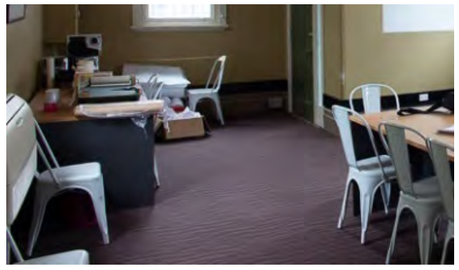
The key components and elements of the fabric and form of the Ultimo Power House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 14.1 and depicted in Figure 14.15.

Figure 14.12 Post Office and Power House 1964, note the smaller scale building behind the post office (Source: City of Sydney Archives NSCA CRS 47/2346)

Figure 14.13 Ultimo Post Office along William Henry Street, with Wran Building as dominant background context, obscuring visual connection between the Post Office and former Power House buildings (Source: Powerhouse)

Figure 14.14 Setting of the Post Office on the corner of William Henry and Harris Streets. The position of the Ultimo Post Office provides a visual link between the predominantly two storey residential Victorian buildings in Pyrmont, and the larger form, scale and function of the industrial buildings of the Ultimo Power House (Source: Powerhouse)

Table 14.1 Grading of Significance for the Ultimo Post Office

ELEMENT	IMAGE	GRADING	NOTES
Roof Finish and Chimneys		● EXCEPTIONAL	The original (western) sections of the building are tiled in purple slate in reasonable condition, likely original. The original corbelled chimney with two terracotta pots appear to be relatively intact, although a close inspection of the chimney was not undertaken. The internal ceiling obstructs inspection of the nature of the internal roof structure of the original Ultimo Post Office building.
External Walls (Original Structure)		● EXCEPTIONAL	The external brick walls of the original Post Office building are intact and in good condition. Part of the front sandstone pillar was reconstructed in the 1940s to match the original.
Windows (Original)		● HIGH	The original windows (double hung sash windows with highlights above/bullseye windows) have been retained, and are in relatively good condition.
Floor		NOT INSPECTED	At the time of the 2020 inspection, the floor was covered with modern carpet and therefore the original surface was not able to be inspected. 1955 images suggest that the original floor was constructed of wooden floor boards. The original or earlier floor surface may remain beneath the modern carpet.
Fireplace		● HIGH	The tiled fireplace in the main Post Office room appears to be original.

ELEMENT	IMAGE	GRADING	NOTES
Rear Addition (1980s)		LITTLE	While the rear (eastern) addition to the Post Office was constructed in the 1980s and is of little heritage significance, it has been designed and constructed to be appropriately sympathetic in style, form and scale to the 1901 Post Office, and presents as an overall neutral item in the context of the State heritage item.
Brick Boundary Fence (North)		HIGH	The lower section of the exterior brick fence to the north appears to be original, although it has been modified at a later date as is evident from the brickwork.
Exterior lattice fence (East and West)		INTRUSIVE	The modern green and red lattice security fences are visually obtrusive to the setting and visibility of the Post Office.
Rear Covered Walkway		INTRUSIVE	The covered walkway in the rear yard of the Post Office is not commensurate with the setting of the SHR item, and is considered intrusive.

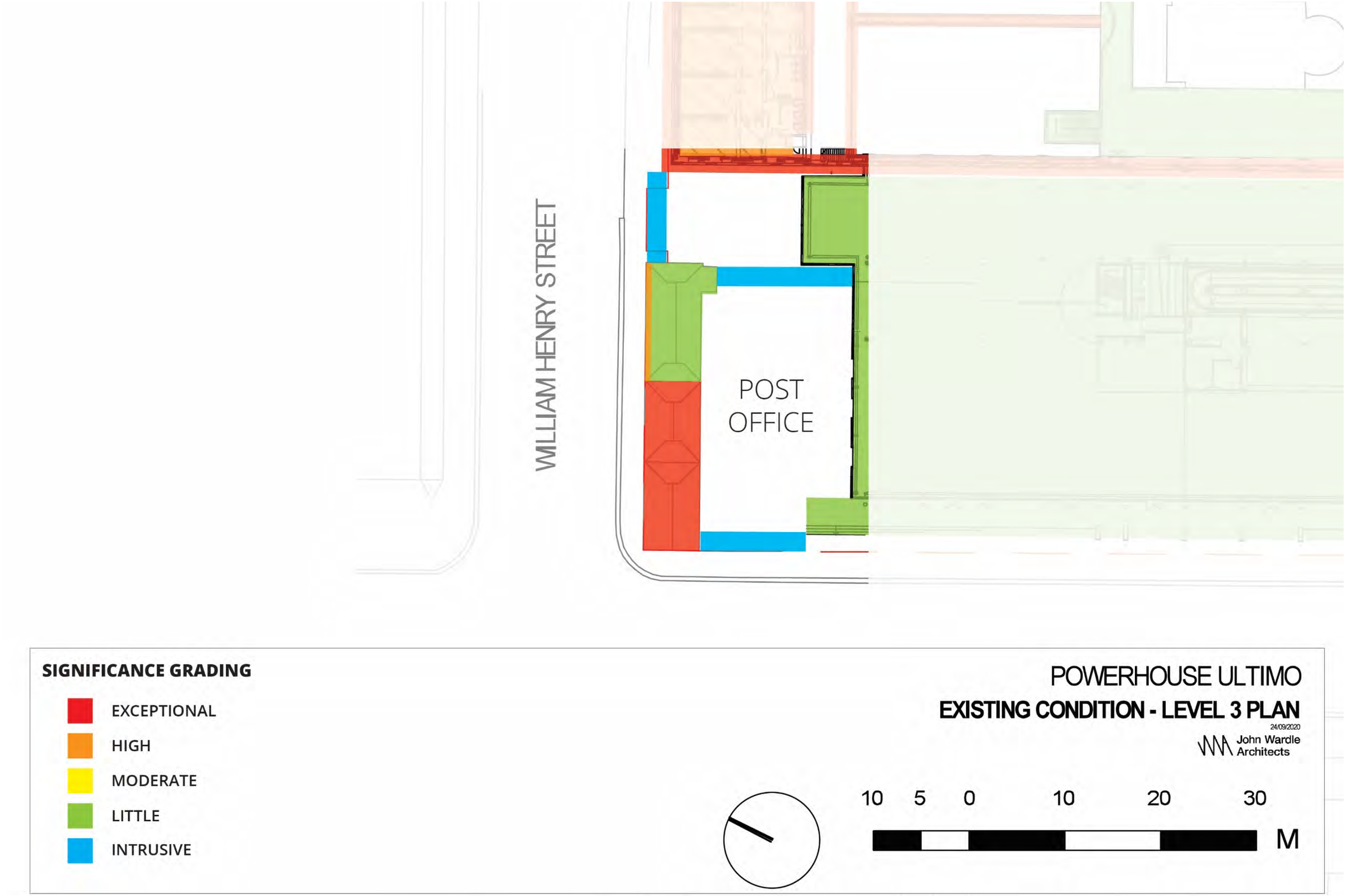


Figure 14.15 Ultimo Post Office- Grading of Significant Components (Source: John Wardle Architects plan with Curio Projects overlay)

14.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Ultimo Post Office include:

Opportunities

- As a SHR listed item, ideally a more appropriate curtilage should be established for the Ultimo Post Office, allowing it to be more apparent and visually appreciated in its dominant corner position, rather than overshadowed as it is at present by the dominant form of the Wran Building rising behind it. Future development could explore possibilities that would help to re-establish the visual connection between the small scale, former Ultimo Post Office and the large scale Power House buildings.
- Incorporating opportunities for public facing activities within the building would allow for public access of this State Significant building to be restored.
- Opportunities to reincorporate the Post Office building into the Powerhouse Ultimo site should be explored.

Constraints

- The location of the Ultimo Post Office at the junction of two significantly sized roads with heavy traffic flow presents a constraint to access and use associated with the primary elevation of the building.

14.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 7—Fabric: The bars installed within the Post Office windows are an unsympathetic modern addition that should be removed/replaced with a more sympathetic option, to be more sympathetic to the heritage values and setting of the heritage item.

Policy 16—Adaptive Reuse: Adaptive reuse of the Ultimo Post Office that would allow restoration of public access to this State Significant building is recommended, such as incorporation of an active retail/commercial premises within the building.

Policy 20—Security: The visually intrusive security gates (green and red painted lattice) located to the east and west of the Ultimo Post Office are recommended for removal and replacement (and/or revision) with an element that is more sympathetic to the heritage setting and values of this State significant heritage item.

14.6 PHOTO REGISTER FOR THE ULTIMO POST OFFICE

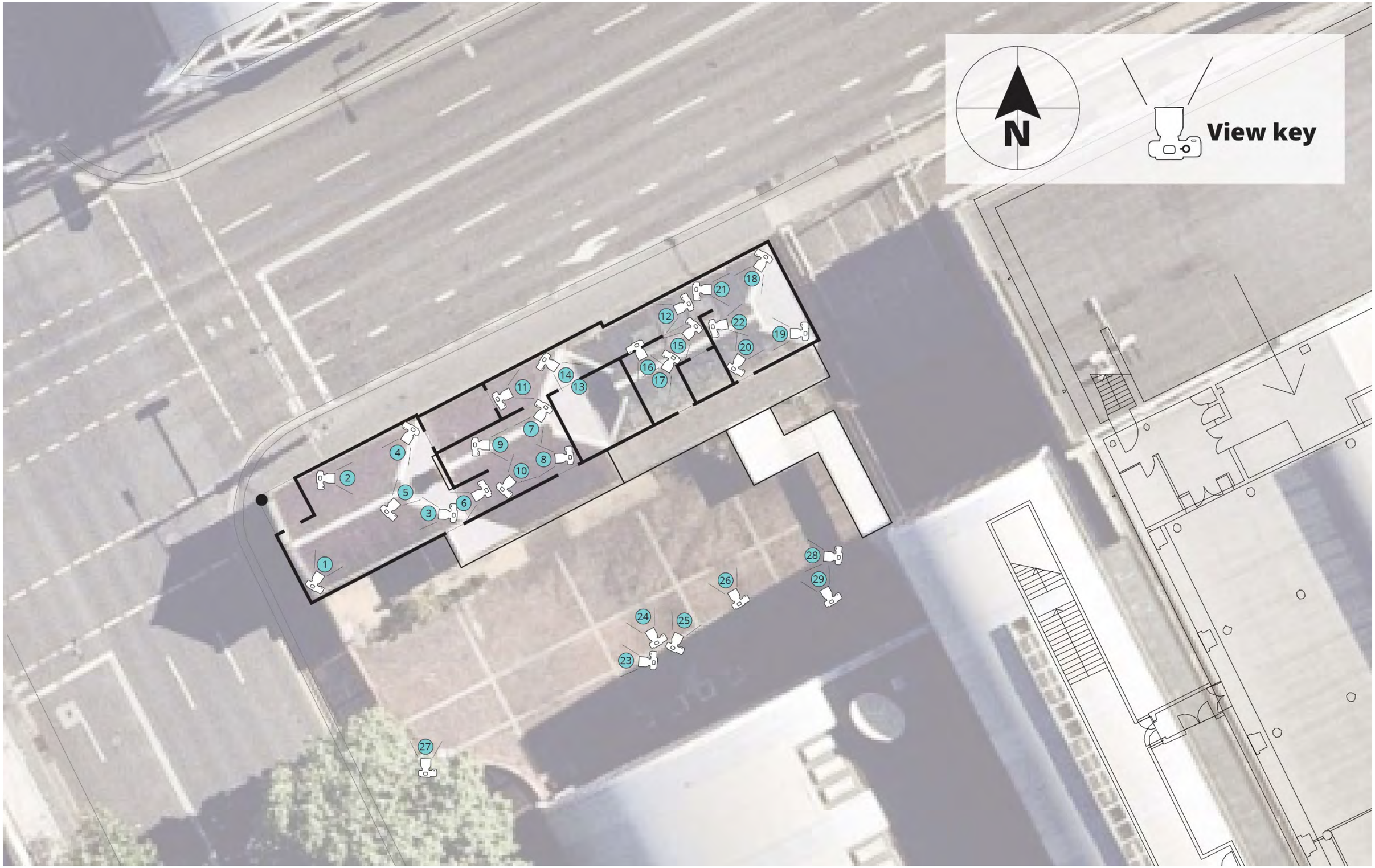


Figure 14.16 Ultimo Post Office Photo Register

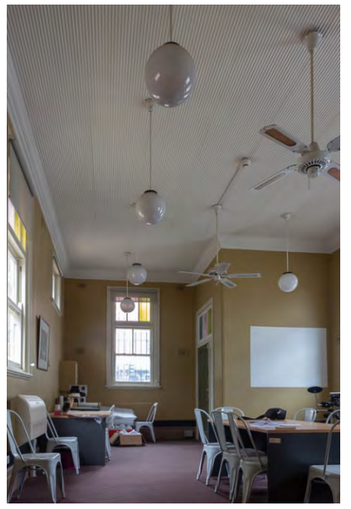
Post Office Viewpoint 1

Post Office Viewpoint 2

Post Office Viewpoint 3

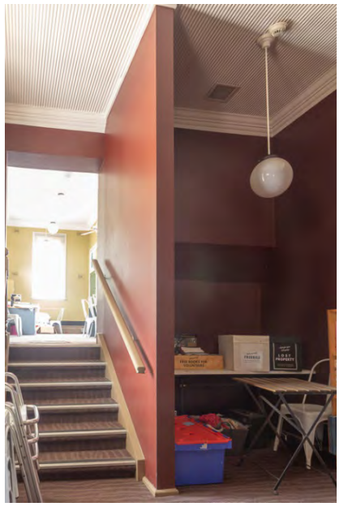
Post Office Viewpoint 4

Post Office Viewpoint 5

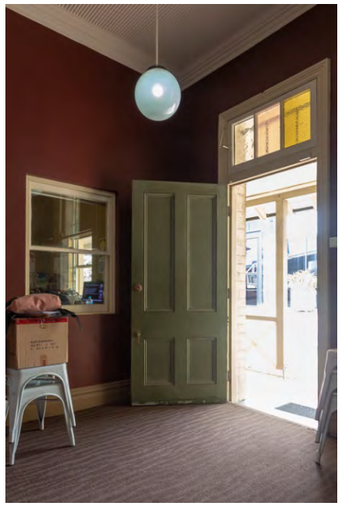


Post Office Viewpoint 6

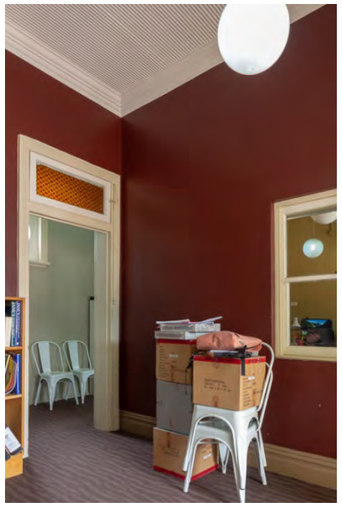
Post Office Viewpoint 7



Post Office Viewpoint 8

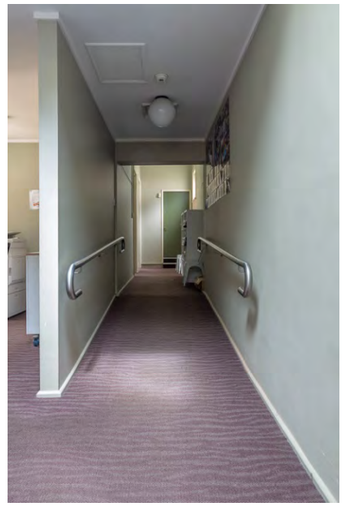


Post Office Viewpoint 9

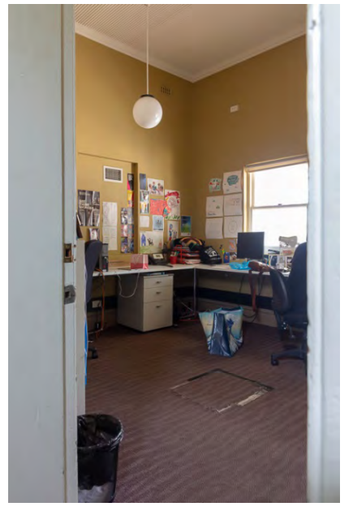


Post Office Viewpoint 10

Post Office Viewpoint 11

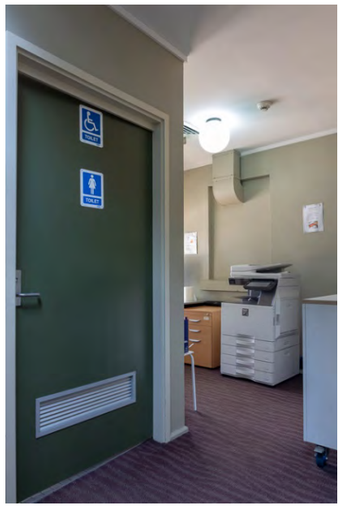


Post Office Viewpoint 12



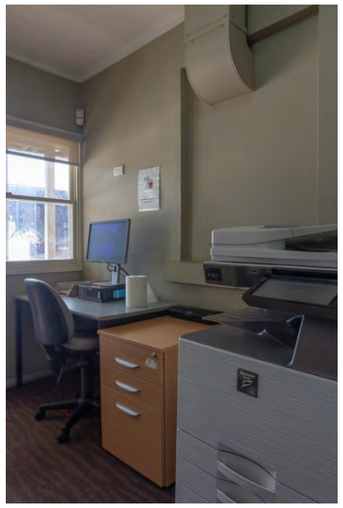
Post Office Viewpoint 13

Post Office Viewpoint 14



Post Office Viewpoint 15

Post Office Viewpoint 16



Post Office Viewpoint 17

Post Office Viewpoint 18

Post Office Viewpoint 19

Post Office Viewpoint 20

Post Office Viewpoint 21

Post Office Viewpoint 22

Post Office Viewpoint 23

Post Office Viewpoint 24

Post Office Viewpoint 25

Post Office Viewpoint 26

Post Office Viewpoint 27

Post Office Viewpoint 28

Post Office Viewpoint 29

14.7 ENDNOTES

1 Godden et al 1984, p. 29
2 Architectural Projects 2003, p. 18
3 AMBS 2018, p. 13.
4 Architectural Projects 2003, p. 1
5 Sands 1931; AMBS, 2018, p. 14
6 Mudgee Guardian and North Western Representative 8 Sep 1930
7 Sun, 30 Nov 1944 p. 2
8 DA.88.0044, 14/1/1988; Motenson & Lav Pty Ltd 45.88.1112, 31/5/1988 (Planning Cards for 494 Harris St, City of Sydney Archives)
9 Government Gazette of the State of NSW, 1 May 1992
10 Public Works , 959/92, 2/10/1992 (Planning Cards for 494 Harris St, City of Sydney Archives)
11 Museum of Applied Arts and Sciences Annual Report, 2007-2008, p. 7
12 Architectural Projects 2003, p. 88.
13 State Heritage Inventory, Former Ultimo Post Office Including Interior (Local)

15 WRAN BUILDING

15.1 HISTORY OF THE WRAN BUILDING

This section is informed by research conducted by Design 5.

The Wran Building is located on Harris Street, between William Henry and Macarthur Street. In 1978, under the guidance of the Premier, Neville Wran, and Jack Ferguson, the Minister for Public Works, Jack Ferguson, Lindsay Sharpe and Lionel Glendening created a feasibility study for the museum and the proposed site in Ultimo.[1]

> In about 1978, the Premier Mr. Wran went overseas and saw...the Centre Pompidou in Paris...he came back and essentially, he said 'I want one of those'[2]

On the 13th of August, 1979 New South Wales Premier Neville Wran announced the Ultimo Power Station and Tram Depot was to become the new home of the Museum of Applied Arts and Sciences. Dr Lindsay Sharp was appointed as the Director to oversee the transition to the new museum space. The William Henry to Macarthur St block was resumed by the Public Works Department in 1980.

The Wran building was purpose-built to house the Powerhouse Museum and represents the modern, built component associated with the site's redevelopment for museum use. The 1980s design of the Powerhouse Museum was coordinated by the NSW Public Works Department in close association with the Powerhouse Museum in-house design team. According to project architect Lionel Glendenning, the design of the Wran Building responded to the 'the golden mean proportion' of the Turbine Hall, with Vault 1 making architectural reference to Museum of Applied Arts and Sciences's first home in the garden palace, and Vault 2 referring to the arches of the Boiler House.[3]

> The existing buildings, which include the former turbine, switch and boiler houses, have been stripped back to the bare essential structure. Exhibits, including airplanes, motor vehicles and helicopters, are hung in space. The new work was largely confined to the Wran Wing, a barrel-vaulted room, partially glazed with an external colonnade along Harris Street. From the entry, ramps, escalators and lifts lead the visitor to the various parts of the museum and the interactive displays.[4]

The architectural design explored the rich history of the museum from its early beginnings in the great Garden Palace exhibition in 1879. The West Building (later Wran Building) and the galleria derive from the arched form of this earlier building whilst also creating spatial sequences that expand and augment the existing great rectangular volumes of the Turbine and Boiler Halls – the Ultimo / Pyrmont 'cliff of buildings.[5]

Previous Names	1988 Museum Building & Courtyard Wran Building 1988 Exhibition Building
Address	500 Harris Street, Ultimo
Lot & DP	Lot 1 DP781732
Built	1988
Heritage Listings	N/A
Non-Statutory Listings	Australian Institute of Architects Register of Significant Buildings (4701884)

Figure 15.1 Wran Building Location Map (Source: John Wardle Architects with Curio Projects overlay)

Figure 15.2 The Wran Building 2020. (Source: Curio Projects)

Stage Two of the Powerhouse Museum at the Ultimo site opened in 1988, constituting the adaptive re-use of the former Power House buildings (Figure 15.3), along with the newly constructed Wran Building (Figure 15.4). While the original design intent for the 1988 museum included construction of high-rise office accommodation west of the Power House buildings fronting Harris Street, this vision never eventuated, and the location became the Harris Street Forecourt to the Powerhouse Museum.[6]

> The re-design of the Power House into a museum won numerous awards including the Sir John Sulman Medal in 1988, the Australian Institute of Architects (AIA) National President's Award for Recycled Buildings, the NSW AIA Chapter Belle Interiors Award for Interior Design and was a finalist for the National Sir Zelman Cowen Award. The Powerhouse Museum re-purposing of a former industrial complex influenced other adaptation projects in NSW, Australia and internationally. (e.g. Casula Powerhouse, Carriageworks in NSW; Brisbane Powerhouse, Longreach Powerhouse & Historical Museum. in Queensland; Spotswood Pumping Station conversion into Scienceworks, the Malthouse Theatre in Victoria; and adaptive reuse of Blackhawk Generating Station into Beloit College Powerhouse, Wisconsin USA.)[7]

The 2003 CMP noted:

> The adaptive reuse of the building was an important government initiative linked to the revitalisation of the Ultimo Pyrmont Peninsula. The building was considered at the time to be a highly innovative state of the art museum. The building is an important work by the Government Architect Branch under the direction of Lionel Glendenning.[8]

In 2005–2006 the building's exterior was refreshed with a white façade and updated livery in order to complement the Ian Thorpe Aquatic Centre that was set to open nearby.[9] During 2006–2007 the Level 1 courtyard café was upgraded and 'Cog's Playground' was established in the Level 1 courtyard.

Significant modifications and alterations to the Wran Building occurred as part of the Powerhouse Museum Revitalisation Project between 2011–2013, including:

- Works to Harris Street forecourt.
- Blocking of glass façade on Harris Street elevation.
- Works to the southern façade of the Wran Building including removal of the original glass lift to allow relocation of the main entry, (Figure 15.5)
- Transformation of the original entrance location to a 1,800m2 Level 3 temporary gallery (Figure 15.9).[10]
- Demolition (and relocation) of the Level 2 toilet block to create a new exhibition space.[11]

At present the Wran Building is used as exhibition spaces, front of house and Creative Residents for the Powerhouse Museum.

Figure 15.3 Wran Building under construction c. 1986 (Source: Powerhouse Photo Library 00220995.jpg)

Figure 15.4 Wran Building in 1988 (Source Cracknell & Lonergan p. 9)

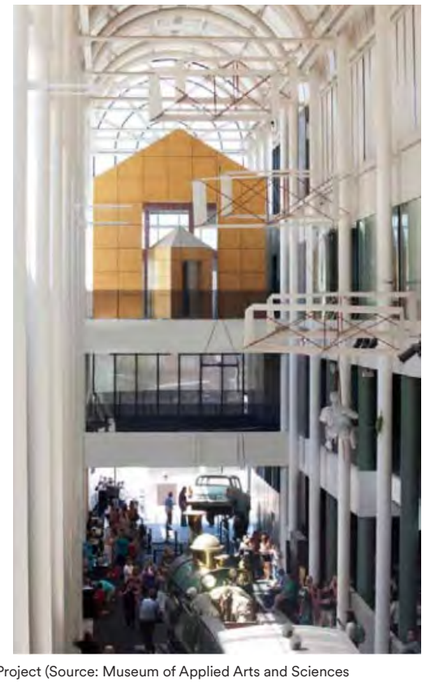


Figure 15.5 The Galleria during and after the 2012 Revitalisation Project (Source: Museum of Applied Arts and Sciences 2011–12 Annual Report)

Figure 15.6 Front courtyard during works (Museum of Applied Arts and Sciences Annual Report 2011–12 p. 8)

Figure 15.7 Upgraded front courtyard (Museum of Applied Arts and Sciences Annual Report 2011–12 p. 8)

Figure 15.8 Level 3 former entrance (Museum of Applied Arts and Sciences Annual Report 2011–12 p. 8)

Figure 15.9 Level 3 temporary exhibition room (Museum of Applied Arts and Sciences Annual Report 2011–12 p. 8)

15.2 PHYSICAL ANALYSIS OF THE WRAN BUILDING

An overall photo register and images of the Wran Building as of 2020 is presented in Section 15.6 below.

15.2.1 Site and Setting

The Wran Building forms part of the Powerhouse Ultimo Site at 500 Harris Street, Ultimo on the corner of William Henry Street and Harris Street and represents the Museum's formal entry which is made through the Galleria on Level 3. The northern face of the Wran Building faces the Ultimo Post Office and William Henry Street, the eastern façade envelopes the western façade of the Engine a House and the Turbine Hall. The southern wall faces the Level 3 forecourt and Macarthur Street.

The building predominantly fronts into Harris Street and is the most prominent component of the landscape when viewed from Darling Drive and nearby Harris, Systrum, Macarthur, Hay and William Henry Streets.

15.2.2 Built Elements[12]

When it was built the Wran building comprised of two vaulted spaces- Vault 1 (The Galleria) and Vault 2. The Harris Street forecourt ('Level 3' of the site) and the Grace Bros Courtyard (now known as the Level 1 Courtyard) were formed at the same time and a brief description of the Level 1 Courtyard is included in this section.

Today, Vault 1 is a linear barrel space which contains the Museum's principal entry, and the former entry, Vault 2, the Touring Exhibition Hall, an incomplete half-vault.

The Wran Building has been altered significantly since its construction in 1988, particularly during the 2011–2013 revitalisation project.

Vault 1 (The Galleria) has a high, partially glazed, arched steel roof with glazed facades on the north, south and west. The northern elevation represents the rear of the building and is associated with a series of fire doors that open onto a courtyard that leads to William Henry Street via a set of stairs. Vault 1 (The Galleria) meets Vault 2 along its northern and southern elevations. As designed by Glendenning, The Galleria abuts, yet is detached from, the Turbine Hall to the east through an offset in its arched roof which extends over the hall stone and brick parapet, displaying the carefully articulated distinction between the old and the new. The same technique has been executed at its junction with the Engine Room. Vault 1 houses the Museum's permanent exhibits – Locomotive No 1 (near the southern end) and the Boulton and Watt Beam Engine (towards the northern end). Modifications to the building in 2013 and the removal of a raised viewing platform mean that the Boulton and Watt Engine can no longer be viewed as originally intended. The Boardroom – a simplified model of the halls' Turbine Hall / Boiler House on Level 5, sits at the southern end of The Galleria.

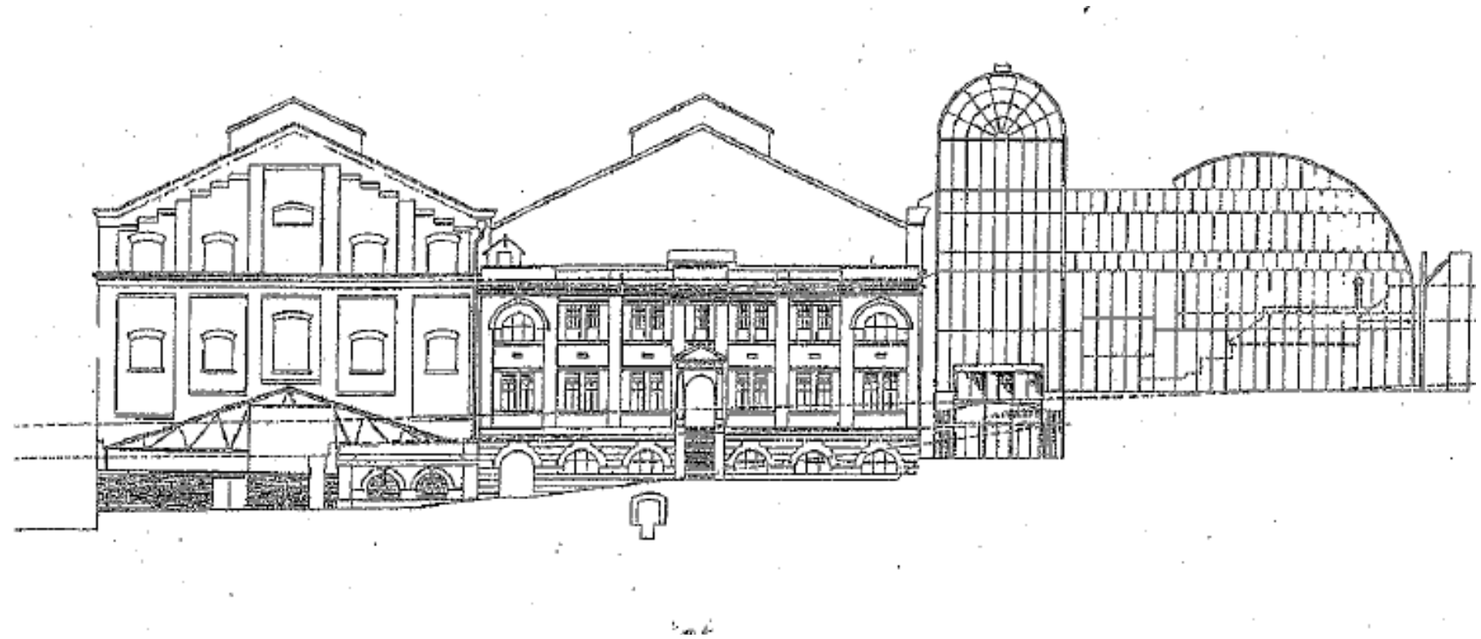


Figure 15.10 North elevation of the Powerhouse Museum in 1988 (Source: National Trust)

Figure 15.11 South elevation of the Powerhouse Museum in 1988 (Source: National Trust)

Vault 2 (Touring Exhibition Hall) has a lower and broader scale than Vault 1 and characterised by a prominent corrugated steel roof that arcs down in a reverse curve edge. The east and south facades have glazed frontages that extend to door height and provide an exit to Harris Street and the Museum's forecourt. The exterior of the north and south ends are finished in fibre cement sheets, painted white and marked with the Museum's name. The same material is used on the colonnade's finish. The Exhibition Hall is associated with a mural of the Australian sky along its northern and southern internal elevations. Its original light painted Renfoil ceiling has been painted black. The Touring Exhibition Hall is partitioned into two black box spaces for temporary exhibitions and the north end was significantly reconfigured to be used as a UTS classroom. Modifications carried out in the 2000s included the addition of black plywood panels into the building to block the natural sunlight on Level 3. The original Italian nougat tiled flooring in Vault 2 has been partly damaged by removed fitout over time and much of it is covered by carpet. Two triangular balconies located on Level 5 and originally intended to provide views of exhibitions on lower floors have now been modified and no longer function as they were intended. One looks onto an empty space while the other is being used to house lockers.

A central element between Vault 1 and Vault 2 is divided over 3 levels and occupied by studios, offices, storage and service spaces. The First Nations Design and Fashion Hub occupies the northern end of the top level.

Level 2 is used for temporary exhibitions and is occupied by a Theatrette and Theatre on Level 2 below Vault 2. Level 1 is occupied by a Digitisation Studio, plant, and storage and service spaces.

Today, the Wran Building provides access for schools and groups at Level 2 from the Macarthur St. Entry through the Galleria does not have a clear intermediate zone between the outside and the exhibition areas. The admissions desk and the cloaking facilities are located behind the west wall of the Switch House, and a visitor must turn right and go through the arched opening in the west wall of the Turbine Hall to find the reception area. The different levels within the building are generally accessed through the inclined ramp that runs parallel to the length of the building and connects Levels 1, 2, 3 and 4. A lift at the southern end connects Levels 3, 4 and 5.

A significant amount of original fabric has been retained in the Wran Building. This includes the structure and external joinery, the George Freedman designed carpets, and the 'nougat' tiled flooring (much of which is covered by new carpet). In addition to the interiors of the two theatres and the perforated metal balustrades.

The Level 1 Courtyard (formerly the Grace Bros Courtyard) was added at the same time as the Wran Building. It currently exists as a 'rear courtyard' for the site. At present it houses a rectangular box-like café (although the café ceased operations in 2020), a children's playground and a Utility substation surface entrance. Within the Level 1 courtyard are the colourful 1988 external stair and lift shaft of the Boiler House which pay reference to the coal chutes, ash handling plant, and coal handling plant of the former Power House. Remnant tracks from where the Goods Line (Darling Harbour Rail Corridor) used to extend into the Boiler House are evident.

The brightly coloured, striped, vertical elements, whilst representative of the former coal chute on the building, detract from the significance of the Boiler House. When entering the Museum complex from the Goods Line, the large, rectangular café and covered walkway both detract from the significance of the Switch House, Turbine Hall and Boiler House.

Figure 15.12 Entry to the Level 1 Courtyard from Macarthur Street/ The Goods Line (Source: Powerhouse)

Figure 15.13 Level 1 Courtyard (Source: Curio Projects)

Figure 15.14 Level 1 Courtyard (Source: Curio Projects)

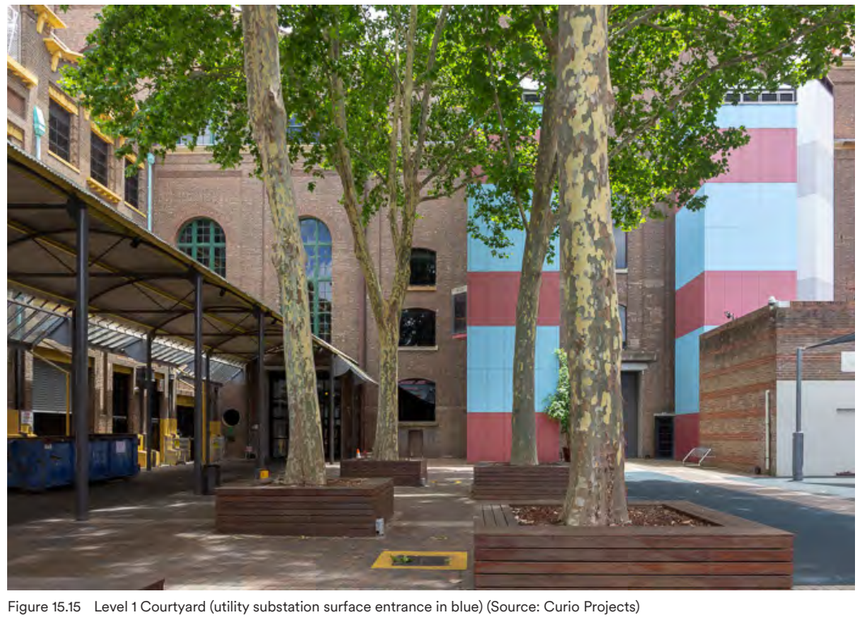


Figure 15.15 Level 1 Courtyard (utility substation surface entrance in blue) (Source: Curio Projects)

15.3 HERITAGE SIGNIFICANCE – DISCUSSION

The Wran Building is not included on any statutory heritage register for local or State significance. It is excluded from the recent 2020 SHR Listing for the Ultimo Power House and is not listed on the City of Sydney LEP. As the Wran Building is not a heritage listed item at a Local or State level, gradings of Significant components has not been prepared for this element of the site.

An independent assessment of heritage significance of the Wran Building, commissioned by Heritage NSW, was undertaken by architects Cracknell & Lonergan in 2019, the results of which were presented in a report dated January 2020.[13] The Cracknell & Lonergan report included an assessment of the 1988 architectural additions to the Powerhouse site (i.e the Wran Building), particularly in response to the proposed statement of significance drafted by the National Trust with respect to the Wran Building and 1988 site additions specifically.

> The 1988 Wran Building and additions, whilst award winning, have been subject to unsympathetic changes which have diminished the original architectural intent and reduced the ability to interpret the building as a key work of the post-modernist period. The folies facing the Harris Street entry, the original playful array of colours and other characteristics of the post-modernist architectural period have been demolished or lost…[14]
>
> …The Wran building is regrettably unconvincing. The fair ground style of architecture bore reference to the exuberant darling harbour redevelopment of the 1980s with an accidental and clumsy reference to the garden palace with elements of the garden palace 'reconstructed' and placed around the curiously over-scaled interiors of the Wran building. … Essentially, it is a services component which serves the main bulk of exhibition spaces contained within the original Ultimo Powerhouse structures.[15]

Cracknell and Lonergan recommended in their report that:

> … A clear distinction must be established between the significance of the MAAS Collection and the Ultimo Powerhouse site. The significance of the two, for its aesthetic, cultural and historical merits cannot be conflated to be interwoven as implied in the National Trust listing. The subject site is not an 'ongoing repository' as it would fail to consider the Powerhouse collection held at all of its other sites, but the collection can be described as such.[16]

Physically, the Wran Building has been altered significantly since 1988, particularly during the 2011–13 revitalisation project in contrast to the recommendations of the 2003 CMP that recommended that the Wran Building be retained with no changes, including to Vault 1 and Vault 2 and the open character of the mezzanines due to its representation of the 'image of the Powerhouse Museum'.[17] The level of alterations to the Wran Building is to the extent that it has been argued that the Wran Building and museum design has deviated so far from the original design intent as to no longer be representative of the original flow design of the building and award winning museum design.

The Wran Building is considered to have some significance at a local level. It has some significance for its role in the adaptive reuse of the Ultimo Power House buildings, and has some significance for its post-modernist style and associations with new approaches to museum making in the late 1980s.[18]

It is also important to note that whilst the construction of the Wran building was innovative for its adaptive reuse of the site at the time, it also impacts the visibility and readability of the heritage buildings within the site.

Figure 15.16 Powerhouse Museum 1980s Wran Building from Harris Street, 1988 original architectural presentation (Top) compared with 2018 (Above) (Source: Cracknell & Lonergan 2020: 9)

15.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities

- Consider the original design intent for the Wran Building, and use these principles to consider the movement of visitors through the Museum.
- Ensure that new works, such as any demolition, alterations and additions, and new buildings, retain the heritage significance of the Powerhouse Ultimo site.
- The 1988 adaptive re-use of the Power House Buildings into the Powerhouse Museum, including the construction of the Wran Building, further obscured rather than enhanced the industrial history of the site. Future use of the site should seek to identify any opportunities to re-connect with and explore the industrial history of the site, possibly via future development choices, heritage interpretation initiatives etc. The industrial context of the site is particularly apparent when viewed from the Goods Line entry to the site, where the industrial buildings are more prominent.
- Ensuring the design principles of the 1988 development are appended to the CMP and are used as a guide for future renewal programs.
- Over the 30 years since the Wran Building was constructed, museums and how they operate have significantly changed. There is opportunity in any renewal to ensure the embedded ambition from 1988 ‘to be radical’ has the ability to be carried forward and applied in a contemporary museum context.

Constraints

- The facades of key State Heritage Listed buildings on site, such as the Engine and Turbine Halls are obstructed both physically and visually by the Wran Building and other 1980s additions to the site. This configuration restricts the ability to interpret and appreciate the heritage buildings as they relate to one another and from different key external viewpoints. Opportunities to improve the visual access to the heritage listed buildings in the future would be encouraged.
- The Wran Building has been subject to numerous design changes over the years, limiting the ability for the building in its current iteration to convey the original design intent of the 1980s adaptive reuse of the site.
- Visually, the Wran Building obscures the connection of the Ultimo Post Office to the original Power House buildings, impacting its readability and presence on site. In its current form the Wran Building limits the ability for providing a more meaningful curtilage to be established around the historical Post Office.

15.5 ITEM-SPECIFIC CONSERVATION POLICIES

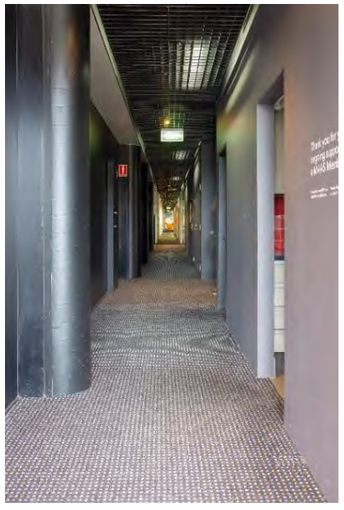
15.5.1 Powerhouse Museum Design Principles and the approach to change

The Powerhouse Museum is an evolving entity which has the potential to enhance exhibition design, museum practice, curatorship, collection management and research. Glendenning intended that it act as a modern and radical space, informed by the past and the future. Glendenning's principles are attached at Appendix E.

Depending on the nature of any future development proposed to the Wran Building, modifications or repairs to the external structural elements may be subject to the requirement for a Heritage Impact Statement to be prepared to ensure that there are no adverse physical or visual impacts on the State-Heritage listed Items on site.

15.6 PHOTO REGISTER FOR THE WRAN BUILDING

Figure 15.17 Wran Building Photo Register (Level 5)



Wran Building Viewpoint 1: Level 5

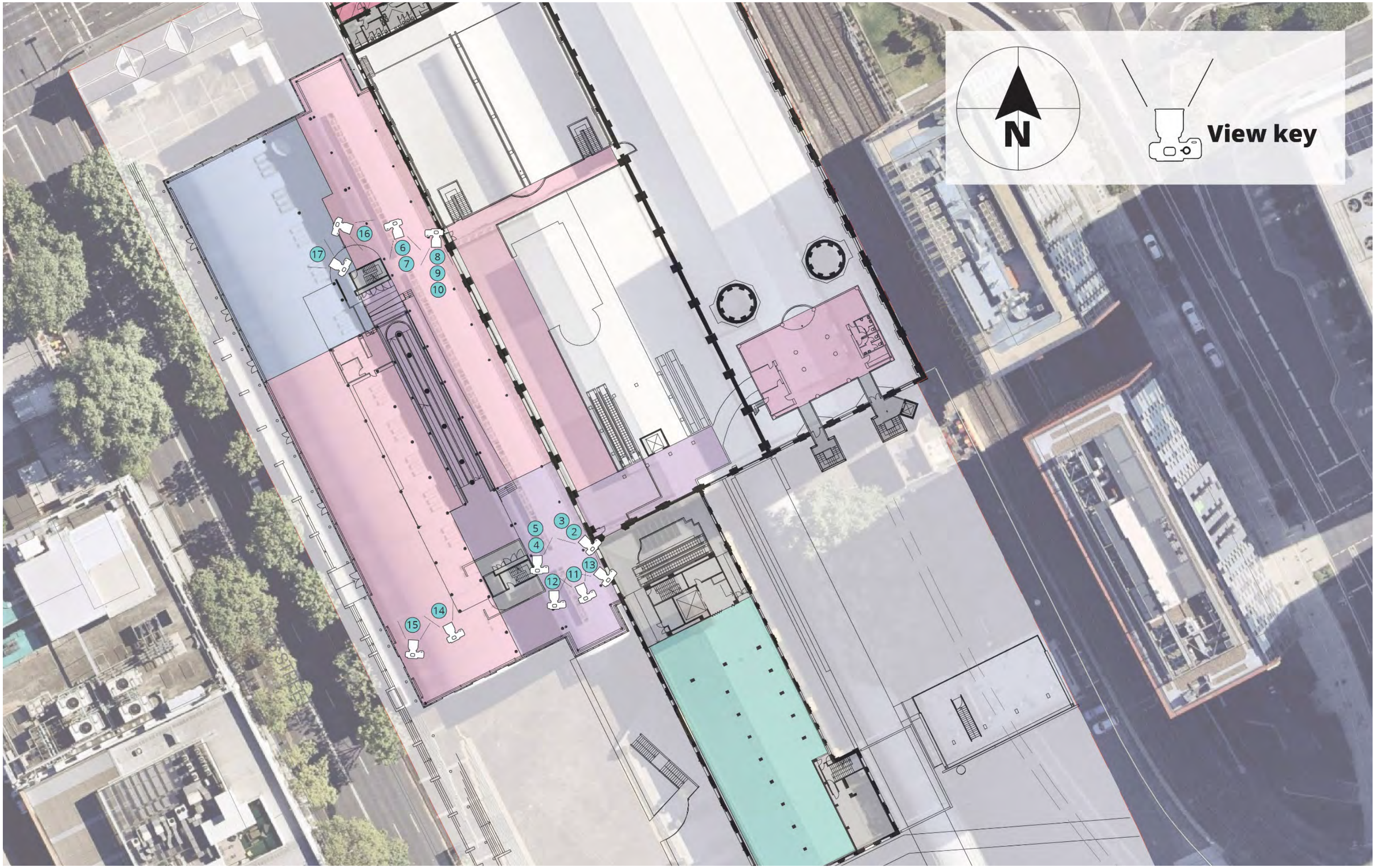
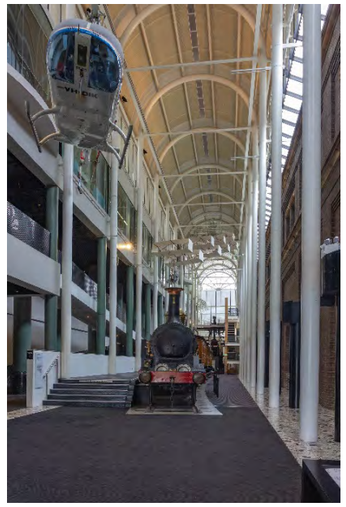


Figure 15.18 Wran Building Photo Register (Level 3)

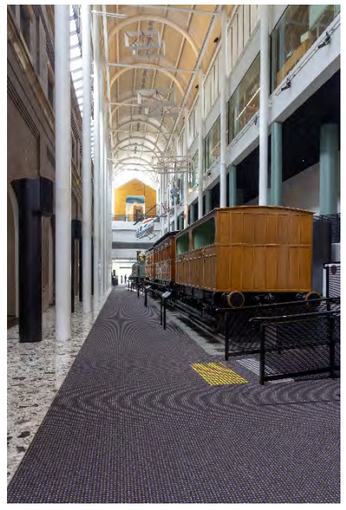


Wran Building Viewpoint 2: Level 3

Wran Building Viewpoint 3: Level 3

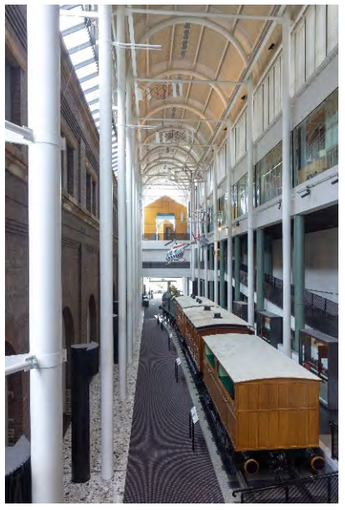
Wran Building Viewpoint 4: Level 3

Wran Building Viewpoint 5: Level 3

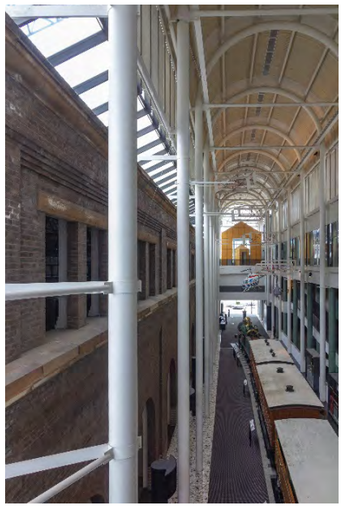


Wran Building Viewpoint 6: Level 3

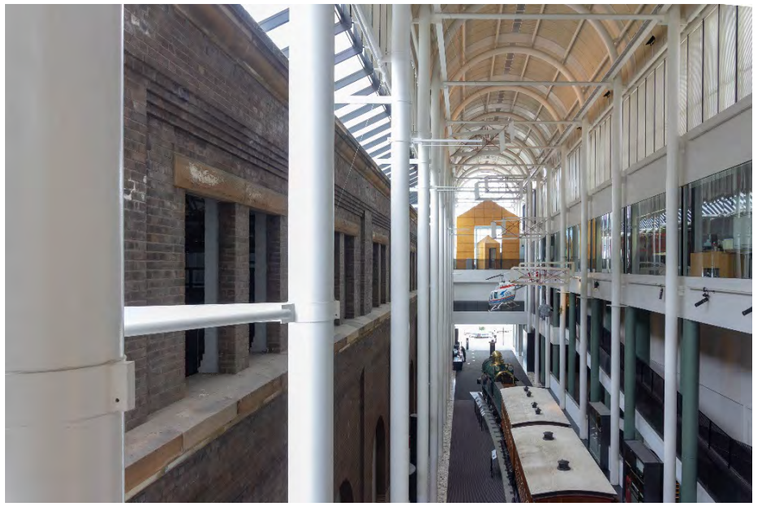
Wran Building Viewpoint 7: Level 3



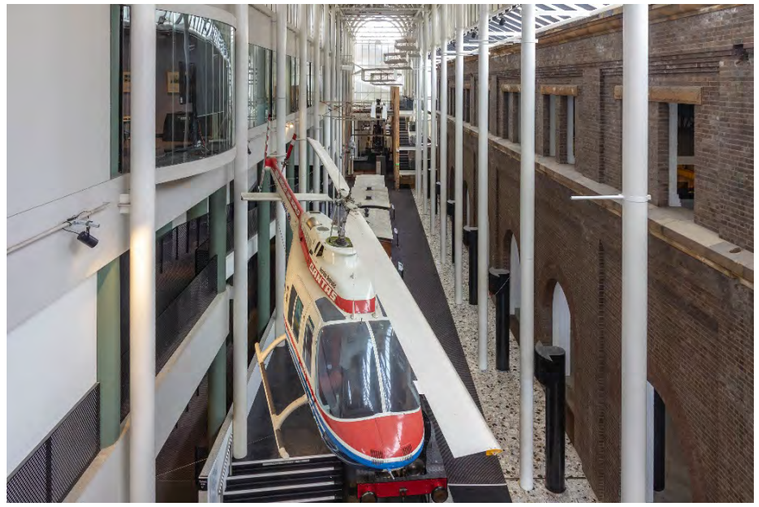
Wran Building Viewpoint 8: Level 3



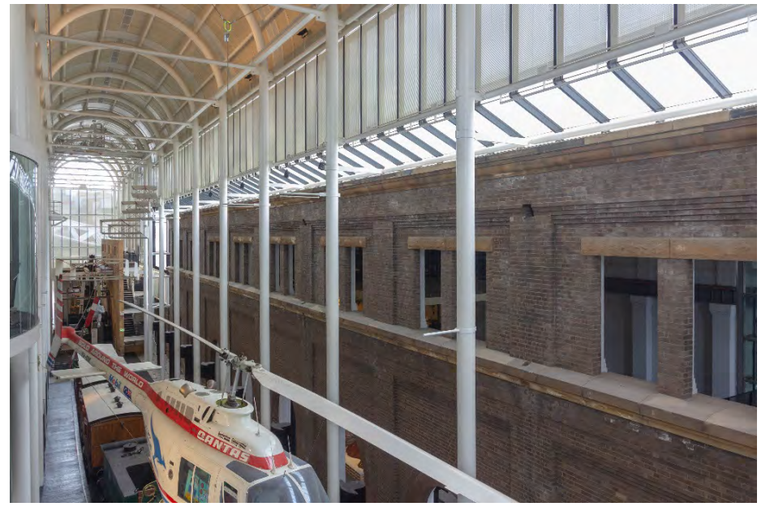
Wran Building Viewpoint 9: Level 3



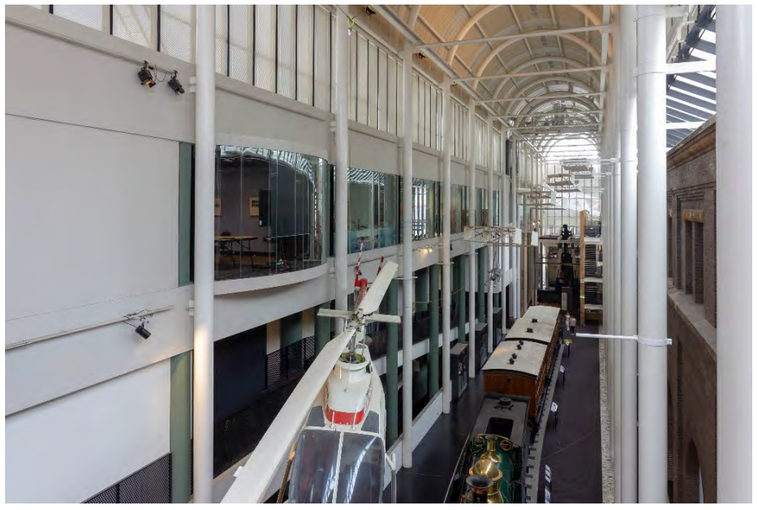
Wran Building Viewpoint 10: Level 3



Wran Building Viewpoint 11: Level 3



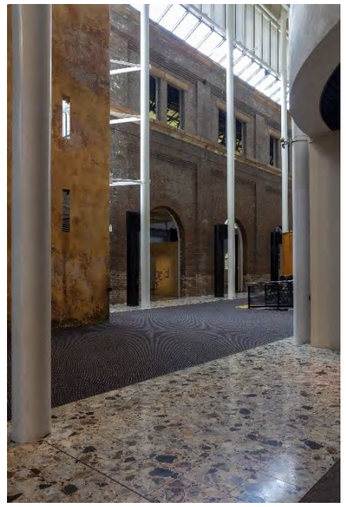
Wran Building Viewpoint 12: Level 3



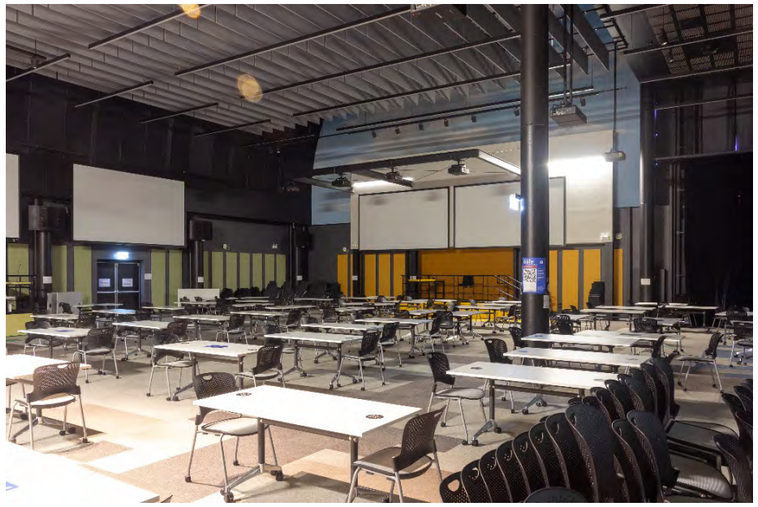
Wran Building Viewpoint 13: Level 3

Wran Building Viewpoint 14: Level 3

Wran Building Viewpoint 15: Level 3



Wran Building Viewpoint 16: Level 3



Wran Building Viewpoint 17: Level 3

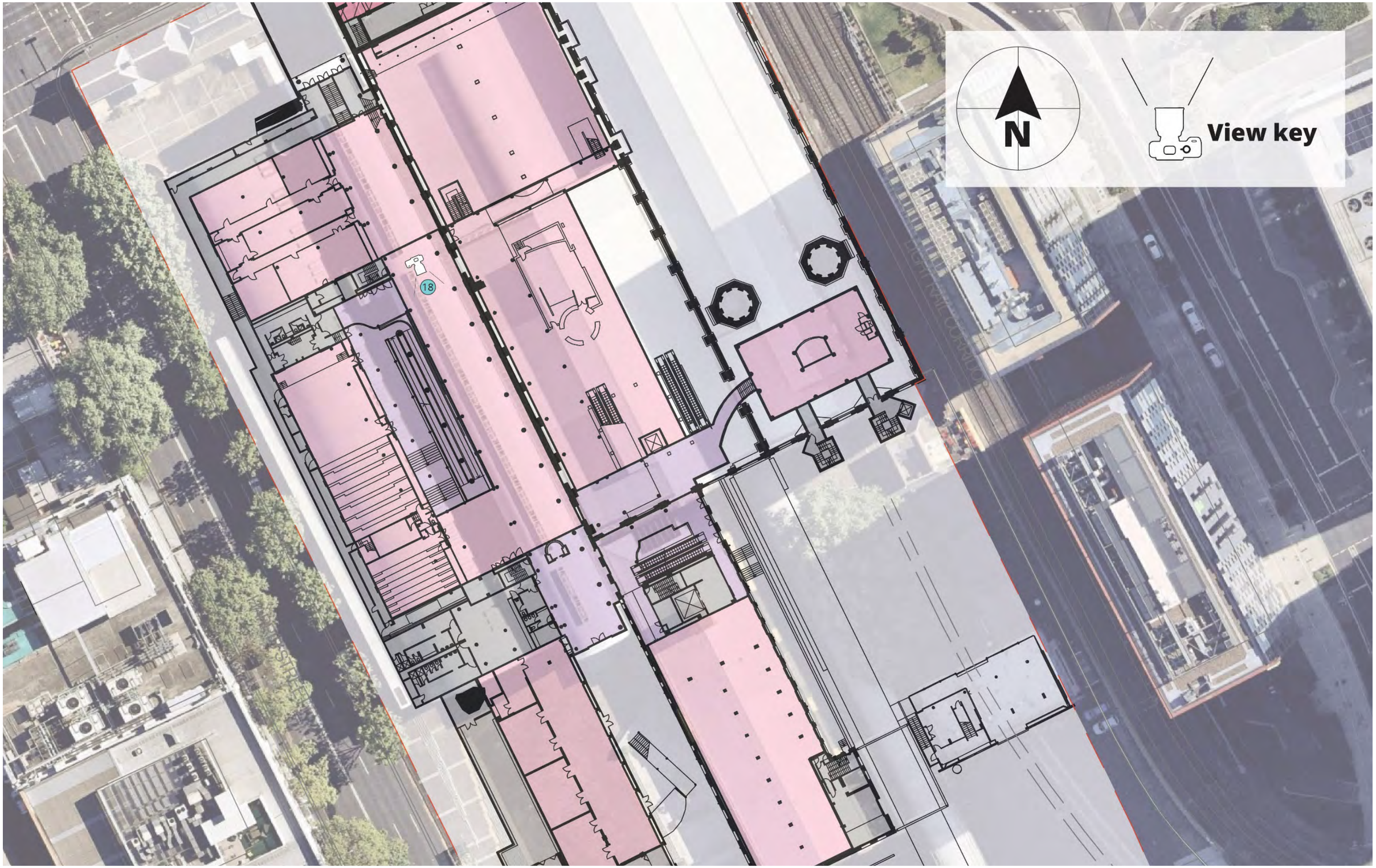


Figure 15.19 Wran Building Photo Register (Level 2)

Wran Building Viewpoint 18: Level 2

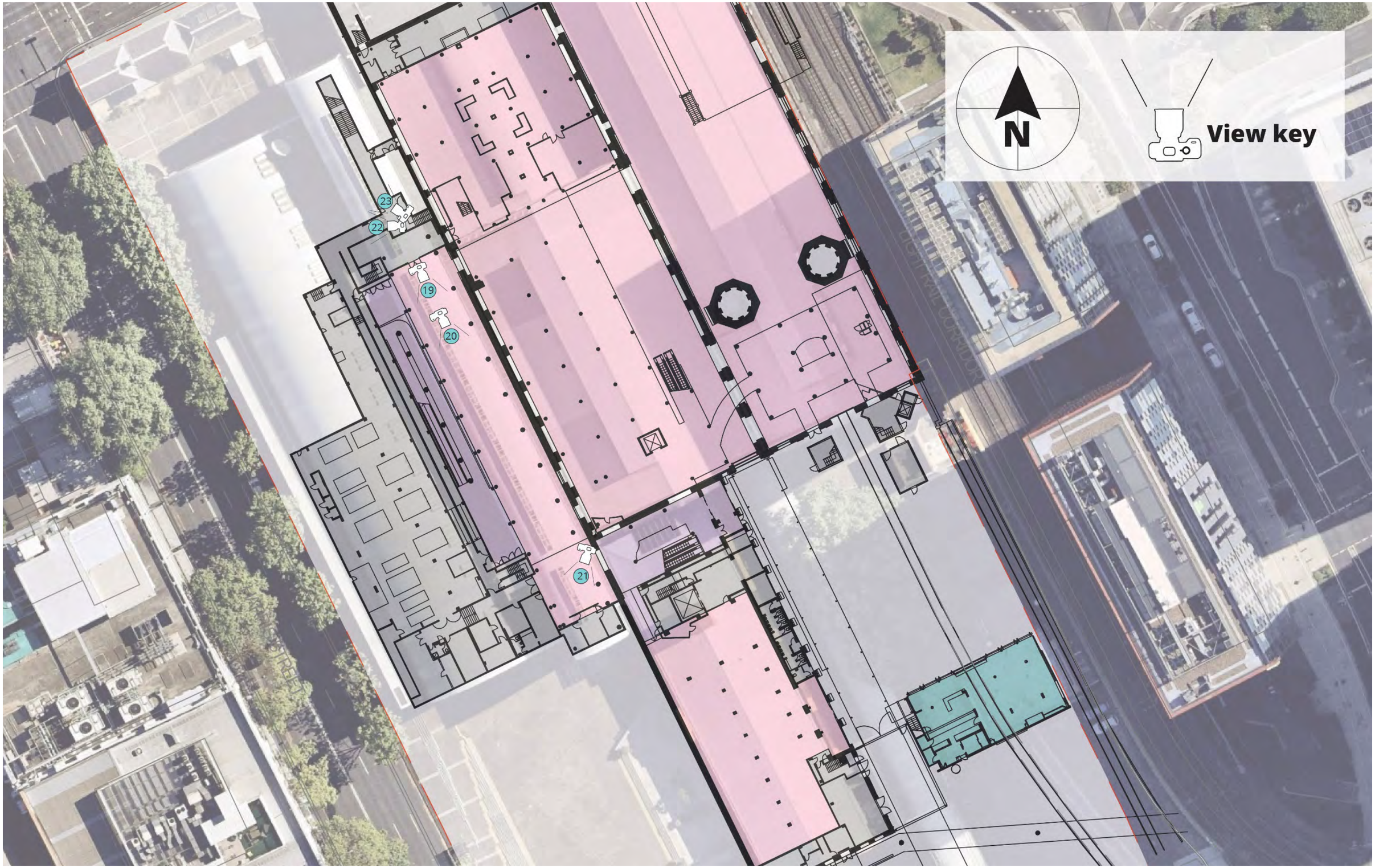
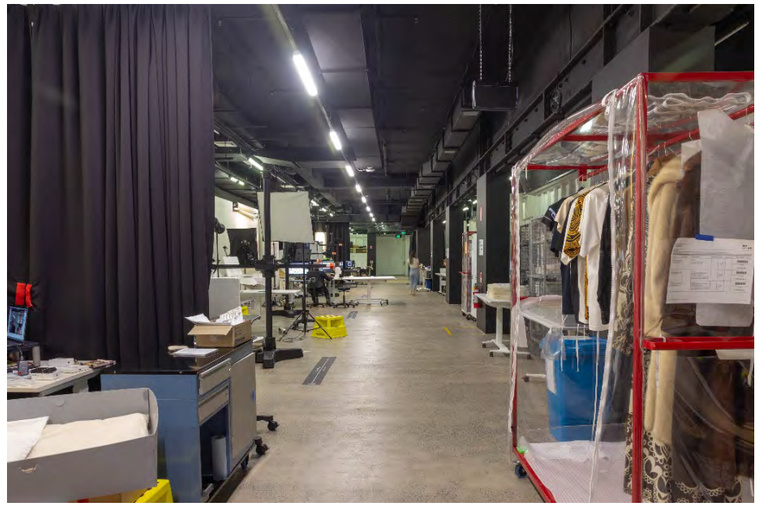
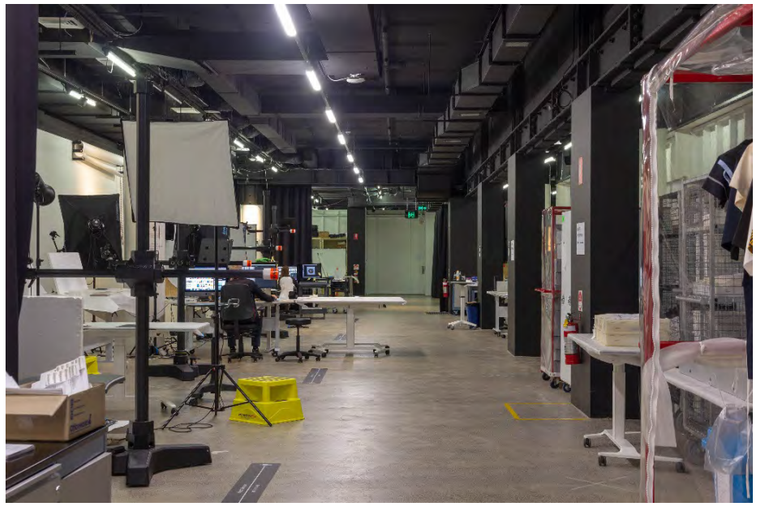


Figure 15.20 Wran Building View Key (Level 1)



Wran Building Viewpoint 19: Level 1



Wran Building Viewpoint 20: Level 1

Wran Building Viewpoint 21: Level 1

Wran Building Viewpoint 22: Level 1

Wran Building Viewpoint 23: Level 1

15.7 ENDNOTES

1 Architectural Projects, 2003, p. 29.
2 Dr Lindsay Sharp cited in Architectural Projects, 2003, p. 29.
3 Architectural Projects, 2003, p. 47.
4 Watermark Press Sydney 1997 p. 189 cited in Architectural Projects 2003 pp. 35-36.
5 Jennifer Sanders. 'Realising Memories, Reminiscences and Thoughts:' in Graeme Davison and Kimberley Webber (eds). *Yesterday's Tomorrows: The Powerhouse Museum 1880-2005*. 2005, 230-239. cited in Design 5, Powerhouse Museum Design Principles (DRAFT), with Lionel Glendenning and Richard Johnson, 2021, p. 26.
6 Architectural Projects, 2003 pp. 62-63.
7 SHR Listing, "Ultimo Power House".
8 Architectural Projects, 2003, p. 7.
9 Powerhouse Museum, Annual Report 2005-2006, p. 3.
10 Museum of Applied Arts and Sciences, Annual Report 2011-2012, p. 8-9.
11 Museum of Applied Arts and Sciences, Annual Report 2012-2013, p. 16.
12 Informed by research conducted by Design 5.
13 Cracknell & Lonergan Architects, *Assessment of Heritage Significance, Ultimo Tramways Power House Museum*, Independent Review, prepared for Heritage NSW (Rev. B, 30 Jan 2020), 2020.
14 ibid, p. 14.
15 ibid, p. 21.
16 ibid, p. 45.
17 Architectural Projects, 2003, p. 109.
18 Aurecon, 2022. *Powerhouse Ultimo – Conservation Management Plan Engagement*, p. 24 and Ms Alice-Anne Bagster, *Inquiry into government's management of the Powerhouse Museum*, 2020, Submission No 2, and Mr Peter May, Inquiry into government's management of the Powerhouse Museum, 2020, Submission No 5.

16 WATER COOLING SYSTEM AND MANIFOLD

16.1 HISTORY OF THE WATER COOLING SYSTEM AND MANIFOLD

Numerous factors were considered during the process of selecting the location for the Power House in the late 1800s, including accessibility to transport for coal, room for expansion, cost of land, and availability of labour sources. Of these numerous criteria, one critical factor was the ready availability of a water supply for use in the water cooling system for the new Power House—an essential feature of the functionality of the entire system. The proximity of the Ultimo site to the unlimited supply of sea water in Darling Harbour was, therefore, a key influence in finalising the selection of the Ultimo site.

The contract for construction of the water conduit connecting Darling Harbour to the Boiler House to supply seawater to the condensers, was awarded to Justin McSweeney in 1898 (Contract 18), with the shafts sunk by mid-1898, and the water conduits completed by mid-1899.[1] At the opening of the Ultimo Power House in 1899, the original 950 foot (c.289m) long, 3 feet 3 inches (c1m) diameter inlet conduit transported seawater from Darling Harbour to the pumps in the original northern Pump House, for use in the condensers in the Boiler House, while a second outlet conduit not far from the intake discharged heated condenser water back into the Harbour.[2] While the plans and specifications for the original conduits have not been located, it is assumed that the conduits would have been constructed from precast concrete pipes- as used in other similar projects by the Department of Public Works around this time.[3] A new conduit and additional pumps was constructed in 1907–1908 to meet the need of the new generating units introduced with the construction of the Turbine House and extended Boiler House.[4]

Land reclamation works around Darling harbour in the 1920s, as well as the larger water requirements of the new 20,000kW turbines, necessitated installation of new, longer, intake and outlet conduits for the Power House. Conduit installation works commenced in 1923–24, started at the Ultimo end by the NSW Railway Department, and completed at the Darling Harbour end by the Sydney Harbour Trust. Works to complete the conduits were of a considerable scale particularly difficult—one of the most expensive works undertaken in the 1920s modernisation of the Power House. The Sydney Harbour Trust first had to first sink a shaft down to the lengths of conduit already installed by the Railway Department and then tunnel through the sandstone bedrock to extend the conduits out to the harbour's edge. Construction works made liberal use of below-water coffer-dams with the assistance of many divers. The new conduits used two lines of precast Monier concrete pipes, each 6ft (1.83m) in diameter, laid side by side through a single tunnel through the sandstone with the space between the pipes filled with rubble, with screening chambers at the harbour's end.

Previous Names	Water conduit
Address	Powerhouse to Murray Street to Waters Edge, Darling Harbour, NSW
Built	1898–1901
Heritage Listings	Property NSW Section 170 Register
	SHR 02045 "Ultimo Power House"
Non-Statutory Listings	N/A

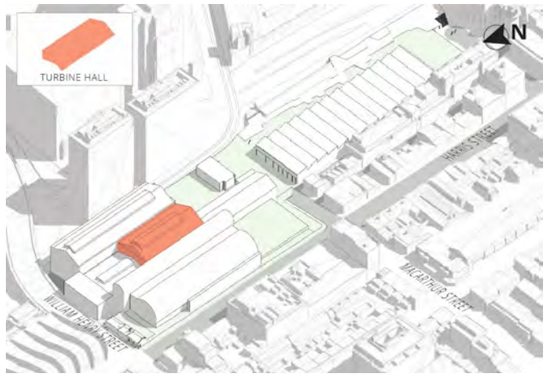


Figure 16.1 The Water Cooling System and manifold is a historic subterranean conduit with a seawater pit in the basement of the Turbine Hall, from which the conduit runs below the Ultimo Powerhouse site in a SW to NE direction to Darling Harbour. Source: (John Wardle Architects with Curio Projects overlay)

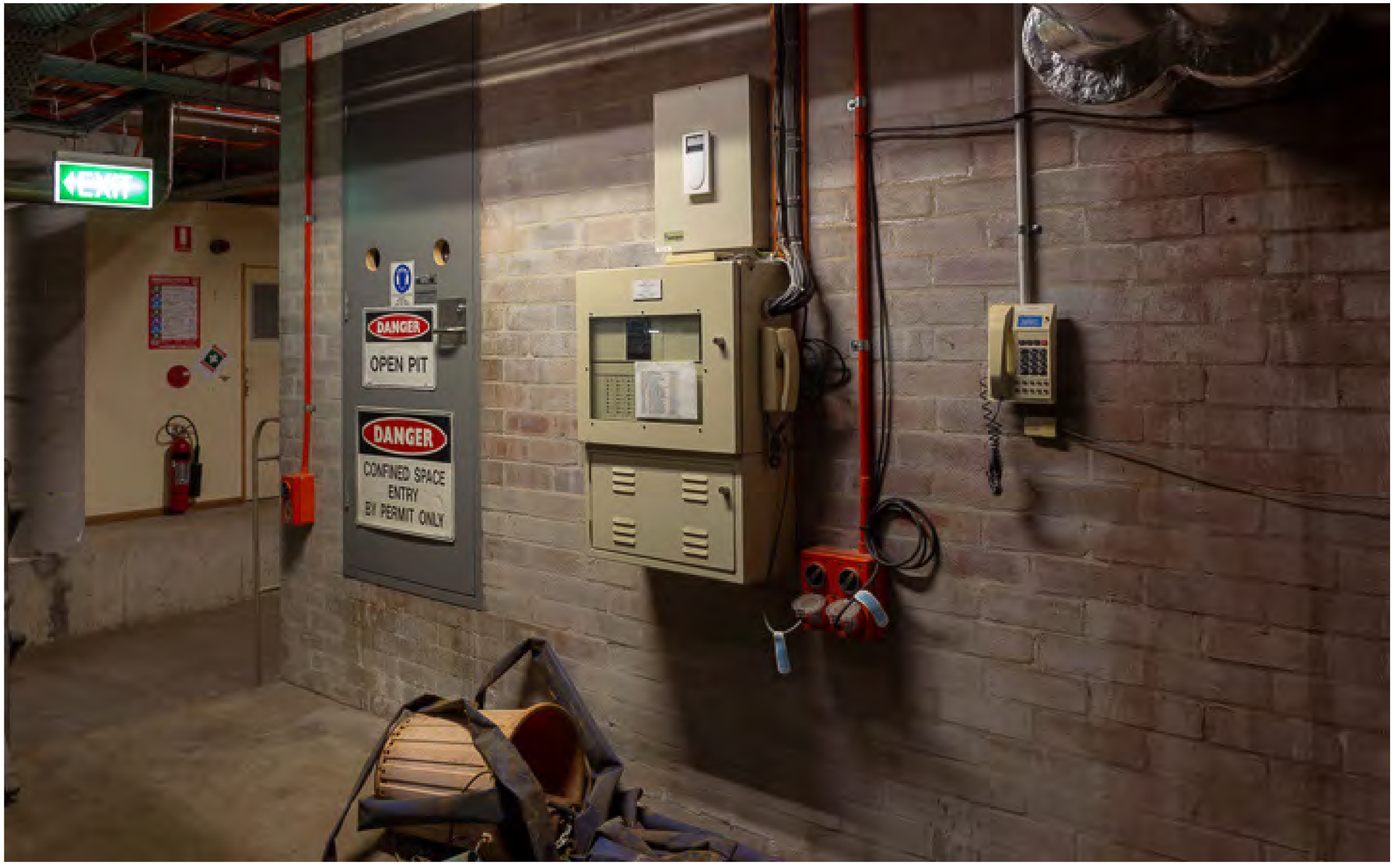


Figure 16.2 Location of the Water Cooling System and Manifold pump/seawater pit in the basement of the Turbine Hall 2020 (Source: Curio Projects)

Each precast section of the concrete pipes measured 25ft (7.62m) in length and weighed around 30 tonnes, laid on underwater concrete piers at a maximum depth of 47 feet (14.33m) underwater, extending the conduits beyond the edge of the land reclamation and out into the deep water of the Harbour[5] (Figure 16.4 and Figure 16.5). Wharf number 39 was later constructed above the conduit at the Harbour's edge.

The new circulating water system was completed in 1928, with a greatly increased capacity from the previous system, with other elements and features including:

> Trash racks for preventing the entrance of large floating objects are incorporated in the intake chambers; these are formed of reinforced concrete grills, having spaces 3 in. wide to admit the water. The screen well contains two revolving screens , made, to the designs of Ledward and Beckett Ltd., London, by the Clyde Engineering Co. Ltd.[6]

A vertical spindle type circulating water pump (Figure 16.6) was installed at the bottom of the well in the Turbine Hall basement, powered by an electric motor and connected by valves to both the inlet and outlet conduits. The use of seawater from the harbour caused ongoing issues of fouling of the conduits by marine growth, which, if left uncleaned, reduced the capacity of the pump. Low tides further compounded the fouling problem, resulting in the pump drawing in a large amount of air which in turn contributed to the corrosion of the condenser that served the large turbo-alternator (1931), eventually resulting in a major failure of this turbine.[7]

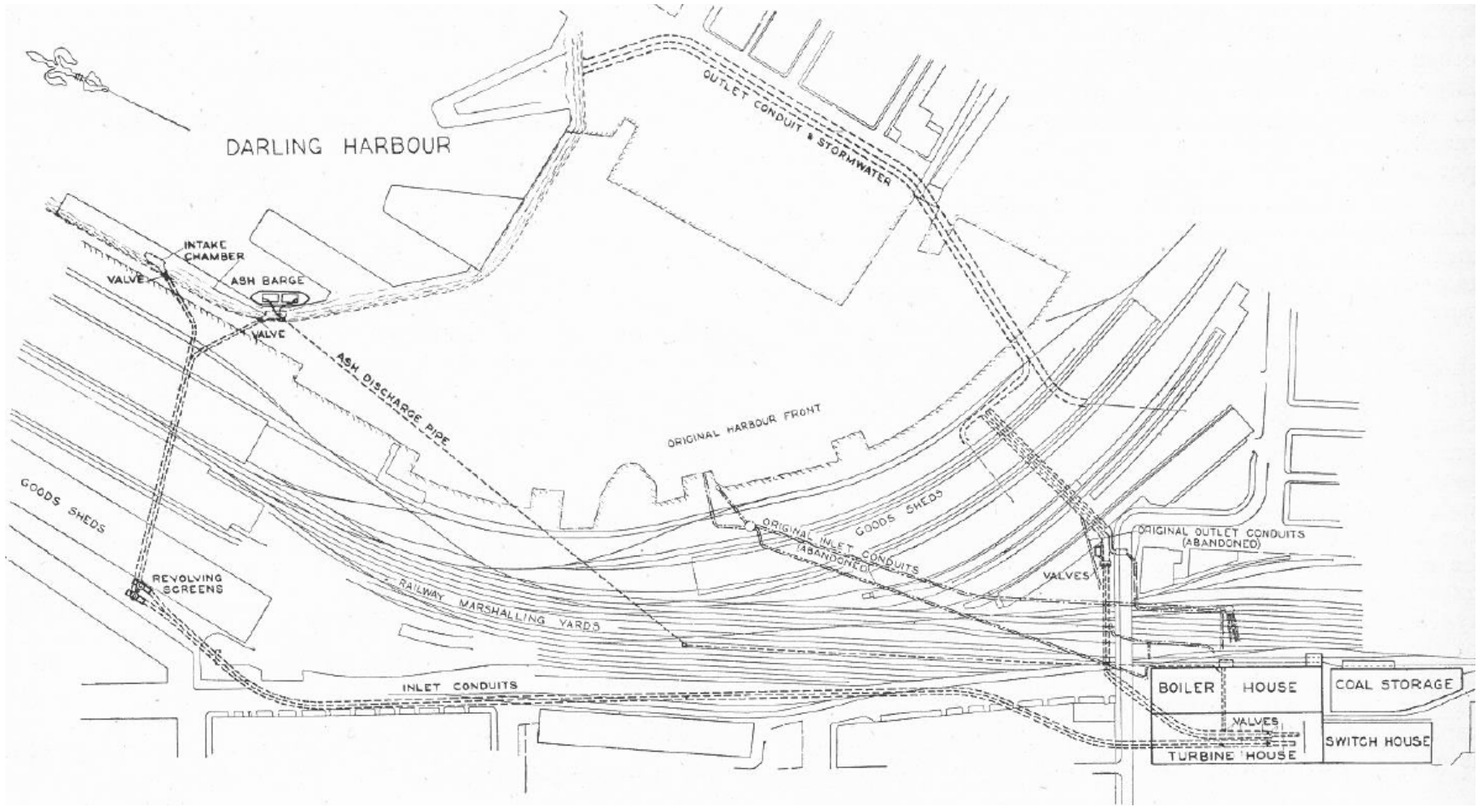


Figure 16.3 Plan showing the original 1899 conduits, and later 1920s conduits between Darling Harbour and the Power House (Source: Myers 1933, p. 255)

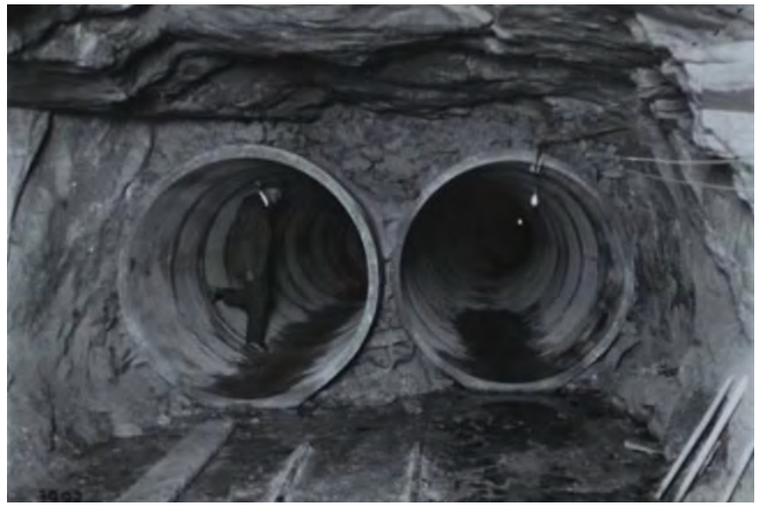


Figure 16.4 Close up of Water conduits with man for scale. Rails in the foreground were used to cart rubble to fill the space between the two pipes. (Source: State Rail NSW Item 364/46)

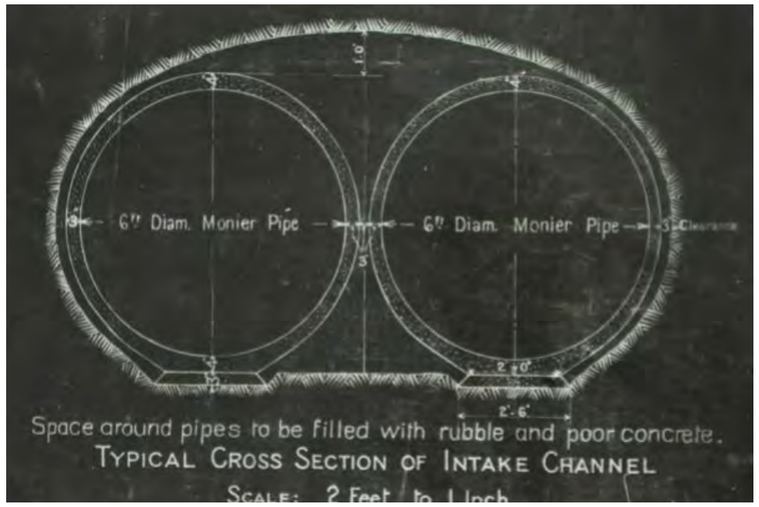


Figure 16.5 Typical Cross section of intake channel for Ultimo power house water conduits (Source: State Rail NSW, item 364/49)

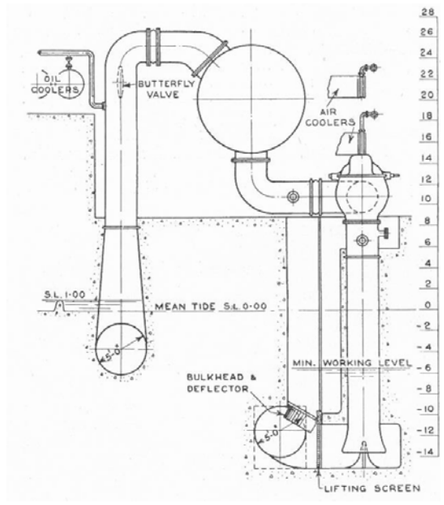


Figure 16.6 Circulating Water Suction and Discharge (Source: Myers 1933, p. 263)

After the Ultimo Power House was decommissioned in 1963, the intake and outlet conduits in Darling Harbour were used until around 1990 as a scuba diving training area for the Water Police.[8]

The design and planning for the 1980s Powerhouse Museum included inspection of the state of the existing water conduits for feasibility to adapt for use in the museum's air conditioning system (Figure 16.7).

> In the early stages of design the condition of the sea water tunnels was unknown. A pair of shafts in the turbine hall, partially choked with demolition rubble, permitted the observation that they were subject to tidal rise and fall and therefore at least partially unobstructed.[9]

The active use of the tunnels for the museum's air conditioning system provides a link between the buildings historic innovation in engineering that is still in use.

In 2022, two of the underground tunnels of the Water Cooling System and Manifold remain in use for the museum's air conditioning system (Figure 16.8 to Figure 16.10), with sea water pumps located at the sea water pit in the basement of the Turbine Hall running 24/7, pumping around 7,777,000 litres of water a day.[10] It appears that the original issues with fouling of the conduits that plagued the Power House, remain an issue today, when in October 2019 divers inspected the pump after its failure, and found that the heavy duty grates overlying the seawater pit were disintegrating from extensive corrosion caused by sludge sedimentation.

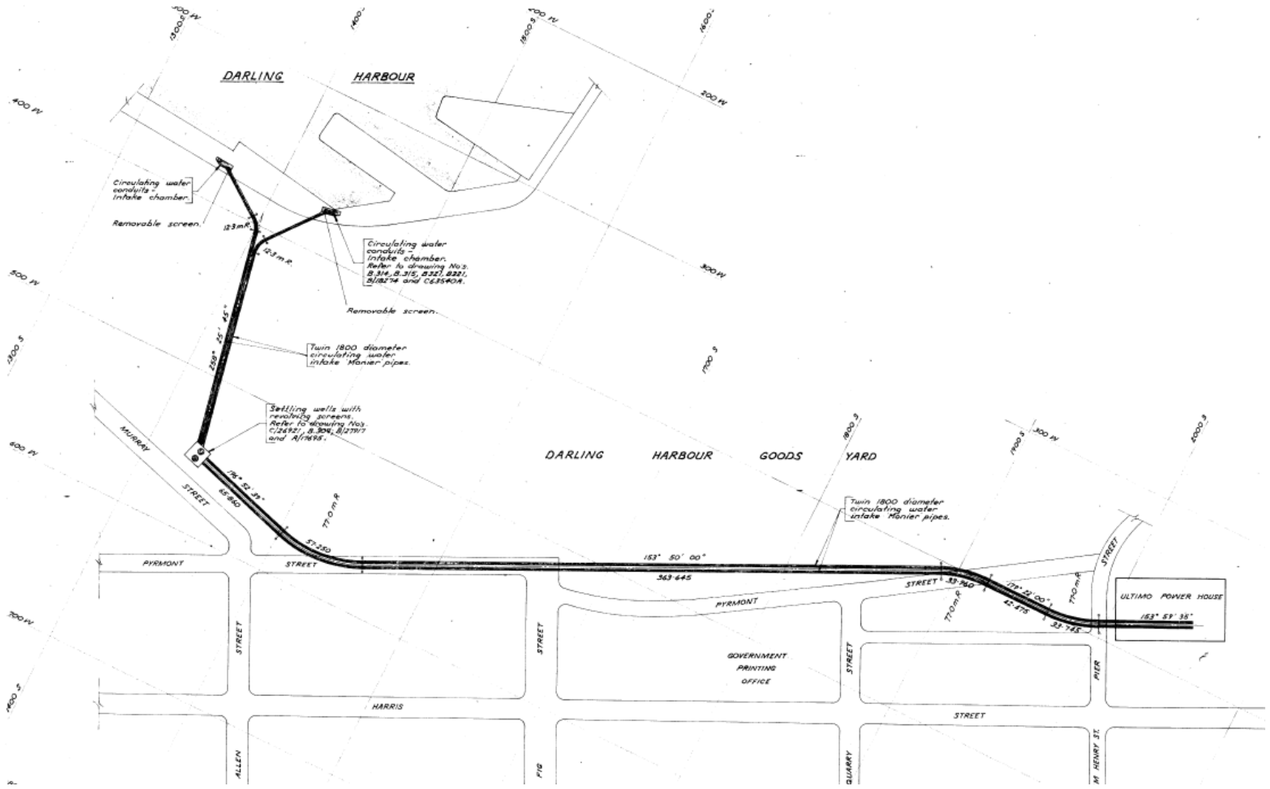


Figure 16.7 Power House Ultimo Plan of existing seawater conduits, drawn 1982 (Source: Powerhouse)

Figure 16.8 Sea Water pit and penstock valve (Source: Powerhouse)

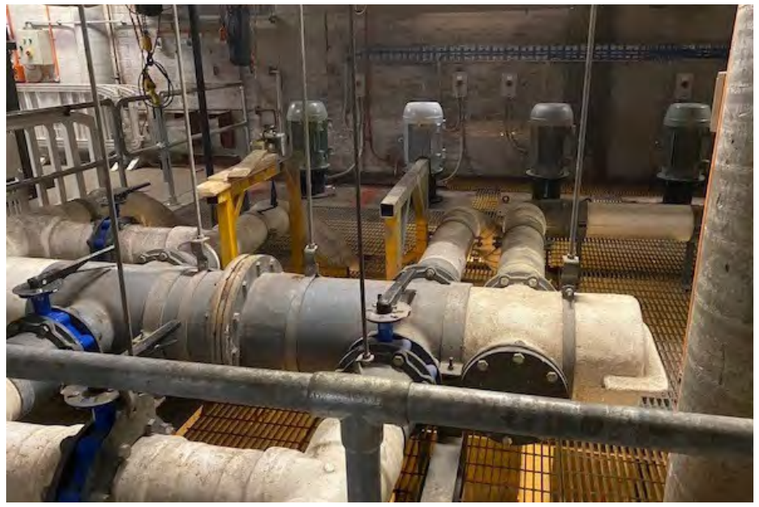


Figure 16.9 Sea Water pump pit suction motors (Source: Powerhouse)

Figure 16.10 Sea water return pit (Source: Powerhouse)

16.2 PHYSICAL ANALYSIS OF THE WATER COOLING SYSTEM AND MANIFOLD

An overall photo register and images of the Water Cooling System and Manifold as of 2020 (as visible in the basement of the Turbine Hall) is presented in Section 16.6 below.

16.2.1 Site and Setting

The seawater pit and pump of the Water Cooling System and Manifold is located in the basement of the Turbine Hall, from which underground conduits extend from the Powerhouse to Darling Harbour, transporting cool water to the Powerhouse from the Harbour, and hot water from the Powerhouse to the water's edge. The plan for the seawater conduits is shown in Figure 16.7.

16.2.2 Built Elements

The part of the Water cooling System and Manifold located and accessible from the basement of the Turbine House consists of a sea water pit, with Penstock control valves that control the opening and closing of the sea water inlet pipes. The sea water transported through the conduits from Darling Harbour enters the sea water pit, and is then sucked through the inlet pipes to the adjacent pump pit and to four suction pumps, used as part of the Museum's air conditioning system.

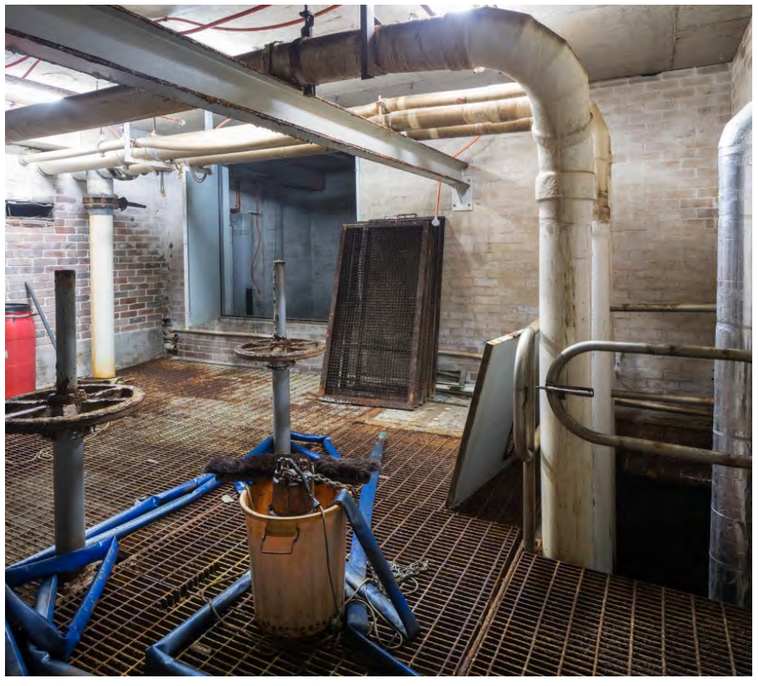


Figure 16.8 Sea Water pit and penstock valve (Source: Powerhouse)

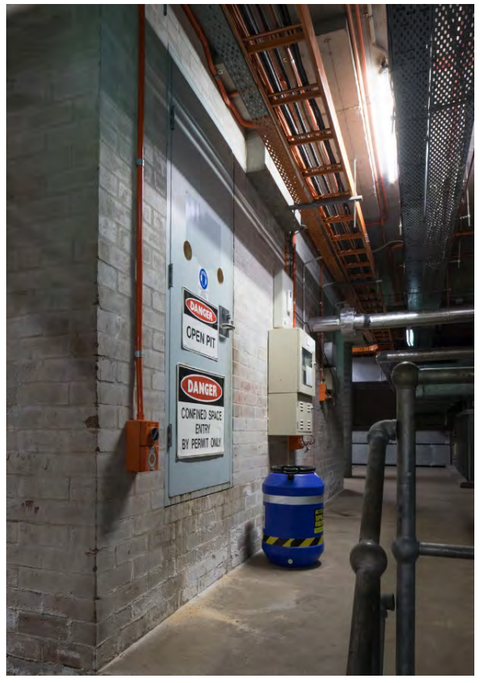
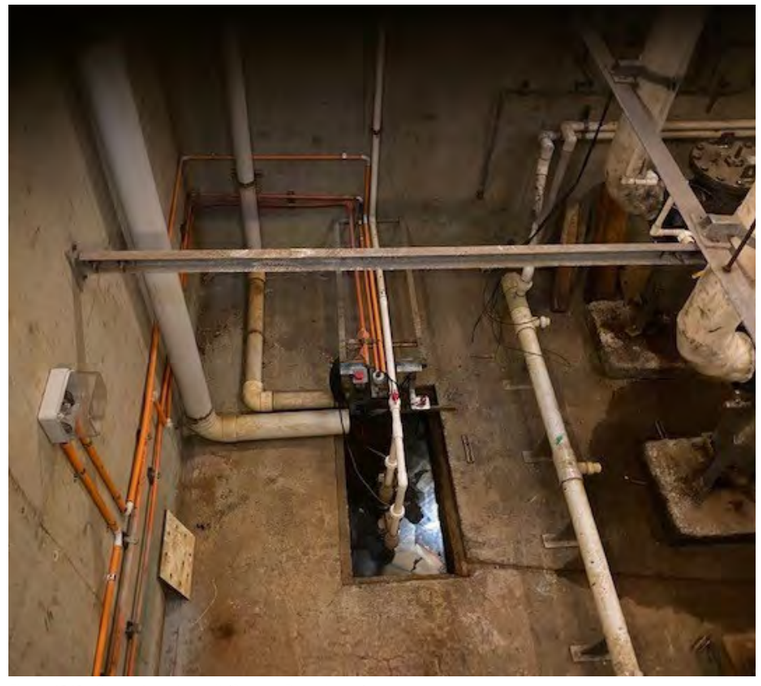


Figure 16.9 Sea Water pump pit suction motors (Source: Powerhouse)

Figure 16.10 Sea water return pit (Source: Powerhouse)

Figure 16.9 Sea Water pump pit suction motors (Source: Powerhouse)

Figure 16.10 Sea water return pit (Source: Powerhouse)



16.3 HERITAGE SIGNIFICANCE

The Water Cooling System and Manifold is listed as a heritage item on the Property NSW Section 170 register. It is also included within the SHR listing for Ultimo Power House (SHR 02045).

16.3.1 Summary of Significance

The Statement of Significance for the Water Cooling System and Manifold from Property NSW's Section 170 Register is as follows:

> The water cooling system and manifold was an integral component of the operating system of the Power Station. The former Ultimo Power Station, (now the Powerhouse Museum) dating from 1899, is historically significant for being the original generating station for the supply of electricity to power the electric tramway network throughout Sydney. It was also one of the largest and most important generating stations in NSW for many years and has associations with the electrification of the suburban railway system and with the general reticulation of electrical power. The station also played a major part in the development of the Ultimo/Pyrmont area.[11]

16.3.2 Grading of Significant Components

Detailed inspection of the condition of the part of the Water Cooling System and Manifold located within the Turbine Hall basement, and as it extends beneath the Powerhouse Ultimo site was not undertaken as part of the preparation of this CMP. Therefore, the following grading of significant components should be considered preliminary only, with potential for a more detailed assessment to be undertaken in the future as desired, via appropriate access by mechanical engineers and divers.

Table 16.1 Grading of Significant Components for the Water Cooling System and Manifold

ELEMENT	IMAGE	GRADING	NOTES
Sea Water pump pit		● EXCEPTIONAL	The sea water pump pit is original and of exceptional significance.
Sea Water return pit		● EXCEPTIONAL	The sea water return pit is original and of exceptional significance.

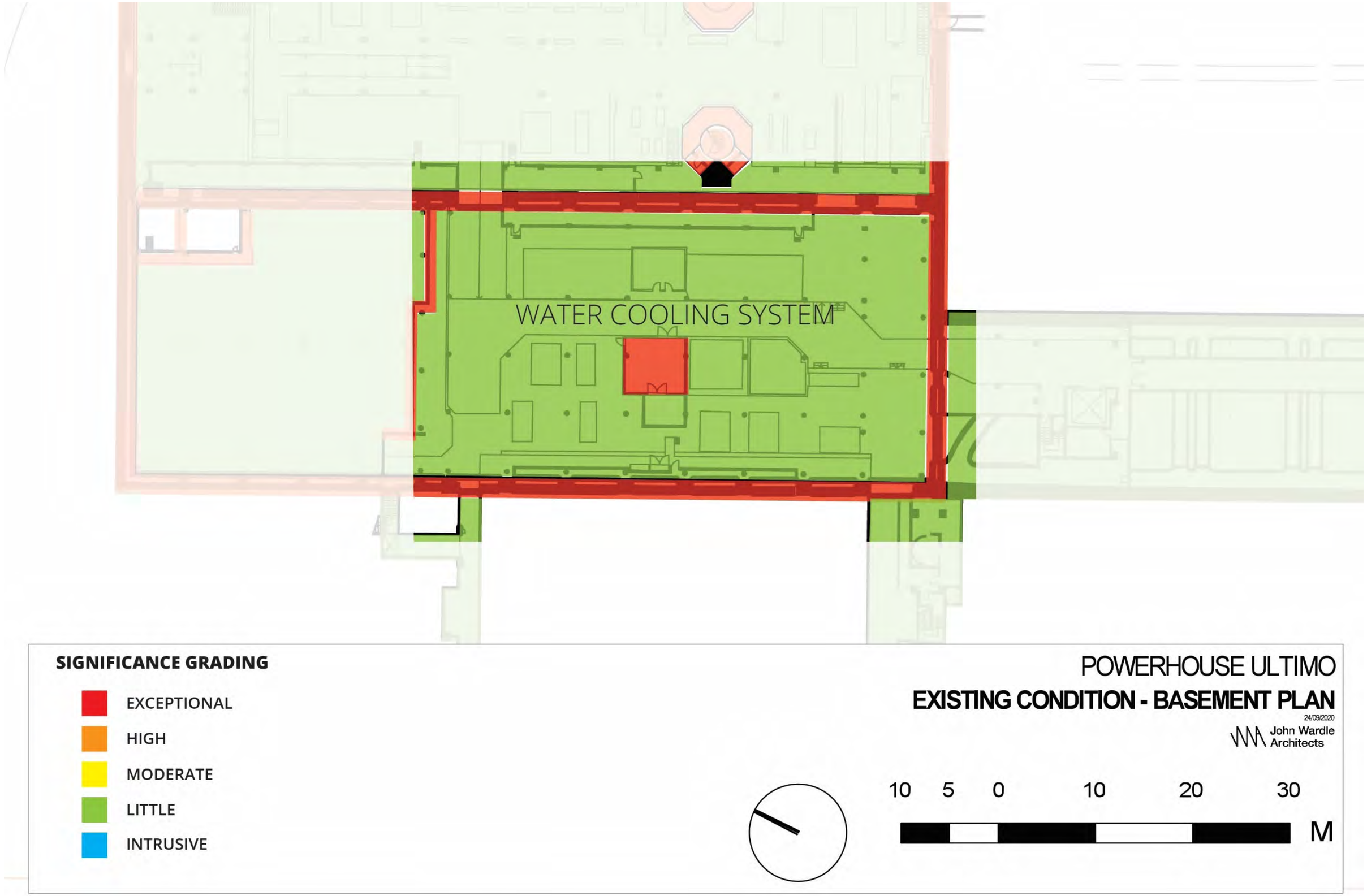


Figure 16.16 Water Cooling System Grading of Significance (Turbine Hall Basement) (Source: John Wardle Architects plan with Curio Projects overlay)

16.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and constraints specific to the Water Cooling System and Manifold include:

Opportunities

- There is an opportunity to interpret the use of steam throughout the buildings history, given the significant role of steam and the day to day operations of the Power House buildings.
- Programmatic Interpretation of the history and function of the Water Cooling System and Manifold within the museum, exploring its changing use from the Power House to part of the air conditioning system of the museum.

Constraints

- The age of the Water Cooling system and its continued use as part of the air conditioning system of the museum.
- Ongoing issues with corrosion and potential pump failure caused by fouling of the conduits and associated disintegration of the heavy duty grates over the seawater pit.
- As a heritage item of State significance, the Water Cooling and Manifold System is protected under the Heritage Act 1977, and therefore any maintenance works would need to be undertaken in accordance with the relevant permits, under the advice and guidance of specialist engineers with experience in maintaining and repairing similar heritage items.
- Any future uses of the site, including any potential changes should avoid any impacts to the Water Cooling system.

16.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 12—Cleaning, Maintenance and Repair: Any maintenance and repair works proposed to the fabric of the Water Cooling System would need to be undertaken under the advice and guidance of specialist engineers with experience in maintaining and repairing similar heritage items.

Policy 25—Experience, Skills and Co-ordination: Any works involving the Water Cooling System and Manifold including regular inspections of the condition, maintenance, cleaning and repair works etc, should be undertaken by an appropriately qualified and experienced structural engineer.

16.6 PHOTO REGISTER FOR THE WATER COOLING SYSTEM AND MANIFOLD

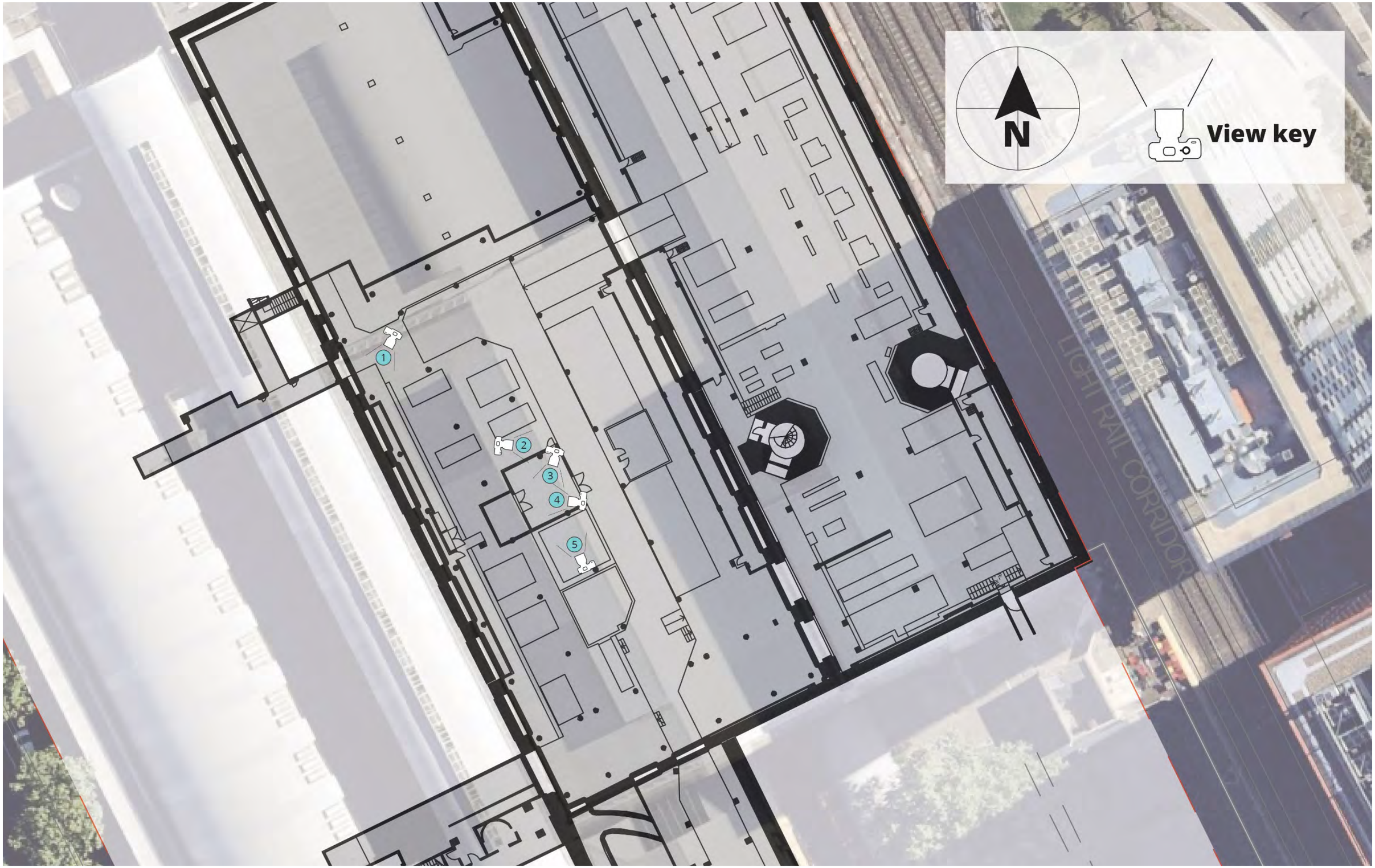
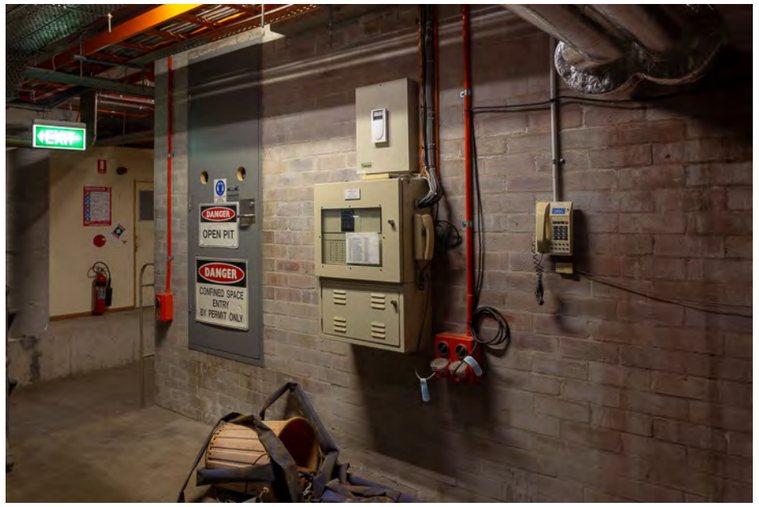


Figure 16.17 Water Cooling System and Manifold Photo Register (within the basement of the Turbine Hall).

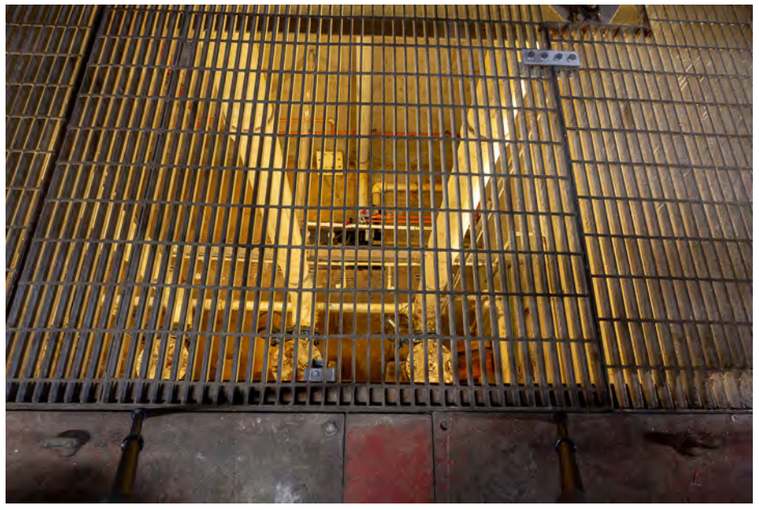
Water Cooling System and Manifold Viewpoint 1: Turbine Hall Basement



Water Cooling System and Manifold Viewpoint 2: Turbine Hall Basement

Water Cooling System and Manifold Viewpoint 3: Turbine Hall Basement

Water Cooling System and Manifold Viewpoint 4: Turbine Hall Basement



Water Cooling System and Manifold Viewpoint 5: Turbine Hall Basement

16.7 ENDNOTES

1 Department of Public Works Report, 1898, p. 26; Department of Public Works Report, 1899, pp. 23-24; Department of Public Works Report,, 1900, p. 21; Department of Public Works Report, 1901, p. 22-23.
2 Godden et al., 1984, p. 54, p. 97
3 Casey & Lowe, 2016, p. 43.
4 Godden et al., 1984, p. 54.
5 Casey & Lowe 2016, p. 43; Legislative Assembly New South Wales, The Sydney Harbour Trust Commissioners 1928, p. 3.
6 Myers 1933, p. 262.
7 Godden et al 1984, p. 136
8 Sydney Harbour Foreshore Authority (Property NSW), Section 170 Register, *Water Cooling System and Manifold*,
9 Rowe 1988, p. 15.
10 Powerhouse Museum- Capitol Works Facilities Plan 2020-2021
11 Sydney Harbour Foreshore Authority (Property NSW), Section 170 Register, Water Cooling System and Manifold

17 THE GOODS LINE

17.1 HISTORY OF THE GOODS LINE

Previous Names	Darling Harbour Goods Yard Darling Harbour Railway Corridor Darling Harbour Branch Railway
Address	(Within the Site)- East of the Harwood Building
Built	1853-1911
Heritage Listings	Property NSW Section 170 Register
Non-Statutory Listings	N/A

In 1849 the Sydney Railway Company was formed[1], they approached the Harris family requesting the purchase of 7 acres of land to construct a railway between the now Central Station and the wharfing facilities proposed for Darling Harbour.[2] In 1852 the land was sold (Figure 17.3) but the company faced financial difficulty and the NSW Government took over the company in 1854.[3] The Darling Harbour Railway Corridor (the Goods Line) opened in 1855 as part of the first passenger line between Sydney to Parramatta.[4]

At this stage the railway ended before the Pyrmont bridge and tensions rose between the Harris family and the Government as for many years it was underutilised. In 1863 the land around the railway through the estate was recorded as dilapidated, the railway merely an embankment with the rails set on and the terminus undeveloped.[5] The line had also provided a physical division between Harris Street and the Darling Harbour shoreline.[6]

It was not until the 1870s that the Goods Line was reactivated and went on to became vital in the transportation of Australian goods; wool, coal, shale, timber, and wheat. This included the transportation of coal from the wharfs to the Powerhouse[7] which demanded large quantities of coal to fire their generators.[8] The Goods Line continued operations through the 1930s Great Depression. During WWI and WWII it was used to transport both goods and troops (Figure 17.6).

The 1960s saw the port functions and wool stores moving away from Sydney which led to a decline in the functions of the railway. The Darling Harbour Goods Line was officially closed in 1984, and the Darling Harbour Goods Yards were demolished and redeveloped as a government bicentenary project between 1985–88. From the 1980s the line was generally only used by the Powerhouse Museum to move the occasional Steam Engine.[9]

In 1997 the alignment of a section of the Goods Line north of Hay Street was re-purposed for use as part of Sydney's light rail network[10] — which still operates today to the east of the Boiler House. In 2017 a section of the Goods Line was interpreted and developed as a public park and major urban connector. Sections of tracks from the Goods Line remain visible alongside the Harwood Building and in the Level 1 courtyard leading to the Boiler House.

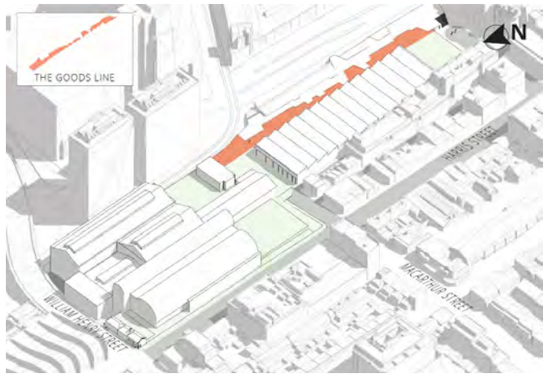


Figure 17.1 The Goods Line. (Source: John Wardle Architects with Curio Projects overlay)

Figure 17.2 The Goods Line with view north towards Stage 2, Harwood building on left (Source: Powerhouse)

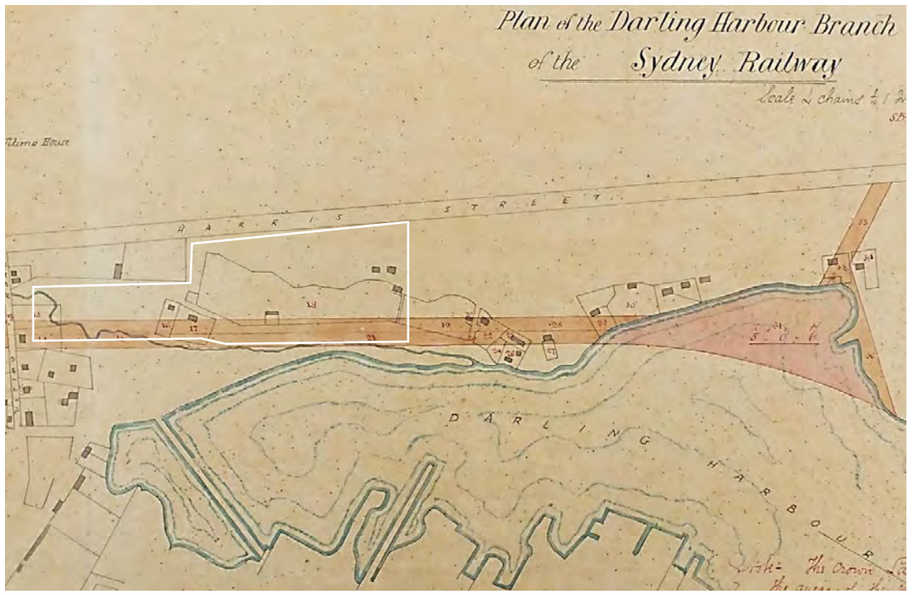


Figure 17.3 c.1853 plan showing land resumed for goods line (Source: State Records NSW AO Map 6831) with Curio overlay

Figure 17.4 Ultimo Goods Line with locomotive, date unknown (Source: Powerhouse)

Figure 17.5 Ultimo Power House and Goods Line, date unknown (Source: City of Sydney SRC 14562)

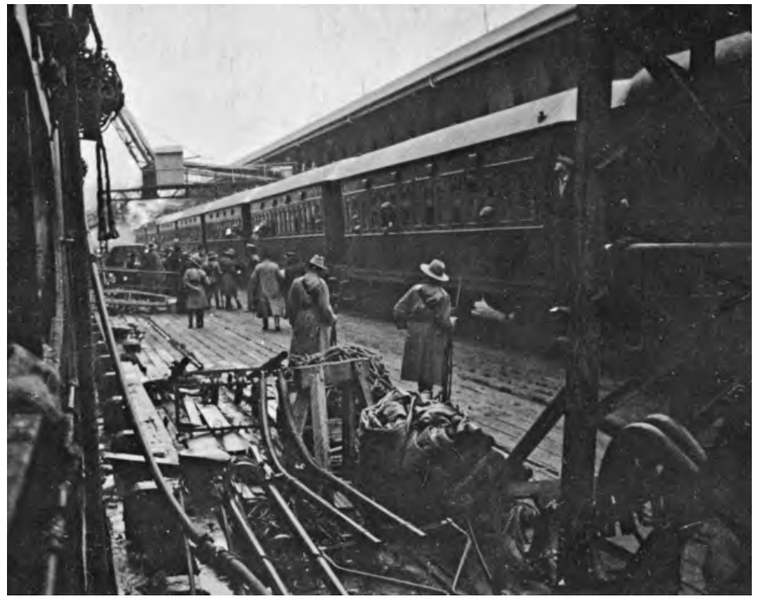


Figure 17.6 WWI image of the Goods Line being used to transport German deportees from Australian Concentration Camps (Source: Australian War Memorial H04144/C295775)

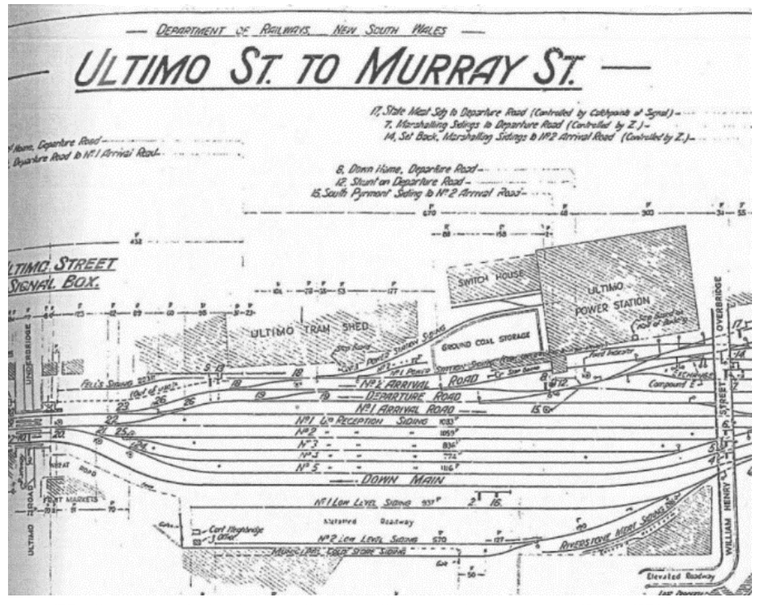


Figure 17.7 Section from Dept of Railways NSW, Ultimo St to Murray St signal diagram 18 June 1934 (Source: Australian Railway Historical Society NSW)

17.2 PHYSICAL ANALYSIS OF THE GOODS LINE

Remnant sections of the Goods Line track located within the site boundary of the Powerhouse Ultimo site extend along the eastern side of the site, entering the site in the southeast roughly parallel to the Harwood Building, with the track extending across the ground surface north through the Level 1 courtyard and ending at the southern façade of the Boiler House. The tracks are most evident when accessing the site from the east, either through the Goods Line walk from Darling Drive and Haymarket. The remnant tracks have been infilled with modern concrete and surfaces to make them flush with the existing ground surface.

17.3 HERITAGE SIGNIFICANCE

17.3.1 Statement of Significance

The Darling Harbour Rail Corridor (the Goods Line) is included on the State Heritage Inventory as it is listed on Property NSW's (formerly SHFA) Section 170 Register as being locally significant. The Statement of Significance is as follows:

> The Darling Harbour goods line was part of the first railway opened in New South Wales in 1855, the current corridor corresponds with that purchased from the Harris family in 1853 for this purpose. It therefore has a high degree of significance as a place. The Ultimo Road Bridge is believed to be constructed in the 1850s, and is therefore one of the only remaining features of the original railway which joined Darling Harbour and Granville (Parramatta Junction) in 1855. The siting of the railway along what was the edge of Darling Harbour strongly influenced the development of Pyrmont and Ultimo. Because of it, wool stores, engineering works and other industries were built here after the 1870s, giving this part of Ultimo its industrial, rather than residential, flavour. The site also contains two railway bridges. The Railway Square road overbridge (outside the curtilage of this listing) built in 1855 is historically significant as the oldest railway bridge to be constructed and still in use in New South Wales. It is a strong connection to the first railway construction and the original Redfern (Sydney) Station. The Ultimo railway underbridge is a mid 19th century construction with classic revival inspired cast iron columns and mid 19th century sandstock brick abutments. Both items are assessed individually as historically rare, scientifically rare, archaeologically rare and socially rare.[11]

17.3.2 Grading of Significant Components

The key components and elements of the fabric and form of the Ultimo Power House have been ranked accordance to the Heritage NSW criteria for assessing significance, as summarised in Table 17.1 and depicted in Figure 17.11.

Figure 17.8 The Goods Line prior to development, the pedestrian overbridge connecting the Museum to the Monorail station is shown in the background) (Source: JBA, UPN Stage 2, DA Statement of Environmental Impacts, 2012)

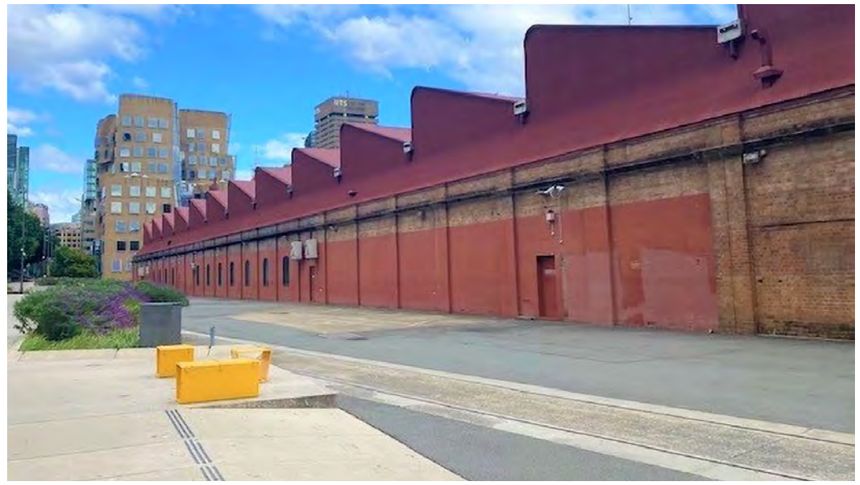
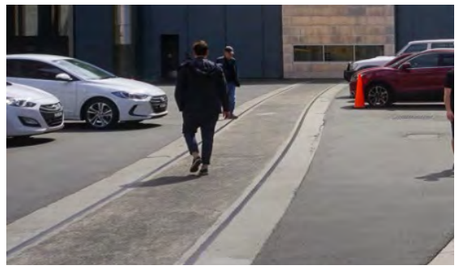


Figure 17.10 Goods Line tracks visible in the ground along the Harwood Building (Source: Curio)

Figure 17.9 The Goods Line with garden leading to the level 1 courtyard (Source: Curio Projects)

Table 17.1 Grading of Significance for The Goods Line

ELEMENT	IMAGE	GRADING	NOTES
Remnant Rail lines		● HIGH	The rail lines that originally connected the Power House buildings to the goods line are of high significance.

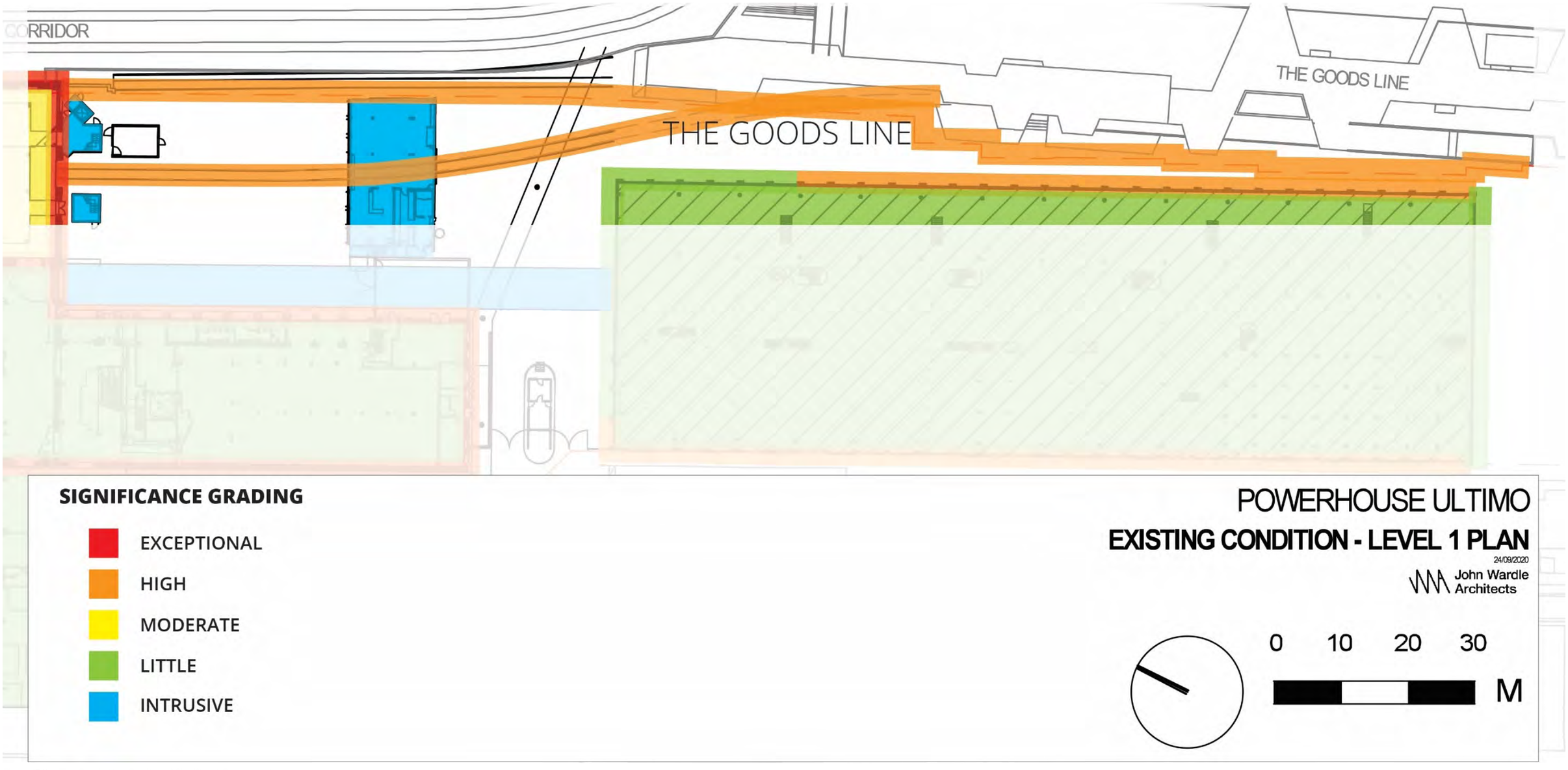


Figure 17.11 The Goods Line Grading of Significant Components

17.4 OPPORTUNITIES AND CONSTRAINTS

Opportunities and Constraints specific to the section of the Goods Line located within the Powerhouse Ultimo site include:

Opportunities

- To explore the relationship of the Goods Line with the Power House
- The Goods Line should be interpreted alongside the Harwood Building and Switch House through the Level 1 Courtyard leading into the Boiler House.
- To connect museum with public domain.
- To make historic connections between the Power House buildings and the Goods Line more legible.
- Re-instate connectivity to surrounding areas including Chinatown, Darling Square and Darling Harbour.
- Infrastructure opportunity for a new half court/ multi purpose court at the Goods Line/Powerhouse.[12]

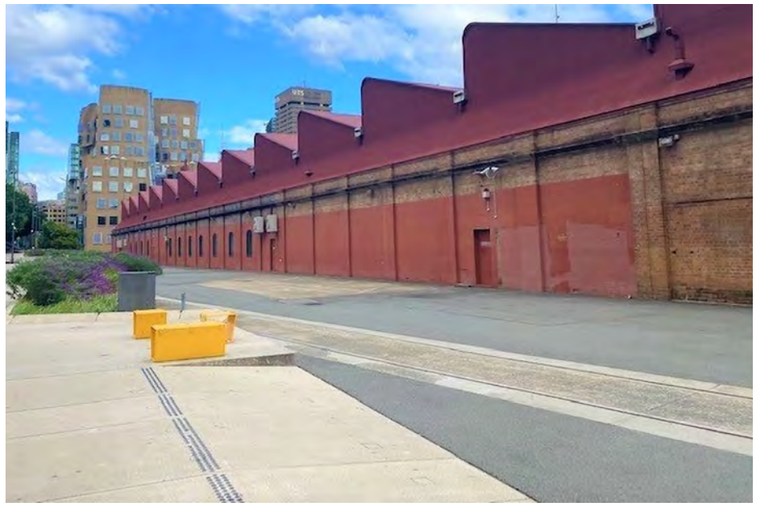
17.5 ITEM-SPECIFIC CONSERVATION POLICIES

Policy 18—Site access: new site access or improvements to connectivity to The Goods Line should consider options and solutions that will have a positive and neutral heritage impact.

17.6 PHOTO REGISTER FOR THE GOODS LINE

Figure 17.12 The Goods Line Photo Register

The Goods Line Viewpoint 1



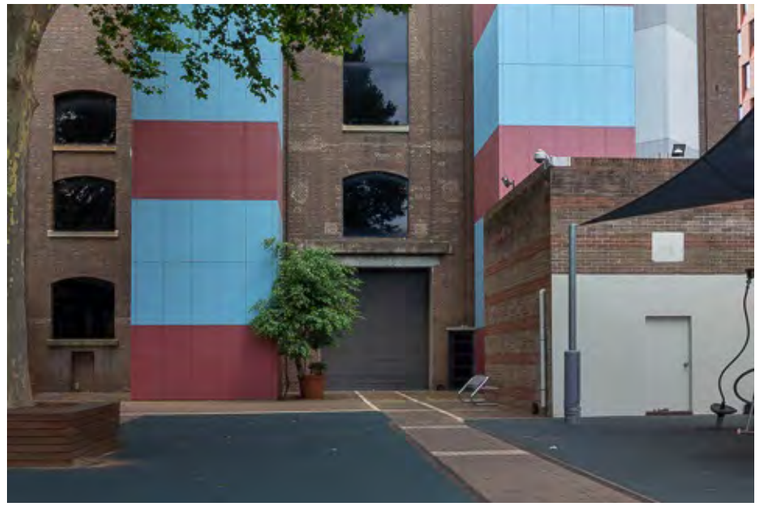
The Goods Line Viewpoint 2

The Goods Line Viewpoint 3

The Goods Line Viewpoint 4

The Goods Line Viewpoint 5

The Goods Line Viewpoint 6



The Goods Line Viewpoint 7: Level 1 Courtyard

The Goods Line Viewpoint 8: Level 1 Courtyard

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8 Transport Heritage NSW, 'Sydney's Metropolitan Goods Line', Transport Heritage NSW (website), accessed January 2021, < https://www.thnsw.com.au/post/sydney-s-metropolitan-goods-lines>
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PART D

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APPENDIX A
Exterior Site Photos Register

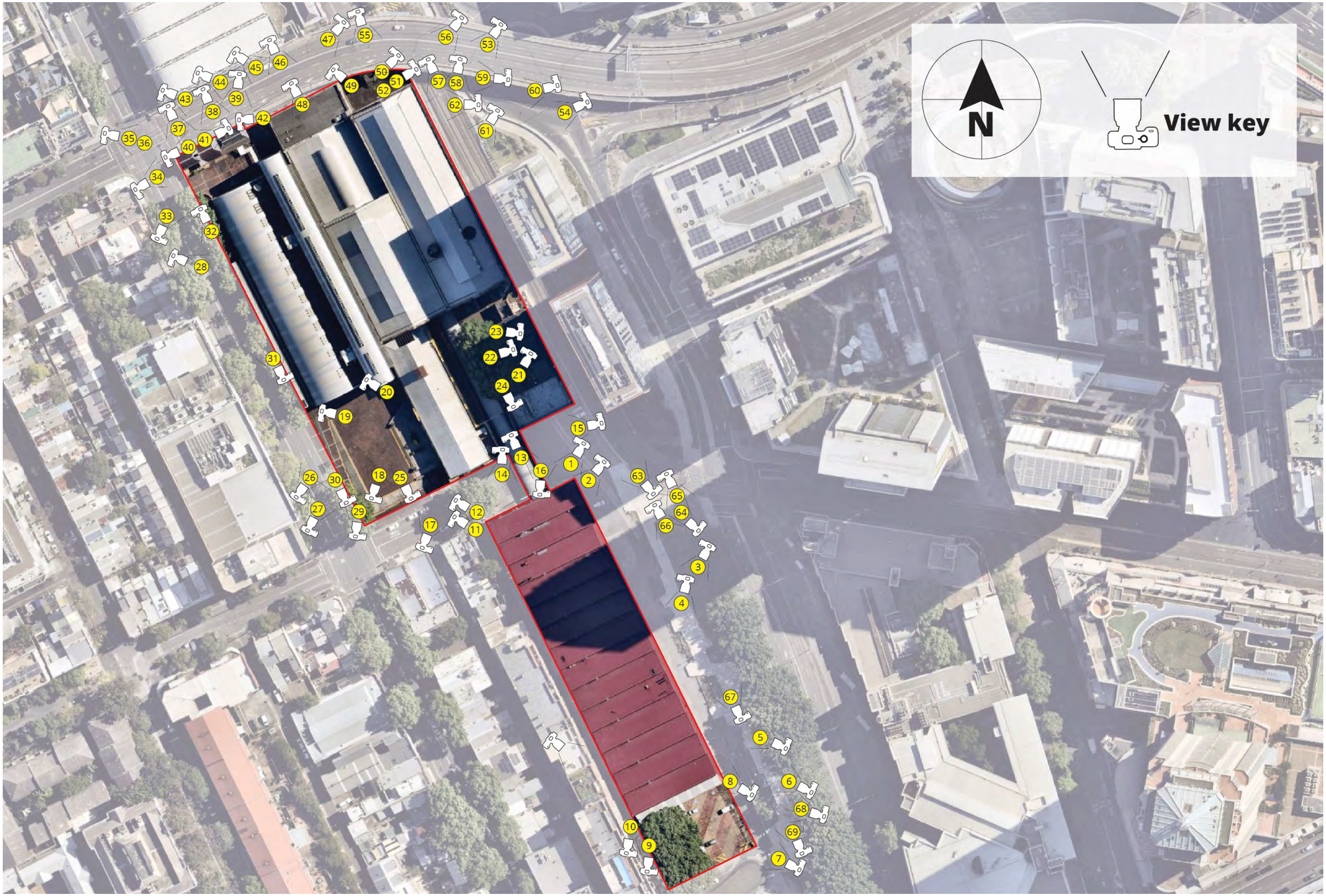

Figure 1.9 2020 view key map for Powerhouse Ultimo site (Source: Curio 2021)

Exterior Viewpoint 1

Exterior Viewpoint 2

Exterior Viewpoint 3

Exterior Viewpoint 4

Exterior Viewpoint 5

Exterior Viewpoint 6

Exterior Viewpoint 7

Exterior Viewpoint 8

Exterior Viewpoint 9

Exterior Viewpoint 10

Exterior Viewpoint 11

Exterior Viewpoint 12

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Exterior Viewpoint 22


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Exterior Viewpoint 24

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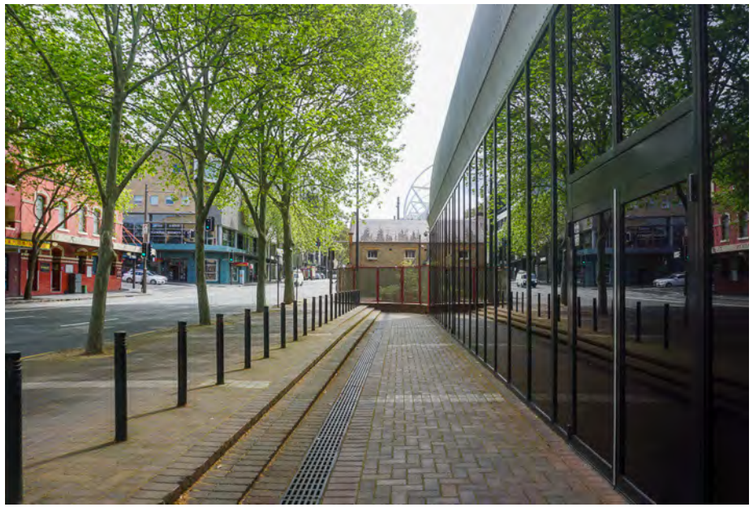
Exterior Viewpoint 26

Exterior Viewpoint 27

Exterior Viewpoint 28

Exterior Viewpoint 29

Exterior Viewpoint 30



Exterior Viewpoint 31

Exterior Viewpoint 32

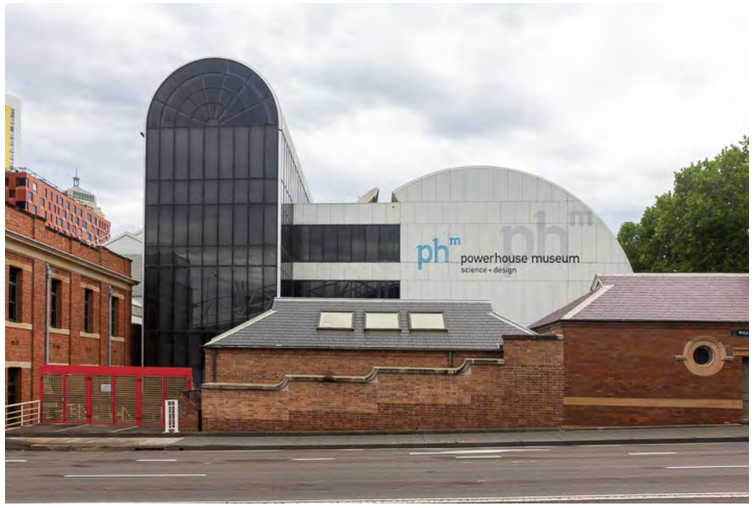
Exterior Viewpoint 33

Exterior Viewpoint 34

Exterior Viewpoint 35

Exterior Viewpoint 36

Exterior Viewpoint 37



Exterior Viewpoint 38

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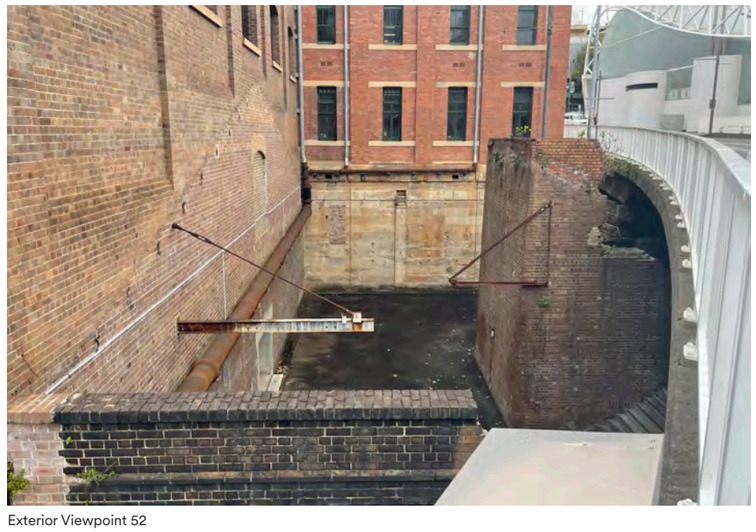
Exterior Viewpoint 47

Exterior Viewpoint 48

Exterior Viewpoint 49

Exterior Viewpoint 50

Exterior Viewpoint 51



Exterior Viewpoint 52

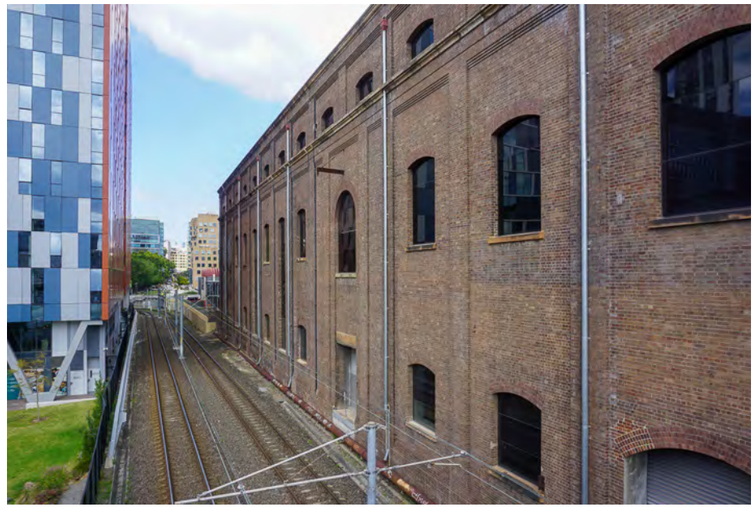
Exterior Viewpoint 53

Exterior Viewpoint 54

Exterior Viewpoint 55

Exterior Viewpoint 56

Exterior Viewpoint 57



Exterior Viewpoint 58

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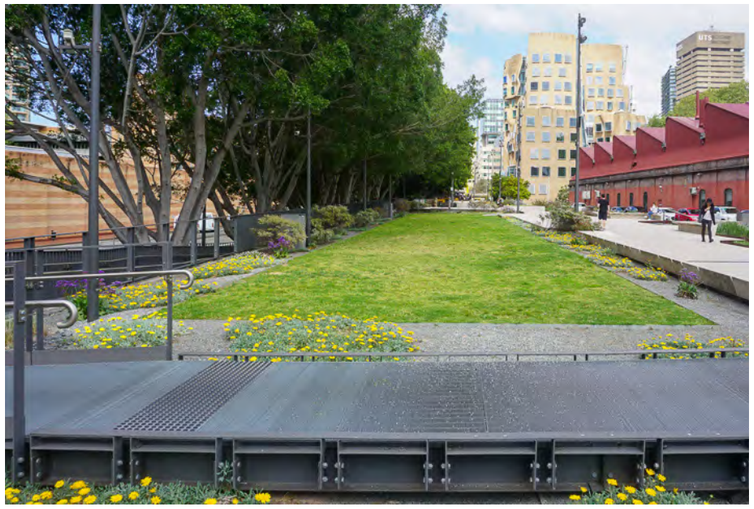
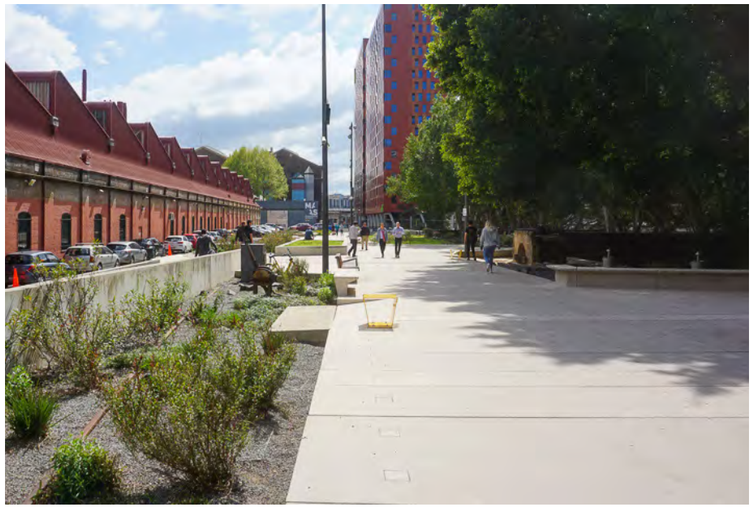
Exterior Viewpoint 64

Exterior Viewpoint 65



Exterior Viewpoint 66



Exterior Viewpoint 67

Exterior Viewpoint 68

Exterior Viewpoint 69

APPENDIX B
Aboriginal Heritage Due Diligence Assessment Report (Curio 2020)

curio
PROJECTS

Aboriginal Heritage Due Diligence Assessment Report

Powerhouse Ultimo
Client: Create Infrastructure

FINAL – November 2020

Document Information

Citation

Curio Projects 2020, *Powerhouse Ultimo Aboriginal Heritage Due Diligence Assessment Report,* prepared for Create NSW.

Local Government Area

City of Sydney Council

Cover Image

Part of a sequence of photographs taken to record the construction of the markets, from ground clearing (October 1910) to completion (November 1911). Horses and carts working on the foundations with Darling Harbour Goods Line at rear and Ultimo Power Station in centre. November 1911, Trove

ISSUE No.	ISSUE DATE	VERSION	NOTES/COMMENTS	AUTHOR	REVIEWED
1	25/09/20	Draft Report	For client review	Mikhaila Chaplin	Sam Cooling
2	01/10/20	Draft Report		Mikhaila Chaplin	Sam Cooling
3	10/11/20	Final Report	For SSDA	Mikhaila Chaplin	Rachael Nesbitt

This report has been prepared based on research by Curio Projects specialists. Historical sources and reference material used in the preparation of this report are acknowledged and referenced at the end of each section and/or in figure captions.

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Australia

Contents

Executive Summary

Curio Projects Pty Ltd was commissioned by Create NSW to prepare an Aboriginal Heritage Due Diligence Assessment Report (DD) for the Powerhouse Ultimo at 500 Harris Street, Ultimo, 2007 (the study area).

The purpose of this DD is to identify whether or not Aboriginal objects are, or are likely to be present within the study area, and whether or not the proposed development works would be likely to harm Aboriginal objects (if present), and therefore to determine whether the proposed activities would require consent in the form of an Aboriginal Heritage Impact Permit (AHIP), or not.

Currently there are three options under consideration for the redevelopment of the Powerhouse Ultimo study area, all of which include ground works that will disturb the ground surface. Therefore, all options will have potential to impact Aboriginal object and sites, should they be present within the study area.

Therefore, it is concluded that proposed work will disturb the ground surface, and therefore has the potential to cause disturbance of Aboriginal objects and sites.

Environmental and Archaeological Context

There are currently no registered Aboriginal archaeological sites within the study area. The registered AHIMS sites that are in closest proximity to the study area(AHIMS #45-5-2979 and AHIMS #45-2652), indicate a high potential for natural soil profiles (and hence PAD sites) to also exist within the Powerhouse Ultimo boundaries.

The study area sits within the soil landscape of Gymea, underlain by Hawkesbury Sandstone (medium to coarse grained quartz sandstone with minor shale and laminate lenses). While the study area is wholly on Gymea, the eastern border of the study area aligns approximately with the boundary between Gymea, and Deep Creek soil profiles (Figure 2.3). The Deep Creek soil profile, which is generally located along the eastern boundary of the study area, was subject to land reclamation in the late 1800s and early 1900s.

The study area is located 500m southwest of the southern shore of Darling Harbour. Originally known as Cockle Bay, the area has been well documented as being used by Aboriginal people for the foraging and consumption of shellfish and other marine faunal resources (Comber Consultants 2012). Before land reclamation in the area occurred, the study area was situated along the original shoreline of Cockle Bay.

The study area is located on the eastern edge of the Ultimo-Pyrmont Peninsula. The Ultimo-Pyrmont peninsula is oriented approximately north west/south-east. Mainly due to sandstone mining, major changes to the topography of the peninsula were undertaken prior to detailed mapping of the area.

Prior to European settlement and subsequent land clearing, the vegetation of the Pyrmont-Ultimo Peninsula would have generally comprised of low, dry sclerophyll open- woodland along ridges and upper slopes.

Historical activities at the site have resulted in moderate to high levels of ground disturbance, including significant impacts such as construction of buildings for the early town houses, Ultimo Power Station, bulk excavations for the Ultimo Power Station buildings, and the Wran Building, as well as landscape activities such as land clearance and two possible quarries.

While numerous Aboriginal archaeological excavations have taken place across this area of the Ultimo Pyrmont peninsula that have encountered significant Archaeological deposits, these investigations have also demonstrated that:

- It is unlikely that reclamation would have disturbed the natural soil profiles within the study area, which is located solely within the Gymea soil landscape.
- Resources available in the Pyrmont-Ultimo Peninsula area, such as reliable fresh water sources and seafood within the area, would have been attractive to Aboriginal occupation and use of the area.
- Aboriginal archaeological deposits, should they be present within or in the vicinity of the current study area, would be most likely to consist of PAD sites, stone artefact sites, shell midden sites, or a combination of both

Areas of the Powerhouse Ultimo site that have the highest potential for natural soils to be present (and corresponding potential for intact Aboriginal archaeological deposits), are areas where the lowest levels of historical development and excavation have been undertaken. These areas include beneath the Wran Building forecourt, north of the Wran building in space between Wran and the Post Office, south of the Boiler House, south of the Harwood Building, and carpark spaces along the eastern boundary of the study area.

Conclusions and Recommendations

Overall, this Due Diligence Heritage Assessment for the Powerhouse Ultimo site has found there to be **moderate to high potential** for in situ Aboriginal archaeological deposits to be present within the study area, where natural soil profiles remain intact,

Therefore, any future ground-disturbing activities that have potential to impact to a depth of the natural soil profiles across the study area, will have potential to impact Aboriginal archaeology, and therefore will require management and mitigation. Key management recommendations are summarised in the following section.

Future development works at the Powerhouse Ultimo study area will require the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), prepared in accordance with relevant Heritage NSW statutory guidelines.

Any ground disturbing works with potential to encounter/impact natural soils profiles will require further Aboriginal archaeological assessment and possible test excavation, either under a Section 90 AHIP under the NPW Act, or as part of an approved ACHAR (including test excavation strategy/research design) as part of an SSD Approval.

Any substantial excavation works proposed for the site are likely to require Aboriginal archaeological test excavation to further investigate and confirm the nature of Aboriginal archaeological potential within the Powerhouse Ultimo study area.

1. Introduction

1.1. Purpose of this Report

Curio Projects Pty Ltd was commissioned by Create NSW to prepare an Aboriginal Heritage Due Diligence Assessment Report (DD) for Powerhouse Ultimo at 500 Harris Street, Ultimo (the study area).

The purpose of this DD is to identify whether or not Aboriginal objects are, or are likely to be present within the study area, and whether or not the proposed development works would be likely to harm Aboriginal objects (if present), and therefore to determine whether the proposed activities would require consent in the form of an Aboriginal Heritage Impact Permit (AHIP), or not.

This report has been prepared with reference to the following documents:

- DECCW 2010, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.* (the Due Diligence Code of Practice)
- Australia ICOMOS, *Australia ICOMOS Charter for Places of Cultural Significance*, The Burra Charter, 2013.
- Curio Project 2020, *Heritage Assessment, Powerhouse Ultimo*, prepared for Create Infrastructure

1.2. Project Background

On 4 July 2020 the NSW Government announced that the Powerhouse Museum at Ultimo would be retained and renewed as the anchor of the Ultimo Creative Industries Precinct, complementing the future flagship Powerhouse Parramatta, Powerhouse Castle Hill, and the Sydney Observatory. The land is owned by the Museum of Applied Arts and Sciences Trust and includes the original Ultimo Power Station buildings; the "Wran" building (temporary exhibition hall opened in 1988); the Harwood building and the former Ultimo Post Office. Some components of the buildings on the site are heritage listed.

The Powerhouse is Australia's contemporary museum for the applied arts and sciences and industry development. The museum was established in 1881 in the Garden Palace which emerged from a history of 19th Century grand exhibition halls, including the Grand Palais in Paris. Powerhouse Ultimo has operated on the Ultimo site since 1988.

The Ultimo Creative Industries Precinct with the Powerhouse Museum Ultimo at its core sits within the context of the new Darling Harbour precinct and the Central Station renewal to the south, adjoining the late-night trading areas of Haymarket. It is in a unique position for renewal, contributing to the future of the Pyrmont Peninsula and supporting partnerships with creative, technology and innovation industries in inner Sydney.

The NSW Government through Create NSW and Powerhouse is working on a Business Case to inform options for the renewal of Powerhouse Ultimo as the anchor of the Ultimo Creative Industries Precinct, with the following Project Objectives:

- Create a vibrant and attractive precinct, that integrates with its surrounds
- Deliver international standard exhibition and cultural spaces congruent with the flagship Powerhouse Parramatta and the broader Powerhouse Program and Vision
- Grow creative industries and improve productivity through sustainable, timely and affordable infrastructure that supports clustering and collaboration
- Ensure effective and efficient coordination with other government initiatives and represent value for money.

The post July 2020 business case and accompanying analysis builds on previous advice for Create NSW, which was undertaken in the context of the development of options for renewal of the site as an arts and cultural and creative industries precinct. This report is part of a suite of work that forms the Ultimo Creative Industries Final Business Case.

1.3. Site Identification

The study area is located on the south eastern edge of the Ultimo-Pyrmont Peninsula, approximately 500m south west of Darling Harbour, and consists of a footprint of roughly 2.37 hectares (Figure 1.1). The study area is broadly defined by Harris Street, Omnibus Lane and a residential apartment block at 82 Mary Ann Street to the west; the William Henry Street Bridge to the north; The Goods Line to the east and Mary Ann Street to the south.

The Powerhouse Ultimo site comprises of an amalgamation of a number of earlier sites. The buildings within the study area that are mentioned in this report are the Harwood Building, Office Building, Pumphouse (Old Boiler House), Engine Hall, Turbine Hall, New Boiler House, Switch House, Post Office and Wran Building (Figure 1.2 and Figure 1.3.)

The Engine Room, Turbine Hall, New Boiler House, Office Building and Switch House form the principle remains of the former Ultimo Tramways Power House, remaining as the main group of interconnected buildings on the site (Figure 1.2 and Figure 1.3).

Figure 1.1: Regional Context (Source: Curio 2020)

Figure 1.2: Aerial View showing the key built elements of the site and its immediate surrounds
(Source: TKD Architects, 2018)

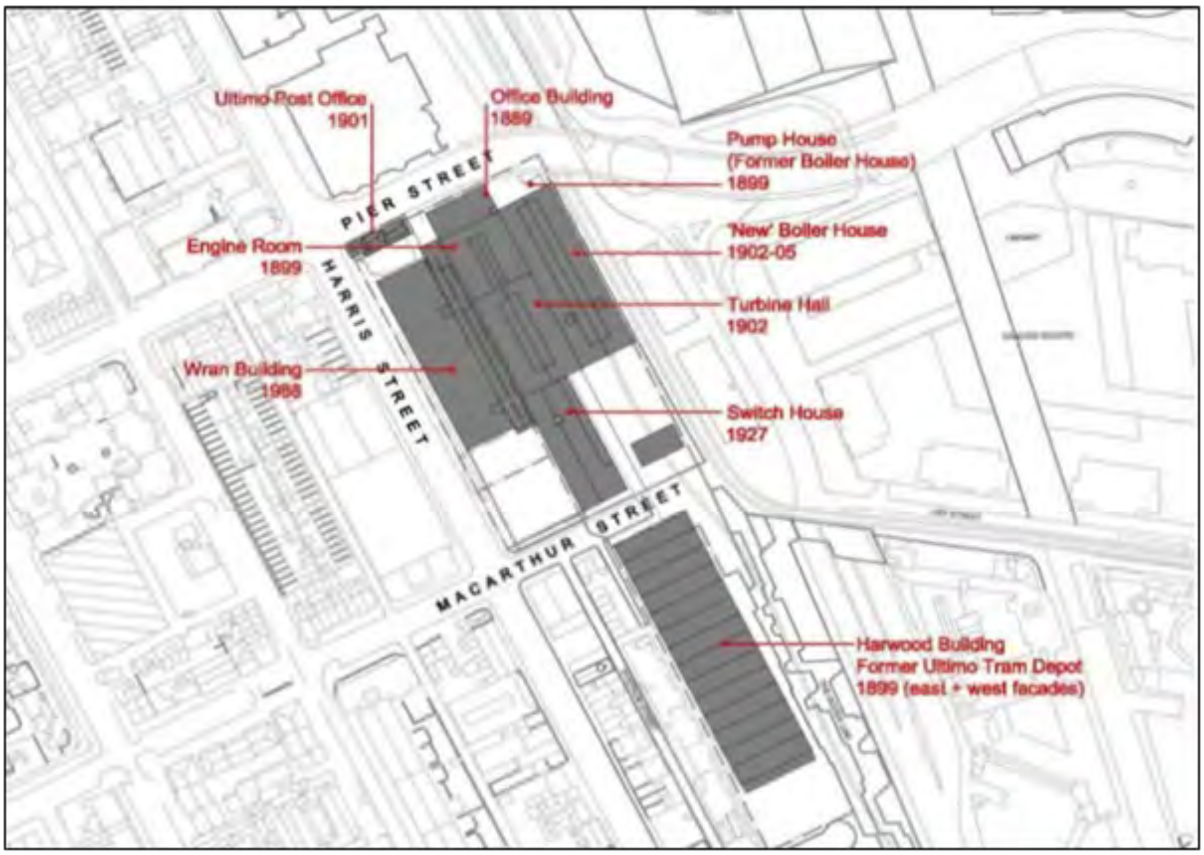

Figure 1.3: Plan of the study area showing key elements and their original date of construction
(Source: TKD Architects, Nov 2018)

1.4. Statutory Controls

Aboriginal cultural heritage is governed in NSW by two principles pieces of legislation:

- *National Parks and Wildlife Act 1974 (NSW)* (NPW Act); and
- *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act).

1.4.1. National Parks and Wildlife Act 1974

The NPW Act, administered by the Aboriginal Heritage Regulation Section, Heritage NSW, of the NSW Department of Premier and Cabinet (DPC) (formally known as the Office of Environment and Heritage (OEH), is the primary legislation that provides statutory protection for all 'Aboriginal objects' (Part 6, Section 90) and 'Aboriginal places' (Part 6, Section 84) within NSW.

An Aboriginal object is defined through the NPW Act as:

> *"any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains."*

The NPW Act provides the definition of 'harm' to Aboriginal objects and places as:

> *"...any act or omission that:*

(a) destroys, defaces or damages the object or place, or

(b) in relation to an object-moves the object from the land on which it had been situated, or

(c) is specified by the regulations, or

(d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c), (NPW Act 1974).

The NPW Act also establishes penalties for 'harm' to Aboriginal objects and declared Aboriginal places, as well as defences and exemptions for harm. One of the main defences against the harming of Aboriginal objects and cultural material is to seek an Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the NPW Act, under which disturbance to Aboriginal objects could be undertaken, in accordance with the requirements of an approved AHIP.

1.4.2. Environmental Planning & Assessment Act 1979

The EP&A Act is an 'Act to institute a system of environmental planning and assessment for the state of NSW', administered by the NSW DPIE, and provides the legislative context for environmental planning instruments made to legislate and guide the processes of development and land use. Local heritage items, including known archaeological items, identified Aboriginal Places and heritage conservation areas are protected through listings on Local Environmental Plans (LEPs) or Regional Environmental Plans (REPs). The EP&A Act also requires that potential Aboriginal archaeological resources are adequately assessed and considered as part of the development process, in accordance with the requirements of the NPW Act.

Dependent upon which Part of the EP&A Act a project is to be assessed under, differing requirements and protocols for the assessment of associated Aboriginal cultural heritage may apply.

Part 4, Division 4.1 of the EP&A Act identifies and defines State Significant Development projects (SSD) as those declared under Section 89C of the EP&A Act. This Part of the EP&A Act provides for development with a capital investment of more than $30 million to be designated as a SSD or State Significant Infrastructure project (SSI), under State Environmental Planning Policy (State and Regional Development) 2011.

Where a project is assessed to be an SSD, the process of development approval differs, with certain approvals and legislation no longer applicable to the project. Of relevance to the assessment of Aboriginal heritage for a development, the requirement for an AHIP in accordance with Section 90 of the NPW Act is removed for SSD projects (EP&A Act, Section 89J).

1.4.3. Native Title Act 1993

The Native Title Act 1993 provides the legislative framework to recognise and protect native title, which recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people. Under the Native Title Act, native title claimants can make an application to the Federal Court to have their native title recognised by Australian law.

There are currently no native title claims or determinations in place for the Powerhouse Ultimo study area.

1.4.4. NSW Aboriginal Heritage Statutory Guidelines

In order to best implement and administer the protection afforded to Aboriginal objects and places as through the NPW Act and EP&A Act, the former OEH (now part of Heritage NSW under DPC) have prepared a series of best practice statutory guidelines with regards to Aboriginal heritage. These guidelines are designed to assist developers, landowners and archaeologists to better understand their statutory obligations with regards to Aboriginal heritage in NSW and implement best practice policies into their investigation of Aboriginal heritage values and archaeology in relation to their land and/or development. These guidelines include:

- DECCW 2010a, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.* (the Due Diligence Code of Practice)
- OEH 2011a, *Guide to Investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW*. (the Guide to Investigating)
- DECCW 2010b, *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales*. (the Code of Practice)
- DECCW 2010c, *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.* (the Consultation Guidelines)
- OEH 2011b, *Aboriginal Heritage Impact Permits, a Guide for Applicants*.

The purpose of the Due Diligence Code of Practice is to 'assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of an AHIP' (DECCW 201a: 2). This current report has been prepared in accordance with the Due Diligence Code of Practice.

1.5. Due Diligence Assessment Process

The Due Diligence Assessment Process (in accordance with the OEH Due Diligence Code of Practice guidelines), is a step by step process that provides proponents with a reasonable method to follow to determine whether their proposed activity has the potential to harm Aboriginal objects, and to identify reasonable constraints and opportunities of the activity, relating to Aboriginal heritage in the activity location. The primary steps of the Due Diligence process are:

- Step 1—Determine whether the activity will disturb the ground surface or any cultural modified trees.
- Step 2a—Database Search of the OEH Aboriginal Heritage Information Management Services (AHIMS), and other known sources to determine whether any registered sites are located within/near the study area.
- Step 2b—Environmental/Landscape Assessment
- Step 3—Impact Avoidance Assessment

- Step 4—Desktop Assessment and Visual Inspection

Following this process, should the assessment determine that Aboriginal objects are likely to be present and have the potential to be impacted, the Due Diligence Code of Practice advises further investigation and impact assessment (Step 5). Should the assessment determine that Aboriginal objects are unlikely to be present/unlikely to be harmed through the proposed activity, then the activity may proceed with caution.

1.6. Limitations and Constraints

This report is a desktop assessment of environmental and Aboriginal archaeological context and potential only. No consultation with the local Aboriginal community has been undertaken as part of this assessment, and therefore no social or cultural assessment of Aboriginal heritage values has been undertaken at this time. The OEH Due Diligence Code of Practice states that 'consultation with the Aboriginal community is not a formal requirement of the due diligence process', however only Aboriginal people are able to provide information regarding the Aboriginal cultural and social nature and significance of a site or location.

1.7. Authorship and Acknowledgements

This report has been prepared by Mikhaila Chaplin, Graduate Archaeologist, and reviewed by Sam Cooling, Cultural Heritage Manager, of Curio Projects Pty Ltd. Maps and GIS prepared by Andre Fleury, Archaeologist and Historian, of Curio Projects Pty Ltd.

Due Diligence Assessment

2.1. Will the proposed activity disturb the ground surface?

2.1.1. Proposed Development

The proposed redevelopment of the Powerhouse Ultimo is currently in the early stages of planning and development. The redevelopment will be a renewal of the space that has held the Powerhouse Museum since 1988.

Currently there are three options under consideration for the redevelopment of the Powerhouse Ultimo study area, all of which include ground works that will disturb the ground surface. Therefore, all options will have potential to impact Aboriginal object and sites, should they be present within the study area.

Therefore, it is concluded that proposed work will disturb the ground surface, and therefore has the potential to cause disturbance of Aboriginal objects and sites.

2.2. Database Search

2.2.1. AHIMS Search

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 10 September 2020 across the City of Sydney, centred on the study area (with a buffer of 1km), and returned 66 results. The extensive AHIMS search is attached as Appendix A.

Summary descriptions of Aboriginal site features registered on AHIMS, as relevant to the study area, are presented in Table 2.1. The 66 registered sites from the AHIMS search included 17 different site types, some located in combination with each other, as summarised in Table 2.2.

AHIMS search results always require a certain amount of scrutiny in order to acknowledge and accommodate for things such as inconsistencies in the coordinates (differing datums between years of recording), the existence of, and impact to, registered sites (impact to a registered site technically requires the submission of an Aboriginal Site Impact Recording form to be submitted to the OEH, however these forms are not always submitted), and other database related difficulties. It should also be noted that AHIMS database is a record of archaeological work that has been undertaken and registered with AHIMS in the region.

The AHIMS database is therefore a reflection of recorded archaeological work, the need for which has likely been predominantly triggered by development, and not a representation of the actual archaeological potential of the search area. AHIMS searches should be used as a starting point for further research and not as a definitive, final set of data.

Therefore, the AHIMS search result has been synthesised as best possible within the scope of this current report to determine the most likely nature and location of previously registered sites in proximity to the current study area.

There are currently no registered Aboriginal archaeological sites within the study area. Three registered Aboriginal archaeological sites are located in close proximity to the study area (Figure 2.2). These include:

- AHIMS #45-6-2652, 'Ultimo PAD 1', a PAD site located 50m north of the study area
- AHIMS #45-5-2979, 'UTS PAD 1, 14-28 Ultimo Rd Syd', a PAD site located 60m south of the study area
- AHIMS #45-6-3217, 'Darling Central Midden', is a shell midden, artefact and Aboriginal Ceremony and Dreaming site 200m north east of the study area.

The most common site types in the area are Potential Archaeological Deposits (PADs) (n=26), followed by artefact sites (n=12), and shell midden and artefact sites (n=8). Ultimo PAD 1 (AHIMS #45-6-2652) was registered on the assessment areas of remnant soil may be present at this location at depth, buried below modern hard surfaces,, which have the potential to contain Aboriginal sites/objects. The Darling Central Midden (AHIMS #45-6-3217) reflects the potential for natural soil deposits to remain intact after modern buildings were constructed on site, a potential that was confirmed through later archaeological excavation works undertaken for the development in the area (see previous archaeological investigations section below for further detail). The UTS PAD 1 14-28 Ultimo Rd Syd (AHIMS #45-6-2979) indicated the PAD was recorded within a vacant lot used temporarily as an open carpark. The registered AHIMS sites that are in closest proximity to the study area(AHIMS #45-5-2979 and AHIMS #45-2652), indicate a high potential for natural soil profiles (and hence PAD sites) to also exist within the Powerhouse Ultimo boundaries.

The general distribution of sites from the AHIMS search around the study area are visible in Figure 2.1 and Figure 2.2. The relatively even dispersal of sites suggests that Aboriginal archaeological sites may exist across the entire Sydney CBD and Pyrmont Peninsula area, wherever conditions allow them to survive (i.e. incomplete levels of ground disturbance, along the edge of the original sandstone outcrops and geology, along water sources, and where natural soil profiles are still present.

Out of the 66 results from our AHIMS search, 10 of these sites are recorded on AHIMS as having been destroyed by previous activities. None of the sites recorded as having been destroyed at those close proximity to the study area. It is possible that other site results from this AHIMS search have already been subject to harm or have been destroyed under AHIPs or through authorised site works and have not been updated in AHIMS. However, as none of these sites are located within the current study area, this is not of a direct concern for this project, and the location of all sites, regardless of their current status, will inform the Aboriginal archaeological potential assessment for the current study area.

Table 2.1:Aboriginal site features referred to in this report

SITE FEATURE	DESCRIPTION/DEFINITION BY OEH 2012
Aboriginal Resource and Gathering	Related to everyday activities such as food gathering, hunting, or collection and manufacture of materials and goods for use or trade.
Art Site	Art is found in shelters, overhangs and across rock formations. Techniques include painting, drawing, scratching, carving, engraving, pitting, conjoining, abrading and the use of a range of binding agents and natural pigments obtained from clays, charcoal, and plants
Artefact Site (Open Camp Sites/artefact scatters/isolated finds)	Artefact sites consist of objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating physical evidence of use of the area by Aboriginal people. Registered artefact sites can range from isolated finds, to large extensive open camp sites and artefact scatters. Artefacts can be located either on the ground surface or in a subsurface archaeological context.
Burials	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked, e.g. in caves, marked by stone cairns, in sand areas, along creek banks etc.
Grinding Groove	Grinding grooves are a groove in a rock surface resulting from manufacture of stone tools such as ground edge hatchets and spears, may also include rounded depressions resulting from grinding of seeds and grains.
Modified Tree	Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials shrouds, for medicinal purposes, foot holds etc, or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area, again these carvings may also act as territorial or burial markers.
Potential Archaeological Deposit (PAD)	An area where Aboriginal cultural material such as stone artefacts, hearths, middens etc, may be present in a subsurface capacity.
Shell Midden	A shell midden site is an accumulation or deposit of shellfish resulting from Aboriginal gathering and consumption of shellfish from marine, estuarine or freshwater environments. A shell midden site may be found in association with other objects like stone tools, faunal remains such as fish or mammal bones, charcoal, fireplaces/hearths, and occasionally burials.

Table 2.2: Results of AHIMS Search

SITE TYPE	NUMBER OF SITES	% OF SITES
Aboriginal Ceremony & Dreaming and Artefact and Shell	2	3.03
Aboriginal Resource and Gathering	2	3.03
Art	4	6.06
Art and Artefact	1	1.52
Artefact	12	18.18
Artefact and PAD	2	3.03
Burial and Aboriginal Ceremony & Dreaming and Artefact	1	1.52
Grinding Groove	1	1.52
Hearth and PAD	1	1.52
Modified Tree	1	1.52
PAD	26	39.39
Shell Midden and Artefact	8	12.12
Shell Midden and Artefact and Art	1	1.52
Shell Midden and Artefact and PAD	1	1.52
Shell Midden and Burial	1	1.52
Shell Midden	1	1.52
Waterhole	1	1.52
TOTAL	**66**	**100%**

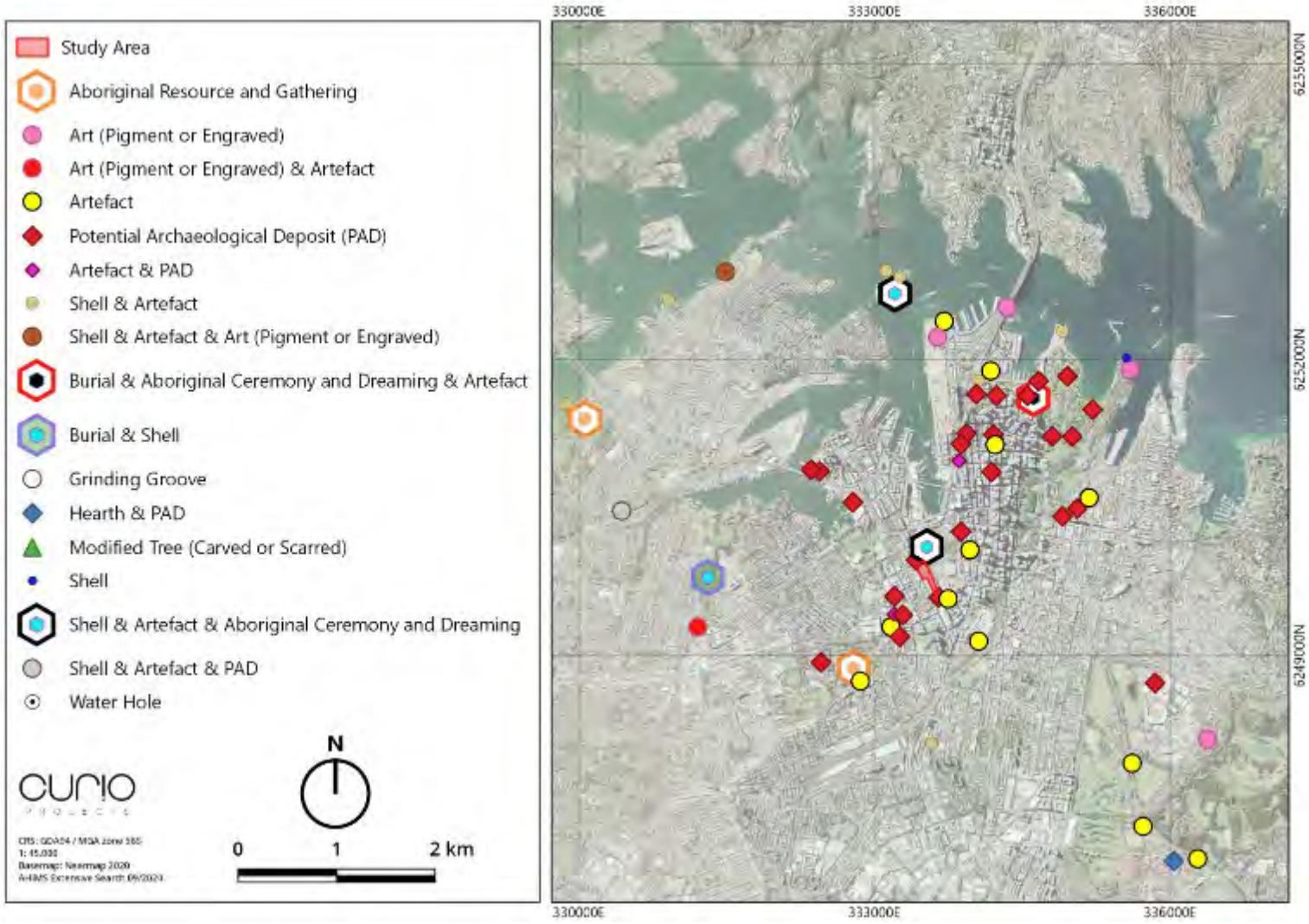

Figure 2.1: AHIMS Sites (Source: Curio 2020)

Figure 2.2: Close up of study area and surrounding AHIMS sites (Curio 2020)

2.3. Environmental Context

The physical setting of the study area, its natural resources, landforms, and wider landscape setting has a significant influence over the nature, location, and form of Aboriginal occupational and use patterns through their interactions with the land (tangible values and site). The environmental setting of a location can also providing meaningful landscape context for understanding intangible Aboriginal heritage values and connection to Country.

2.3.1. Geology and Soils

The geology and soils of a locale can provide information for the prediction and modelling of the nature and positioning of potential Aboriginal sites, for example, soil types capable of supporting vegetation/flora resources of importance to Aboriginal people (and the corresponding faunal resources that would utilise the vegetation), may provide clues to indicate Aboriginal use and occupation across a landscape.

The study area sits within the soil landscape of Gymea, underlain by Hawkesbury Sandstone (medium to coarse grained quartz sandstone with minor shale and laminate lenses). While the study area is wholly on Gymea, the eastern border of the study area aligns approximately with the boundary between Gymea, and Deep Creek soil profiles (Figure 2.3). The Deep Creek soil profile, which is generally located along the eastern boundary of the study area, was subject to land reclamation in the late 1800s and early 1900s.

The Disturbed Terrain soil profile would have been created through the extensive processes of land reclamation that involved the playing of man-made fill (dredged estuarine sand and mud, demolition rubble, industrial and household waste) over swamps and estuarine shores along the Sydney harbour foreshore. Further detail regarding land reclamation at the current study area is discussed in Section 2.3.5 below.

Figure 2.3: Soil map of study area and surrounds (Source: Curio 2020)

2.3.2. Hydrology

The hydrology of an area plays an important role in identifying not only areas of occupational, environmental, and archaeological potential, but also in understanding how deposits at a site are formed and/or impacted by hydrology. The effects of hydrology can range from the general availability of water in an area, through to flooding events. Hydrology can influence the original occupation of a space and associated deposition of cultural material, as well as play a part in post-depositional taphonomic processes.

The study area is located 500m southwest of the southern shore of Darling Harbour. Originally known as Cockle Bay, the area has been well documented as being used by Aboriginal people for the foraging and consumption of shellfish and other marine faunal resources (Comber Consultants 2012). Before land reclamation in the area occurred, the study area was situated along the original shoreline of Cockle Bay.

In addition to being in close proximity to the waters of Darling Harbour, the study area is located 1.3km southeast from what was known by European settlers as 'Tinkers Well', on the north western point of the Pyrmont Peninsula. This was a freshwater spring located in a large sandstone overhang where water trickled from between the sandstone and collected into a natural bowl in the sandstone floor of the overhand (Irish & Goward 2013). Although the shelter in which Tinkers Well was destroyed in the early 20th century, the water of the spring itself is still

present and accounts from early European settlers relate the use of the area and this spring by Aboriginal people into the 19th Century.

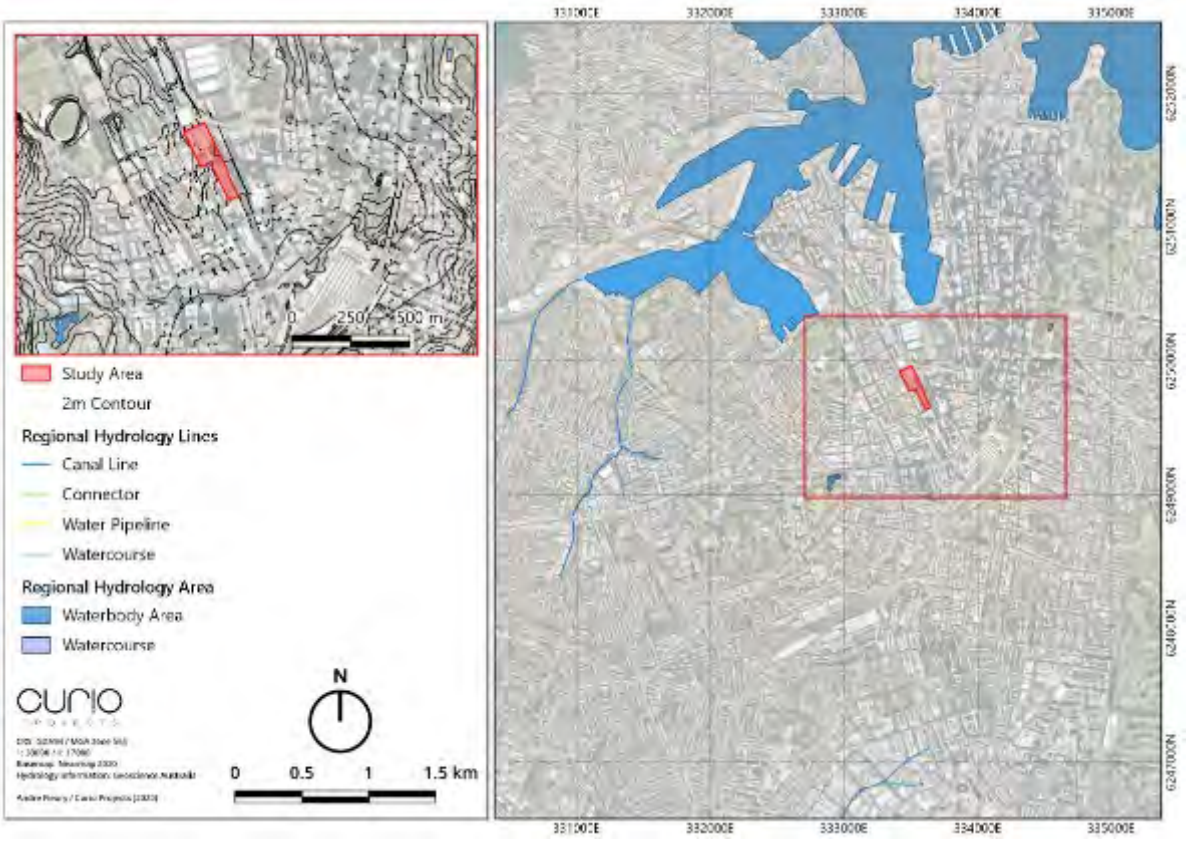

Figure 2.4: Hydrology and topography Map (Source: Curio 2020)

2.3.3. Landscape and Landforms

Darling Harbour is located in the central area of the Sydney basin, which is generally characterised by contrasting sandstone escarpments, and gently undulating shale hills (Herbert 1983). The study area is located 500m southwest of Darling Harbour and on the eastern edge of the Ultimo-Pyrmont Peninsula. The Ultimo-Pyrmont peninsula is oriented approximately north west/south-east. Mainly due to sandstone mining, major changes to the topography of the peninsula were undertaken prior to detailed mapping of the area. However, it is generally understood that the Pyrmont peninsula prior to 1788, generally consisted of sandstone rises and outcrops, grading down towards the water on all sides.

The study area is located on the sandstone topography of the Ultimo-Pyrmont Peninsula in close proximity to the original shoreline of Cockle Bay. The approximate location of the study area is highlighted in red in Figure 2.5 below. The location of the study area in relation to the original topography and landform of the peninsula is shown in Figure 2.6.

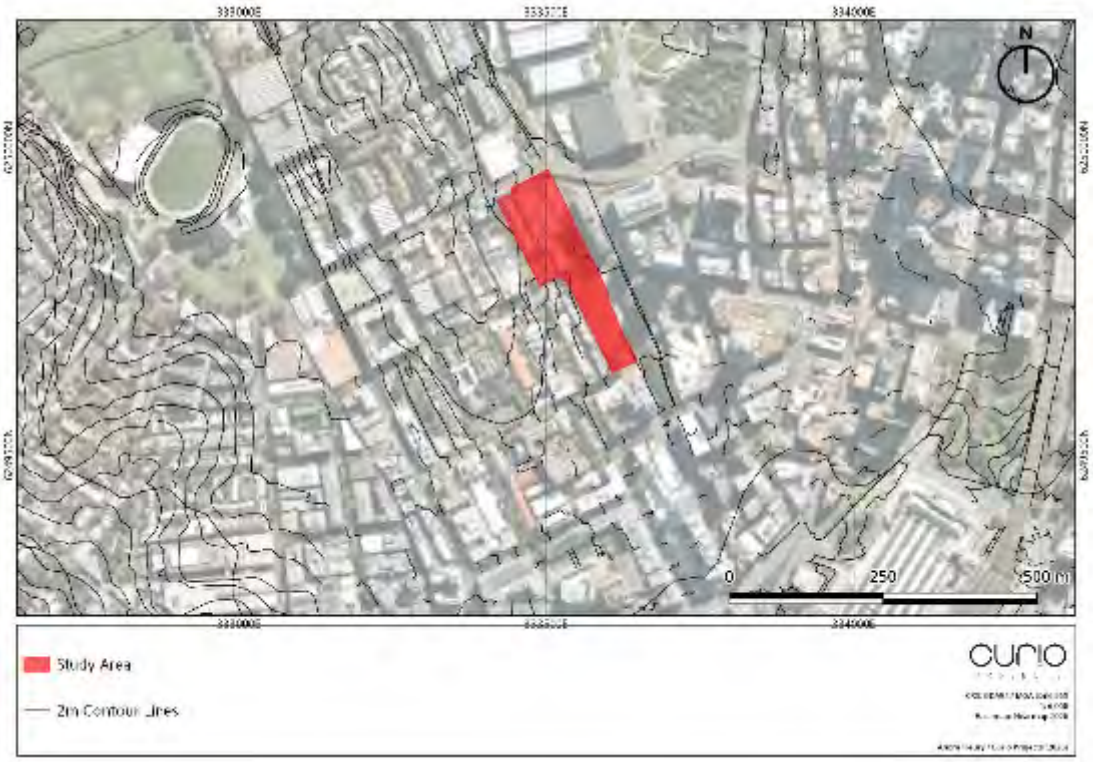

Figure 2.5: Land Contours of study area and surrounds (Source: Curio 2020)

Figure 2.6: Topography and drainage of the Pyrmont peninsula in 1788. Orange arrow indicating general location of study area (Source: Broadbent. J, 2010, Transformations: Ecology of the Pyrmont Peninsula 1788-2008, Sydney. Figure 3.5: 54)

2.3.4. Vegetation and Fauna

An understanding of the original vegetation of an area provides information about the resources that such vegetation would have provided to Aboriginal people in the area, and would have influenced how different locations were accessed, used and visited. Vegetation can itself be a direct resource- such as tree bark for canoes, shield etc, or edible plants- or it can be an indirect resource, creating habitats for different animals such as possums, birds etc, available for hunting.

Prior to European settlement and subsequent land clearing, the vegetation of the Pyrmont-Ultimo Peninsula would have generally comprised of low, dry sclerophyll open- woodland along ridges and upper slopes, with species commonly present including Red Bloodwood *Eucalyptus gummifera*, Scribbly Gum *Eucalyptus haemastoma,* Brown Stringybark *Eucalyptus capitellata* and Old Man Banksia *Banksia serrata*. More sheltered slopes would have commonly supported Black Ash *Eucalyptus sieberi*, Sydney Peppermint *Eucalyptus piperita* and Sydney Red *Gum Angophora costata.* The understorey of these plant communities would have consisted of a variety of native shrubs (Chapman & Murphy 1989). However, the nature of the sandstone peninsula, water availability and drainage would have affected the growth of these various floral species.

While the diversity of flora would have supported a variety of fauna such a kangaroo, wallaby, wombat, echidna, flying fox, emus, quolls, various native rats and mice, snakes and lizards, this would also have been limited by the extent of the vegetation growth on the sandstone peninsula (Tench 1789).

The Darling Harbour area would have constituted a rich resource zone (both marine and land based), including a variety of vegetation, which would have in turn provided a diverse habitat for varied fauna, to be utilized by the Aboriginal people inhabiting the area prior to European arrival.

2.3.5. Modern Land Use and Disturbance

A summary of the modern development history of the study area, including its surrounds, disturbance and historical development, is discussed in this section in order to establish the effect that previous land use may have had on the preservation or destruction of potential Aboriginal archaeological remains at this location.

In summary, the main historical activities specific to the study area that would have impacted and/or removed natural soil profiles include:

- Initial European vegetation and land clearance that began in the early 19th century.
- Land reclamation activities in Darling Harbour occurred in close proximity to the eastern boundary of the study area during the late 19th century possibly altering soil profile in study area or surrounds.
- Two possible quarries within study area from 1844 bounded by Harris, Pyrmont, Macarthur and Mary Ann Streets and ceased to operate by at least 1899 (Figure 2.12).
- Construction of terrace houses (1840s and 1850s) within study area, (Figure 2.12) located at:

- 554 and 556 Harris Street (located below the Wran Building forecourt) (Figure 2.11);
- 519, 521,523 off Harris Street (south of the Boiler House Building);
- 137 William Henry Street (beneath the Office Building and Engine Hall, Wran Building and an area outside of the Office Building).

- Construction of the Ultimo Tram line along the eastern boundary of the study area in 1899.

- Construction of the Ultimo Power Station in the late 19th century and early 20th century which would have disturbed natural soil profiles to establish the structural foundations of the building, for basements, and installation of services. Buildings constructed during this period include the Office Building (1889), Pump House (1899), Harwood Building (1899), Engine Room (1899), Ultimo Post office (1901), 'New' Boiler House (1902-1905), Turbine Hall (1902) and Switch House (1927).
    - Excavation for basements occurred beneath, the Engine Room (3.5m-6.7m depth), New Boiler House (6m depth), Turbine Hall (3m depth), and Office Building (4m depth) (Figure 2.14 and Figure 2.15)

- Construction of the Exhibition "Wran" Building in 1988 as part of the redevelopment and adaptive reuse of Ultimo Power Station into The Powerhouse Museum would have disturbed natural soil profiles to establish structural foundations of the building, excavation for the existing basement, and installation of services. The depth of the Wran Building basement is approximately 4.5m depth along the western side of the building (Figure 2.14).

- Other levelling and grading activities for the construction of site features including the carpark and the Wran Building forecourt– which would likely have required cut and fill to establish the carpark surface, including some cutting of the natural topsoil (possibly disturbing soil profiles below ground surface within the footprint).

- Ongoing installation of utilities and services across site (trenching for sewer and water mains, electric easements etc) throughout all phases of historical use.

Figure 2.7: Map of Sydney and Suburbs 1855. Smith & Gardiner, Printers and Publishers. Study area location circled in red (Source: City of Sydney available from https://archives.cityofsydney.nsw.gov.au/nodes/view/1709399)

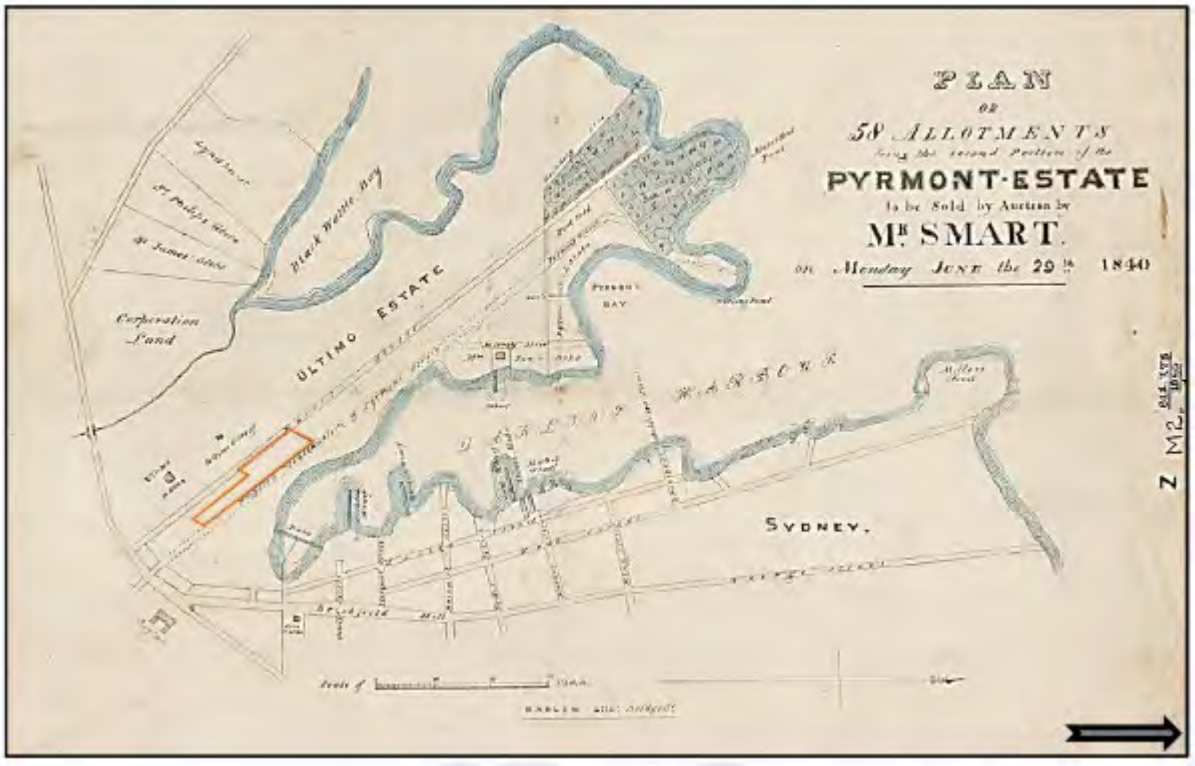

Figure 2.8: Plan of 58 allotments, being the second portion of the Pyrmont Estate to be sold at auction by Mr Smart on Monday 29 June 1840. Study area outlined in orange (Source: State Library of NSW digital collection)

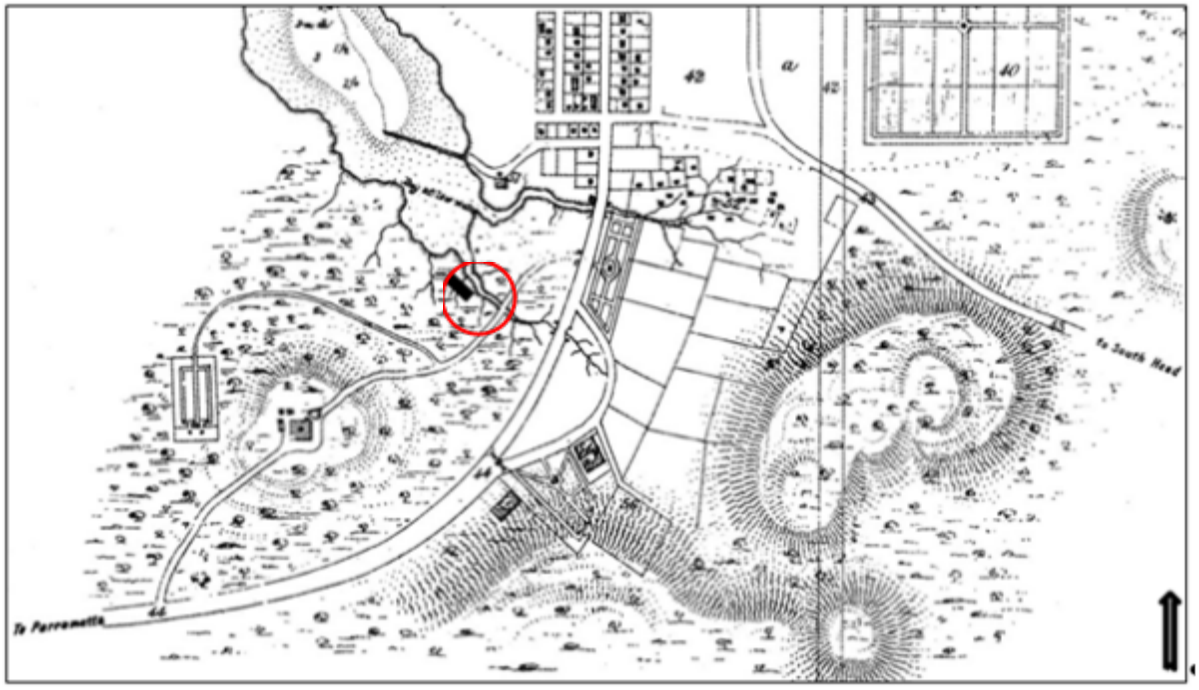

Figure 2.9: c.1822 showing the site prior to development, mostly swampy landscape surrounding the head of Cockle Bay. The approximate located of the study area is indicated in red. (Source: Ashton & Waterson 2000:19)

Figure 2.10: c.1867 Watercolour painted by Samuel Elvard, showing the view from Harris Street to Darling Harbour. (Source: Dixon Galleries, State Library of NSW, FL3268225)

Figure 2.11: The houses at 554-556 Harris Street on 28 July 1922 with the power house behind, before demolition (Source: City of Sydney Archives NSCA CRS 51/992).

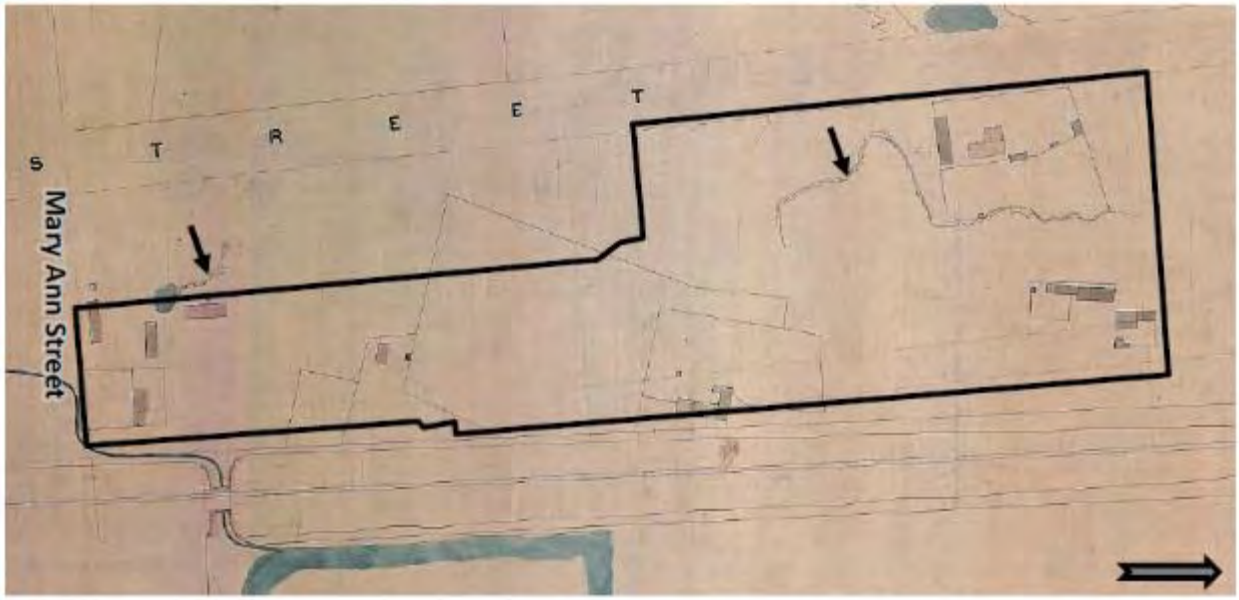

Figure 2.12: Detail of the Trigonometrical Survey of Sydney,1855-1865, showing a number of timber (grey), stone (yellow), brick (pink) and iron (blue) buildings within the study area indicated. Black arrows indicating possible quarry locations. (Source: http://atlas.cityofsydney.nsw.gov.au/maps/city-of-sydney-trigonometrical-survey-1855-1865-block-v1/ with AMBS additions 2018)

Figure 2.13: Aboriginal archaeological potential within study area. Expected historical archaeology of 1840s and 1850s houses (red), high Aboriginal archaeological potential (blue) (Source: AMBS 2018/ Curio 2020)

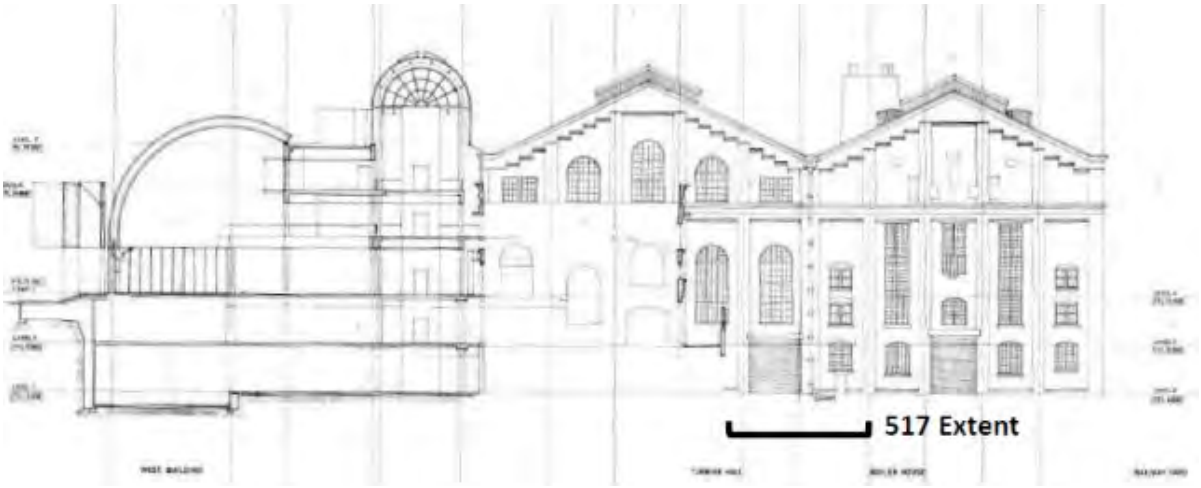

Figure 2.14: 1984 MAAS Stage 2 Construction plan. Section 11 faces south and illustrates the basements beneath the Wran Building, the Turbine Hall and the Boiler House (left to right).

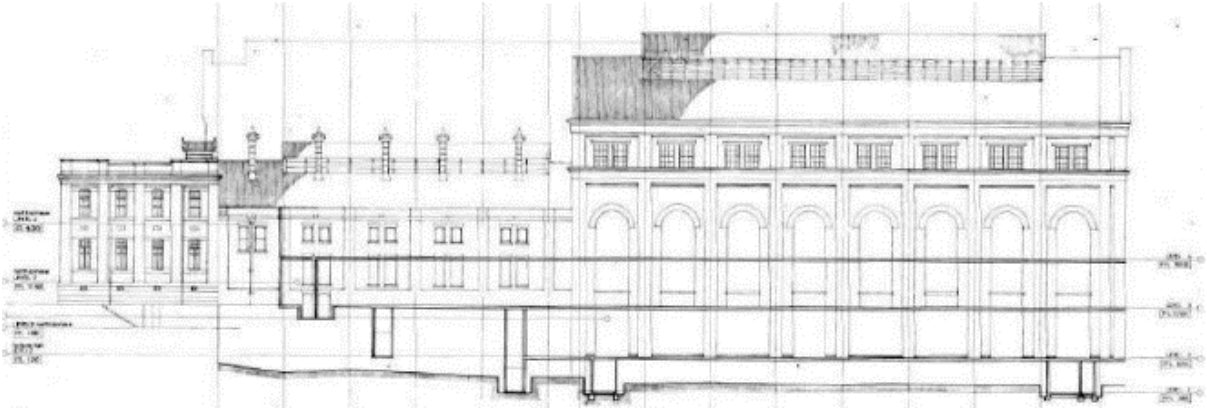

Figure 2.15: 1984 MAAS Construction plan. Section 14 faces west and pictures the North Annexe, Engine Hall and Turbine Hall (left to right). The basement of the Turbine Hall is 3.2m deep. (Source: AMBS 2018)

Land Reclamation

Most of the current shorelines of Sydney Harbour have been subject to land reclamation through the removal or filling of mudflats, wetlands, mangroves and saltmarshes. Land reclamation processes include the deposition of fill materials (commonly waste fill or previously contaminated sediments) over semi-submerged land, and draining of water from this land, in order to enable construction. Most of the modification of the Sydney shoreline has been undertaken for harbour construction, navigation, wharf, and shore development.

The land reclamation along the southern end of Darling Harbour took place in 1874 (with the exception of Darling Island, which was connected to the mainland of the peninsula earlier). Further land of reclamation within the head of Cockle Bay was undertaken in 1918. demonstrates a summary of the land reclamation across the Sydney estuary, with reclamation around the area of study area having taken place after 1854.

The study area is located in close proximity to the eastern boundary between what would have been the original shoreline of the southern end of Daring Harbour (pre-1788), and land reclaimed in the late 19th century (Figure 2.8, Figure 2.9). presents the map of the original

shoreline and land reclamation of Darling Harbour. Although the impacts from land reclamation occurred adjacent to the study area, it is likely the study area is located enough on the fringes of those land modifications to not have too much of an impact on the natural soils within.

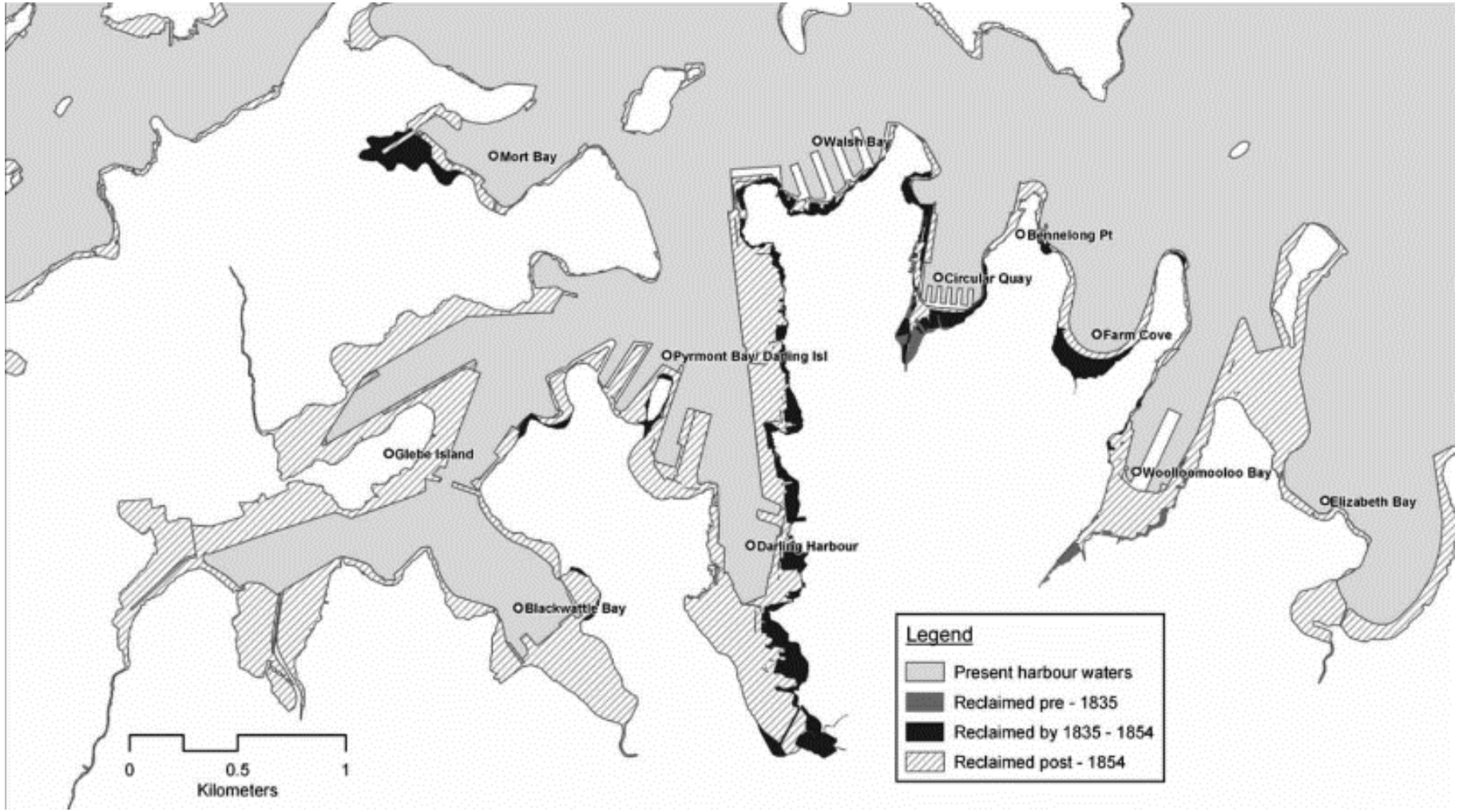

Figure 2.16: Summary of Land Reclamation across the Sydney Estuary including Darling Harbour. (Source: Birch et al., 2009: Figure 5,35)

Geotechnical Investigation

Geotechnical investigations provides ground truthing and further clarification of the nature of the sub-surface soil and disturbance present within the study area. A geotechnical investigation was undertaken within the study area in 2019, consisting of 11 geotechnical boreholes (Douglas Partners 2019), from which an inferred subsurface soil and geological profile has been developed for the Powerhouse Ultimo study area (Table 2.3). Generally, Hawkesbury Sandstone bedrock is located across the study area at depths between 1.5m-11.8m below the current ground level. Investigation works encountered ground water seepage during auguring within BH104 at 6m depth and BH105 at 3.80m depth. Any future excavation work at the site extending >1m depth, particularly in the south east of the study area, would be expected to encounter ground water

The soil stratigraphy within the study area as identified by geotechnical investigations consists of a concrete slab, brick pavers or asphalt surface over gravel, sand or clay fill with sandstone boulders (up to 0.25m to 4.5m), overlying silty clay, sandy clay and clay residual soil, over a layer of sandstone. Contact was made with sandstone bedrock at varying levels across the study area (up to 1.5m to 11m). Silty clay, silty sand and sandy clay alluvial soil was encountered in BH104 and BH105 only (i.e. in the west of the study area, further down slope towards Darling Harbour).

BH107 in the northwest of the study area encountered a void immediately underlying the concrete slab, likely part of the basement associated with the Power House buildings, that continued to at least 3.1m below ground.

Soil Units 2 and 3 as described by Douglas Partners are considered to be consistent with the natural soil profiles of the area.

Unit	Material/ Origin	Description	Approximate Thickness[1] (m)	Depth to Top of Unit[1] (m)	RL to Top of Unit[1] (m AHD)
1	Fill	Concrete slab or brick pavers over Gravel, Sand, Clay, and sandstone boulders	0.25 – 4.5	Ground Surface	3.5-15.6
2	Alluvial Soil	Silty Clay, Silty Sand and Sandy Clay, varying plasticity from low to high plasticity, fine to medium sand, soft to firm and loose sand, encountered in BH104 and BH105 only	0.5 – 2.3	3.5 – 4.5	1.3 – 2.7
3	Residual Soil	Silty Clay, Sandy Clay, and Clay, varying plasticity from low to high plasticity, stiff to hard.	0.5 – 5.0	1.5 – 6.8	-1.0 – 5.5
4a	Class V/IV[2] Sandstone	Sandstone, moderately weathered, very low to low strength.	0.3 – 0.9	1.5 – 11.8	-6.0 –14.1
4c	Class III[2] or Better Sandstone	Sandstone, slightly weathered to fresh, medium to high strength, a 0.5 m thick, very low to low strength layer was encountered at the bottom of BH202.	Not Penetrated	1.8 – >11.8	Below -6.0 – 13.8

Table 2.3: Douglas Partners, 2019, Report on Geotechnical Investigation, Ultimo Creative Industries Precinct, Table 2

Figure 2.17: 2019 Geotechnical Borehole Plan (Source: Douglas Partners: Appendix B)

2.3.6. Summary of Environmental Context

The study area is located in close proximity to the original foreshore of Darling Harbour. While the area was not developed extensively until the late 1800s (, Figure 2.10), early historical accounts provide evidence that extensive use was made of the shell middens that lined the bay to provide mortar in lime kilns for civic development programs for the early colony.

The Ultimo- Pyrmont Peninsula and Darling Harbour would have been a focus for Aboriginal occupation and habitation prior to 1788, likely including the current study area. While the study area has been historically subject to industrial uses associated with the Ultimo Power Station and Ultimo Tram Line, this does not mean that all natural soil profiles (i.e. the soil profiles capable of retaining an Aboriginal archaeological signature) have been removed. Environmentally, the study area is considered to have potential to retain an Aboriginal archaeological signature, supported with the geotechnical investigation of the study area and the alluvial/residual soils confirmed to be present (e.g. within BH104, BH106, BH202).

2.4. Aboriginal Archaeological Context

Review of relevant previous archaeological work is a highly informative and necessary step in identifying the likely nature of the potential archaeology that may be present in a location. The investigation of previous work undertaken in the region, on similar sites, and on similar landscape or landforms, can inform our understanding of a site by providing a proxy against which a newly investigated site can be measured (albeit with caution). That is to say, understanding the archaeological record at a general location can provide us with an indication of the nature and level of potential of archaeology that may be present at a site, prior to any subsurface investigation. As archaeology is by its very nature, a destructive discipline, it is important to acquire as much information and understanding of a site as possible prior to undertaking fieldwork (as once evidence has been excavated, its context is effectively destroyed), and also to avoid any unnecessary fieldwork at a site.

Research into archaeological investigations undertaken in proximity to the current study area indicate the types of archaeology that may survive in the area, and the environment that has allowed it to survive. A brief review of several relevant key reports undertaken in proximity to and/or including the current study area, has been presented below (Figure 2.18).

2.4.1. KENS Site, Aboriginal Excavation – Steele 2006

Aboriginal archaeological assessment and excavation was undertaken by Dominic Steel in 2003, of a large Aboriginal campsite, at the site that has come to be known as the KENS site (named for the streets which form the general boundaries of this site: Kent, Erskine, Napoleon and Sussex Streets). This Aboriginal campsite was uncovered as a result of the demolition of the present building and associated historical archaeological excavation at the site. Excavation of this site recovered around 1000 Aboriginal stone artefacts within buried remnant soil profiles, including backed artefact tools, other retouched tools, cores and numerous waste flakes, which have been relatively dated to be occupied in the last 3000 years. In addition, two Aboriginal artefacts

manufactured of glass were recovered from this site, demonstrating that the site was occupied by Aboriginal people of the area through to the post-contact period.

2.4.2. Darling Quarter - Comber Consultants 2012

Comber Consultants undertook a series of Aboriginal archaeological excavations in 2008 and 2009 for the redevelopment of Darling Quarter (formerly Darling Walk), Darling Harbour (in collaboration with Casey & Lowe who undertook the historical archaeological work for the project). The post excavation report for this work was prepared in 2012 .

The site was located along the original foreshore of Cockle Bay (Darling Harbour). Aboriginal test excavation identified the remains of a shell midden, including Aboriginal stone artefacts on an exposed area of bedrock (Area 5 of the excavation) in close proximity to the original shoreline. This area was expanded into an open area salvage excavation across the remainder of the sandstone outcrop in the south-east of the excavation area and recovered ten Aboriginal stone artefacts in association with the midden. It was determined that Aboriginal people would have used this location on the sandstone outcrop to cook and eat the shellfish that had been gathered from the surrounding environment. In addition, soil analyses undertaken as part of the project presented evidence of cooking fires in this location.

Of the ten stone artefacts recovered, all but two of them were manufactured of chert. There is no known local source of this rock type, and therefore the report suggests that the presence of this raw material type may have been the result of trading between the local Aboriginal people of the Cockle Bay area, and Aboriginal people that lived in the west, near Plumpton Ridge, a known source of chert for Western Sydney. It is also possible that other more local sources of chert were present around the Sydney CBD area prior to 1788 that remain unknown to archaeologists.

2.4.3. Wynyard Walk—GML 2015

GML Heritage undertook Aboriginal archaeological excavation of the Wynyard Walk, West Portal site in 2015. The potential Aboriginal archaeological deposit located at Wynyard Walk was assessed to be of moderate to high scientific significance primarily for its educative and research potential values. While disturbance at the site was considered likely, previous excavations in close proximity to the site such as the neighbouring KENS site, had illustrated that soil profiles capable of bearing archaeological deposits could be preserved in the area. Aboriginal archaeological excavation of this site required a two-staged approach due to the nature of the site below previous development and in association with the historical archaeology at the site.

Archaeolgoical excavation at Wynyard Walk recovered Aboriginal stone artefacts in association with the historical archaeology present at the site, as well as within surviving natural soil profiles.

2.4.4. Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP), Aboriginal Archaeological Excavation – Comber Consultants 2015

Comber Consultants undertook Aboriginal archaeological excavation within the Bayside/Darling Central Complex (i.e. the ICC and entertainment precinct) of the SICEEP in Darling Harbour, in

late 2013 and early 2014, in collaboration with Casey & Lowe, who undertook the Historical Archaeological Excavation.

Aboriginal excavation within this precinct included investigation within eleven separate open areas, identifying (AHIMS #45-5-3217 discussed above):

- A sequence of middens along the rocky original Darling Harbour foreshore (which could potentially be represent one continuous midden distributed along the foreshore), including 63 Aboriginal artefacts;
- Excavation of a discrete knapping floor on the edge of a midden from Open Area 2;
- Excavation of one in situ midden, dated to c300BP, between 1691 and c.1820;
- Evidence that Aboriginal people were still occupying and using this midden or sequence of middens during the early years of European occupation' and
- Predominantly silcrete artefacts, drawing the conclusion that it was likely that this material was traded with people from west of the harbour on the Cumberland Plain.

As a large proportion of this excavation took place underneath the (then existing) buildings of the former Sydney Entertainment and Exhibition Centres, this excavation successfully demonstrated the potential for intact Aboriginal archaeological deposits to be present beneath modern buildings and development, regardless of assumed impact.

2.4.5. SICEEP "Haymarket" Aboriginal Excavations – Comber Consultants 2014

Two Aboriginal archaeological test excavations were undertaken by Comber Consultants within the 'Haymarket' area of the SICEEP: within the 'South West Plot' (four trenches along the original shoreline, in the southwest corner of the lot bounded by Darling Drive in the west and Quay Street in the south), and 'Student Housing' (a 50m x 6m area between Darling Drive and the light rail) (Figure 2.18). Both these sites were selected for subsurface archaeological excavation due to their location within an area that formerly would have contained part of the original foreshore of Cockle Bay/Darling Harbour. However, following test excavation, neither site demonstrated any evidence of Aboriginal archaeology or occupation. The 'South West Plot' was assessed to have been previously disturbed by the installation of underground services, while the 'Student Housing' site simply revealing no remnant evidence of the original shoreline.

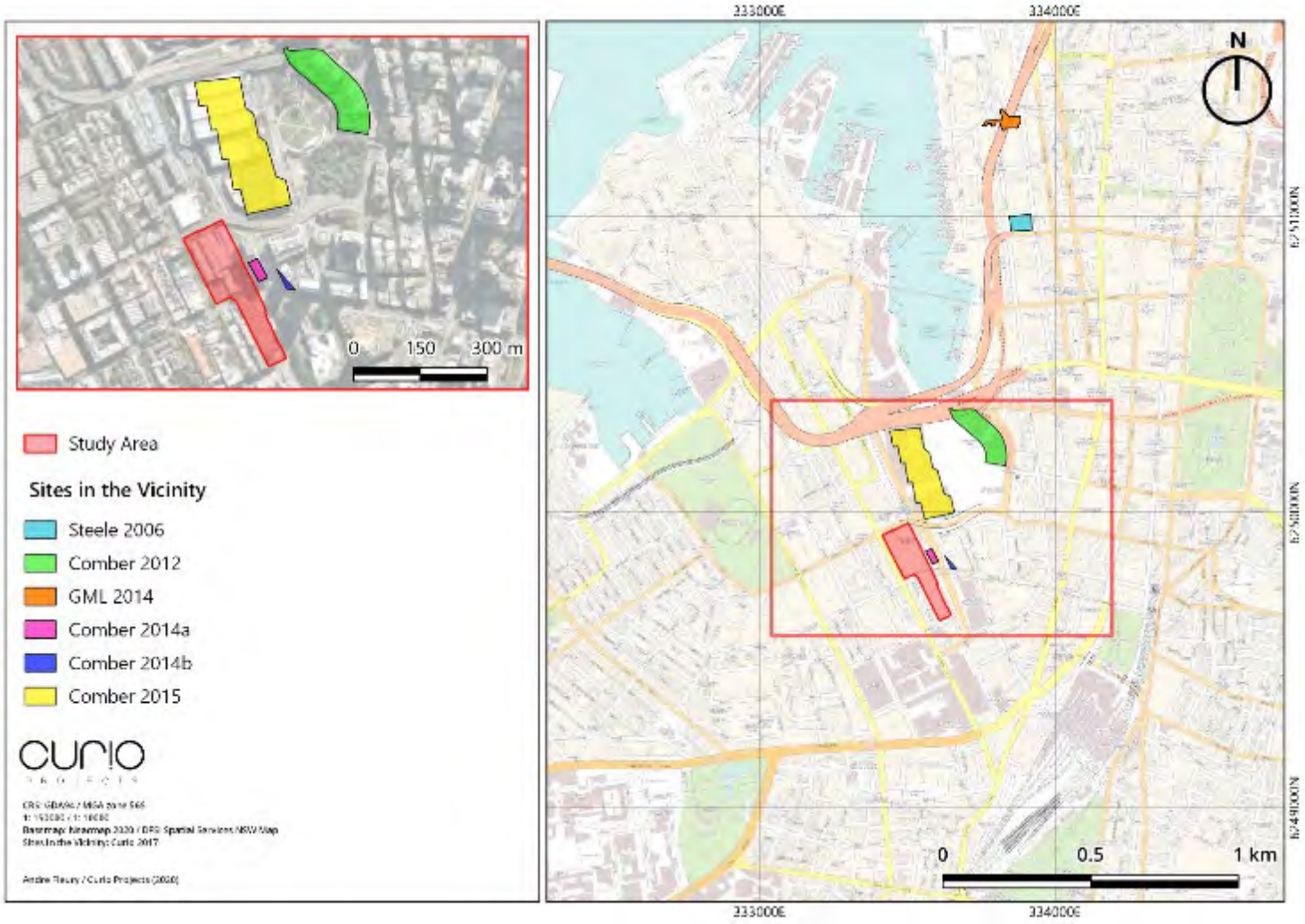

Figure 2.18: Location of Sites referenced Above (Source: Curio 2020)

2.5. Archaeological Predictive Model and Potential

Archaeological predictive modelling integrates information about environmental context, previous historical activities and ground disturbance, and known location surrounding sites (excavations and registered AHIMS sites), to assess and predict the nature of archaeology that may be present within the study area.

While the eastern boundary of the Powerhouse Ultimo study area is in close proximity to where land reclamation occurred in the late 19th century, it is unlikely that reclamation would have disturbed the natural soil profiles within the study area, which is located solely within the Gymea soil landscape.

The study area is located along the original western shoreline of Cockle Bay. The resources available in the Pyrmont-Ultimo Peninsula area, such as reliable fresh water sources and seafood within the area, would have been attractive to Aboriginal occupation and use of the area. The study area is located along the original western shoreline of Cockle Bay. Based on the environmental and archaeological context for the study area, Aboriginal archaeological deposits, should they be present within or in the vicinity of the current study area, would be most likely to consist of PAD sites, stone artefact sites, shell midden sites, or a combination of both. Previous Aboriginal archaeological investigations and assessments in the surrounding area demonstrate the ability of natural soil profiles to remain intact underneath existing buildings.

Should an intact Aboriginal archaeological deposit be present within the study area, it would likely be of moderate to high archaeological significance for its ability to demonstrate and confirm the ability for sites such as this to retain an Aboriginal archaeological signature in an area subject to high levels of historical disturbance. Should isolated Aboriginal artefacts or shell middens be present in a disturbed context, these site types would be of limited archaeological significance, however would still be protected under the NPW Act 1974, and would likely still be of significance to the local Aboriginal community.

This DD report only includes an assessment of archaeological potential and significance of any potential Aboriginal archaeological deposit, and has not to date included consultation with the local Aboriginal community, as would be required to determine the cultural and social significance of any potential deposit. An Aboriginal archaeological deposit, should it be present, would likely be of high cultural and social significance, however this would require future consultation with the local Aboriginal community (i.e. the Metropolitan Local Aboriginal Land Council) to confirm and expand upon further.

2.6. Summary of Desktop Assessment

The study area is located in the south east of the Ultimo-Pyrmont peninsula, directly along the original western shoreline of Darling Harbour before land reclamation took place in the late 19th century. Named by European settlers as Cockle Bay, while the area was not developed extensively until the late 1800s, early historical accounts provide evidence that extensive use was made of shell middens that lined the bay to provide mortar in lime kilns for civic development programs for the early colony.

The study area is adjacent to the original shoreline and reclaimed land (part of extensive land reclamation processes that were undertaken across the Sydney estuary in the 1800s to enable development of harbours, wharfage, and associated industries). In addition, the study area was subject to extensive industrial use from the 1850s following the construction of the rail lines into Pyrmont, the development of the Ultimo Power Station and neighbouring industrial services and yards.

For Aboriginal archaeological deposits to be present in situ, they would require the retention of natural soil profiles in the area that would be extant from 1788. There is **moderate to high potential** for natural intact soil profiles to be retained in this area. The soil landscape mapping in the region indicates that though the study area is in close proximity to where land reclamation took place, the study area is solely within the Gymea soil profile. If industrial development along the western shoreline of Darling Harbour from the 1850s to the 1970s has disturbed natural soil profiles within the study area, it is likely that only the eastern boundary of the study area would have been impacted.

Numerous archaeological assessments and Aboriginal archaeological excavations in the Sydney CBD and Darling Harbour area have demonstrated the potential for Aboriginal archaeological deposits to remain in situ, particularly along the original shoreline of Darling Harbour, dependent of the level of historical disturbance that the area has been subject to. The presence of existing buildings or development at a location, cannot be generally used as a factor to confirm that any soils with the potential to retain intact Aboriginal archaeological deposits have been highly disturbed or removed. In fact, numerous Aboriginal archaeological excavations have demonstrated the ability for in situ Aboriginal archaeological deposits to be present and relatively undisturbed beneath existing buildings (Wynyard Walk, SICEEP excavations beneath the Convention Centre).

Based on the environmental and archaeological context for the study area, Aboriginal archaeological deposits, should they be present within or in the vicinity of the current study area, would be most likely to consist of stone artefact sites, shell midden sites, or a combination of both.

Areas of the Powerhouse Ultimo site that have the highest potential for natural soils to be present (and corresponding potential for intact Aboriginal archaeological deposits), are areas where the lowest levels of historical development and excavation have been undertaken. These areas include beneath the Wran Building forecourt, north of the Wran building in space between Wran and the Post Office, south of the Boiler House, south of the Harwood Building, and carpark spaces along the eastern boundary of the study area. Although building foundations of early houses may be present within some of these areas of higher Aboriginal archaeological potential, natural soil deposits are likely to still be present since extensive excavation works have not been undertaken for basement construction (Figure 2.10). The presence of existing basements within the Engine Room (3.5m-6.7m depth), Boiler House (6m depth), Turbine Hall (3m depth), Office Building (4m depth) and Wran Building (4.5m depth) (Figure 2.14, Figure 2.15), indicate that these areas are likely to have low Aboriginal archaeological potential, depending on the location of

each building and the depth of the basement, in relation to the overall depth of natural soils based on landform positioning.

The Geotechnical Report determined that alluvial soils were present within boreholes BH104 and BH202, both of which are located south of the Harwood Building, supporting assessment of high potential for intact natural soil profiles to be present in this part of the study area. BH105 located to the east of the Harwood Building also confirmed the presence of alluvial soils in this part of the study area, while boreholes along the eastern boundary of the site generally hit concrete within the first metre. No boreholes were completed within the Wran Building forecourt area.

These results further confirm the presence of natural soil profiles beneath existing buildings and development across the study area, and therefore the potential for Aboriginal archaeological deposits to be present in a sub-surface capacity within the study area.

Visual Inspection

A visual inspection of the site was undertaken by Curio Projects on 15 September 2020, in order to gain a better understanding of physical and landform context of the study area.

The study area is located on the Ultimo-Pyrmont Peninsula and 500m south off the southern edge of Darling Harbour. The Wran Building and forecourt can be seen along the western boundary of the study area protected by Macarthur Street and Harris Street (Figure 3.1 Northern view of the Wran Building, forecourt, and Switch House from Harris Street, Figure 3.2, Figure 3.4). As seen in Figure 3.1, there is a moderate slope from Harris Street which continues until the end of Macarthur Street. The northern end of the Wran Building abuts the Post Office on the corner of Harris Street and Pier Street (Figure 3.5, Figure 3.6). Pier Street curves around the Post Office, Office Building and Pump House along the northern boundary of the study area (Figure 3.6, Figure 3.7, Figure 3.8). Figure 3.8 and Figure 3.9 displays the New Boiler House building abutting the Tram line tracks along the northern border of the study area and Pier Street.

The study area possesses a popular pedestrian thoroughfare down Macarthur Street through to Darling Drive (Figure 3.11, Figure 3.12, Figure 3.13, Figure 3.20). A carpark is found at the end of Macarthur Street and continues along the eastern edge of the Harwood Building. The Goods Line Park abuts the study area along its eastern boundary after the Tram line and continues south beyond the study area (Figure 3.15, Figure 3.16). The southern border of the study area is protected by Mary Ann Street, an open courtyard with trees, seating and a carpark area is visible to the east of the Harwood Building which is protected by a fence (Figure 3.17, Figure 3.18).

The Harwood Building abuts a residential area along its western boundary (Figure 3.18, Figure 3.19) which then connects with Omnibus Lane (Figure 3.14).

Figure 3.1 Northern view of the Wran Building, forecourt, and Switch House from Harris Street

Figure 3.2 Northern view of the Wran Building from the southern edge of the forecourt

Figure 3.3: South western view of the forecourt, Harris Street and Macarthur Street

Figure 3.4: Eastern view of the Wran Building, Switch house and forecourt

Figure 3.5: Northern view of the Wran Building with the Post Office building in the background

Figure 3.6: South eastern view of the Post Office, Wran Building and Office Building at the corner of Pier and Harris Street

Figure 3.7: Western view of the Office Building and Pump House along Pier Street

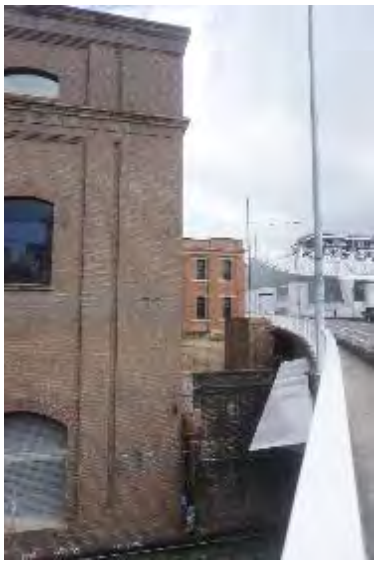

Figure 3.8: Western view of the Office Building and Pump House along Pier Street with the Tram Tracks in view along the northern boundary of the Pump House building

Figure 3.9: Southern view of the Tram line abutting the northern boundary of the Pump House

Figure 3.10: Northern view of the 'New' Boiler House, Switch House, and Tram line along the northern boundary of the study area

Figure 3.11: North western view of the Harwood Building, Switch House and carpark from The Good Yards Park

Figure 3.12: Eastern view of the carpark, pedestrian thurofare, Harwood Building and Switch House from Macarthur Street

Figure 3.13: Western view of Macarthur Street, Hardwood Building, and Switch House from the carpark on Macarthur Street

Figure 3.14: Southern view of Macarthur Street, Omnibus Lane and the Hardwood Building

Figure 3.15: Southern View of the Harwood Building, The Goods Line Park along the northern boundary of the study area

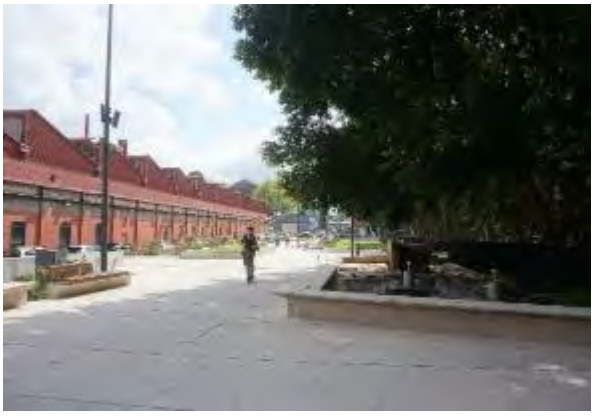

Figure 3.16: North western view of the Harwood Building and northern boundary of the study area from The Goods Line Park

Figure 3.17: North western view of the southern end of the Harwood Building and Mary Ann Street

Figure 3.18: Northern view of the southern end of the Harwood Building abutting a residential area

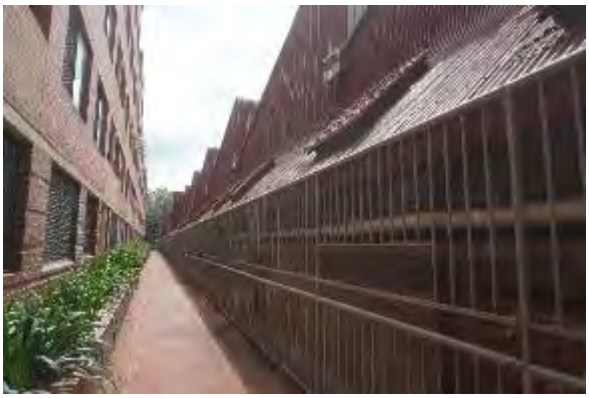

Figure 3.19: Northern view of the southern end of the Harwood Building abutting a residential area

Figure 3.20: Western view of Macarthur Street, Switch House and the Wran Building forecourt from the Harwood Building

Conclusions and Recommendations

4.1. Conclusions

- The Powerhouse Ultimo study area land would have been used, and likely have been of significance to Aboriginal people, due to its proximity to food and other resources, as well as providing good conditions for camping.
- The Powerhouse Ultimo study area does not contain any previously registered Aboriginal sites.
- The study area is located along the original western shoreline of Darling Harbour/Cockle Bay on the Gymea soil profile.
- The study area and surrounds were historically an integral part of the industrial use of Darling Harbour from the 1850s through to the 1970s and are part of the Ultimo Power Station and Ultimo Tram line.
- The study area is located wholly across the soil profile of 'Gymea' soil landscape profile and is unlikely to have been significantly disturbed by land reclamation works to Darling Harbour/Cockle Bay in the late 19th century.
- Due to the lack of development in the Ultimo area until quite late in the 1880s, there is still potential for Aboriginal sites to exist within the study area, within discrete pockets of natural soil profiles and/or mixed in with contact, or post- European contact sites. Such resources may exist either within a stratified context or imported as un-stratified fill.
- Areas of the study area with higher levels of potential for Aboriginal archaeological deposits to be present include: within the Harwood building south courtyard; Wran Building forecourt; north of Wran Building between the Wran Building and the Ultimo Post Office; and south of the Boiler House.
- Areas of low to moderate potential include the Ultimo Power Station, Wran Building and the Harwood Building
- Locations with deep existing basements (i.e. beneath the Engine Room, New Boiler House, Turbine Hall, Office Building, and Wran Building, are likely to have low Aboriginal archaeological potential resulting from significant excavation works into natural soils. Although this depends on the location and depth of each basement, in relation to the overall depth of natural soils- which can vary with landform positioning.
- Where previous historical development has occurred without significant basement excavation (e.g. areas with potential for historical archaeology in the Wran Building forecourt and at the southern end of the Harwood Building), Aboriginal archaeological deposits still have potential to be present within natural soil profiles (and in disturbed context within historical archaeological deposits, regardless of the context of pre-existing structures.

- Previous Aboriginal archaeological assessments and excavations in the area have constantly demonstrated the ability for natural soil profiles to remain intact beneath existing buildings.

Overall, this Due Diligence Heritage Assessment for the Powerhouse Ultimo site has found there to be **moderate to high potential** for in situ Aboriginal archaeological deposits to be present within the study area, where natural soil profiles remain intact,

Therefore, any future ground-disturbing activities that have potential to impact to a depth of the natural soil profiles across the study area, will have potential to impact Aboriginal archaeology, and therefore will require management and mitigation. Key management recommendations are summarised in the following section.

4.2. Recommendations

- Future development works at the Powerhouse Ultimo study area will require the preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR), prepared in accordance with relevant Heritage NSW statutory guidelines.
- Any ground disturbing works with potential to encounter/impact natural soils profiles will require further Aboriginal archaeological assessment and possible test excavation, either under a Section 90 AHIP under the NPW Act, or as part of an approved ACHAR (including test excavation strategy/research design) as part of an SSD Approval.
- Any substantial excavation works proposed for the site are likely to require Aboriginal archaeological test excavation to further investigate and confirm the nature of Aboriginal archaeological potential within the Powerhouse Ultimo study area.
- While Aboriginal archaeological test excavation is usually possible at a site without an AHIP (if undertaken in accordance with the provisions of statutory guidelines *Code of Practice for Archaeological Investigation of Aboriginal Object in NSW 2010* (the Code of Practice)), this will not be possible for the Powerhouse Ultimo study area, due to the nature of the site as a developed urban site that also has potential for historical archaeology to be present. Therefore, any future Aboriginal archaeological test excavation at the study area would either require approval under a Section 90 AHIP, or under an approved SSDA.
    - Should development consent for future works be sought under the SSD provisions of the EP&A Act (which switches off the need for an AHIP once SSD Approval has been granted), any proposed Aboriginal archaeological investigation works should be guided by the research, design and methodology developed in an ACHAR, to be submitted as supporting documentation with any SSD Application.
- It is important to note that while an approval of project as SSD removes the requirement for an AHIP under Section 90 of the NPW Act for a project, this is only the case once an SSD project has been determined and granted consent. Provision of SEARs for a project is not sufficient to remove the provisions of the NPW Act, therefore any early or investigative works proposed prior to SSD Approval, will remain subject to the provisions of the NPW Act (i.e. will

require an approved AHIP for any activities likely to encounter/impact natural soil/ areas of Aboriginal archaeological potential).

- A process of Aboriginal community consultation should be initiated for the Powerhouse Ultimo site in order to seek information regarding the social and cultural values of the study area, as well as in order to engage the local Aboriginal community in any proposed program of Aboriginal archaeological excavation/mitigation at the site. Consultation should particularly include the Metropolitan Local Aboriginal Land Council (MLALC), as well as in be undertaken accordance with the requirements of statutory guidelines *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.*

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APPENDIX A—Extensive AHIMS Search Results

AHIMS Web Services (AWS)

Your Ref/PO Number : Powerhouse Ultimo

Client Service ID : 534406

Note: This Excel report shows the sites found in AHIMS on the 10/09/2020. If this date is not the same as the original date of the Search Results letter obtained during the Basic Search, then the search results might be different. The PDF version of this report will always coincide with the Basic Search Results letter.

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Primary contact	Site features	Site types	Recorders	Reports	Permits	Longitude GDA94	Latitude GDA94
45-6-2597	Wynyard St Midden	AGD	56	333469	6247920	Open site	Valid		Shell : -, Artefact : -	Midden	Mr.D Coe	102494,102763,102765		151.20	-33.89
45-6-2382	Goat Island 2	AGD	56	333100	6252480	Closed sit	Valid		Artefact : -, Shell : -, Aboriginal Ceremony and D		Klim Gollan			151.20	-33.85
45-6-2278	Lilyfield Cave	GDA	56	330433	6250467	Closed sit	Valid		Shell : -, Artefact : -, Po	Shelter with Midden	Michael Guider,Extent H	102201		151.17	-33.87
45-6-2299	First Government Hous	GDA	56	334612	6251612	Open site	Valid		Burial : -, Aboriginal Cer	Burial/s,Historic Place	Michael Guider,Watkin `	102494,102763,102765	4552	151.21	-33.86
45-6-0519	Moores Wharf	AGD	56	333600	6252200	Open site	Valid		Artefact : -	Open Camp Site	R Lampert	808		151.20	-33.86
45-6-0283	Rozelle Hospital 1;Roze	AGD	56	329760	6251360	Closed sit	Valid		Shell : -, Artefact : -	Shelter with Midden	Val Attenbrow			151.16	-33.86
45-6-1900	White Horse Pt.	AGD	56	330800	6252420	Open site	Valid		Shell : -, Artefact : -	Midden	Michael Guider			151.17	-33.85
45-6-1481	Rozelle Hospital 3	AGD	56	329902	6251129	Open site	Valid		Shell : -, Artefact : -	Midden	Val Attenbrow,Michael Guider			151.16	-33.86
45-6-0647	Centennial Park	AGD	56	336273	6247961	Open site	Valid		Art (Pigment or Engrave	Rock Engraving	ASRSYS			151.23	-33.89
45-6-2580	Junction Lane	AGD	56	335070	6250410	Open site	Valid		Artefact : -	Open Camp Site	Helen Brayshaw	102494,102763,102765	894,902,903	151.22	-33.87
45-6-2581	Angel Place	GDA	56	334223	6251138	Open site	Valid		Artefact : -	Open Camp Site	Dominic Steele Archaec	97963,102494,102763,`	918	151.21	-33.87
45-6-1939	MSB Tower;	GDA	56	333640	6252227	Open site	Destroyed		Art (Pigment or Engrave	Rock Engraving	Michael Guider	102763		151.20	-33.86
45-6-1615	Bennelong Point	AGD	56	334800	6252100	Open site	Destroyed		Shell : -, Artefact : -	Midden	ASRSYS	102763		151.22	-33.86
45-6-1957	Goat Island Cave;	AGD	56	333010	6252710	Closed sit	Valid		Shell : -, Artefact : -	Shelter with Midden	Michael Guider			151.20	-33.85
45-6-1809	Birchgrove	AGD	56	331380	6252700	Closed sit	Valid		Shell : -, Artefact : -, Art	Midden,Shelter with Art	Michael Guider			151.18	-33.85
45-6-1853	Lilyvale	AGD	56	333950	6251600	Open site	Valid		Shell : -, Artefact : -	Midden	Val Attenbrow,Andrew F	102763		151.21	-33.86
45-6-0030	Dawes Point;Dawes Po	GDA	56	334345	6252534	Open site	Destroyed		Art (Pigment or Engrave	Rock Engraving	Michael Guider			151.21	-33.85
45-6-2629	Broadway 1	AGD	56	333060	6249100	Open site	Valid		Artefact : -		Dominic Steele Archaec	102494,102763,102765	1299	151.20	-33.88
45-6-2637	George street 1	AGD	56	333860	6249880	Open site	Valid		Artefact : -		Dominic Steele Archaec	98238,102494,102763,`	1369	151.20	-33.88
45-6-2651	William St PAD	AGD	56	334800	6250220	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Mr.Neville Baker	102494,102763,102765	1589,1670	151.21	-33.87
45-6-2647	KENS Site 1	AGD	56	333750	6250785	Open site	Valid		Artefact : -, Potential Archaeological Deposit (PA		Dominic Steele Archaec	99857,100494,102494,`	1428,1700	151.20	-33.87
45-6-2652	Ultimo PAD 1	GDA	56	333419	6249969	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Jim Wheeler,Mr.Matthe	102494,102763,102765	1598	151.20	-33.88
45-6-0811	Goat Island;Parramatta	AGD	56	333150	6252650	Open site	Valid		Artefact : -, Shell : -	Midden,Open Camp Site	Elizabeth Rich			151.20	-33.85
45-6-2676	Johnstons Creek	AGD	56	331100	6249100	Closed sit	Valid		Art (Pigment or Engraved) : 2, Artefact : 5		Michael Guider	102142,102763		151.17	-33.88
45-6-2666	Wattle Street PAD 1	GDA	56	333200	6249602	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Dominic Steele Archaec	102494,102763,102765	1738	151.20	-33.88
45-6-2663	Mountain Street Ultimo	GDA	56	333199	6249418	Open site	Valid		Artefact : -, Potential Archaeological Deposit (PA		Mary Dallas Consulting	102494,102763,102765	1719	151.20	-33.88
45-6-2680	Broadway Picture Thea	AGD	56	333150	6249000	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Jim Wheeler	102142,102494,102763	1854	151.20	-33.88
45-6-2687	Crown Street PAD 1	AGD	56	334950	6250300	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Dominic Steele Archaec	102494,102763,102765	2017	151.22	-33.87
45-6-2742	171-193 Gloucester Str	AGD	56	333926	6251461	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Jim Wheeler	102763	2143,2342,2766	151.21	-33.86
45-6-2745	University of Sydney La	AGD	56	332350	6248740	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Doctor.Jo McDonald	102201,102494,102763	2153,2320,2443	151.19	-33.89
45-6-2783	PAD Central Royal Bota	AGD	56	334900	6251030	Open site	Valid	T Russell	Potential Archaeological Deposit (PAD) : -		Haglund and Associates	102494,102763,102765	2364	151.22	-33.87
45-6-2767	Tent Embassy	AGD	56	332680	6248680	Open site	Valid	T Russell	Aboriginal Resource and Gathering : 1		Bill Lord	102494,102763,102765		151.19	-33.89
45-6-2796	320-328 George St PAI	AGD	56	334100	6251050	Open site	Valid	T Russell	Potential Archaeological Deposit (PAD) : -		Mr.Dominic Steele	102494,102763,102765	2415	151.21	-33.87
45-6-2822	USYD: Central	AGD	56	332750	6248550	Open site	Valid		Artefact : -		Jo McDonald Cultural H	100302,102494,102763	2554	151.19	-33.89
45-6-2838	420 George Street PAI	AGD	56	334080	6250670	Open site	Not a Site		Potential Archaeological Deposit (PAD) : -		Doctor.Tim Owen	102494,102763,102765	2654	151.21	-33.87
45-6-2934	Yurong Cave	GDA	56	335595	6251900	Closed sit	Valid		Art (Pigment or Engraved) : -		Michael Guider,Mr.Paul	102763		151.22	-33.86
45-6-2935	Yurong 1	GDA	56	335555	6252020	Open site	Valid		Shell : 6		Michael Guider,Mr.Paul	Irish		151.22	-33.86
45-6-2960	Jackson Landing Shelte	GDA	56	332442	6250870	Closed sit	Valid		Potential Archaeological Deposit (PAD) : -		Mary Dallas Consulting	102494,102763,102765		151.19	-33.87
45-6-2979	UTS PAD 1 14-28 Ultim	GDA	56	333650	6249590	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Dominic Steele Archaec	102494,102763,102765	3458	151.20	-33.88
45-6-3071	445-473 Wattle Street F	GDA	56	333285	6249412	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		Biosis Pty Ltd - Sydney			151.20	-33.88
45-6-3081	200 George Street	GDA	56	334237	6251637	Open site	Not a Site		Potential Archaeological Deposit (PAD) : 1		Ms.Sally MacLennan	103114	3577,3934,4239	151.21	-33.86
45-6-2987	Poultry Market 1	GDA	56	333746	6249575	Open site	Valid		Artefact : 1		Ms.Samantha Higgs,Bic	102494,102763	3506	151.20	-33.88
45-6-3064	445-473 WATTLE ST F	GDA	56	333285	6249412	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		Biosis Pty Ltd - Sydney	102763		151.20	-33.88
45-6-3152	168-190 Day Street, Sy	GDA	56	333877	6250257	Open site	Not a Site		Potential Archaeological Deposit (PAD) : -		Mr.Josh Symons,Mr.Alex Timms		3789	151.20	-33.87
45-6-3116	Wynyard Walk PAD	GDA	56	333931	6251252	Open site	Destroyed		Potential Archaeological Deposit (PAD) : 1		GML Heritage Pty Ltd + Context - Surry Hills,GM		3670	151.20	-33.87
45-6-3155	Moore Park AS1	GDA	56	335613	6247909	Open site	Valid		Artefact : -		Artefact - Cultural Heritage Management - Pyrm		4019	151.22	-33.90
45-6-3217	Darling Central Midden	GDA	56	333530	6250101	Open site	Valid		Aboriginal Ceremony and Dreaming : 1, Artefact		Comber Consultants Pty Limited,Ms.Tory Stening			151.20	-33.88
45-6-3324	RBG PAD 1	GDA	56	334802	6251224	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		AMAC Group P/L,Mr.Benjamin Streat			151.21	-33.87
45-6-3325	RBG PAD 2	GDA	56	335212	6251494	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		AMAC Group P/L,Mr.Benjamin Streat			151.22	-33.86
45-6-3327	RBG PAD 3	GDA	56	334957	6251832	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		AMAC Group P/L,Mr.Benjamin Streat			151.22	-33.86
45-6-3245	DoncasterAve PAD	GDA	56	336037	6246916	Open site	Destroyed		Hearth : -, Potential Archaeological Deposit (PAI		GML Heritage Pty Ltd + Context - Surry Hills,GM		4188	151.23	-33.91
45-6-3338	The Bays Precinct PAD	GDA	56	332354	6250885	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Artefact - Cultural Heritage Management - Pyrmont,Mr.Michael Lever			151.19	-33.87
45-6-3339	The Bays Precinct PAD	GDA	56	332779	6250555	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Artefact - Cultural Heritage Management - Pyrmont,Artefact - Cultural He			151.19	-33.87
45-6-3502	Loftus PAD 01	GDA	56	334551	6251635	Open site	Valid		Potential Archaeological Deposit (PAD) : -		Artefact - Cultural Heritage Management - Pyrm		4292	151.21	-33.86
45-6-3645	SFS-PAD	GDA	56	335846	6248721	Open site	Valid		Potential Archaeological Deposit (PAD) : 1		Miss.Sam Cooling,Curio Projects Pty Ltd			151.22	-33.89
45-6-3552	Smith Hogan and Spinc	GDA	56	331309	6249791	Open site	Not a Site		Shell : -, Burial : -		Mr.Mark Simon	104371		151.18	-33.88
45-6-3654	CRS AS 01 (Central Ra	GDA	56	334055	6249146	Open site	Valid		Artefact : -		Artefact - Cultural Heritage Management - Pyrm		4639	151.21	-33.88
45-6-3446	71 Macquarie Street PA	GDA	56	334663	6251783	Open site	Valid		Potential Archaeological Deposit (PAD) : -		GML Heritage Pty Ltd + Context - Surry Hills,Ms		4285	151.21	-33.86
45-6-3704	Tay Reserve Artefact	GDA	56	335723	6247268	Open site	Valid		Artefact : -		Artefact - Cultural Heritage Management - Pyrmont,Mr.Michael Lever			151.22	-33.90
45-6-3705	Kent and Erskine St PA	GDA	56	333876	6251145	Open site	Valid		Potential Archaeological Deposit (PAD) : -		GML Heritage Pty Ltd + Context - Surry Hills,Ms.Jodi Cameron			151.20	-33.87
45-6-3693	Callan Park Scared Tre	GDA	56	330004	6251406	Open site	Valid		Modified Tree (Carved or Scarred) : -		GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen			151.16	-33.86
45-6-3694	Callan Park Waterhole	GDA	56	330060	6251377	Open site	Valid		Water Hole : -		GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen			151.16	-33.86
45-6-3695	Callan Park Grinding G	GDA	56	330080	6251407	Open site	Valid		Grinding Groove : -		GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen			151.16	-33.86
45-6-3696	Callan Park Cultural Tre	GDA	56	330061	6251398	Open site	Valid		Aboriginal Resource and Gathering : -		GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen			151.16	-33.86
45-6-3762	Harrington IFS01	GDA	56	334178	6251888	Open site	Destroyed		Artefact : 1		AMAC Group P/L,Mr.Benjamin Streat			151.21	-33.86
45-6-3812	FZ 23 artefact scatter	GDA	56	336278	6246940	Open site	Valid		Artefact : -		Artefact - Cultural Heritage Management - Pyrmont,Mr.ryan taddeucci			151.23	-33.91

Report generated by AHIMS Web Service on 10/09/2020 for Mikhaila Chaplin for the following area at Lat, Long From : -33.8966, 151.1715 - Lat, Long To : -33.8606, 151.2286 with a Buffer of 1000 meters. Additional Info : Desktop Assessment for DD report. Number of Aboriginal sites and Aboriginal objects found is 66

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APPENDIX C
Historical Archaeological Assessment (AMBS 2018)

Ultimo Creative Industries Precinct: Historical Archaeological Assessment

Prepared by AMBS Ecology & Heritage
for Tanner Kibble Denton Architects

Second Draft

November 2018

AMBS Reference: 18550

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Executive Summary

AMBS Ecology & Heritage (AMBS) has been commissioned by Tanner Kibble Denton Architects (TKD Architects), to prepare an Archaeological Assessment for the Ultimo Creative Industries Precinct (UCIP) (Museum of Applied Arts and Sciences' [MAAS] Powerhouse Museum site).

This assessment has identified that the survival and integrity of the archaeological resources in the Ultimo Creative Industries Precinct are likely to be variable.

Construction of the Ultimo Power House and replacement of the Sydney Tramway and Omnibus Company (STOC) stables by the Tram Depot for stabling electric trams in 1899 will have completely altered the local landform having had a significant impact on the underlying archaeology. However, archaeological resources associated with 1840s and later houses, if present with good integrity across the northern and southern areas of the precinct would have the potential to contribute to an understanding of the development and social interactions within a discrete group of early houses. Analysis of previous archaeological excavations undertaken within the vicinity of the UCIP Precinct, particularly the adjacent Bullecourt Place and 14-28 Ultimo Road (UTS) sites, indicates that the archaeological resource in the study area has the potential to contribute to research themes associated with the development of Sydney's urban environment from the early to mid-nineteenth century

If present with good integrity, the archaeological resources within the footprint of the Ultimo Creative Industries Precinct have been assessed as having local and may meet the requirements for state significance and as such should be managed in accordance with the requirements of the *Heritage Act 1977*.

It is understood that concepts for the future use and configuration of the Precinct are at an early stage and that there are no proposals to excavate beneath the current ground or basement levels with the exception of the Harris Street south site. Retention of archaeological resources in situ where it can contribute to future, new research questions, is the preferred management strategy

However, should excavation ultimately be required within any of the areas identified as being archaeologically sensitive, an application for an Excavation Permit under Section 140 of the *Heritage Act 1977* must be lodged with the Heritage Council of NSW. The application will need to include a Research Design which includes the information contained in this report as well as detailed research questions, excavation methodology and excavation director, who will comply with the Heritage Council Excavation Director Assessment Criteria for a state significant historical archaeological site

1 Introduction

AMBS Ecology & Heritage (AMBS) has been commissioned by Tanner Kibble Denton Architects (TKD Architects), to prepare an Archaeological Assessment for the Ultimo Creative Industries Precinct (Museum of Applied Arts and Sciences' [MAAS] Powerhouse Museum site).

In April 2018, the NSW Government announced that the MAAS Powerhouse Museum was to be relocated from Ultimo to Parramatta. The Government also approved retention of a cultural presence at the Powerhouse Museum site, to include a fashion and design museum showcasing the MAAS collection; and a 1,500 seat Broadway-style (Lyric) theatre to feature major international musicals, performances, film, music, festivals and touring shows, to be built and run by the private sector.

1.1 Site Description

The site is bounded by Harris Street, Omnibus Lane and a large residential apartment block at 82 Mary Ann Street to the west; the William Henry Street Bridge to the north; The Goods Line to the east; and Mary Ann Street to the south. The site has combined the following earlier sites:

- Ultimo Post Office (Lot 1 DP 770031) on the corner of Harris Street and William Henry Street;
- Ultimo Power House (Lot 1 DP 631345), adjacent to the Darling Harbour Goods Line, between the William Henry Street Bridge and MacArthur Street;
- Warehouse buildings (Lot 1 DP 781732) on Harris Street between the Ultimo Post Office and MacArthur Street; and
- Ultimo Tram Depot (Lot 3 DP 216854), adjacent to the Darling Harbour Goods Line, between MacArthur Street and Mary Ann Street (Figure 1.1).

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

1.2 Statutory Controls

The site is within the City of Sydney Local Government Area (LGA). The former Ultimo Power House, the former Ultimo Post Office and the vault of the Wran building are identified as local heritage items in Schedule 5 of Sydney Local Environmental Plan (LEP) 2012. The Ultimo Post Office is also listed on the State Heritage Register (SHR Item#00502).

There are no identified historical archaeological items or sites within the Ultimo Creative Industries Precinct footprint on the LEP or the SHR.

1.3 Methodology & Authorship

This report is consistent with the principles and guidelines of the *Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013*. It has been prepared in accordance with current best-practice guidelines as identified in the *NSW Heritage Manual* (1996), published by the Heritage Office and Department of Urban Affairs and Planning (now the Heritage Division, Office of Environment and Heritage), and associated supplementary publications in particular *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009).

The report has been prepared by Jennie Lindbergh, AMBS Director Historic Heritage with assistance and input by Victoria Cottle AMBS Heritage Consultant and Jenna Weston, Heritage Consultant. The report has been reviewed by Lian Flannery, AMBS Senior Heritage Consultant.

Figure 1.1 The Ultimo Creative Industries Precinct within its local environment (https://maps.six.nsw.gov.au/).

2 Historic Context

From its humble beginnings as the inaccessible, inhospitable, swampy, stony headland neighbouring the settlement of Sydney Cove, in 220 years the Pyrmont-Ultimo peninsula has seen wide scale environmental transformation and periods of great social, cultural and economic change. It developed from unmodified bushland to pockets of small-scale subsistence agriculture, before developing during the nineteenth century into a patchwork of industrial, commercial and residential pursuits (Godden Mackay Pty Ltd [Godden Mackay] 1993:31).

2.1 Early Land Grants

Prior to European development, the area surrounding Cockle Bay (later Blackwattle Bay) was reportedly swamp-like and marshy with fertile alluvial soil, and was punctuated by multiple small freshwater creeks that attracted waterfowl and other game (Steele 2012:18). Aboriginal inhabitants probably maintained a mixed food economy based on resources from the waters surrounding the peninsula, on hunting terrestrial animals and on collecting and processing plant materials. Although a smallpox epidemic was partially responsible for the loss of approximately half of Port Jackson's Indigenous population in 1789, the Pyrmont peninsula continued to sustain Aboriginal populations well into the early nineteenth century. By the mid-1830s, European activity on the peninsula began driving Aboriginal inhabitants further south to camp in Ultimo and particularly in the partially cleared landscapes of John Harris' land grants surrounding Ultimo Estate. Cockles were reportedly still being harvested from Blackwattle Bay in the middle of the nineteenth century (Fitzgerald & Golder 1994:24). However, the area had been largely cleared of native vegetation and was becoming increasingly polluted and silted up as a result of European settlement. By the 1850s, the traditional food sources of Aboriginal people had disappeared and the landscape was transformed.

The first land grants on the Pyrmont-Ultimo peninsula were made by Lieutenant Governor Francis Grose on 10 December 1794. On the western bank of Cockle Bay (later Darling Harbour) 24 acres were granted to John Malone, and an adjacent 18 acres granted to William Mitchell. In 1795, 55 acres in the north-eastern portion of the peninsula were granted to Private Thomas Jones of the NSW Corp. These grants were reputedly common in the years 1792-1795 when the colony was headed by Corps officers, who handed out small parcels of land to lesser officers to supplement their meagre pay (Fitzgerald & Golder 1994:13). Such land parcels were granted on the condition that grantees build on and reside within, as well as cultivate and improve, their land. However, these conditions were not met and deed titles often transferred between hands. In many cases these lands were initially sub-let as market gardens for a nominal fee. It is also clear that the land around the Cockle Bay head remained swampy.

2.1.1 Macarthur Estate

Jones sold his grant on the tip of the peninsula, known as Jones' Farm, to Sergeant Obadiah Ikin in 1796, who later sold it to John Macarthur, reportedly, for £10 worth of rum. It later became known as the Pyrmont Estate, and was eventually exploited for its natural resources and as an industrial site. The estate was substantially logged from 1807, and the timber sold as firewood and building material to the inhabitants of Sydney. Macarthur also established a salt works and manufactured salt, constructed a post windmill on Pyrmont Point between 1807 and 1808, and used local Pyrmont stone to build a mill for grinding grain on the junctions of Church, Mill and Point Streets (Fitzgerald & Golder 1994:15). This mill continued to operate despite Macarthur being exiled to London for his role in the Rum Rebellion. Customers brought their grain across Cockle Bay by boat, briefly drawing the headland into commercial activity (Casey & Lowe 2010:19). The mill was unable to compete with Dickson's and Barker's more efficient steam-powered mills across the harbour, and so it became neglected. Later, Macarthur had also planned to build a large stone mansion in

Pyrmont from local stone, but although the stone was quarried no such dwelling eventuated (Casey & Lowe 2010:19). Instead the stone was transported to Parramatta, and Macarthur's seemingly grand visions for the Pyrmont peninsula were abandoned.

With the death of John Macarthur in 1834 the estate passed to his son, Edward, who made plans to subdivide the land into villa-sized residential lots with spaces devoted for a church, harbour fortifications and a wharf. A vision to create a middle-class suburb dictated Macarthur's requirement that each allotment have only one house on it (Fitzgerald & Golder 1994:25). Given the lack of investment in Edward Macarthur's first attempts at subdivision, the plans were deemed unsuitable and a second allotment plan was drawn up in 1839. The Macarthur Estate was sold by auction in December 1839 and July 1840 (Figure 2.1), of which just over two thirds were successfully sold (Broadbent 2010:435). By 1843, most lots south of John Street and some to the north had been sold or leased and developed for residential use, whilst others were further subdivided or consolidated, developed and auctioned. John William Russell, a shipbuilder, purchased two lots fronting Pyrmont Bay and constructed a shipyard, whilst shipbuilder Thomas Chowne leased lots fronting Johnstons Bay. The sale of Macarthur's Pyrmont Estate continued in the 1850s and 1860s, but the process of urbanisation up to this point was slow.

Figure 2.1 Plan of 58 allotments, being the second portion of the Pyrmont Estate to be sold at auction by Mr Smart on Monday 29 June 1840. There are no buildings indicated within the study area, approximate location indicated (Source: State Library of NSW digital collection).

2.1.2 The Ultimo Estate

In 1803, Surgeon John Harris of the NSW Corps was conditionally granted a 35 acre portion of land at the base of the Pyrmont peninsula *between the Church Land [Glebe] and the ground used as a brickfield* which he named the Ultimo Estate (Fitzgerald & Golder 1994:17). As one of the few grantees to observe the conditions of their grant, Harris cleared and cultivated portions of the land and in 1804, constructed Ultimo House a two storey Georgian mansion with a wide veranda on a sandstone ridge overlooking Blackwattle Creek and Cockle Bay (Broadbent 2010:14). In 1806 Harris was granted a further 9¼ acres between his estate and Parramatta Road, along with a 135 acre grant in the north-western corner of the Pyrmont peninsula. Harris also purchased the farms originally granted to John Malone and William Mitchell; and when Harris was granted 12¾ acres

between George Street and the head of Cockle Bay he effectively acquired the whole peninsula except for Macarthur's estate.

At the time of his death in 1838, Harris had no children and had predeceased his wife, Eliza (Matthews 1982:14). Harris' will stipulated that the Ultimo Estate and surrounding properties were to be divided equally and bequeathed to his brothers George and William Harris, who were to collect rent and manage properties from tenants (Casey & Lowe 2000:44). Following the deaths of George and William, the estate was bequeathed to John Harris, son of George Harris, and John Harris, son of William Harris, together with their descendants. To facilitate division Harris' estate was divided into 70 lots, for which each John Harris received 35 lots. Lots were then allotted by ballot to each of the family members (Godden Mackay 1994:16). From the 1860s, both sides of the family set about the rapid development of their lands, and in 1874, the eldest son George Harris told a parliamentary enquiry that they had *laid out £20,000 in buildings and* [had] *not a vacant house on the estate* (Broadbent 2010:439). Despite these developments, the Ultimo Estate was still considered largely rural at this time.

However, it would appear that, at least initially, John Harris' estate was not intensively cleared. The land surrounding Ultimo House was gradually cleared and utilised as a deer park and for grazing sheep and cattle (Godden Mackay 1994:15). A sketch of the Ultimo Estate by Edward Mason shows Ultimo House and Cottage looking northwest towards the tip of the Pyrmont peninsula (Figure 2.2). The land surrounding Ultimo House has been cleared to imitate English parkland with sparsely planted trees up to the foot of Cockle Bay. In the foreground between Macarthur's windmill and Ultimo Cottage dense forest can be seen. It was reported that Harris intentionally retained native vegetation to provide ground coverage for deer and guinea-fowl, thereby enhancing the hunt (Broadbent 2010:393).

In 1814, the colonial architect Francis Greenway was commissioned to extend Ultimo House, creating a semi-circular hall with a spiralling stone staircase and a central dome to let in natural light. John and his wife Eliza resided in Ultimo House until 1821 when they moved to Shane's Park at South Creek, near St Marys. When visiting Sydney, Harris stayed in the neighbouring Ultimo Cottage, but otherwise the dwellings and their gardens were leased to tenants. Little is known about the precise location and frequency of occupation areas on the Ultimo Estate between the 1820s and 1830s.

Figure 2.2 Ultimo Place, with Cockle Bay by Edward Mason, c. 1821-1823, with MacArthur's windmill in the background (Source: State Library of NSW, Manuscript Collection, PXC 459, a1080067).

2.1.3 Early Development

On the whole, very little information has been recorded in respect to those portions of Harris' estate to the east of Harris Street. It is likely that the Harris family was not attracted to this portion of the estate because of the low-lying natural topography and the unsuitability of the marshy land for development (Godden Mackay 1994:41). Furthermore, the head of Darling Harbour was reportedly becoming silted up and water from nearby creeks travelled slowly into the harbour or remained stagnant. Rubbish, including waste from the surrounding industries, could not be carried away and so the area became known as a 'noxious swamp' (Fitzgerald & Golder 1994:35, 42). A series of creeks across the area formed a delta of swampy land around which the study area was situated. Fitzgerald & Golder speculate that visitors to Ultimo House could chance the drive that *skirted the swamp* north of Ultimo Road (1994:20). This landscape would remain unchanged at least until the late 1830s. A survey of the Ultimo Estate in 1837 shows the extent of the swampy wetland at the head of Cockle Bay, as well as areas of land use and some building locations (Figure 2.3). Also illustrated are multiple tracts of land that were functioning as gardens, as well as a brick ground. A hut, two stables and five other unidentified buildings are represented, yet the study area appears to have been undeveloped at this time. Harris Street was present by around 1836 (Broadbent 2010:399).

In 1837, 'upwards of 1,000,000 cubic feet of material' was cut from Brickfield Hill and dumped at the head of Cockle Bay, when stone, large quantities of silt, refuse, mud and clay dredged from the harbour or excavated from around the foreshores and from higher blocks were used as fill (Fitzgerald & Golder 1994:26; Godden Mackay 1993:44). Swampy land at the south-west headwaters of the harbour was reclaimed by the 1840s and Dickson's Mill pond, to the south-east was infilled by 1855. These actions altered the shoreline to create a reasonably level yet undeveloped site; however, apparently the underlying ground water continued to percolate up through the fill (Godden Mackay 1993:41). However, it seems that the study area may have remained unreclaimed swampland. This is suggested by the late date of reclamation of the block to the south of the study area which was not reclaimed until 1884 (Australian Museum Consulting 2015:24).

In addition, in September 1853, the Government proclaimed the Darling Harbour Goods Line, to transport goods between the harbour and the Central markets, and approved the resumption of land provided neighbouring landowners were adequately compensated (Figure 2.4). In all 15 acres 3 roods and 39 perches were acquired, of which about 7½ acres of land was acquired from the Ultimo Estate. However, the line divided the peninsula and largely alienated the Darling Harbour shoreline from Harris Street. Streets were dissected and effectively cut off from the waterfront. Those properties within the footprint of the Line were resumed, and its construction also had a detrimental effect on adjacent properties. That the embankment was constructed without retaining walls, proved to not only cause problems with washdown of soils, it was also something of a scandal (Broadbent 2010:503). Construction of the embankment required massive amounts of soil which was largely derived from the construction of the Sydney to Parramatta Railway, but a Select Committee investigation of 1864 was told that it *seemed all to waste in the water* (ibid). During wet weather, the lands adjacent to the goods line were awash with run-off and soils, which also clogged culverts, compounding the problem for adjacent lands. The dispute between the railway and Harris for compensation for his land was resolved when Harris was paid £25,000 and granted a portion of land that had recently been reclaimed between the railway and Hay Street. This land is identified as part of a *wholesale reclamation* undertaken in 1860s at the head of Darling Harbour (Fitzgerald & Golder 1994:40-41). There is however, no evidence to suggest that Harris was inspired to similarly improve the lands of his estate (see Section 3.1 below).

Despite the neatly subdivided allotments along the north side of the Parramatta Road and at the northern end of the peninsula, the Ultimo Estate does not appear to have been systematically

subdivided and urbanised (see for example Figure 2.1 above). Instead, Harris leased the arable and fertile tracts of land around the headwaters of Darling Harbour, Blackwattle Bay and other unspecified areas within the estate to tenant farmers (Godden Mackay 1994:15). The Phillip Ward Rate Assessment Book of 1845 lists 54 one and two room huts dotted all over Harris' estate in 'Ultimo', of which, the majority were constructed by the tenants from fairly primitive materials (wood, slab, wattle and daub with bark or shingled roofs), and while some tenants conducted small scale enterprises from their allotments, the majority gleaned subsistence living from the animals and garden plots around their homes (1994:15).

Unfortunately, most of the allotments are not depicted in historic plans and their precise locations are difficult to identify. It is therefore difficult to gauge from historic sources whether the site was occupied by tenant farmers before the 1840s; however, the Phillip Ward Rate Assessment Book of 1845 does identify that Thomas Halloran lived in a wattle hut with a detached room, on an acre of ground in Ultimo owned by John Harris. Council Rates Assessment Books and Sands Directory entries from later years seem to identify that Thomas Halloran/ O'Halloran/O'Hallaran (or Mrs Margaret O'Hallaron) lived in the study area, between Harris, William Henry, Macarthur and Pyrmont Streets (the latter formerly extended along the western side of the Darling Harbour railway/goods line). In 1855, the Rates Assessment notes his property as including a cornfield, with the house having been upgraded to plaster. Council Rates Assessment Books and Sands Directory entries also indicate that John Gorman lived within the study area from at least 1855, the stone house and grounds being owned by Mrs Harris (as was Halloran's by this time). Later Sands Directory entries identify Gorman as a dairyman, and Mrs O'Halloran as having a dairy, so the area seems to have remained largely rural. Further, on 21 April 1855 all vacant land in the Ultimo Estate was leased to Thomas Cardwell for the sum of £1 per week, to graze cattle (Godden Mackay 1994:15).

The locations of these structures seem to roughly correspond to the six structures indicated standing on irregular shaped allotments on the c.1853 and 1865 maps (Figure 2.5). The 1865 Trigonometric survey map shows a timber bridge or culvert carrying the Darling Harbour Goods Line over the watercourse and that William Henry, Macarthur, Mary Ann and Systrum Streets and Omnibus Lane had not been formed. The 1880 Sands Directory indicates that Mary Ann and Macarthur Streets remain unformed between Harris Street and Pyrmont Street/the goods line until after 1880.

The 1865 Trigonometrical Survey map also indicates areas of possible quarrying (Figure 2.5 refer also to Figure 2.11 below). Low's Directory of 1844 refers to the Ultimo Quarries, with at least one known quarrymaster, John Cowsley, which seems to confirm that the earliest quarry on the peninsula may have been on the Ultimo Estate (Broadbent 2010:409, 411). Broadbent suggests that it is likely that there were at least two, if not more, quarries on the Harris Estate in 1854 to provide ballast for the Darling Harbour goods line. In particular, there was a quarry bounded by Harris, Pyrmont, Macarthur and Mary Ann Streets, and had obviously ceased to operate at least by 1899 when the Power Station was constructed (Broadbent 2010:412, 413). The quarry is not indicated in Sands Directories nor Rates Assessment Books, nor are any of the tenants occupying adjacent housing identified as having any association with the quarry.

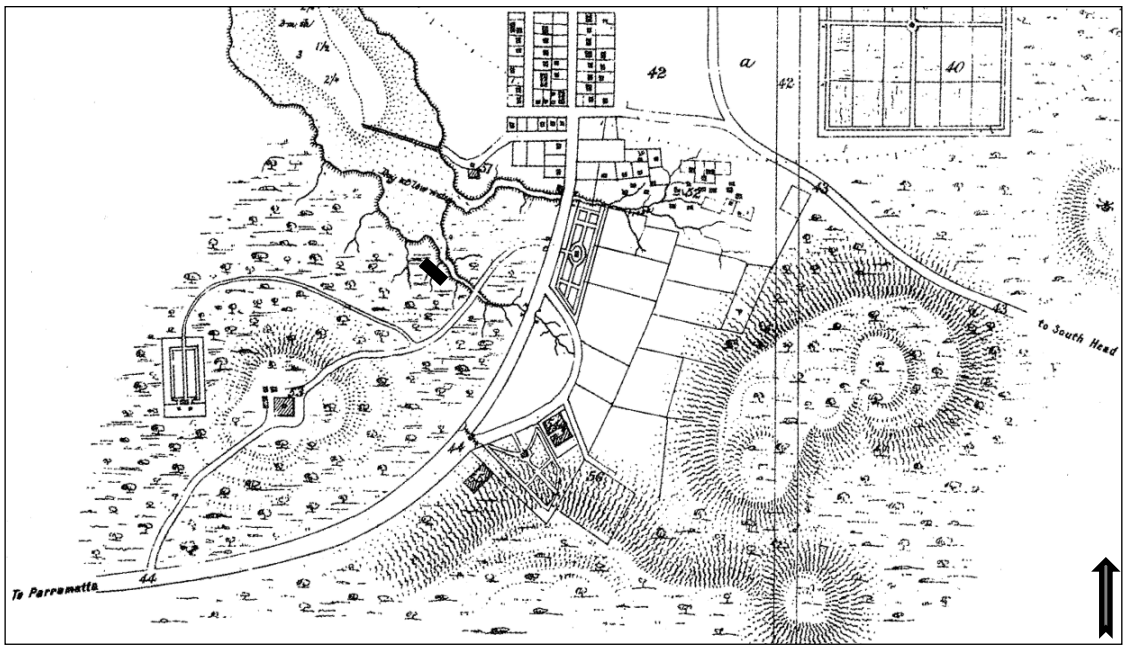

Figure 2.3 Detail from the Plan of the Town and Suburbs of Sydney August 1822 showing the swampy landscape around the head of Cockle Bay. The sand flats at the head of the bay are described as *Dry at low tide*. The approximate location of the study area is boxed in black (Source: Ashton & Waterson 2000:19).

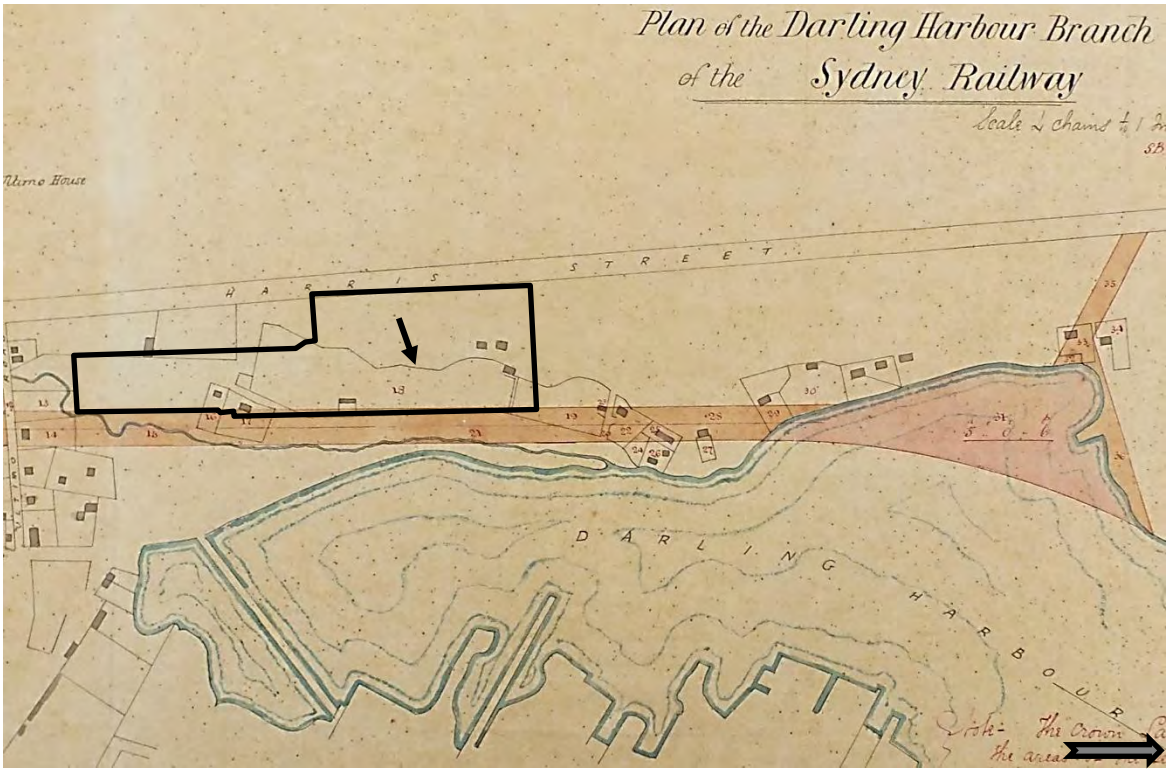

Figure 2.4 Detail of a c.1853 plan showing the area that was resumed for the Darling Harbour goods line with buildings within the study area, which comprises parts of Lots 16, 17, 18 and 19. The likely line of the quarry is arrowed (Source: State Records Authority of NSW, AO Map 6381).

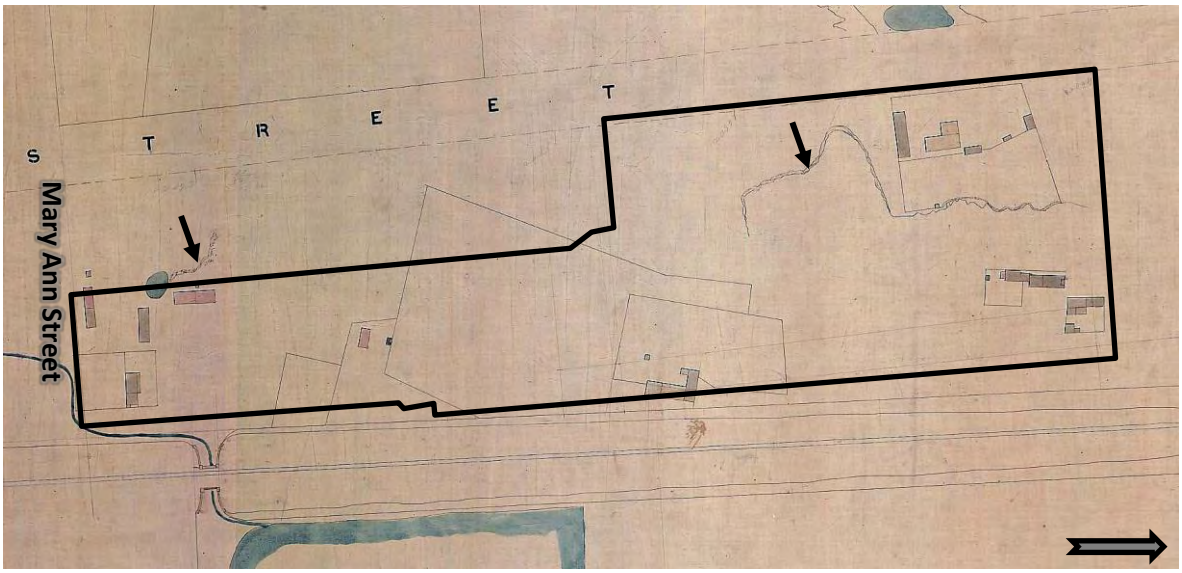

Figure 2.5 Detail of the Trigonometrical Survey of Sydney, 1855-1865, showing a number of timber (grey), stone (yellow), brick (pink) and iron (blue) buildings within the approximate location of the study area as indicated. Possible quarry is arrowed (Source: http://atlas.cityofsydney.nsw.gov.au/maps/city-of-sydney-trigonometrical-survey-1855-1865-block-v1/).

2.2 Block U3: William Henry – Macarthur Streets

The northern block, between William Henry and Macarthur Streets is later occupied by the Ultimo Power Station is identified on the Sydney Water plans as U3, while the southern block to Mary Ann Street, later occupied by the Ultimo Tram Depot as V3.

The sparse scatter of cottages between the goods line and Harris Street continue into the later nineteenth century. It seems that the land to the west of the goods line remained largely isolated and undeveloped, whilst lands to the east of the line became increasingly industrialised (Figure 2.6). Although water had been reticulated through most of Sydney by the 1860s, water was not reticulated to this area until later. Development to the north of Jones Street was thriving, likely as a result of council's decision to lay a main along Harris Street to Pyrmont. However, only some of John Harris' tenants on Harris Street were connected and residents living off Harris Street in poor circumstances were denied connection (Figure 2.7), (Fitzgerald & Golder 1994:42). It is also likely that the Harris Estate houses were not connected to the sewer until after the Devonshire Street Sewer from the Sydney Terminal to Darling Harbour was laid in 1881 (Figure 2.8).

An increase in the local population is indicated in the Sands Directory and Council Rates Assessment Books from 1871. It is not possible to correlate cottages shown on the Trigonometric Survey plan with housing depicted on later plans, though some tenants continue in occupation from 1855. Continuing occupants are the Mahers, O'Hallorans and Browns, while C O'Keeffe has replaced Gorman. There are two empty single storey 4-5 roomed timber houses with shingled roofs. A semi-detached pair of single storey 6-roomed brick houses with shingled roofs are now present on Harris Street to the north of Macarthur Street: number 472 (later renumbered to 518, then 554) and 474 (later renumbered 520, then 556) (Figure 2.9). Each house was valued at £40 and were leased to William Henry Harris and William Cope. A group of four houses identified as 'off Harris Street' rather than having a street number, with the two empty houses and Martin Brown's house identified respectively as 1, 2 and 3 'off 474 Harris Street'. Another property is identified as '4 off 474 Harris Street', comprising a two-storey, four-room timber warehouse, with wooden roof, valued at £40 and tenanted by John Woods (Figure 2.11). The 1877 Council Rates Assessment Book identifies another two houses 'off Harris Street' between William Henry and Macarthur Streets - a total of 11 tenanted houses; in 1880 there are 12; but in 1882 and 1891 there

are only seven. However, these houses are identified as numbering 517-523 on the 1886 Sydney Water, which may indicate that John Woods is living at number 523.

The 1888 Metropolitan Detail Series map for the block also confirms that there is little change in the occupation density, as do contemporary photographs (refer Figure 2.7 and Figure 2.11). By 1873 a house is present at 137 William Henry Street, leased from the Harris family by Thomas Bladen, an iron moulder/smelter/manufacturer/engineer. The 1877 Council Rates Assessment Book identifies it as a two storey brick and stone house, with a shingled roof and 8 rooms, valued at £52, and the 1896 and 1901 Council Rates Assessment Books identify stables on the property as well, there is a house is present on this site until 1913/4 whereby the house and land was resumed for the NSW railway (for construction of the Tramway Instruction Room). The 1911 Council Rates Assessment Book then identifies the house as a single storey house constructed of wood with an iron roof. Tenants included William Carroll, a butcher (1882-1889); William McCaffrey, a drayman (1890-1896); Mrs Henrietta Meikle and James O'Grady (a butcher; 1897-1899); Thomas Love (1900-1901); George Taylor (1904-1905); and finally, Charles Lacey (1906-1913).

By the turn of the century, the major part of the block had been resumed for construction of the Pyrmont Power Station. The only extant houses appear to be those at 137 William Henry Street and 554-556 Harris Street (these latter two occupied respectively by Mrs Mary Black and Mrs Agnes Dooley from 1896, and cab proprietor John Lowe from 1879) (Figure 2.12 and Figure 2.10).

Figure 2.6 Watercolour painted in 1867 by Samuel Elyard of the view from a rural Harris Street to an industrial Darling Harbour (http://digital.sl.nsw.gov.au/delivery/DeliveryManagerServlet?embedded=true&toolbar=false&dps_pid=IE3268219&_ga=2.256801355.1174455750.1541292434-1476070944.1480216908).

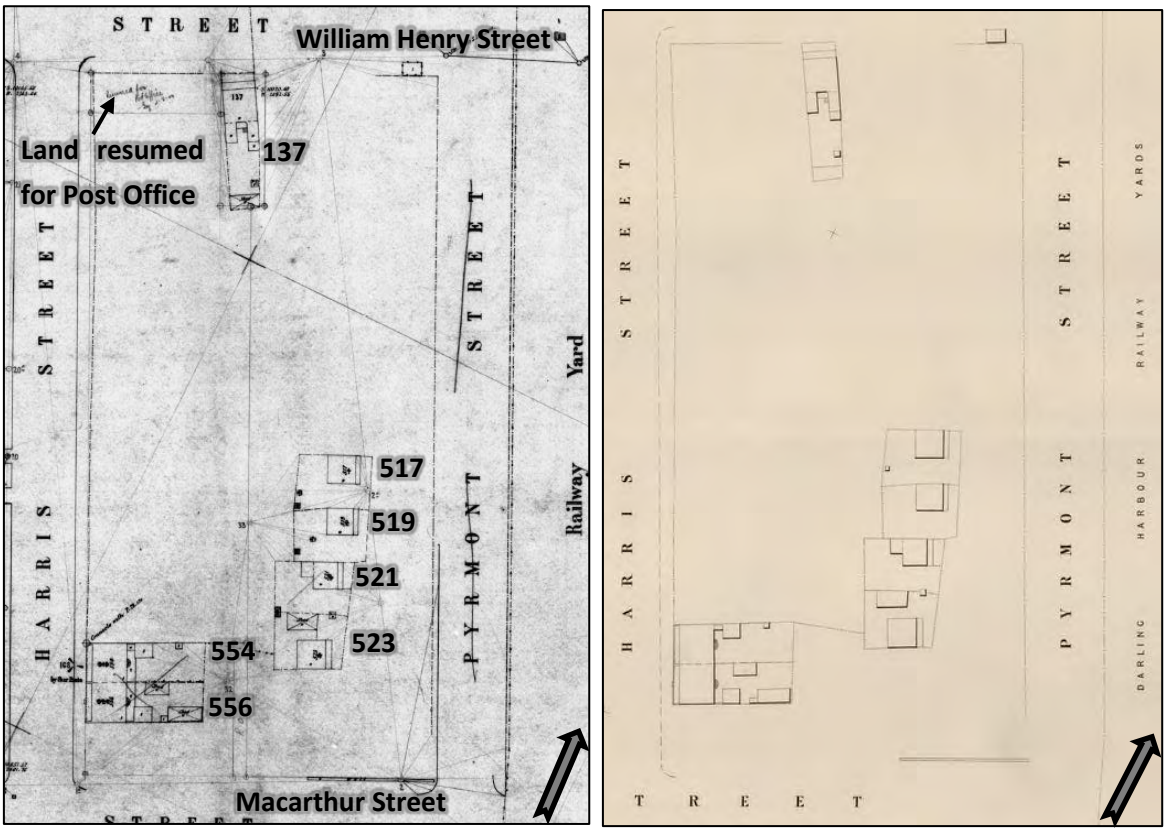

Figure 2.7 Detail from 1886 Sydney Water Plan, annotated with house numbers (left), and detail from the 1888 Metropolitan Detail Series Pyrmont (right). There is no change in the settlement pattern (PWDS1544-S206 and Sheet U3_SLNSW_a1367611h).

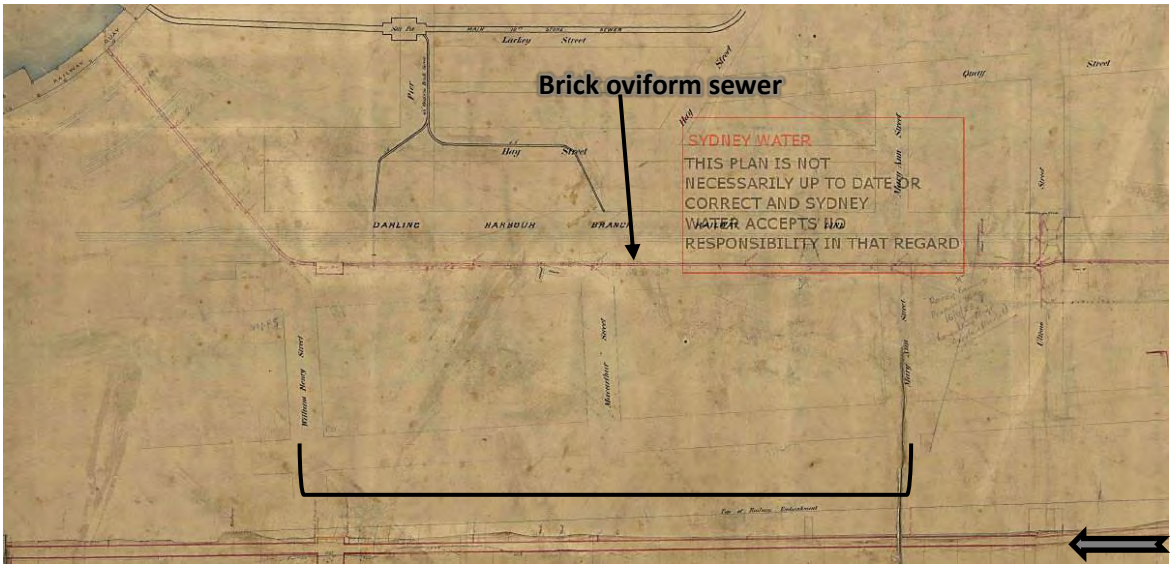

Figure 2.8 Detail from Sydney Water plan of the Devonshire St to Darling Harbour, dated 1880. The section between Mary Ann and William Henry Streets is bracketed (Archive plan 0089123).

Figure 2.9 The houses at 554-556 Harris Street on 28 July 1922 with the power house behind, before demolition (Source: City of Sydney Archives NSCA CRS 51/992).

Figure 2.10 Photograph of the Ultimo Post office c.1903. Note the roof visible between the post office and power station as arrowed. This is most likely 137 William Henry Street, later removed for the construction of the Tramway Instruction Room (https://www.records.nsw.gov.au/image/4481_a026_000513).

Figure 2.11 Photograph taken in 1878 from the Town Hall Tower by Nicholas Caire, Harris Street running left to right in the background. The Omnibus stables and houses at 554-556 Harris Street are arrowed. Note the quarry behind the row of houses described as 'off Harris Street' and the sparse occupation in the vicinity of Harris Street and the University of Sydney main quadrangle in the background right (http://archival.sl.nsw.gov.au/Details/archive/110317833).

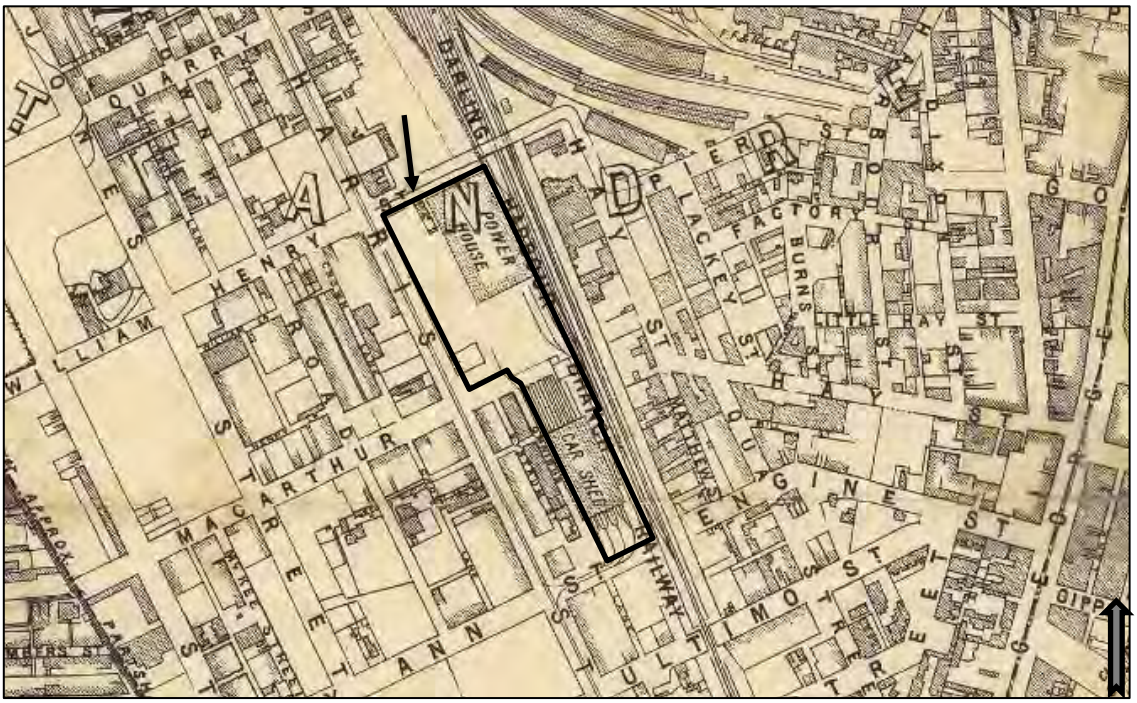

Figure 2.12 Map of the City of Sydney NSW 1903 with the Power House site identified and the house at 137 William Street evident in the northern section of the study area (arrowed), but the Ultimo Post Office has not yet been built (http://atlas.cityofsydney.nsw.gov.au/maps/city-of-sydney-1903/city-of-sydney-1903-single-sheet/).

2.2.1 Ultimo Post Office – 1901-present

In 1881, as a direct result of subdivision of the Harris and Macarthur Estates, a post and telegraph office was established in Ultimo to provide for residents' needs. The Sands Directories records that it was initially located in rented premises at 484 Harris Street. Government funds to construct a building were finally obtained in 1900, and the Ultimo Post & Telegraph Office at 494 Harris Street, on the corner of William Henry Street opened on 16 July 1901. The site had been resumed in 1900 from Dr John Harris's descendant Margaret Harris, who was paid £600. The construction of the Post Office reflects the degree of development and consolidation of Ultimo as a predominantly industrial and warehouse precinct by the turn of the century (OEH 2018b; TKD Architects 2018:13).

The Post Office was designed by Government Architect WL Vernon, with characteristics of Federation Classical and Federation Romanesque architectural styles and became an important

local landmark as the key point of communication as well as a meeting place for residents. The Sands Directories note that it had a public phone and housed a Commonwealth Savings Bank from c.1914 until at least 1932, when the Sands Directories cease. It was the site of several notorious robberies in the nineteenth century, and a car crashed into the corner pillar in 1944, requiring it to be rebuilt. The building continued to operate as a post office until 1980s, but was converted into a childcare centre in 1992; however, the 21-year lease expired in 2010 and the building is now vacant (OEH 2018b; TKD Architects 2018:13).

2.2.2 The Sydney Glass & Tile Company - 496-560 Harris Street

From 1902, until at least the final Council Rates Assessment Book in 1948, the Sands Directories and Council Rates Assessment Books identify that the Sydney Glass & Tile Company (or the Sydney Glass Co. Ltd. from 1922/Sydney Glass Co. Pty. Ltd. from 1933) occupied 496-504 Harris Street, next to the Post Office (Figure 2.13 and Figure 2.14). The 1911 Council Rates Assessment Book identifies that Margaret Harris leased this property and the adjacent land (506-550 Harris Street, as identified on the Sands Directories/ Council Rates Assessment Books from 1931 onwards) to the Sydney Glass & Tile Company. The land was valued at £112; the Company's building was identified as a double-storey, two-room stone workshop & offices, valued at £464. By 1948 the building is identified as a two-storey brick 3 + 5 roomed factory and offices with a basement and iron roof, valued at £585. This is the only mention of a basement during the whole of the Company's occupation of this site, so it is uncertain whether it is accurate. It seems that Sydney Glass Co. Ltd. had purchased the properties at 496-550 Harris Street from Margaret Harris by 1924, as it is from this time that the Company is identified as the owner in the Council Rates Assessment Books. The final issue of the Council Rates Assessment Book in 1948 identifies the land at 544-550 Harris Street as owned by the NSW Government Railway Commissioner, but still leased by the Sydney Glass Co.

From 1908, fuel merchant Wright Sheard is identified as operating on the 'land' portion of the property. The 1911 Council Rates Assessment Book identifies his operation as comprising a single storey, one-room timber wood and coal yard with an iron roof, valued at £66. From 1918 this is identified as a timber yard and stables, now operated by fuel merchant Henry/Harry Chapman. By 1924 this has changed to a yard and offices made of brick. Chapman is last listed on the site in 1928.

By the turn of the century the houses at 554-556 Harris Street had been occupied respectively by Mrs Mary Black and Mrs Agnes Dooley from 1896, until 1911, and cab proprietor John Lowe from 1879, until 1909. John Black seems to replace Mrs Black from 1912-1915, with Leo O'Connor also identified as living in the house in 1914. Evidently Mrs Dooley then lives alone in the house from 1916-1922. The 1910 Sands Directory identifies that Miss L Lowe lived at 556 Harris Street that year, with John Connolly being the next tenant, until 1914, followed by William Houston (1915-1918; Mrs Annie Houston also listed in 1918), William E Russell (1919) and James Clapson (1920-1922). The 1914 Council Rates Assessment Book identifies a Railway Commissioners single storey, single room iron workshop with an iron roof, valued at £52, next to the houses at 554-556 Harris Street. This is the only reference to such a workshop, so it is uncertain whether it was present very briefly on the vacant land between 556 Harris Street and Macarthur Street, or whether the entry is referring to one of the power station buildings further along Macarthur Street. Both houses were demolished in 1922 and a public weighbridge (No. 552 or 31) is identified on the site from 1924-1928. The 1927 Council Rates Assessment Book identifies this as a brick shed and weighbridge.

By 1929, only the Sydney Glass Co. remains on the site, with the 1930 Council Rates Assessment Book identifying that their land was adjacent to more land. Margaret Harris ceased to be identified as the owner of the houses at 554-556 Harris Street after 1914; from 1918 Maurice Newstadt/Newstead is identified as the owner, and following demolition, Newstead is also identified as the owner of the vacant land (identified as 552-560 Harris Street from 1931). This land

seems to be purchased by Maize Products Pty. Ltd. sometime between 1933 and 1936 (Figure 2.14; see also Figure 2.9 above). The 1936-1948 Council Rates Assessment Books identify the company's building as a brick warehouse with a roof of cement sheets, containing two rooms across one floor and a basement. This basement is likely to have removed evidence of the houses formerly at 554-556 Harris Street, the weighbridge, and the 1914 Railway Commissioners workshop (if it was at this location).

Herman Haege Pty Ltd, paper merchant acquired the Sydney Glass Co. portion of the site sometime in January 1954, and Ampol leased a portion for a service station in December 1957 was also present to the south of the Herman Haege building in 1963 (Figure 2.13 and Figure 2.14).

Figure 2.13 Photograph taken on 28 January 1964 showing the Post Office (arrowed), Herman Haege Pty Ltd at 492-542 Harris Street, and the Ampol Service Station, 544-550 Harris Street (Source: City of Sydney Archives NSCA CRS 47/2346).

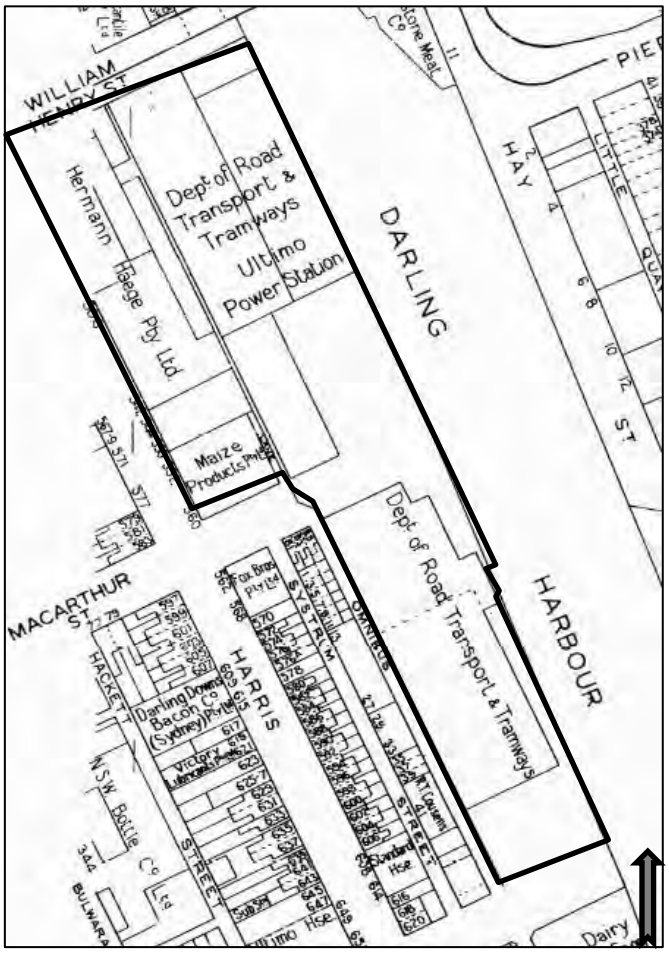

Figure 2.14 City of Sydney Building Surveyor's Detail Sheet 10, 1949-1972 with the approximate location of the study area indicated. The Post Office appears on the adjacent map (Sheet 9) (Source: http://atlas.cityofsydney.nsw.gov.au/maps/city-of-sydney-building-surveyors-detail-sheets-1949-1972/city-of-sydney-building-surveyors-detail-sheets-1949-1972-sheet-10-central/).

2.3 Block V3: Macarthur – Mary Ann Streets

There is little evidence of development along the eastern side of the block between Macarthur and Mary Ann Streets after the appearance of the sparse scatter of cottages in the 1840s (Figure 2.15).

From 1882, the Rates Assessments identifies three buildings on Macarthur Street: a two-storeyed 4-roomed brick shop with iron roof valued at £46 at No. 117, and two two-storeyed, four-roomed brick houses with iron roofs each valued at £39 at numbers 119 and 121. All four buildings are owned by Martin Systrum, perhaps the origin of Systrum Street, which has not yet been formed at this time. Three of the buildings continue to stand at 81–85 Macarthur Street. Systrum Street does not appear in the Rates Assessments until 1901, when the six houses at numbers 1–11 are owned by the New South Wales Mortgage Land and Agency Company Limited (Lessee). The two-storey four-roomed brick houses are extant today. In 1901 the houses are each valued at £16, which by 1911 has increased to £21 and they are identified as being owned by the New South Wales Mortgage Land and Agency Company Limited.

Despite opening in 1855, the railway to Parramatta did not extend into the city centre until 1901, and public transport was a horse-drawn tramway along Pitt Street between Circular Quay and the Central station, which opened in 1861, providing the link between maritime and rail transportation routes (Figure 2.16). However, the tram rails were above road level, which was unpopular with the horses and pedestrians; so, the line was closed and the rails lifted in 1866 (Rowland 1955:115). The city's largest omnibus company was the Sydney Tramway & Omnibus Company (STOC),

incorporated on 9 August 1872. The Company serviced most of the eastern suburbs, and also ran services through the city centre and out to Glebe, Forest Lodge, Newtown, Stanmore, Marrickville, St Peters, Cook's River and Queen's Wharf by 1876. Each bus could seat 24 passengers, usually pulled by two horses; although four horses were used at peak times or up steeper hills, such as William Street to Kings Cross (MAAS 2018). However, within a few years of operation, an increase in suburban populations led to demands for more extensive bus services. The STOC was resistant as it would require many more horses and the cost of feed was high at the time (SMH 28 December 1876).

In 1879, it was announced that the International Exhibition would take place in Sydney's Palace Gardens. It was clear that the horse-drawn buses would not cope with the anticipated large numbers of visitors, so the government authorised a tramline to be constructed along Elizabeth Street, between Redfern Station and Hunter Street. There was still strong opposition to tramways in Sydney so it was intended that after the Exhibition the tramway would be lifted and the railway extended from Redfern into the city. However, it proved so successful that at least five more lines were constructed in the next two years; to Cleveland Street, Bondi Junction, Moore Park/Randwick Racecourse, Woollahra Council Chambers and Marrickville (Rowland 1955:115-117).

The trams were initially horse-drawn, and seated 36 people in each double-decker car (18 on each deck). American steam cars were also ordered for use during the Exhibition, but were shipped late, arriving after the Exhibition had opened. Nevertheless, horse-drawn trams seemed to be the most popular version for at least 20-30 years: steam tramcars did not replace horse-drawn buses on the St Peters-Newtown line until 1898; and the Manly-Curl Curl line, while opened as a steam tramway in 1903, soon switched over to horses, steam cars not being brought back into use until 1907 (Rowland 1955:117-118). The use of electricity to power a tram was first tested in Sydney in 1890:

> *In Sydney proper, the first lines to be electrified were those along George Street to Ultimo and the Railway, as this work could then be extended to the western suburban lines. By April, 1900, the line to Dulwich Hill and St Peters had been changed over to electricity. The Glebe line followed in December, 1900; Leichhardt in March, 1901; Balmain and Forest Lodge in August, 1902; and the branch line to Abbotsford in April, 1905* (Rowland 1955:120).

From 1873, the Sands Directories and Council Rates Assessment Books identify stables belonging to the Sydney United Omnibus Company (SUOC) between Omnibus Lane and the goods line; however, the 1886 Sydney Water map identifies two stables, the northern as belonging to the Sydney Tramway and Omnibus Company (STOC) and the southern to the City Carrying Co. (Figure 2.17). John Woods, who lived in a house on Block U3 perhaps at house 523 off Harris Street (see above Section 2.2), was a director of the SUOC (SMH 28 December 1876). In 1880, J Woods & Co.'s Depot is also identified in this location, though as 542 Harris Street. John Free is recorded living next to the stables in 1873-1875, replaced by Charles Hunt in 1876-1877, and William Townsend in 1880. The 1880 Rates Assessment Book identifies Townsend's house as a single storey 4-roomed timber residence with an iron roof, valued at £36. This may have been demolished by 1886 as no further mention of it is made in Sands Directories nor Council Rates Assessment Books after 1880.

Edward Hanna's (or Hannah) blacksmith and farrier business is identified as next to the SUOC stables from at least 1873-1882, and his property is described as comprising a single storey, single room, iron roofed house and stables/farrier's shop, and a brick workshop. However, after 1887 the stables is the only entity mentioned in the Sands Directories and Rates Assessment Books. It seems likely that SUOC may have bought out the City Carrying Co. stables and Hanna's blacksmith and workshops and taken them for their own use, as the building configuration shown on the 1893 auction map) is roughly the same as that shown on the 1886 maps (compare Figure 2.17 and Figure 2.18). The auction map also notes that the east side of Omnibus Lane belongs to United Omnibus Company Limited.

The SUOC stables appear in the Sands Directories and Rates Assessment Books for the period 1873–1897. The 1877 Rates Assessment Book identifies that there were stalls for 200 horses in the wooden stables, and that there was also a brick house with an iron roof; the property was valued at £300. In 1880, the property is identified as a single storey, six-room brick chaff store with an iron roof; a single storey, single room New Forge made of iron with an iron roof; and a single storey, single room Old Forge made of wood with a shingled roof; all valued at £289. However, the Assessment Book also notes 'pulled down', and there is no further mention of these buildings in subsequent Rates Assessment Books.

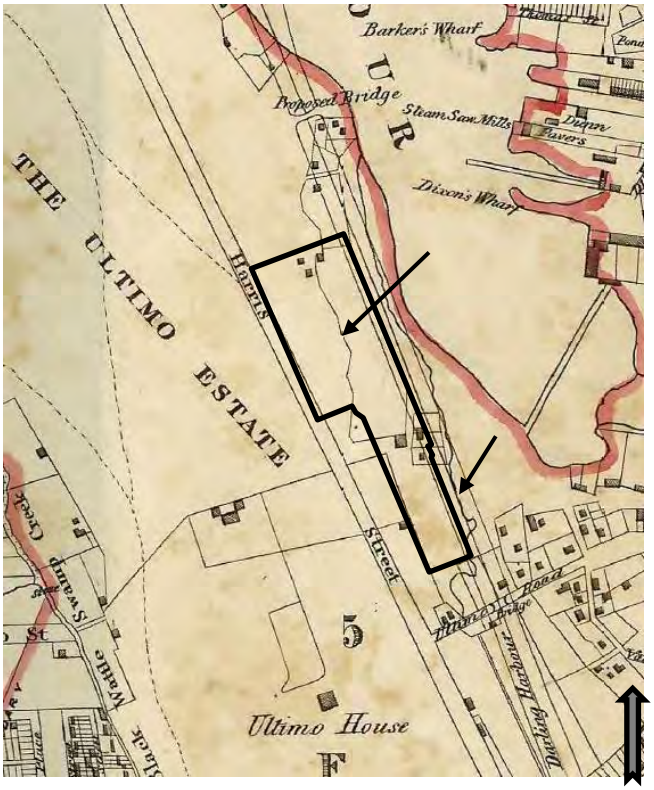

Figure 2.15 Detail from Woolcott & Clarke's 1854 map of Sydney with the approximate location of the study area outlined. The creek line beneath the goods line and the edge of the quarry are arrowed (http://atlas.cityofsydney.nsw.gov.au/maps/city-of-sydney-1854/city-of-sydney-1854-single-sheet/).

Figure 2.16 A Sydney Tramway & Omnibus Company horse-drawn omnibus, 1897 (https://nla.gov.au/nla.obj-138205476/view).

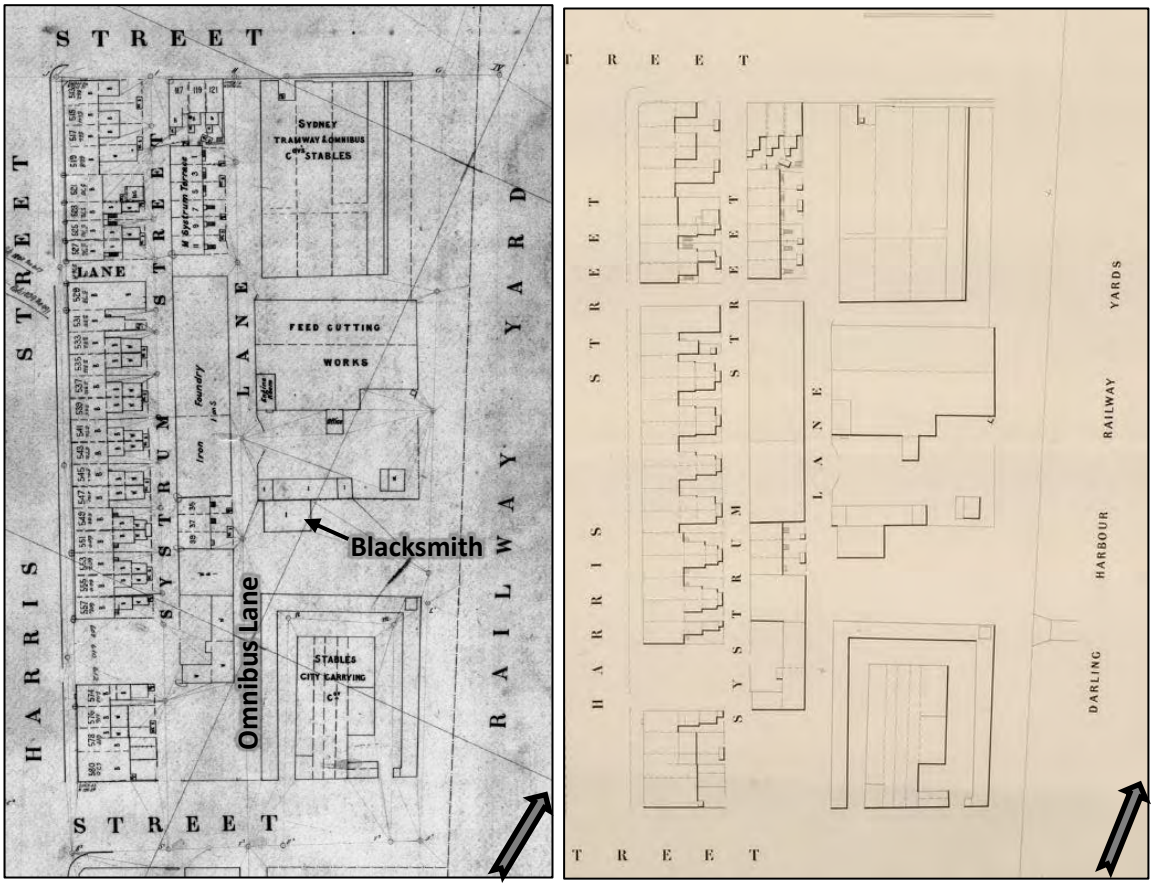

Figure 2.17 Detail from 1886 Sydney Water Plan, annotated with the blacksmith's property (left), and detail from the 1888 Metropolitan Detail Series Pyrmont (right). There is no change in the settlement pattern (PWDS1544-S209 and Sheet V3_SLNSW_a1367614h).

Figure 2.18 1893 auction map of the southern Block V3 (Source: http://nla.gov.au/nla.obj-230507113).

2.4 The Ultimo Power House & Tram Depot

The use of electrical power was introduced in the late 1870s, primarily for lighting; however, production costs were high and efficiency was low. By the 1890s, there were a number of small private companies, as well some council-owned stations providing light and power. From the mid-1890s, the electricity powering the tramways was generated from the cable engine house at Rushcutters Bay (Wilkenfeld & Spearitt 2004:10). In 1896, approval was given to the Sydney Municipal Council (SMC) to electrify Sydney. The first application was to power public transport, and to this end the site on Harris Street Ultimo was proposed, after a failed attempt to construct a power house in the Rocks, intrinsically linking the power house and the tram depo. In 1897, the two blocks between Mary Ann and William Henry Streets were resumed for the 'Ultimo Car House', and a power station large enough to supply the requirements of the expanding tramway system. The factors contributing to the determination of the Ultimo site were:

1. Distribution of electric current,
2. Coal supply and disposal of ash,
3. Water supply,
4. Space for future expansion,
5. Cost of land,
6. Character of foundations, and
7. Availability of labour force (Godden et.al. 1984:27.

Ultimo was a central part of the tramway system and was conveniently located for delivery of coal, disposal of ash and the supply of water for condensing. In 1898, construction of the 200-ft high chimney began. It used 890,000 bricks, and quickly became a key landmark of the area. The original complex was finally completed in December 1899. Initially the power house comprised four reciprocating steam engines driving 850 kW direct current generators and in 1902, alternating current generators operating at 25 cycles were added and turboalternators from 1905 (https://portal.engineersaustralia.org.au/heritage/ultimo-power-house-1899-1963). However, apparently the stability of the local soils had not been tested adequately. It was not until design and planning were well underway that substantial foundations and concrete piers would be required for the buildings. In particular concrete settings for the plant had to be sunk 14' (12' in excess of expectations) and at least 1,000 cubic yards of additional excavation had to be completed for wall footings (Godden et.al. 1984:29); (Figure 2.19–Figure 2.21). It is possible that the lack of stability of the soils was as a result of the poor quality of reclamation fills used across the site following cessation of quarrying. However, that the stability of the soils was not understood indicates that the quarry had closed and reclamation had occurred some years prior to 1899.

Following construction of the power house in 1899, there was a rapid growth in the tramway system, threatening to exceed capacity. By 1904, nearly 106 million passengers were using the trams per year and to further alleviate this pressure, it was determined that electrification of the railways should be considered, as well as an electrified underground system for the city to accommodate the increased patronage of the railways (Wilkenfeld & Spearitt 2004:11). The Ultimo power house was extended in 1902, three years after opening. In 1904, the Pyrmont power station began operating less than a mile away, and plans were proposed for another power house at White Bay, constructed from 1912 (Broadbent 2010:496-7, GML 2002:6-7). The 1902 extension was constructed at the southern ends of the boiler hall and engine room. The extension to the engine room, (subsequently called the turbine hall), was a single storey infill between two rooflines. The boiler house extension was completed in two phases as it was essential that the original fourteen boilers be kept in service until some of the new boilers could be commissioned. In the first phase a two-storey extension which ran the full length of, and had a common wall with the new turbine hall was completed (Godden et.al. 1984:63) (Figure 2.22). It is also presumably at this time that the Tram Depot expands to occupy part of the land between Omnibus Lane and Systrum Street as

indicated by the presence of an Arrestor Pit (the text on plan is indistinct; compare Figure 2.17 and Figure 2.23).

When it was built, the power house occupied the northern part of the site had an engine room, the boiler hall and pump room, pump-room, and offices, and illustrated some early uses of steel truss roof construction and concrete formwork. Part of the floor of the engine room was formed on rolled corrugated iron permanent formwork over which the concrete was laid (Godden et.al. 1984:44). The components of the power house were:

- the Office Building (North Annex), which originally accommodated foreman, line repairers and greasers in the basement; a testing room, chemical laboratory, officer's quarters and storeroom on the first floor; and accumulators on the second floor.
- an Engine House with 30-tonne overhead travelling cranes, which housed the first electricity generators.
- a single-storey Boiler House extending from the front wall of the Office Building (North Annex) to the south wall of the Engine House. It contained 14 boilers, all of which were fed by hand apart from two, which were mechanically fired;
- The Engine Room Extension/Turbine Hall built in 1922, making this the largest generating power station in the Southern Hemisphere and the first place in Australia to use this new technology.
- 1922-1926 the Switch House was built, with transformer banks, a new control room and an entire set of high-tension switch gear, to accommodate a major upgrade to the switching gear for the Sydney tramway network.
- 1923, the state's first pulverised coal fired boilers commissioned.
- 1929-1931 extensive modernisation program installed two new 20,000 watt turbo-alternators in the Turbine Hall, and a pneumatic coal and ash handling plant and coal bunkers. Replaced the 60 water tube boilers with 6 large single drum boilers designed to burn pulverised coal.
- 1941, two additional drum boilers and an additional turbo-alternator were installed.
- By 1942, capacity of the station had grown to 79.5 megawatts.
- 1949 a second-hand turbo-alternator from the White Bay Power Station was installed. At this time the boilers were also converted to burn furnace oil, due to coal shortages (TKD 2018:6,9). (TKD 2018:5-12).

Ultimo Tram Shed (now the Harwood Building) was originally named the Ultimo Car House, it was the first all-electric tram car shed, servicing the Sydney tramway system. This Tram Depot did not use the goods line; rather, Mary Ann Street and Harris Street provided access between the Depot and the tram system. Although it operated independently of the Ultimo Power House, in later times one track (No.10) extended into the Turbine Hall to provide rail access to the equipment within that building. It should be noted that excavation for the basement in the 1980s also removed most of the original depot floor, although a small section of track remains under the suspended floor at the south end. The house at 137 William Henry Street was demolished c. 1913 to make way for the Tramway Instruction Room. A sizable single storey brick building with asbestos shingle roof running between the post office and the Office and Accommodation Block fronting William Henry Street (NSW Department of Works 1994).

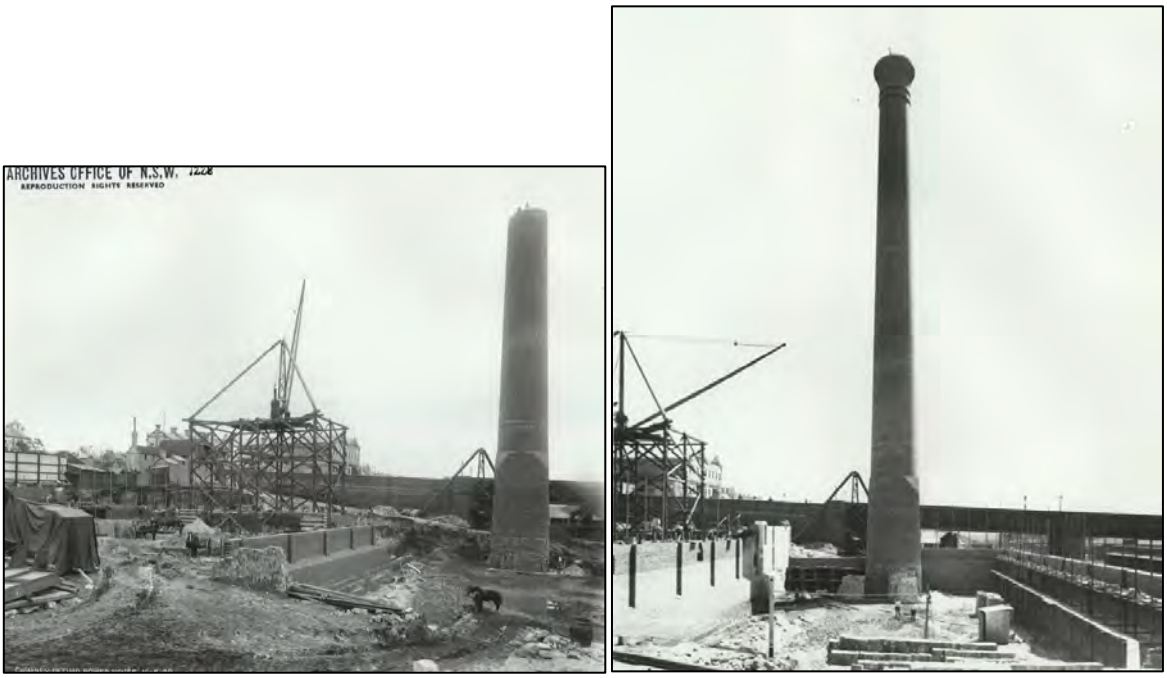

Figure 2.19 Two photographs taken in August 1898 of the Power House chimney, under construction (left) and completed (right) (https://www.records.nsw.gov.au/image/4481_a026_000883 and https://www.records.nsw.gov.au/image/4481_a026_000873).

Figure 2.20 Two photographs taken in August 1898 of the construction of the Power House. The image, right, is erroneously identified as the Tram Shed chimney (https://www.records.nsw.gov.au/image/4481_a026_000880 and https://www.records.nsw.gov.au /image/4481_a026_000884#expanded).

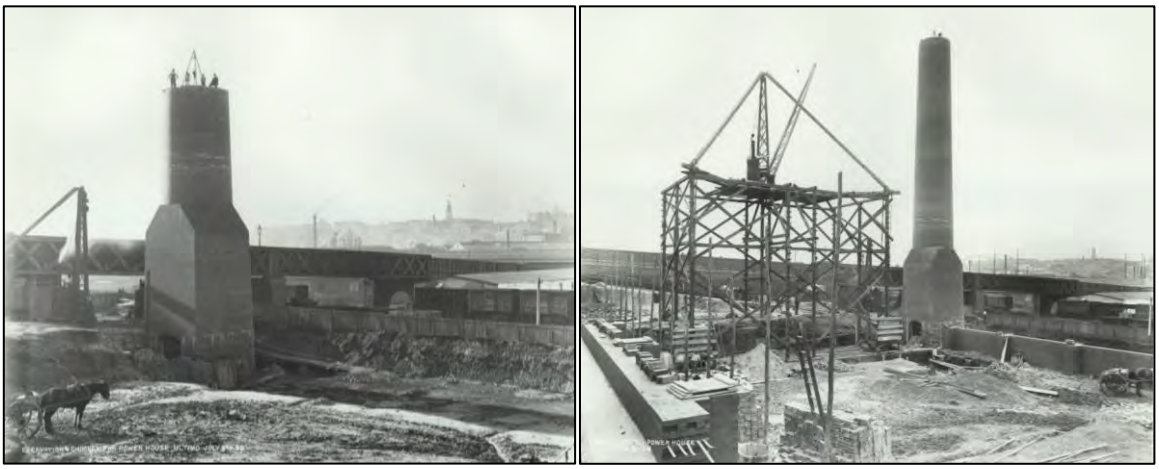

Figure 2.21 Two photographs taken July 1898 of the Tram Sheds under construction. The image, right, is erroneaously identified as the Power House (https://www.records.nsw.gov.au/image/4481_a026_000882 and https://www.records.nsw.gov.au/image/4481_a026_000874).

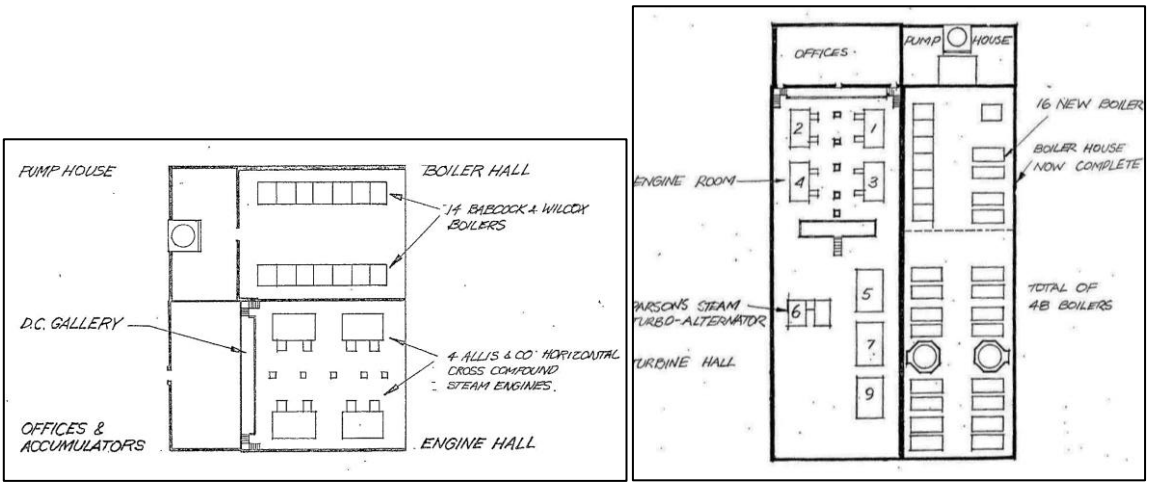

Figure 2.22 Layout of the original 1899 power house (left), and the 1902 extension(right) (Godden et.al. 1984:98, 115)

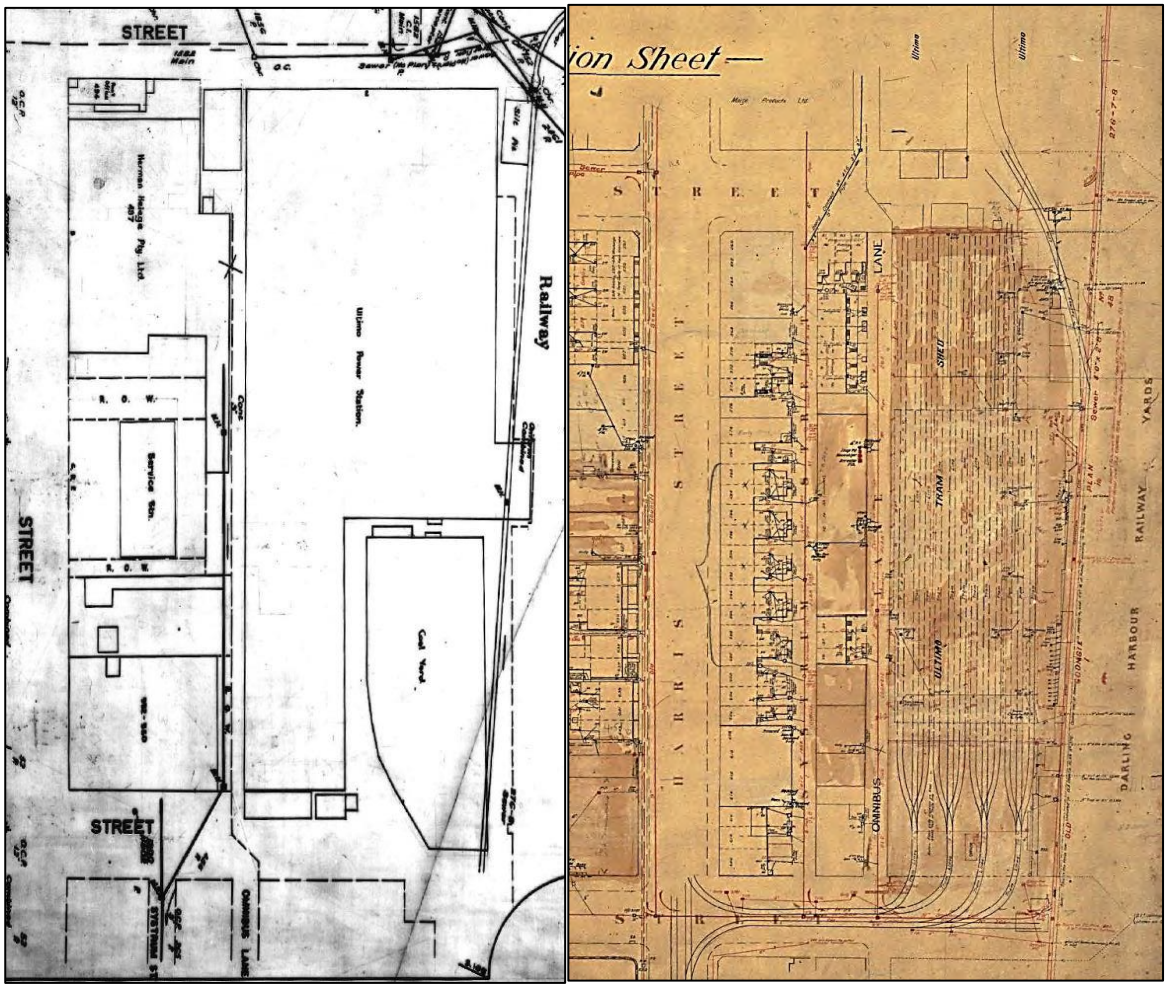

Figure 2.23 1963 plan of the Ultimo Power Station (left) and 1908-1953 plan of the Ultimo Tram Sheds, with associated facilities between Sistrum Street and Omnibus Lane, including arrestor pits (Sydney Water archive plan DS3725(2) and BLKWTL3723_EXT).

2.5 The Powerhouse Museum of Applied Arts & Sciences

In 1953, control of the power house passed from the NSW Government Railways to the Electricity Commission of NSW, which had been formed to respond to post-war power shortages. With construction of new power stations and an expanded interconnected network, the outdated plant and city location of the Ultimo Power House made it increasingly redundant. In addition, from the 1950s the tramway system began to be phased out in favour of buses and the Tram Depot closed. The power house was decommissioned in 1963, most of the chimney stack was demolished. In 1967 the William Henry Street Bridge was widened and the remainder of the chimney was removed. In the mid-1970s the other two chimneys were demolished to just below the Boiler House roofline and are extant. By 1976, most of the remaining plant and equipment was removed, and from 1985 the power house buildings were adapted to accommodate the Powerhouse Museum. The Wran Building was constructed in 1988, and the Powerhouse Museum (formerly the Museum of Applied Arts & Sciences) opened to the public in that year (OEH 2018a; TKD 2018:7,10).

3 Evaluation of the Archaeological Potential

3.1 Comparative Archaeological Sites

The archaeological excavations within the vicinity of the study area are as follows (see Figure 3.1):

- 14-28 Ultimo Road, Ultimo, excavated in 2011-2012 by Australian Museum Consulting (AMC).
- Bullecourt Place, 287 Pyrmont Street, Ultimo, excavated in 2002 by GML.
- Paddy's Markets, 9-13 Hay Street, Haymarket, excavated in 1990 by Godden Mackay Logan Pty Ltd (GML).
- 24-50 Mary Ann Street, Ultimo, excavated in 1993 by GML
- 50-72 Union Street, Pyrmont, excavated in 2003 by Casey & Lowe.
- CSR Site (Jacksons Landing), Bowman Street, Pyrmont, excavated in 1996 by Casey & Lowe.

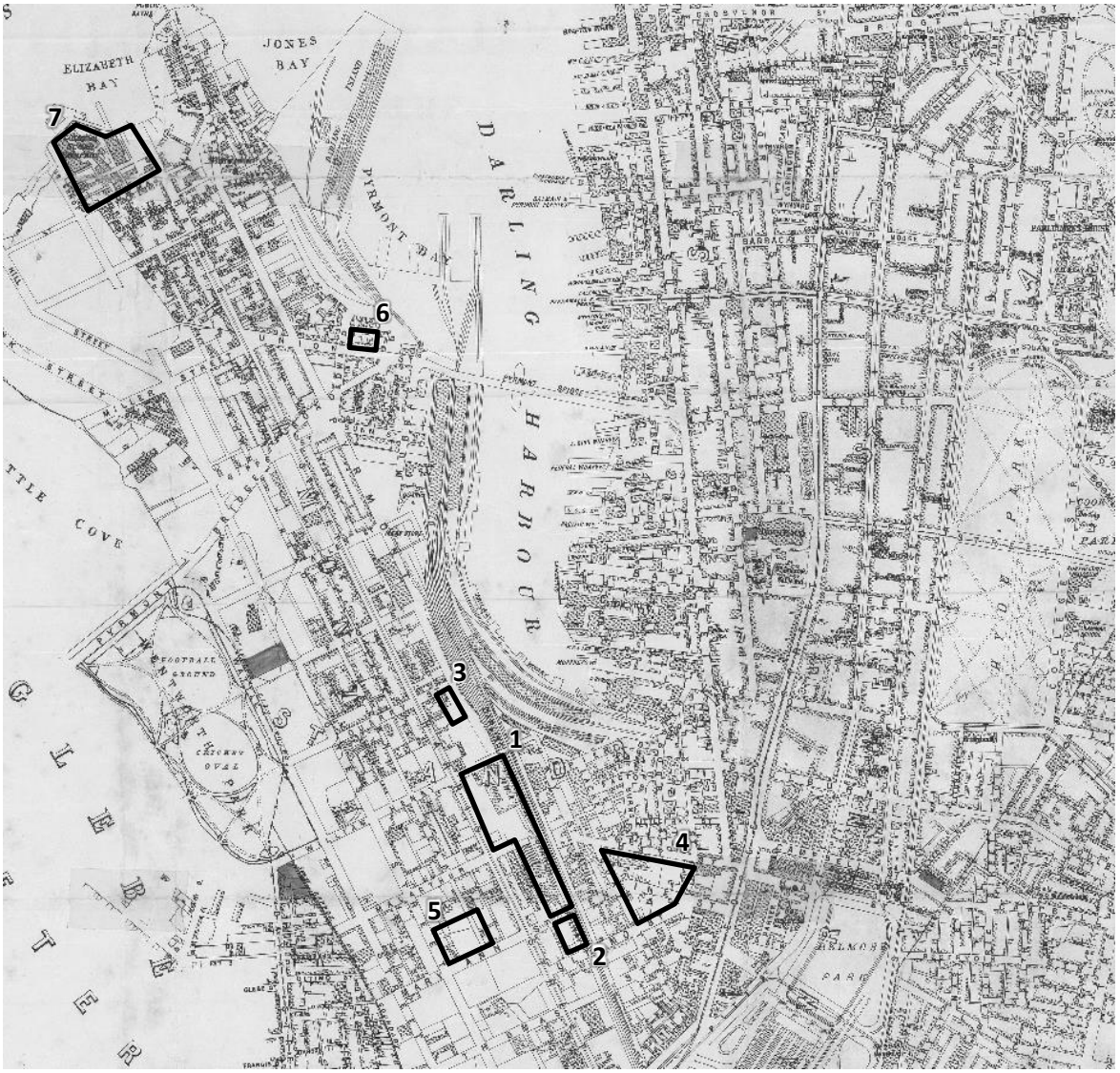

Figure 3.1 City of Sydney 1930 plan showing the study area and archaeological excavation sites in the vicinity. They are as follows: 1) Study area, 2) 14-28 Ultimo Road, 3) Bullecourt Place, 4) Paddy's Markets, 5) 24-50 Mary Ann Street, 6) 50-72 Union Street, and 7) CSR Site.

14-28 Ultimo Road, Ultimo

Australian Museum Consulting excavated the 14-28 Ultimo Road site (UTS site), in 2011-2012 for the University of Technology, Sydney prior to construction of the Dr Chau Chak Wing Building (encompassing four timber cottages, early industrial activity and a terrace row). The northern part

of the site had been occupied since the 1870s by the NSW Shale & Oil Company and could only be mechanically monitored for safety reasons. From the 1950s the entire site had been the Dairy Farmer's Depot, which had destroyed the NSW Shale & Oil Company's manger's residence in the south-eastern corner.

The terrace of three houses in the southern part of the site were assessed as having low archaeological potential due to their late construction date of 1874 (Casey & Lowe, 2011). However, underfloor deposits and three phases of yard surfaces, the latest above the 1884 reclamation were identified. An insight into land use practices of the late nineteenth century, particularly the continual building up of the yard surfaces to rise above the swamp in which the houses had been constructed. There was also a large quantity of artefacts found from underfloor deposits, reflecting activity areas in each room, for example, recreational and personal items were located around the hearths (AMC, 2015:68). Each terrace house had a cess pit in the earliest yard phase, which were never used and were sealed beneath the ensuing yard phase. The lack of use was no doubt due to the swampy environment. The site remained un-improved until the late nineteenth century; it was reclaimed in 1884 with a 0.5m deposit comprising clays and industrial material and included a discrete deposit of discarded ginger beer bottles and kiln waste from the nearby Thomas Field and Sons Pottery.

Beneath the terrace row were the remains of four 1840s-1860s cottages, some of which had been destroyed by the terrace construction. There was no evidence of associated cesspits, and there was no specific evidence found to indicate family structures or room functions. Beneath the cottages, large sections of red river gums had been laid out across the swamp sands in a pattern reflecting property boundaries (Figure 3.2).

The final depth was over 2m below road level and the excavation exceeded expectations and the archaeological resources were re-assessed as being of state significance (AMC, 2015: 79).

It is possible that the archaeology of the Ultimo Creative Industries Precinct will include features that are similar to the early houses and landscape modifications, including reclamation, to those exposed at the UTS site.

Figure 3.2 The earliest phase on the site with the 1840s cottage in good condition arrowed. Note the red river gum sections laid out across the swamp sands configured to align with the property boundaries (AMC 2015:44, Figure 3.9).

Figure 3.3 Archaeological features overlain on the 1865 Trigonometrical Survey Plan for Block VI (AMC 2015:57, Figure 3.24).

Bullecourt Place, 287 Pyrmont Street, Ultimo

The excavation of Bullecourt Place was undertaken by GML from May-June 2002. It focused on the trade/industrial aspects of the occupation of the site, rather than residential aspects. It was also hoped that information regarding the activity pre-dating its construction phase in the 1870s and 1880s, when the site was associated with Ultimo House as garden and grazing lands, would be revealed. It was anticipated that there was a low potential for survival of the sites earlier use by the original Aboriginal occupants; the presence of oyster shells was the only possible evidence discovered.

The site contained terraces and woolstores. The terraces on Harris and Quarry Streets were built between 1876 and 1882, and the occupiers (particularly fronting Harris Street) conducted small scale trades from home and one site (438 Harris Street) operated as a factory (Walls Machinery Store), and another (448 Harris Street) contained a possible workshop at the rear. The early 1880s saw the arrival of woolstores in the area, and subsequently the introduction of large-scale mercantile enterprise, linking the site to the nation's largest worldwide export industry.

Perhaps the most interesting results were from Trench 2, where although the archaeological resources had been impacted by later developments and there were no underfloor deposits, the level of survival of structural elements was good (Figure 3.4 and Figure 3.5). By the time of their construction, flooring was tongue-and-groove, municipal garbage collection was in operation and a large fire and modifications of the site in 1992 had destroyed the rear yards, as well as all four woolstores (GML, 2004: 107). Despite this, the excavation provided an insight into the nature of production and the economy within the occupation period.

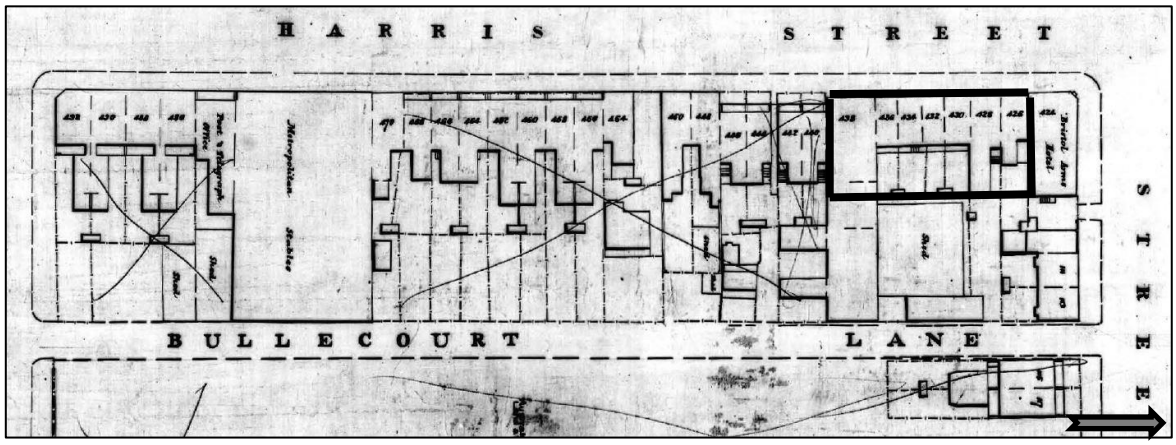

Figure 3.4 Detail from Sydeny Water map of Block R3 between William Henry and Quarry Streets. Trench 2 is boxed (Sydney Water archive plan DS3724).

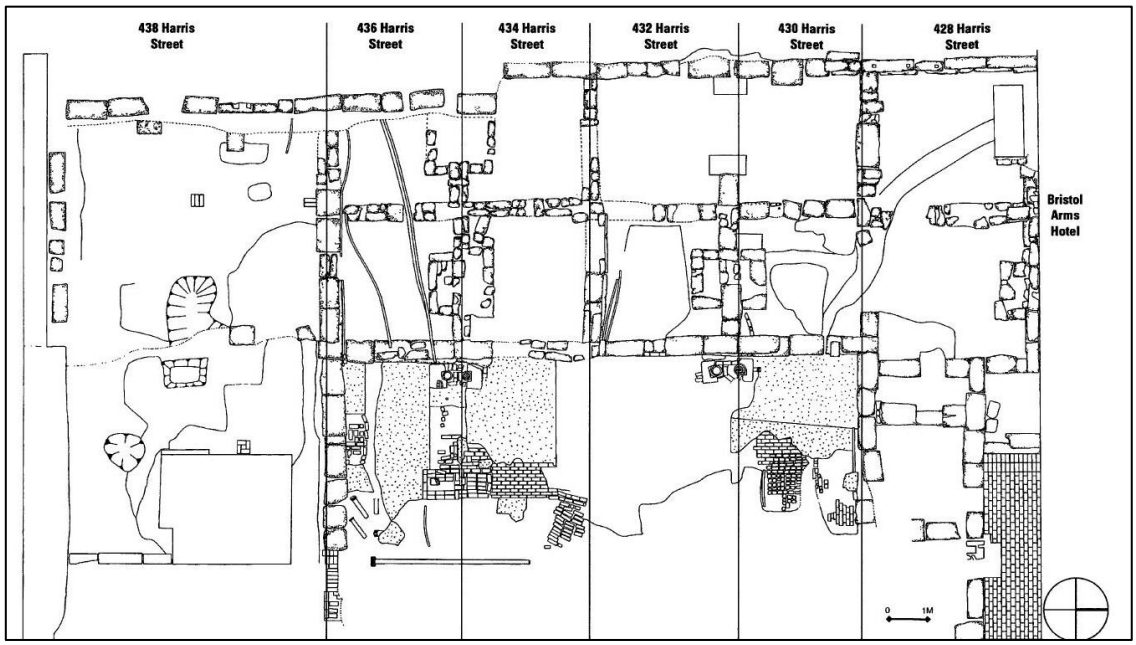

Figure 3.5 Final plan of Trench 2 containing houses 428–436 Harris Street (GML 2001:41, Figure 3.2).

Paddy's Markets, 9-13 Hay Street, Haymarket

In 1990, the Paddys Markets site was excavated by GML for the Market City development. The site had been occupied prior to construction of the City Market Buildings on the site in 1909-1910, which had required the removal of the earlier residential and industrial structures on the site. Market area 2 was anticipated to be archaeologically sterile, and Market area 1 and Engine Street were expected to contain substantial remains and deposits from the late nineteenth century occupation.

The excavation exposed brick and sandstone residential and industrial structural remains. The first known buildings on the site were associated with the Victoria Steam Mill (later Pemmell's Mill). The remains of the two storey sandstock brick house at 16 Engine Street reflected domestic life in the later 1840s and 1850s. The 1860s to early 1880s involved an increase in density of the occupation of the site, that was reflected in the physical remains, with terraces on Engine Street constructed at this time. The second half of the nineteenth century saw the block transform into an industrial centre, with a mill, brewery, engineering works and an assortment of other factories being established. A large quantity of artefacts were recovered that provided an insight into the local mid-nineteenth century community.

24-50 Mary Ann Street, Ultimo

GML excavated the site located at 24-50 Mary Ann Street Ultimo in November 1993. The site was part of the former Harris Estate gardens and had been occupied by Scrutton's Pty Ltd. RL Scrutton & Co began operation in the early 1890s, and expanded their factory c.1910. The excavations recovered extensive archaeology relating to the various phases of the Scrutton's factory, however structural features pre-dating 1892 were not identified. The foundations of the factory, as well as early forges and a later installation of a dock were revealed.

The only evidence of structures unrelated to the factory was a remnant of 'Grove House', the first structure built on the property in 1882-1888, which is described in rates records as being two stories with seven rooms. It was largely removed by the 1910 extensions to the factory; however, the remaining evidence indicated that it was built of semi-plastic shale bricks on a sandstone foundation.

CSR Site, Pyrmont (Jacksons Landing)

Casey & Lowe, during October to December 1996, undertook archaeological testing and excavations at the former CSR site in Pyrmont, Sydney for Lend Lease The site is now known as Jackson's Landing.

Casey & Lowe's 'Archaeological Assessment CSR Site, Pyrmont' (August 1996), addressed and identified the potential archaeological remains of the site, in a number of areas. Testing was conducted in the areas considered to have the greatest potential for survival of archaeological remains. Five areas were excavated, three were found to have extensive archaeological remains, and two were found to have limited remains. The following is an excerpt from Casey & Lowe's excavation report (2000: i):

> ***Area A*** *contained the remains of four houses, Houses 15 to 21 New Street, Pyrmont.*
> ***Area B*** *contained the remains of three houses, Houses 67 and 69 Bowman Street and 2 New Street, Pyrmont.*
> ***Area C*** *contained the remains of four houses, Houses 1 to 7 McCredie Street, a footpath and roadway, Pyrmont.*
> ***Area D*** *contained limited remains associated with a dairy, 69 John Street.*
> ***Area E*** *contained the remains of a single terrace house, 17 Mount Street. Other potential remains in Area E did not survive twentieth-century use as a truck parking area.*

The housing on the site had been constructed in 1859, contemporary with the report on 'Conditions of the working classes' and as such the houses were designed to provide poor long-term houses while those built later appear to have provided better housing stock. The occupants were mostly working-class families, comprising skilled men working in nearby shipyards, abattoirs and wharves, while their wives were responsible for household duties. Personal items were the dominant artefact group recovered in most of the houses, including those associated with clothing, jewellery, accessories, grooming, and hygiene. This reveals that the importance of personal appearances was apparent among working class families, a somewhat surprising notion (Casey & Lowe, 2000: v).

50-72 Union Street, Pyrmont

Casey & Lowe's excavation of the Union Street site between November and December 2003, encompassed parts of the former Alma and Edward Streets. The preservation of the archaeological remains of residential development had been impacted by twentieth century developments which resulted in variations in the survival of the archaeology. Construction of the Anchor Flour Mill in the late 1920s, in particular had a significant impact on the underlying archaeology. The three terrace houses, some of the earliest domestic structures on the site, were the main focus of the

archaeological investigations. They were occupied by various tenants from the 1840s and 1850s to the early twentieth century. The following are excerpts from Casey & Lowe's excavation report (2010: i):

> *Houses 64 and 66 Union Street both contained small areas of underfloor deposits within some of the rooms and both had an external building (presumably a kitchen) at the back of each house. Remains of stone footings, a fireplace, drains, and floor and yard surfaces were all identified, planned and recorded.*
> *Little remained of No 62 Union Street apart from the sandstone footings of two basement rooms and a partial yard surface.*

Three sets of double cesspits were investigated for artefacts on the northern end of Edward and Alma Streets. The remainder of these streets were highly impacted by the flour mill buildings.

> *38/40 Edward Street: This double sandstone cesspit would have serviced these two houses. It was excavated by hand in 100mm spits and contained the largest quantity of artefacts of all three cesspits.*
> *31/33 Alma Street: Another stone cesspit was excavated containing a black, sandy, artefact rich deposit, 300mm deep at the base of the cesspit sitting directly on the bedrock.*
> *35/37 Alma Street was similar structure to the cesspit at 31/33 Alma Street. Both were excavated by machine due to contamination in the ground with the fill then skimmed for finds.*

A total of 3106 artefacts were recovered during the excavations at Union Street, largely from underfloor deposits in Houses 66 and 64 on Union Street and the cesspit in Edward Street. The underfloor deposit artefacts reflected a gradual accumulation of materials throughout the entire occupation period, and the cesspit artefacts indicated the fill from which they were from was '*a primary deposit of direct household refuse used to backfill the cesspit after its abandonment as a water closet c.1870-1880 prior to the introduction of city-wide rubbish removal*'

None of the artefacts could be directly linked to families or individuals occupying the houses, however the assemblage is typical of working-class urban sites in Sydney, and particularly domestic environments. They provide an insight into the working-class neighbourhood in Pyrmont during the second half of the nineteenth century and the early twentieth century.

3.2 Archaeological Potential & Integrity of the Resource

Based on the historical review and realised archaeological potential from sites within the vicinity, the survival and integrity of the archaeological resources in the Ultimo Creative Industries Precinct are likely to be variable. Construction of the Ultimo Power House and conversion of the SUOC stables to the Tram Depot for stabling electric trams in 1899 completely altered the local landform, with deep foundations, basements, machine beds and inspection pits will have had a significant impact on the underlying archaeology. Although the power house and tram depot have been modified to house the Powerhouse Museum, the essential structure of these buildings is extant (Figure 3.6).

Figure 3.6 The existing buildings in the study area; the buildings associated with the former Ultimo Power Station are also labelled. Approximate study area indicated (TKD Architecture, 2018).

3.2.1 Block U3: William Henry – Macarthur Streets

The northern block of the study area encompasses the Ultimo Power Station and Ultimo Post Office, which overlie the sites of the 1840s and 1850s houses. Despite the incursions of the basements and foundations it is possible that some physical remains associated with some of the early houses located outside of the existing building footprint may survive (Figure 3.7).

The basements and machine beds associated with the Ultimo Power Station, particularly in the Engine Hall, Boiler House, Turbine Hall, Office Building (and to a lesser extent, the Wran Building), will have impacted the archaeological resources of the site. The Engine Hall basements range from approximately 3.5m to 6.7m deep, the Boiler House basements range from approx. 3.3m to 6m deep, those in the Turbine Hall are approx. 3m deep, the Office Building basement is approx. 4m, and the Wran Building basement is approx. 4.5m deep. A comparison of Figure 3.6 and Figure 3.7 allows for an insight into which pre-existing structures are situated within the footprint of the existing buildings, and those that lie outside of the heavily disturbed areas.

The 1886 Sydney water plan indicates that the major part of 137 William Henry Street is situated beneath the Office Building and Engine Hall, and a section along the western side of the property may be beneath the Wran Building and the area outside of the Office Building. However, accounts of the removal of the house in c.1913 for the construction of the Tramway Instruction Room indicate the remains would be located to the west of the office building. Photographic evidence of the house at 137 William Henry Street demonstrate the former house was situated between the post office and the office building (Figure 2.10). This inconsistency in the documentary sources is not uncommon and demonstrates the need for careful and diligent investigation. The main house and greater part of the backyard would have been disturbed by the former Tramway Instruction Room Building (since removed) and then the later construction of the Wran Building in 1987 (see Figure 3.8). However, there is potential for some archaeology associated with the house, including foundations and underfloor deposits, to be extant in the empty space between the Office Building and the post office. There may also be some remains within the backyard, including yard surfaces, outbuildings, cesspits and rubbish pits beneath the Wran building foundations to the south (approximate extent of the property in Figure 3.8).

The house off Harris Street at 517, is within the footprint of the Boiler House and Turbine Hall and it is unlikely that there will be any surviving physical evidence following construction of the basements (see Figure 3.11).

The archaeology for the remaining houses off Harris Street at 519, 521 and 523 may be relatively undisturbed; it is possible that house foundations and underfloor deposits, yard surfaces, rubbish pits, outbuildings and cesspits are extant. The sites of these houses are located within the footprint of the cafe courtyard, with a small part of the 521 and 523 properties beneath the Switch House. The depth of the foundations and the presence of a basement cannot be ascertained from the plan of the Northern part of the Switch House (referred to as the South-East court) (Figure 3.11). It is possible that some part of these properties may be extant but likely in a disturbed state. Archaeology beneath the café courtyard may be assumed to be relatively undisturbed with good integrity.

The two houses at 554 and 556 Harris Street, demolished in 1922, and now within the footprint of the raised south-west forecourt and it is likely that the archaeological resources associated with these houses will be extant with good integrity.

Although various reclamations had been done around Darling Harbour from the 1820s until the 1860s, the evidence from the UTS site indicates that John Harris did not show an interest in improving his land and in fact, the reclamation of that site was not undertaken until 1884 (AMC, 2015:53-54). There is potential for surviving evidence of reclamation of the swamp to be present and also of evidence of the underlying swamp landscape, which may have been modified prior to erection of houses. Also, as found in the UTS site, it is possible that the physical evidence of earlier houses and perhaps of quarrying may be extant with good integrity beneath the reclamation (refer Figure 2.4 and Figure 2.5 above).

The potential archaeology associated with the houses; 154 and 156 Harris Street, off Harris Street at 519, 521 and 523, and 137 William Henry Street, and the local environment is likely to comprise:

- Evidence of the first land management and modification of the swamp, similar to that found at the UTS site, may be present beneath, or associated with the earliest structures on the site. Analysis of the soils and pollens will provide an insight into the original landscape and vegetation.
- Foundations and underfloor occupation deposits, containing artefacts of everyday life, associated with the group of early houses on the site.
- The houses were unlikely to have been connected to water or sewerage until the later nineteenth century and each house would have been dependent on a cess pit, which may contain artefacts associated with the life and work of the site. Analysis of the contents of cesspits may also provide information regarding diet.
- Gardens and rubbish pits associated with the early garbage disposal prior to the introduction of Council garbage removal.
- Post-holes demarcating outbuildings and fence lines.

Figure 3.7 Sydney Water 1886 U3 plan (see Figure 2.7 above) overlain on the current aerial of the Ultimo Powerhouse and Post Office site (https://maps.six.nsw.gov.au/).

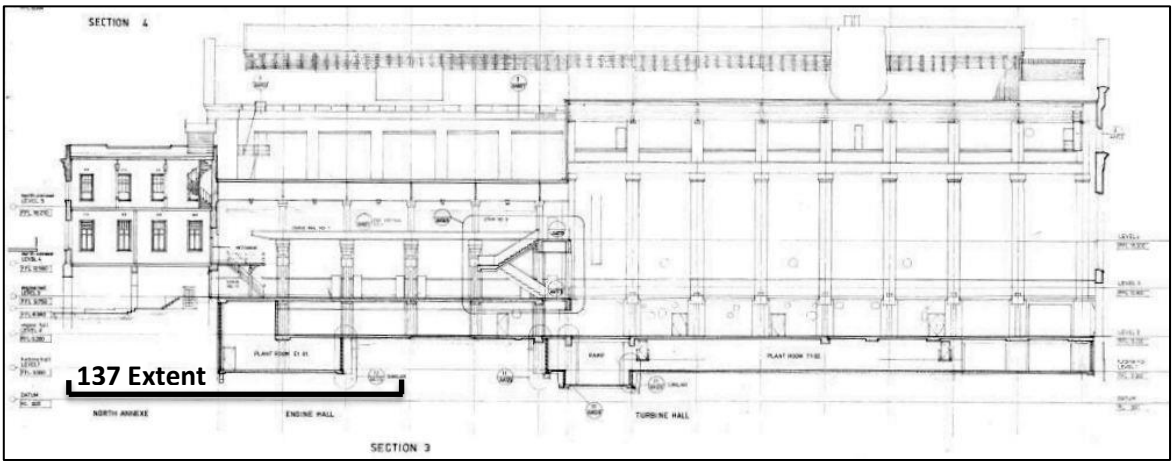

Figure 3.8 1984 MAAS Stage 2 Construction plan (Section 3) facing West, illustrating the basements beneath the North Annexe (the Office Building), the Engine Hall and the Turbine Hall (left to right). The basement of the Office Building is 4.28m and that of the Engine Hall is 6.75m at its deepest, and 2.48m in the shallower section. The approximate extent of 137 William Henry Street is marked.

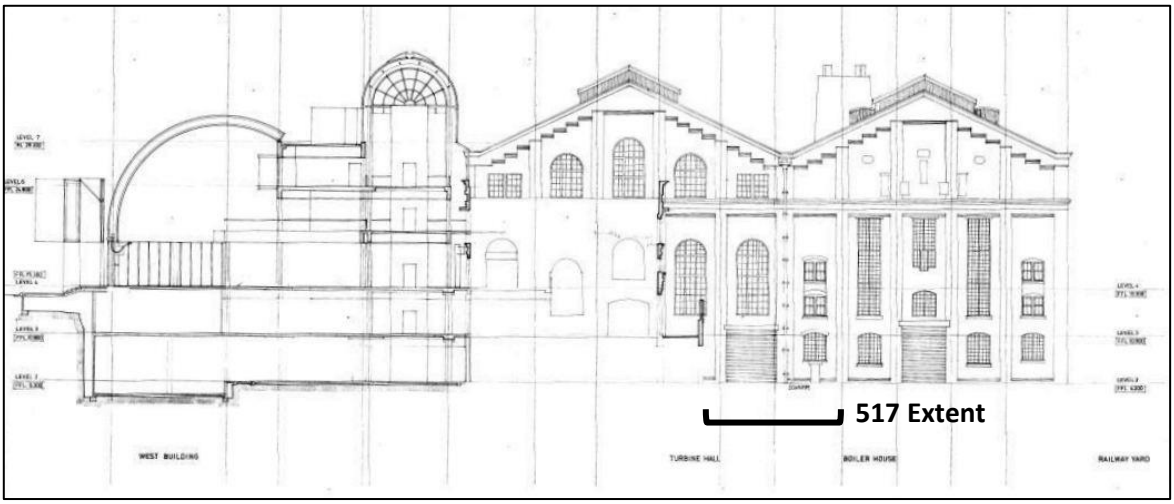

Figure 3.9 1984 MAAS Stage 2 Construction plan. Section 11 faces South, and illustrates the basements beneath the West Building (the Wran Building), the Turbine Hall and the Boiler House (left to right). The approximate extent of 517 off Harris Street has been marked.

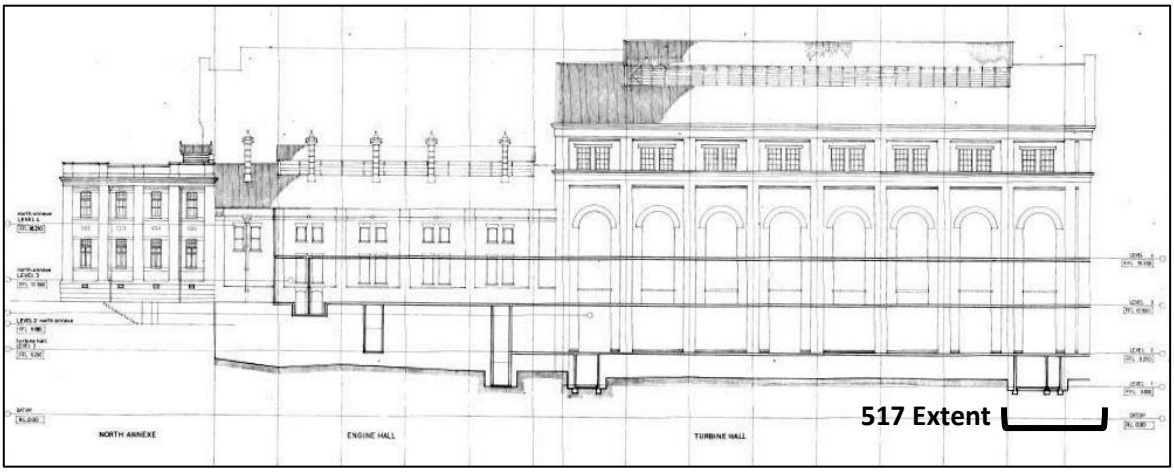

Figure 3.10 1984 MAAS Stage 2 Construction plan with the extent of 517 off Harris Street marked. Section 14 faces West and pictures the North Annexe, Engine Hall and Turbine Hall (left to right). The basement of the Turbine Hall is 3.2m deep. The approximate location has been marked.

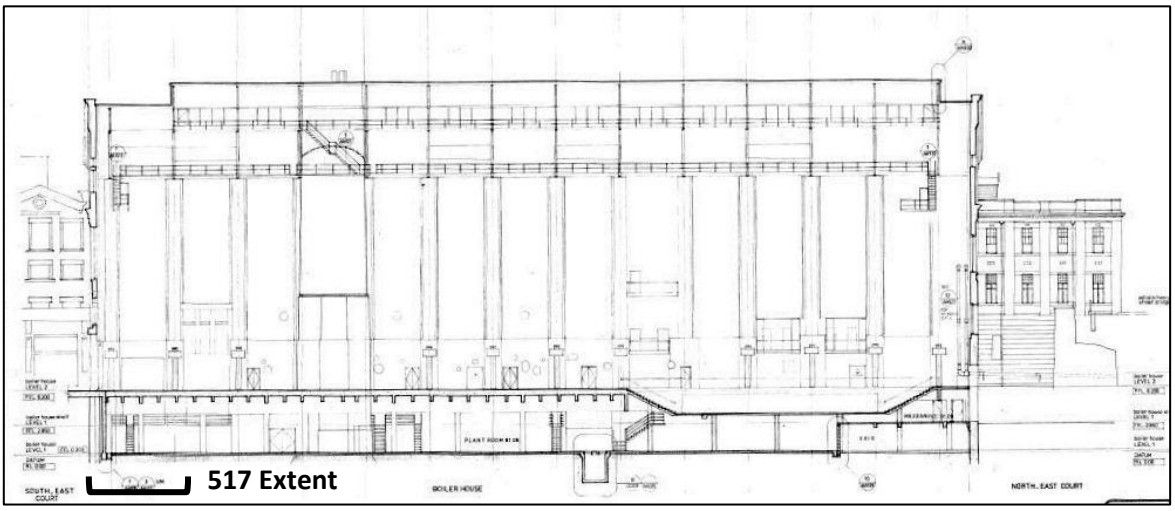

Figure 3.11 1984 MAAS Stage 2 Construction plan. Section 15 (bottom) faces East and depicts part of the Switch House, the Boiler House and North-East Court. The basement of the Boiler House is 6m deep. The approximate extent of 517 off Harris Street has been marked.

3.2.2 Block V3: Macarthur – Mary Ann Streets

The southern block of the study area encompasses the Ultimo Tram Depot which overlies the earlier stables associated with the Sydney Tramway & Omnibus and City Carrying Companies which in turn overlays brick and wooden houses representing earlier residential occupation of the study area (Figure 3.13, Figure 3.13 and

Figure 3.14).

Construction of inspection pits, in particular, associated with the electric trams and the subsequent redevelopment of the site for the Museum are likely to have destroyed, or significantly disturbed underlying archaeology within the footprint of the Tram Depot. As such it is unlikely that there will be surviving physical remains associated with the Sydney Tramway and Omnibus Company Stables, Feed Cutting Works, Edward Hanna's blacksmith and workshops and the earlier houses. However, although there may be some disturbance from the construction of the tramlines traversing the Tram Shed southern forecourt, there is potential for physical evidence associated with the City Carrying Company Stables and the earlier houses appearing on the Trigonometric Survey map to survive. As demonstrated in the overlays, there are two phases of occupation within the footprint of the Ultimo Tram Depo (Figure 3.12 – Figure 3.14). The physical evidence for the stables would likely include:

- Stone pavers over the floors
- Post-holes demarcating stables and walls
- Artefacts fallen between pavers or around walls which may provide an insight into the daily lives of the stables.

The physical evidence for the former houses would likely comprise:

- Evidence of the first land management and modification of the swamp may be present beneath, or associated with the earliest structures on the site. Analysis of the soils and pollens will provide an insight into the original landscape and vegetation.
- Foundations and underfloor occupation deposits, containing artefacts of everyday life, associated with the group of early houses on the site.
- The houses were unlikely to have been connected to water or sewerage until the later nineteenth century and each house would have been dependent on a cess pit, which may contain artefacts associated with the life and work of the site. Analysis of the contents of cesspits may also provide information regarding diet.

- Gardens and rubbish pits associated with the early garbage disposal prior to the introduction of Council garbage removal.
- Post-holes demarcating outbuildings and fence lines.

Figure 3.12 The 1886 Sydney Water V3 Plan overlaying an aerial of the study area.

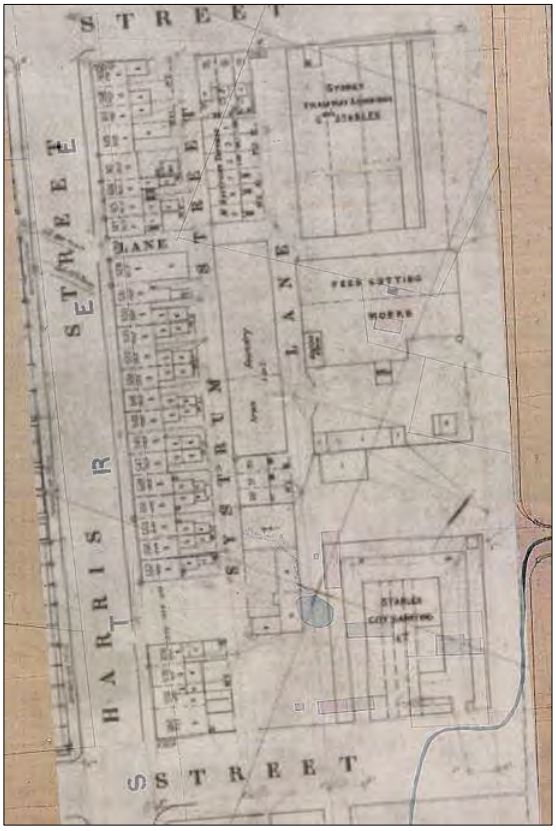

Figure 3.13 Detail from Figure 2.17, the 1886 Sydney Water V3 Plan overlaying a detail from Figure 2.5, the Trigonometrical Survey of Sydney, 1865.

Figure 3.14 Detail of the south eastern corner of the overlay of the 1865 Trigonometrical Survey and 1886 Sydney Water within the footprint of the City Carrying Co. stables. Note the construction materials are indicated: timber (grey), stone (yellow) and brick (pink).

3.3 Research Potential

The additional research undertaken to provide a detailed historical development of the Ultimo Creative Industries Precinct has contributed to a more comprehensive understanding of the extent, likely integrity and research potential of the northern and southern blocks of the study area. The archaeological resources with good integrity have the potential to contribute to an understanding of the development and social interactions within a discrete group of early houses. Analysis of archaeological excavations discussed above in Section 3.1, particularly the adjacent Bullecourt Place and 14-28 Ultimo Road sites, indicates that the archaeological resource in the study area has the potential to contribute to research themes associated with the development of Sydney's urban environment from the mid-nineteenth century (Figure 3.15).

The potential for artefact assemblages from the properties in the northern block of the study area that have been assessed as being relatively undisturbed and with good integrity; (519, 521 and 523 off Harris Street, 554 and 556 Harris Street and 137 William Henry Street). Excavation of these houses and may facilitate an insight into lives and working conditions during the second half of the nineteenth century. If physical remains of the City Carrying Company stables are present with good integrity then the archaeological resource is likely to contribute to an understanding of the local history and potentially contribute to research themes associated with the development of Sydney's urban environment. Should the remains of the City Carrying Co. stables be identified and have good integrity then it is likely that the remains of the former houses dating to the mid-nineteenth century are also present. If the archaeological integrity of these remains is good then there is the potential for this resource to contribute to research themes associated with the lives and working conditions during the second half of the nineteenth century.

It is possible that the remains of early cottages/houses similar to those exposed at the 14-28 Ultimo Road site will be extant. In addition, information regarding landscape modifications, such as managing the swampy environment would make an important contribution to an understanding of local settlement patterns. Questions to be considered might be why was the area so sparsely occupied and whether the site was reclaimed and if so when.

Figure 3.15 Aerial view of the Power House and Tram Sheds, 15 March 1932, glass negative taken by Baden H. Mullaney. The locations of the Bullecourt Place site, to the north of the Ultimo Creative Industries Precinct, and the 14-28 Ultimo Road sites, to the south, are indicated (http://nla.gov.au/nla.obj-161864278/view).

4 Archaeological Significance

The physical evidence of past activities is a valuable resource that is embodied in the fabric, setting, history and broader environment of an item, place or archaeological site. The above evaluation of the Ultimo Creative Industries Precinct has identified the potential for relatively intact archaeological resources. 'Cultural heritage significance' and 'heritage value' are terms used to express the tangible and intangible values of an item, place or archaeological site, and the response that it evokes in the community.

Archaeological resources can provide information regarding the daily and working life of a local area or a specific site that may not be available from other sources. An item will be considered to be of local (or State) significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the SHR criteria.

4.1 Assessment of Archaeological Significance

Historical archaeological relics assessed as having State or local significance should be managed under the 'relics' provisions of the *Heritage Act 1977*.

Criterion (a) an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area);

The archaeology of Blocks U3 and V3 is associated with housing established from the 1840s into the later nineteenth century. If present with good integrity, structural remains and artefact assemblages associated with early houses would have the potential to reveal information regarding social interactions of a small but developing community. If present with good integrity, the archaeological remains within the footprint of the Ultimo Power House and the Tram Shed would contribute to major research themes concerning early settlement patterns and may reach the threshold for state significance.

Physical evidence associated with the stables beneath the former Tram Shed forecourt may contribute information that will enhance information regarding the development of the local area. Such archaeological remains would have local significance.

Evidence of early modifications of the landscape to create a habitable environment which may be present would make an important contribution to research themes regarding the original landscape and processes of modification and change, including reclamation and quarrying. The significance of the archaeological resources lies in the ability to demonstrate an evolving natural and urban landscape and may meet the threshold for state significance.

Criterion (b) 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 local area);

Although the archaeological resources within the footprint of the Ultimo Creative Industries Precinct have an association with John Harris and the beginnings of omnibus services and the electrification of the tramways in Sydney, they would not make a significant contribution to an understanding of these events.

The threshold for inclusion against this criterion has not been met.

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

The archaeological resource of the study area is unlikely to demonstrate a high degree of creativity or technical achievement, that is not already available from other sources.

The threshold for inclusion against this criterion has not been met.

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

While no consultation has been undertaken with the local community in relation to the values of the archaeology, it is acknowledged that local communities are interested in the archaeology of their local area and its development. It is possible that the substantial and intact archaeology that is anticipated may have interest or value to the local community.

It is likely that if the public are made aware of the site archaeology through the media or an Open Day, community appreciation of the physical remains of their past will provoke considerable interest.

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

The archaeological resources within Block U3, the northern block, and Block V3, the southern block, have the potential to contribute to an understanding of landscape modifications and settlement within a likely swampy environment from the early- to mid-nineteenth century. Artefact assemblages associated with the houses have the potential to provide insight into living conditions, social interactions, occupations and gender. The 1865 Trigonometric Survey map shows a scatter of early houses across the entire site and the possible locations of quarries while the1886 Sydney Water map shows seven houses on the northern block and the Sydney Tramway & Omnibus Co. and City Carrying Co. stables. It has been assessed that there is potential for remains of some houses shown on the Trigonometric Survey map and the houses at 554 and 556 Harris Street, 521, 523 and 519 off Harris Street, 137 William Henry Street may be extant with good integrity within the northern site. There is also potential for remains of the four houses on the southern block beneath the and City Carrying Co. stables to be extant and with good integrity beneath the stables, physical evidence of which may also be extant. These resources, if present with good integrity, will provide an insight into the development of a local community from the 1840s, possibly together with evidence of early landscape modifications, which would contribute to important research themes regarding the early settlement and activities in Ultimo. If present with good integrity, the archaeology may meet the threshold for state significance.

Criterion (f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area);

The archaeology of the study area represents an opportunity to examine an archaeological resource that may provide an insight into the development and interactions of a local community. The artefact assemblage associated with houses and businesses dating from the 1840s to the late nineteenth century would make a contribution to an understanding of the early historical development of this urban environment. Evidence regarding early modifications of the landscape, which may have included early reclamation and quarrying, would contribute to an understanding of early land management practices, that are not currently well known. Substantial archaeological remains providing information regarding living conditions, social interactions, occupations and

gender as well as evidence of modifications of the natural landscape may meet the threshold for state significance.

Criterion (g) 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 the local area).

Physical remains of 1840s houses and associated underfloor deposits, cesspits and outbuildings would be comparable with the archaeological resources from those sites excavated within the local vicinity and would provide an insight into the social interactions of the community. Additionally, the archaeological remains of the stables will offer an understanding of the operation of the City Carrying Company.

Under this criterion, any substantive archaeological remains with good integrity within the study area would have state significance.

4.2 Statement of Archaeological Significance

The potential archaeological resources of the Ultimo Creative Industries Precinct encompassing the Ultimo Power House and Tram Depot have the potential to provide information that will contribute to important research themes and understanding of the historical settlement from the 1840s of a small but developing community. Potential evidence of the processes of landscape modifications prior to and following the construction of housing in the 1840s may also make a contribution to early site formation processes and to form a habitable environment within a swamp.

Physical evidence of houses, as well as artefact assemblages from underfloor deposits, cesspits, and rubbish pits may have the potential to provide an insight into living conditions, social interactions, occupations and gender. Evidence from the archaeological resource of the northern site, such as personal and domestic artefacts, has the potential to be compared with the assemblages from sites within the local vicinity and beyond, to contribute to addressing research questions relating to urbanisation, material culture, consumerism, identity, and social interactions within this local vicinity.

The potential archaeological resource within the UCIP, if present with good integrity, is likely to have a high level of research potential and may meet the threshold for state significance.

5 Managing the Archaeological Resource

If present with good integrity, the archaeological resources within the footprint of the Ultimo Creative Industries Precinct have been assessed as having local and may meet the requirements for state significance and as such should be managed in accordance with the requirements of the *Heritage Act 1977*.

It is understood that concepts for the future use and configuration of the Precinct are at an early stage and that there are no proposals to excavate beneath the current ground or basement levels with the exception of the Harris Street south site. Retention of archaeological resources in situ where it can contribute to future, new research questions, is the preferred management strategy.

However, should excavation ultimately be required within any of the areas identified as being archaeologically sensitive, an application for an Excavation Permit under Section 140 of the *Heritage Act 1977* must be lodged with the Heritage Council of NSW. The application will need to include a Research Design which includes the information contained in this report as well as detailed research questions, excavation methodology and excavation director, who will comply with the Heritage Council Excavation Director Assessment Criteria for a state significant historical archaeological site.

Figure 5.1 Aerial with overlay of the Sydney Water 1886 plan of Block U3 (left) and the plan of Block V3 (right) with areas of potentially state significant archaeological sensitivity shaded red. It should be noted that the archaeological resource in Block V3 relating to the City Carrying Co. has the potential to be locally significant; however, should physical evidence of the earlier houses be revealed within the footprint of the former stables this resource is assessed as state significant (refer to Figure 2.7, Figure 2.17, Figure 3.13 and Figure 3.14 above).

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Appendix A

Tabulated Sands Directory and City of Sydney Rates Assessment Books Information 1845-1948

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1845 Rates Assessment	Ultimo Thomas Halloran (owner John Harris), wattle hut, barked roof, 1 floor, 2 rooms, £10 (1acre ground and detached room)				
1848 Rates Assessment	2130, Ultimo Thomas Halloran (owner Mrs Harris), wood house, bark roof, 1 floor, 2 rooms, £8				
1855 Rates Assessment	Ultimo Road Thomas Halloran (owner Mrs Harris), cornfield, plaster house, shingled roof, 1 floor, 3 rooms, £40 Ultimo Rd Nr Harris St John Gorman (owner Mrs Harris), stone house & ground, shingled roof, 1 floor, 2 rooms, £50				
1856 Rates Assessment	Near Harris St Thomas Halloran (owner Mrs Harris), cornfield, plaster house, shingled roof, 1 floor, 3 rooms, £40 (Near) Harris St John Gorman (owner Mrs Harris), stone house & ground, shingled roof, 1 floor, 2 rooms, £50				
1858 Sands/Rates Assessment	32 Harris St Edward Quinn (owner O Halloran), wood house, iron roof, 1 floor, 2 rooms 34 Harris St John Gorman, stone house, iron roof, 1 floor, 4 rooms.				
1861 Rates Assessment	34 (off) Harris St John Gorman, stone house, shingled roof, 1 floor, 6 rooms, £36 36 (off) Harris St Martin Brown (owner Mrs Harris), stone house, shingled roof, 1 floor, 2 rooms, £12				
1863 Sands/Rates Assessment	John Gorman (owner George Harris), brick house, shingled roof, 1 floor, 4 rooms, £26 – in good repair				
1864 Sands	Ultimo John Gorman, dairy				

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1865-1866 Sands	Ultimo John Gorman, dairyman Martin Brown, milkman				
1867 Sands/Rates Assessment	Harris St – east side 326 Thomas Maher (owner George Harris), brick house, shingled roof, 1 floor, 3 rooms, £17 328 Mrs Margaret O'Halloran, dairy (owner George Harris), stone house, shingled roof, 1 floor, 3 rooms, £17 Vacant land 332 John Gorman, dairyman (owner George Harris), wood & stone house, iron & shingled roof, 1 floor, 6 rooms, £40 Vacant land 340/342 Martin Brown (owner George Harris), wood & stone house, iron roof, 1 floor, 3 rooms, £17. Cow house and stable				
1868 Sands	Harris St – east side 326 Thomas Maher, drayman 328 Mrs Margaret O'Halloran Vacant land John Gorman, drayman Vacant land Halley Henderson Alexander Grierson				
1870 Sands	Harris St – east side 326 Thomas Maher 328 Mrs O'Halloran Thomas Williams				

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
	Halley Henderson James Wood, brickmaker 380 Martin Brown, dairyman				
1871 Sands/Rates Assessment	Harris St – east side Off Harris St Thomas Maher, drayman (owner George Harris), stone house, shingled roof, 1 floor, 2 rooms, £12 Off Harris St Mrs O'Halloran (owner George Harris), wood house, shingled roof, 1 floor, 2 rooms, £16 Off Harris St C O'Keeffe (owner George Harris), brick house, iron roof, 1 floor, 4 rooms, £20 1 off 474 Harris St Empty (owner George Harris), wood house, shingled roof, 1 floor, 4 rooms, £20 2 off 474 Harris St Empty (owner George Harris), wood house, shingled roof, 1 floor, 5 rooms, £22 3 off 474 Harris St Martin Brown, dairyman (owner George Harris), stone house, iron roof, 1 floor, 2 rooms, £16			472 William Henry Harris (owner Miss Harris), brick house, shingled roof, 1 floor, 6 rooms, £40 474 William Cope (owner Miss Harris), brick house, shingled roof, 1 floor, 6 rooms, £40	4 off 474 Harris St John Woods (owner George Harris), wood warehouse, wood roof, 2 floors, 4 rooms, £40
1873 Sands	Harris St – east side John Godfrey Drinkwater			William Harris William Cope	Harris St – east side Sydney United Omnibus Company John Free
1875 Sands	Harris St – east side 352 John Godfrey Drinkwater Vacant land William Pierce, stonemason William Sinclair Henry Haste, engineer John Riley, drayman	Harris St – east side Thomas Bladen, ironmoulder		Harris St – east side 370 William Houston, grocer 372 David Taylor, clerk	Harris St – east side 374 John Free 376 Sydney United Omnibus Company 378 Edward Hanna, blacksmith
1876 Sands	Harris St – north side Mrs Caroline Drinkwater	Harris St – north side Thomas Bladen, iron smelter		Harris St – north side P.J. Duffy, wharfinger	Harris St – north side Vacant land

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
				Vacant land	Charles Hunt Sydney United Omnibus Co.'s stables
1877 Sands/Rates Assessment	Harris St – east side Off Harris St J.G./Mrs Caroline Drinkwater (owner Harris family), brick & stone house, iron roof, 1 floor, 5 rooms, £22 Off Harris St Thomas Maher, drayman (owner Harris family), brick & wood house, iron roof, 1 floor, 4 rooms, £13 Off Harris St Thomas O'Halloran (owner Harris family), brick & wood house, shingled roof, 1 floor, 3 rooms, £13 Off Harris St William Pierce, miller (owner Harris family), brick & stone house, shingled roof, 1 floor, 4 rooms, £26 Off Harris St Robert Reilly/Rielly, draper (owner Harris family), brick & stone house, shingled roof, 1 floor, 4 rooms, £26 Off Harris St Henry Haste, engineer (owner Harris family), brick & stone house, iron roof, 1 floor, 4 rooms, £26 Pyrmont St/Off Harris St John Rielly (owner Harris family), brick & stone house, shingled roof, 1 floor, 4 rooms, £26 Off Harris St Martin Brown, dairyman (owner Harris family), brick & stone house, iron & shingled roof, 1 floor, 2 rooms, £30	William Henry St/Off Harris St Thomas Bladen, ironmoulder (owner Harris family), brick & stone house, shingled roof, 2 floors, 8 rooms, £52		Harris St – east side 474 Mrs Mott (owner Harris family), brick & stone house, shingled roof, 1 floor, 4 rooms, £40 472 P.J. Duffy, wharfinger (owner Harris family), brick & stone house, shingled roof, 1 floor, 4 rooms, £40	Harris St – east side Charles Hunt off Harris St Thomas Hales (owner John Harris)/S.U. Omnibus Co stables, stalls for 200 horses, brick & wood house & stables, iron roof, £300 Edward Hanna, blacksmith
1879 Sands	Pyrmont St (William Henry St to Macarthur St) Thomas Maher, drayman Thomas O'Halloran, drayman William Pierce, miller Robert Reilly, draper Henry Haste, engineer Michael Brown	Thomas Bladen, engineer	Vacant land	Michael O'Connor Vacant land Peter J Duffy John Lowe, cabman	Pyrmont St (William Henry St to Macarthur St) Thomas Maher, drayman Thomas O'Halloran, drayman William Pierce, miller Robert Reilly, draper Henry Haste, engineer

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
	Martin Brown, dairyman				Michael Brown Martin Brown, dairyman
1880 Sands/Rates Assessment	Off William Henry St Thomas Maher, drayman (owner Harris estate), brick house, iron roof, 1 floor, 4 rooms, £15 Margaret O'Hallaran (owner Harris estate), stone house, iron roof, 1 floor, 3 rooms, £20 Pyrmont St South – west side Vacant land 1 off 506 Harris St William Pierce, miller (owner Miss Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 2 off 506 Harris St Robert Reilly/Riley (owner Miss Margaret Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 2 off 506 Harris St Robert Ware/ Henry Haste (owner Miss Harris), wood house, iron roof, 1 floor, 5 rooms, £26 1 off 520 Harris St Michael Brown, dray owner (owner Miss Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 2 off 520 Harris St Martin Brown, dairyman (owner Miss Harris), wood house, iron roof, 1 floor, 4 rooms, £26	Thomas Bladen, iron manufacturer (owner Mr Harris), wood house, shingled roof, 2 floors, 6 rooms, £60	Vacant land	506 Michael O'Connor, dray owner (owner Miss Harris), brick house, iron roof, 1 floor, 4 rooms, £26 Vacant land 518 John Colquhoun, gardener / Margaret Duffy (owner Miss Harris), brick house, shingled roof, 2 floors, 6 rooms, £45 520 John Lowe, cab owner (owner Miss Harris), brick house, shingled roof, 1 floor, 4 rooms, £45	Pyrmont St South – west side / Harris St 540 Harris St William Townsend (owner John Woods), wood house, iron roof, 1 floor, 4 rooms, £36 542 Harris St J Woods & Co.'s Depot, iron store, iron roof, 1 floor, 1 room, £40 3 off 520 Harris St Winifred Travers/S.U. Omnibus Co, wood stables, iron roof, 1 floor, 2 rooms, £200 1 off 542 Harris St Winifred Travers/S.U. Omnibus Co, brick chaff store, iron roof, 1 floor, 6 rooms; iron New Forge, iron roof, 1 floor, 1 room; wood Old Forge, shingled roof, 1 floor, 1 room; £289 [note says "pulled down"] Off 542 Harris St Edward Hanna, farrier etc (owner Harris estate/John Woods), iron farrier's shop, iron roof, 1 floor, 1 room, £24 Vacant land
1882 Sands/Rates Assessment	501 Pyrmont St William Pierce (owner Miss Margaret Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 503 Pyrmont St	William Carroll, butcher (owner Margaret Harris), wood house, shingled roof, 2 floors, 7 rooms, £52	Miss Margaret Harris, land (400 feet)	518 John Grant (owner Miss Harris), brick house, shingled roof, 1 floor, 4 rooms, £44	Pyrmont St – west side / off Harris St Thomas Hales/Bus Company (S.U. Omnibus

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
	Robert Reilly/Riley (owner Miss Margaret Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 505 Pyrmont St John Port/Michael Leo (owner Miss Margaret Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 505 Pyrmont St Michael Brown (owner Miss Margaret Harris), wood house, shingled roof, 1 floor, 4 rooms, £26 Miss Margaret Harris, land			520 John Lowe, cab proprietor (owner Miss Harris), brick house, shingled roof, 1 floor, 4 rooms, £45 Miss Margaret Harris, land (20 feet)	Company), iron stables, iron roof, 2 floors, 7 rooms, £260 Edward Hannah, brick workshop, iron house & stables, iron roof, 1 floor, 1 room, £26
1883 Sands	Pyrmont St – west side William Pierce Robert Reilly Matthew Leo, carrier Michael Brown	William Carroll, butcher		518 John Grant, contractor 520 John Lowe, cabman	Pyrmont St – west side Omnibus Company's stables
1884 Sands	Pyrmont St – west side William Pierce Robert Reilly Jacob Sargeant J Webber	William Carroll, butcher		518 John Grant, contractor 520 John Lowe, cabman	Sydney United Omnibus Company's stables
1885 Sands	Pyrmont St – west side George Smith Michael Flood August Webber Samuel Polglase, miner George Dodd Charles Stewart John Brown	William Carroll, butcher		John Grant, contractor John Lowe	City Carrying Co.'s stables [N.B. Omnibus Co.'s stables is listed here in Pyrmont St – west side]
1886 Sands		William Carroll, butcher		518 John Grant, contractor 520 John Lowe, cab proprietor	City Carrying Co.'s stables [N.B. Sydney Tramway and Omnibus Company's stables is listed here in Pyrmont St – west side]
1887 Sands		William Carroll, butcher		518 Mrs C Sampson, music teacher 520	Sydney Tramway and Omnibus Company's stables

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
				John Lowe, cab proprietor	
1887-1889 Sands		William Carroll, butcher		492 Miss M O'Leary, storekeeper 518 David Sampson, butcher 520 John Lowe, cab proprietor	Sydney Tramway and Omnibus Company's stables
1890 Sands		William McCaffrey, drayman		554 David Sampson, butcher 556 John Lowe, cab proprietor	
1891 Sands/Rates Assessment	517 Pyrmont St P O'Hallaran (owner Miss Harris), wood house, shingled roof, 1 floor, 4 rooms, £31 519 Pyrmont St T McCarthy (owner Miss Harris), wood house, shingled roof, 1 floor, 4 rooms, £31 521 Pyrmont St L Davey (owner Miss Harris), wood house, iron roof, 1 floor, 5 rooms, £31 523 (off) Pyrmont St M Brown (owner Miss Harris), wood house, iron roof, 1 floor, 4 rooms, £26	William McCaffrey (owner Miss Harris), wood house, shingle roof, 1 floor, 7 rooms, £52	Miss Harris, land, £774	554 Thomas Fitzgerald, van proprietor (owner Miss Harris), brick house & stables, iron roof, 1 floor, 6 rooms, £52 556 John Lowe, cab proprietor (owner Miss Harris), brick house, iron roof, 1 floor, 6 rooms, £44 Miss Harris, land, £72	535-577 Pyrmont St John Woods/Sydney Bus Company, iron house & stables, iron roof, 1 floor, 4 rooms, £770
1891-1894 Sands		William McCaffrey		554 Thomas Fitzgerald, van proprietor 556 John Lowe, cab proprietor	
1895 Sands		William McCaffrey		556 John Lowe, cab proprietor	Sydney Tramway and Omnibus Company's stables
1896 Sands/Rates Assessment		William McCaffrey (owner Margaret Harris), house & stables	Miss M Harris, land, £312	554 Mrs Mary Black / Mrs Agnes Dooley (owner Miss M Harris), brick house & stable, iron roof, 1 floor, 6 rooms, £41 556	Sydney Tramway and Omnibus Company, wood stables & stores, iron roof, 2 floors, 4 rooms, £600

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
				John Lowe, cab proprietor (owner Miss M Harris), brick house & stable, iron roof, 1 floor, 6 rooms, £41 Miss M Harris, land, £40	
1897-1899 Sands		Mrs Henrietta Meikle James O'Grady, butcher		554 Mrs M Black Mrs Agnes Dooley 556 John Lowe, cab proprietor	Sydney Tramway and Omnibus Company's stables
1900 Sands	Electric power station	Thomas Love		554 Mrs M Black Mrs Agnes Dooley 556 John Lowe, cab proprietor	Electric tram powerhouse
1901 Sands/Rates Assessment		Thomas Love / William McCaffrey (owner Margaret Harris), house & stables, £35	Miss M Harris, land (Block 23), £270	554 Mrs Mary Black / Mrs Agnes Dooley (owner Miss M Harris), house/stable, £33 556 John Lowe, cab proprietor (owner Miss M Harris), house/stable, £33 Miss M Harris, land (part Block 23), £34	
1902-1903 Sands	NSW Government Railway Commissioner Electric power station		Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd 554 Mrs M Black 556 John Lowe	Electric tram traffic office
1904-1905 Sands	Electric power station	George Taylor	Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd 554 Mrs M Black	Electric tram traffic office

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
				556 John Lowe	
1906-1908 **Sands**	Electric power station	Charles Lacey	Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse Wright Sheard, fuel merchant 554 Mrs M Black 556 John Lowe	Electric tram traffic office and car sheds
1909 **Sands**	Electric power station	Charles Lacey	Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse Wright Sheard, fuel merchant 554 Mrs M Black 556 John Lowe [N.B. 554 and 556 are noted as being south of Macarthur St in this year]	Electric tram traffic office and car sheds
1910 **Sands**	NSW Government Railway Commissioner Electric power station	Charles Lacey	Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse Wright Sheard, fuel merchant 554 Mrs M Black Mrs Agnes Dooley 556 Miss L Lowe	Electric tram traffic office and car sheds

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1911 Sands/Rates Assessment	NSW Government Australian Gaslight Company brick Tramway Power House, iron roof, 2 floors, 4 rooms, £9,388	Charles Lacey (owner Margaret Harris), wood house, iron roof, 1 floor, 8 rooms, £31	The Commonwealth of the Govt, Ultimo Post and Telegraph Office, brick, tiled roof, 1 floor, 2 rooms, £78	496-504 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), stone offices & workshop, 2 floors, 2 rooms, £464 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), land, £112 Wright Sheard, fuel merchant (owner Margaret Harris), wooden wood and coal yard, iron roof, 1 floor, 1 room, £66 554 Mrs M Black / Mrs Agnes Dooley (owner Margaret Harris), brick house, iron roof, 1 floor, 6 rooms, £39 556 John Connolly (owner Margaret Harris), brick house, iron roof, 1 floor, 6 rooms, £39 Govt of NSW Railway Commissioners (owner Margaret Harris), land, £48	Govt of NSW (Railway Commissioners) electric tram traffic office and car sheds. Brick tram depot, iron roof, 1 floor, 1 room, £2777
1912-1913 Sands	Electric power station	Charles Lacey	Ultimo Post and Telegraph Office	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse Wright Sheard, fuel merchant 554 John Black Mrs Agnes Dooley 556 John Connolly	Electric tram traffic office and car sheds

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1914 Sands/Rates Assessment	NSW Railway Commissioners brick Tramway Instruction Room, tiled roof, 1 floor, 1 room, £78 NSW Railway Commissioners brick Power House, iron roof, £9,388	Federal Govt, Ultimo Post and Telegraph Office, brick, slate roof, 1 floor, 1 room, £78 [N.B. Commonwealth Savings Bank noted here as well, on William Henry St]	496-504 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), brick works & offices, iron roof, 1 floor, 2 rooms, £464 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), land, £135 Wright Sheard, fuel merchant (owner Margaret Harris), wooden wood and coal yard, iron roof, 1 floor, 1 room, £59 554 John Black / Leo O'Connor / Mrs Agnes Dooley (owner Margaret Harris), brick cottage, iron roof, 1 floor, 6 rooms, £41 556 John Connolly (owner Margaret Harris), brick cottage, iron roof, 1 floor, 6 rooms, £41 Railway Commissioners iron workshop, iron roof, 1 floor, 1 room, £52	Railway Commissioner electric tram traffic office and car sheds. Brick tram depot, iron roof, 1 floor, 3 rooms, £2777	NSW Railway Commissioners brick Tramway Instruction Room, tiled roof, 1 floor, 1 room, £78 NSW Railway Commissioners brick Power House, iron roof, £9,388
1915-1917 Sands	Electric power station Tramway Instruction Room	Ultimo Post and Telegraph Office [N.B. Commonwealth Savings Bank noted here as on William Henry St]	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse	Electric tram traffic office and car sheds	Electric power station Tramway Instruction Room

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
			Wright Sheard, fuel merchant 554 John Black Mrs Agnes Dooley 556 William Houston		
1918 Sands/Rates Assessment	NSW Govt Railway Commissioners brick Tramway Rooms, iron roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, iron roof, 1 floor, £9,388	Federal Govt, Ultimo Post and Telegraph Office, brick & stone, slate roof, 1 floor, 1 room, £78	496-504 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), brick works & offices, iron roof, 1 floor, 2 rooms, £416 Margaret Harris, land, £135 Harry/Henry Chapman, fuel merchant (owner Margaret Harris), wood woodyard & stables, iron roof, 1 floor, 1 room, £58 554 Mrs Agnes Dooley (owner Maurice Newstadt), brick cottage, iron roof, 1 floor, 6 rooms, £41 556 William Housten / Mrs Annie Houston (owner Maurice Newstadt), brick cottage, iron roof, 1 floor, 6 rooms, £41 Maurice Newstadt, land, £80	NSW Govt Railway Commissioners electric tram traffic office and car shed. Brick tram depot, iron roof, 1 floor, 3 rooms, £2777	NSW Govt Railway Commissioners brick Tramway Rooms, iron roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, iron roof, 1 floor, £9,388

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1919-1920 Sands	Tramway Instruction Room Electric power station	Ultimo Post and Telegraph Office and Commonwealth Savings Bank	496-504 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways, powerhouse Harry Chapman, fuel merchant 554 Mrs Agnes Dooley 556 James Clapson	Electric tram traffic office and car shed	Tramway Instruction Room Electric power station
1921 Sands/Rates Assessment	NSW Govt Railway Commissioners brick Tramway Room, malthoid roof, 1 floor, £78 NSW Govt Railway Commissioners brick Power House, iron roof, £9,388	Federal Govt, Ultimo Post and Telegraph Office and Commonwealth Savings Bank, brick, slate roof, 1 floor, 1 room, £78	496-550 The Sydney Glass & Tile Co Ltd (owner Margaret Harris), brick works & offices, iron roof, 1 floor, 1 room, £780 Margaret Harris, land, £158 Harry Chapman, fuel merchant (owner Margaret Harris), yard & stables, £104 554 Mrs Agnes Dooley (owner Maurice Newstadt), brick cottage, iron roof, 1 floor, 6 rooms, £46 556 James Clapson (owner Maurice Newstadt), brick cottage, iron roof, 1 floor, 6 rooms, £46 Maurice Newstadt, land, £80	NSW Railway Commissioners electric tram traffic office and car shed. Brick tram depot, iron roof, 1 floor, £2777	NSW Govt Railway Commissioners brick Tramway Room, malthoid roof, 1 floor, £78 NSW Govt Railway Commissioners brick Power House, iron roof, £9,388

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1922 Sands	Tramway Instruction Room Electric power station	Ultimo Post and Telegraph Office and Commonwealth Savings Bank	496-550 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways power-house Harry Chapman, fuel merchant 554 Mrs Agnes Dooley 556 James Clapson	Electric tram traffic office and car shed	Tramway Instruction Room Electric power station
1923 Sands	Tramway Instruction Room Electric power station	Ultimo Post and Telegraph Office and Commonwealth Savings Bank	496-550 The Sydney Glass & Tile Co Ltd NSW Govt Electric Tramways power-house Harry Chapman, fuel merchant	Electric tram traffic office and car shed	Tramway Instruction Room Electric power station
1924-1925 Sands/Rates Assessment	Railway Commissioner brick Tramway Room, iron roof, 1 floor, 1 room, £78 Railway Commissioner brick Power House, iron roof, 1 floor, 1 room, £9,388	Federal Govt, Ultimo Post and Telegraph Office and Commonwealth Savings Bank, brick, slate roof, 1 floor, £78	496-550 The Sydney Glass Co Ltd brick & wood factory office, offices & yard, iron roof, 1 floor, £780 Sydney Glass Co Ltd, land, £180 Harry Chapman, fuel merchant (owner Sydney Glass Co Ltd), offices & yard, £104 Public weighbridge, No.552 Maurice Newstead, land, £200	Railway Commissioner NSW electric tram traffic office and car shed. Brick tram depot, iron roof, 1 floor, 3 rooms, £2777	Railway Commissioner brick Tramway Room, iron roof, 1 floor, 1 room, £78 Railway Commissioner brick Power House, iron roof, 1 floor, 1 room, £9,388

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
1927 Sands/Rates Assessment	The Crown, brick Tramway Room, malthoid roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, malthoid roof, 2 floors, £9,388	Commonwealth Government, Ultimo Post and Telegraph Office and Commonwealth Savings Bank, brick, iron roof, 1 floor, 1 room, £78	496-550 Sydney Glass Co Ltd, brick factory, iron roof, 1 floor & basement, 2 rooms, £780 Sydney Glass Co Ltd, land, £225 552 Harry Chapman (owner Sydney Glass Co Ltd), fuel merchant, brick wood and coal yard, iron roof, 1 floor, 1 room, £104 Public weighbridge, No. 31, brick shed and weighbridge Maurice Newstead, land, £257	NSW Gov electric tram traffic office and car shed. Brick tram depot, iron roof, 1 floor, 3 rooms, £2777	The Crown, brick Tramway Room, malthoid roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, malthoid roof, 2 floors, £9,388
1930 Sands/Rates Assessment	NSW Govt, brick Tramway Room, slate roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, malthoid roof, 2 floors, £9,388	Post Master General's Dept, Commonwealth Government, Ultimo Post and Telegraph Office and Commonwealth Savings Bank, brick, slate roof, 1 floor, 1 room, £78	496-504 Sydney Glass Co Ltd, brick factory, office & sheds, iron roof, 2 floors, 3 rooms, £780 Sydney Glass Co Ltd, land, £563 Maurice Newstead, land, £257	NSW Gov Tramways electric tram traffic office and car shed. Brick tram depot, iron roof, 1 floor, £2777	NSW Govt, brick Tramway Room, slate roof, 1 floor, 1 room, £78 NSW Govt Railway Commissioners brick Power House, malthoid roof, 2 floors, £9,388
1932 Sands/Rates Assessment	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room, £77 NSW Govt Railway Commissioner brick Power House, malthoid roof, 2 floors, 2 rooms, £9,388	Post Master General's Dept, Commonwealth Government, Ultimo Post and Telegraph Office and Commonwealth Savings Bank, brick, slate roof, 1 floor, 1 room, £78	496-504 Sydney Glass Co Ltd brick factory & offices, iron roof, 2 floors, 3 rooms, £702 506-550 Sydney Glass Co Ltd, land, £450 552-560	NSW Gov Metropolitan Transport Trust electric tram traffic office and car shed. Brick depot, sheds & offices, iron roof, 1 floor, 1 room, £2777	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room, £77 NSW Govt Railway Commissioner brick Power House, malthoid roof, 2 floors, 2 rooms, £9,388

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
			Maurice Newstead, land, £198		
1933 Rates Assessment	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room NSW Govt Railway Commissioner brick Power House, iron roof, 2 floors, 2 rooms	Post Master General's Dept, Commonwealth Government, brick Post Office, slate roof, 1 floor, 1 room	496-504 Sydney Glass Co Pty Ltd brick factory & office, iron roof, 2 floors, 3 rooms, £585 506-550 Sydney Glass Co Pty Ltd, land, £395 552-560 Maize Products Pty Ltd, brick warehouse, cement sheets roof, 1 floor & basement, 2 rooms, £935	NSW Gov Transport Commissioners brick shed, offices & depot, iron roof, 1 floor	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room NSW Govt Railway Commissioner brick Power House, iron roof, 2 floors, 2 rooms
1939 Rates Assessment	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room NSW Govt Railway Commissioner brick Power House, iron roof, 2 floors, 2 rooms	Post Master General's Dept, Commonwealth Government, brick Post Office, slate roof, 1 floor, 1 room	496-504 Sydney Glass Co Pty Ltd brick factory & office, iron roof, 2 floors, 3 rooms, £585 506-550 Sydney Glass Co Pty Ltd, land, £395 552-560 Maize Products Pty Ltd, brick warehouse, cement sheets roof, 1 floor & basement, 2 rooms, £935	NSW Gov Transport Commissioners/ Dept of Road Transport & Tramways brick shed, offices & depot, iron roof, 1 floor	NSW Govt Railway Commissioner brick Tramway Room, slate roof, 1 floor, 1 room NSW Govt Railway Commissioner brick Power House, iron roof, 2 floors, 2 rooms
1945 Rates Assessment	NSW Govt Railway Commissioner Tramway Room NSW Govt Railway Commissioner Power House	Commonwealth Government, brick Post Office, slate roof, 1 floor, 1 room, £78	496-504 Sydney Glass Co Pty Ltd brick factory & offices, iron roof, 2 floors, 3 rooms, £585 506-550	NSW Gov Dept of Road Transport & Tramways brick shed, offices & depot, iron roof, 1 floor, 1 room	NSW Govt Railway Commissioner Tramway Room NSW Govt Railway Commissioner Power House

Year & Source	William Henry Street (east end, next to railway line)	137 William Henry Street	494 Harris Street	496-560 Harris Street	84 Mary Ann Street
			Sydney Glass Co Pty Ltd, land, £395 552-560 Maize Products Pty Ltd, brick warehouse, cement sheets roof, 1 floor & basement, 2 rooms, £935		
1948 Rates Assessment	NSW Govt Railway Commissioner Tramway Room NSW Govt Railway Commissioner Power House	Brick Post Office, slate roof, 1 floor, 1 room	496-504 Sydney Glass Co Pty Ltd brick factory & offices, iron roof, 2 floors + basement, 3 + 5 rooms, £585 506-542 Sydney Glass Co Pty Ltd, land, £413 544-550 Sydney Glass Co Pty Ltd (owner NSW Govt Railway Commissioner), land, £150 552-560 Maize Products Pty Ltd, brick warehouse, cement sheets roof, 1 floor & basement, 2 rooms, £935	NSW Gov Dept of Road Transport & Tramways brick shed, offices & depot, iron roof, 1 floor, 1 room	NSW Govt Railway Commissioner Tramway Room NSW Govt Railway Commissioner Power House

APPENDIX D
Evolution of the Powerhouse Site (Maps by Design 5 Architects)

APPENDIX D—Evolution of the Powerhouse Site (Maps by Design 5 Architects)

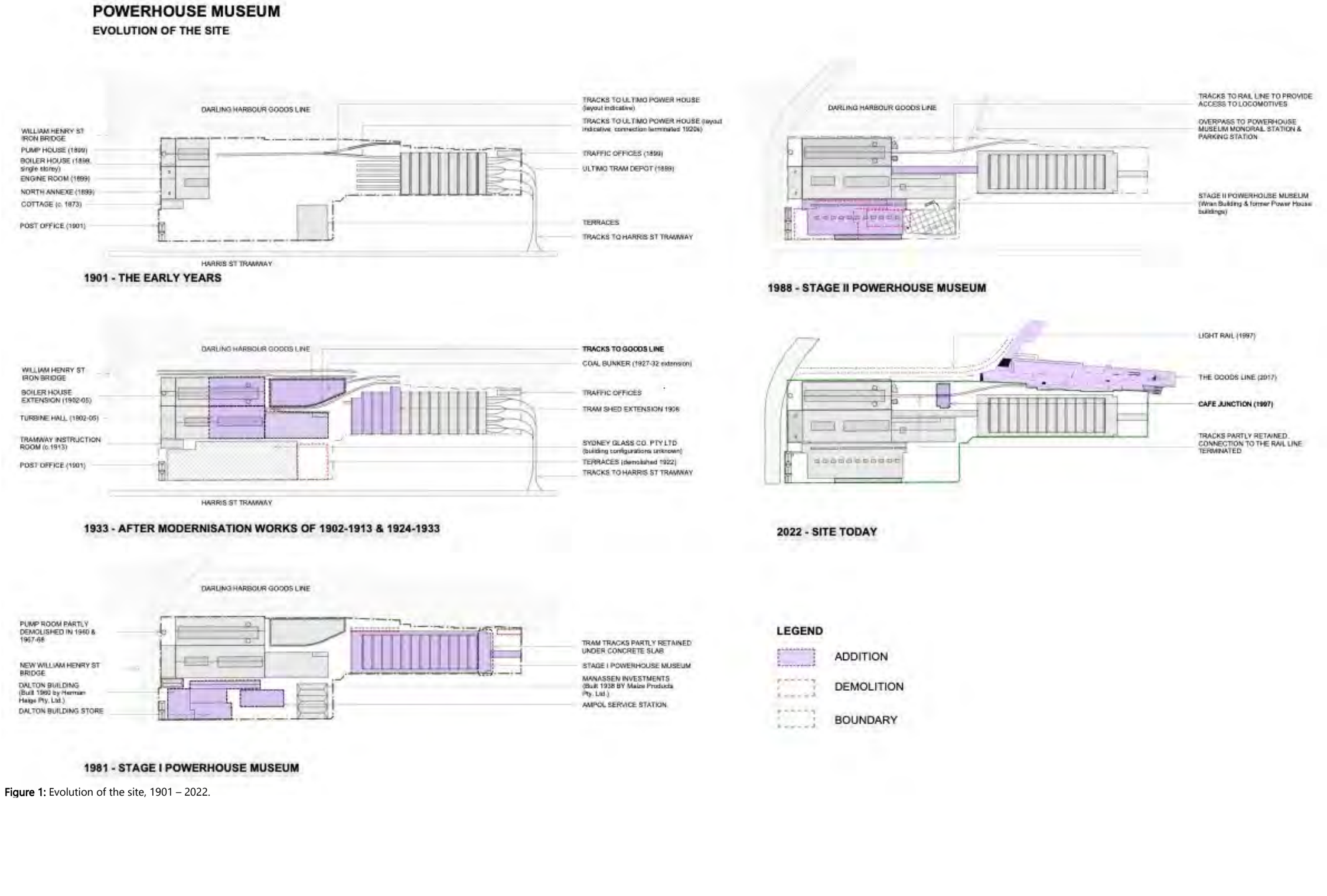
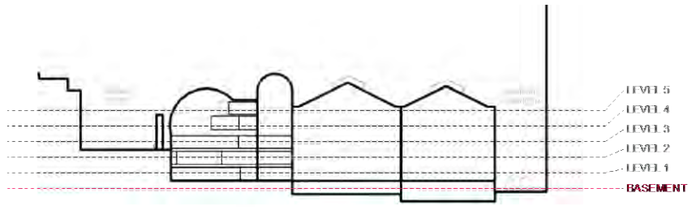
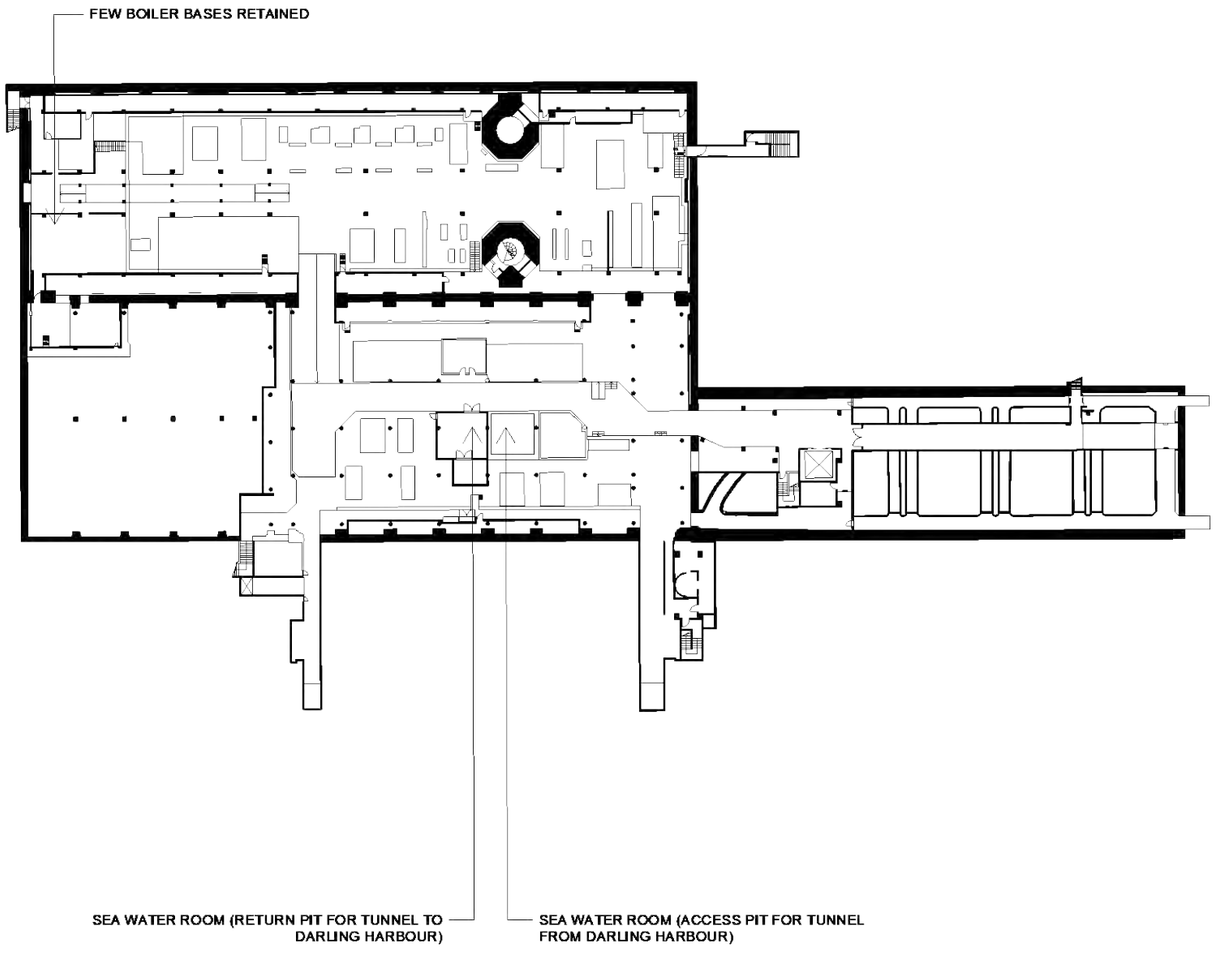


Figure 1: Evolution of the site, 1901 – 2022.

EVOLUTION DIAGRAMS

BASEMENT 2022





NOTE: EARLIER PLANS FOR BASEMENT LEVEL COULD NOT BE LOCATED DURING THE RESEARCH PHASE.

KEY:

EXISTING CONFIGURATION

DEMOLITION

NEW ELEMENT

CONFIGURATION UNCLEAR / UNKNOWN

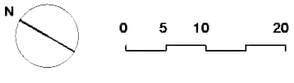
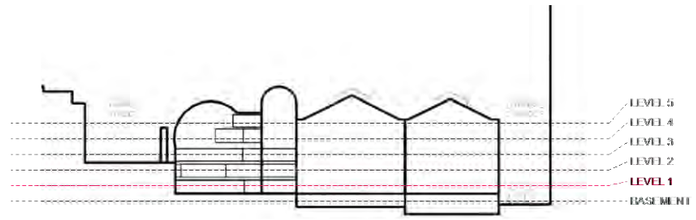


Figure 2: Stage II Powerhouse Museum Evolution Diagram for Basement Level, 2022.

EVOLUTION DIAGRAMS

LEVEL 1 1988



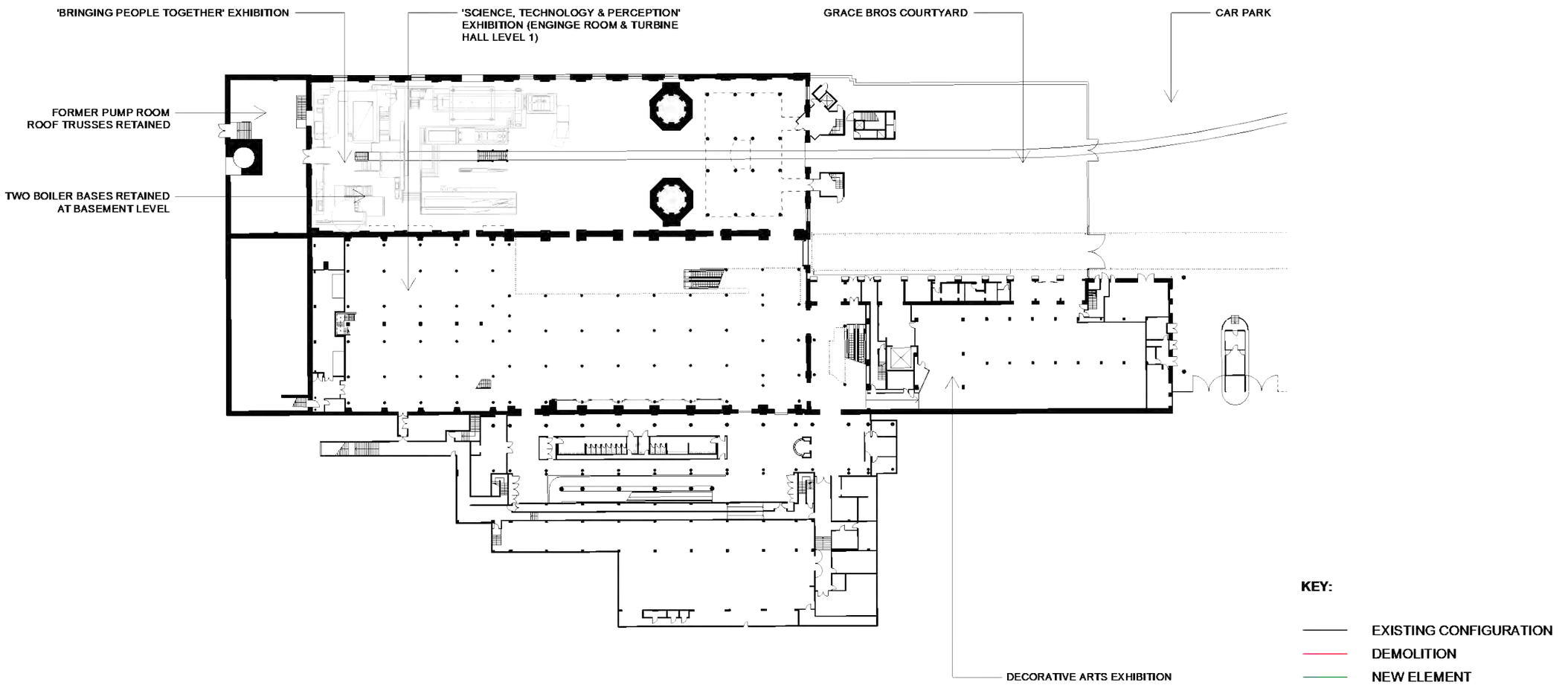
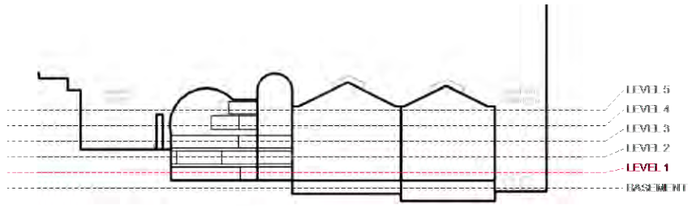


Figure 3: Stage II Powerhouse Museum Evolution Diagram for Level 1, 1988.

EVOLUTION DIAGRAMS

LEVEL 1 2013



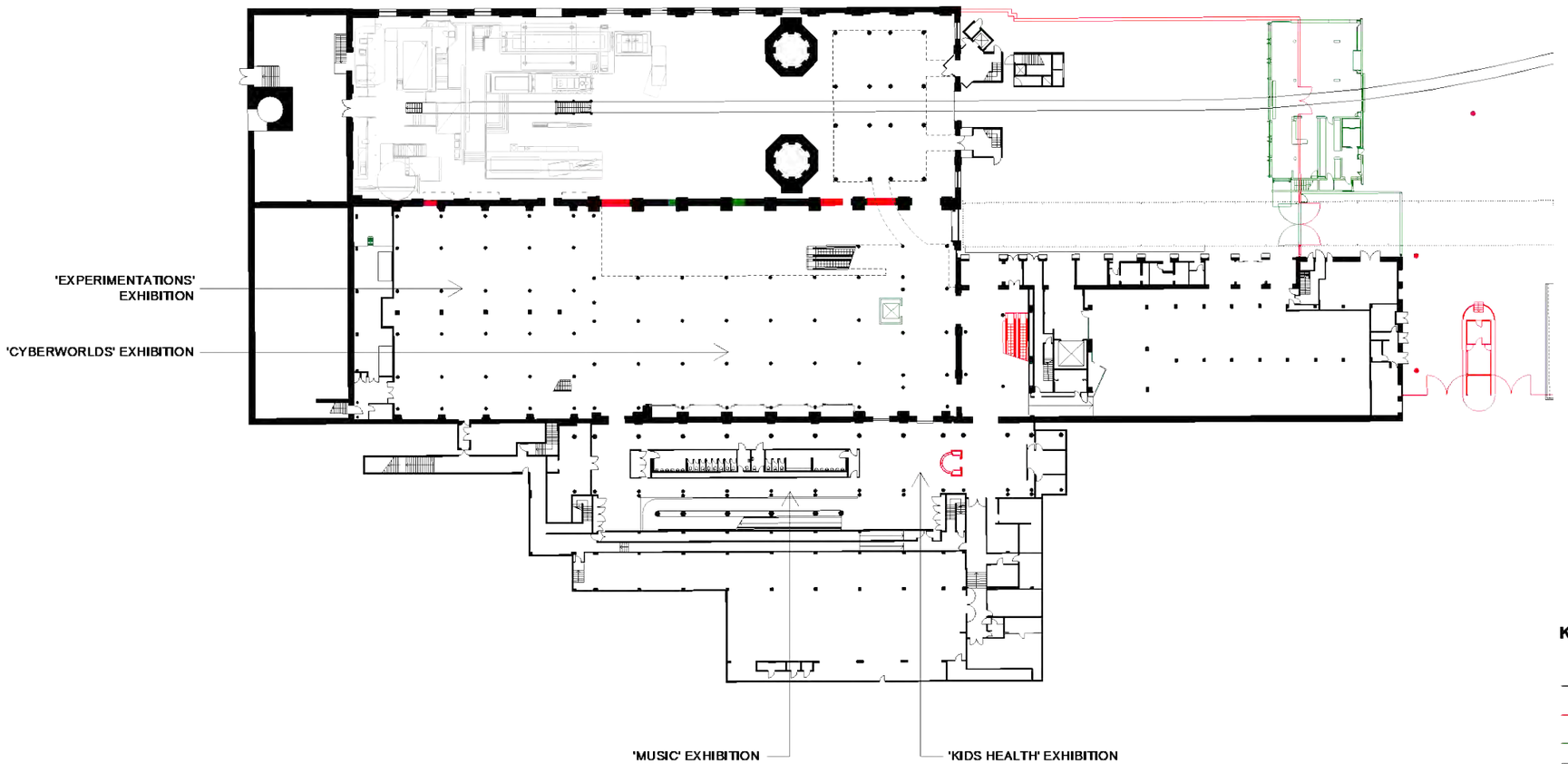
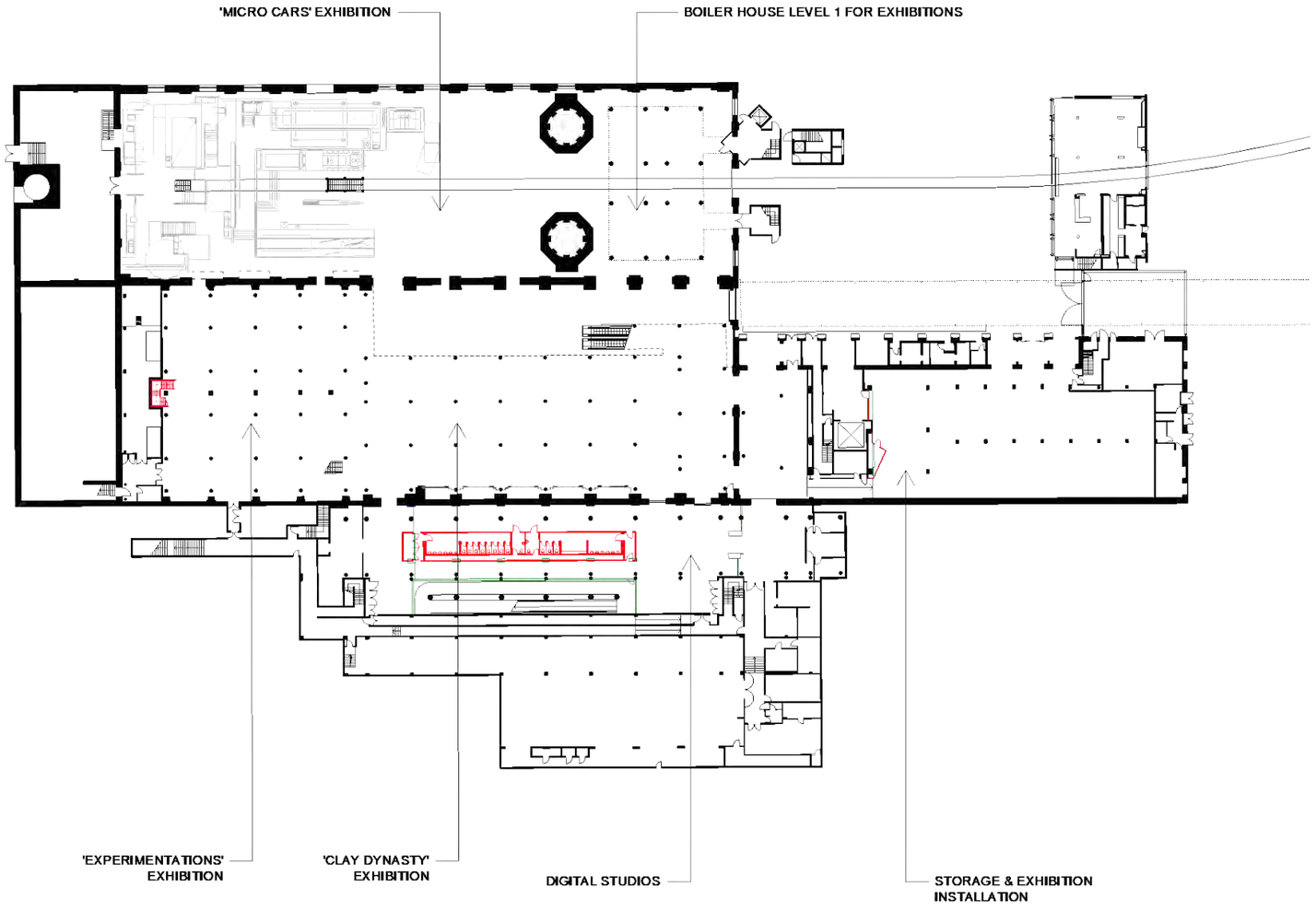


Figure 4: Stage II Powerhouse Museum Evolution Diagram for Level 1, 2013.

EVOLUTION DIAGRAMS

LEVEL 1 2022



KEY:

- EXISTING CONFIGURATION
- DEMOLITION
- NEW ELEMENT
- CONFIGURATION UNKNOWN

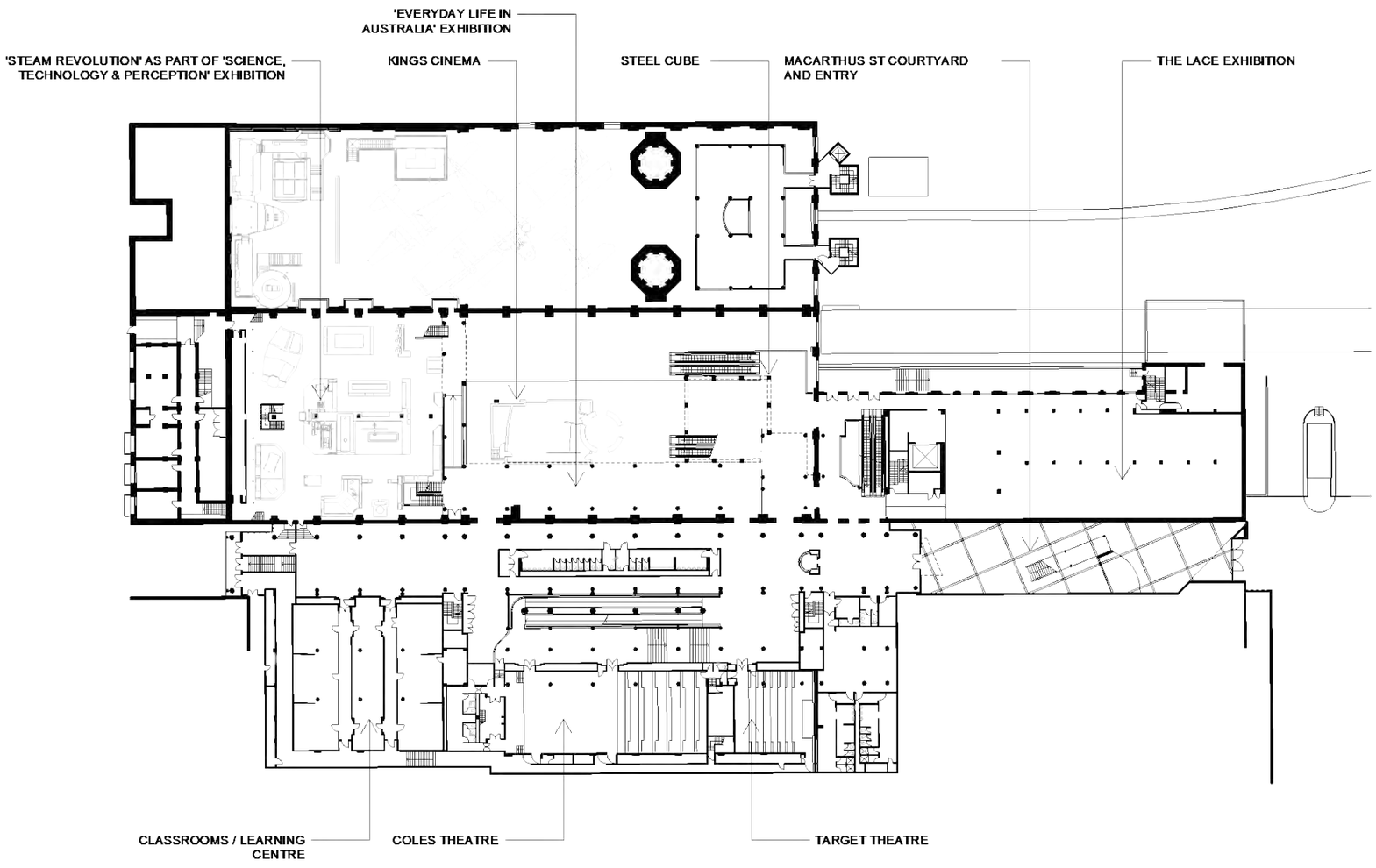
N

0 5 10 20

Figure 5: Stage II Powerhouse Museum Evolution Diagram for Level 1, 2022.

EVOLUTION DIAGRAMS

LEVEL 2 1988



KEY:

- EXISTING CONFIGURATION
- DEMOLITION
- NEW ELEMENT
- CONFIGURATION UNKNOWN

N 0 5 10 20

Figure 6: Stage II Powerhouse Museum Evolution Diagram for Level 2, 1988.

EVOLUTION DIAGRAMS

LEVEL 2 2013

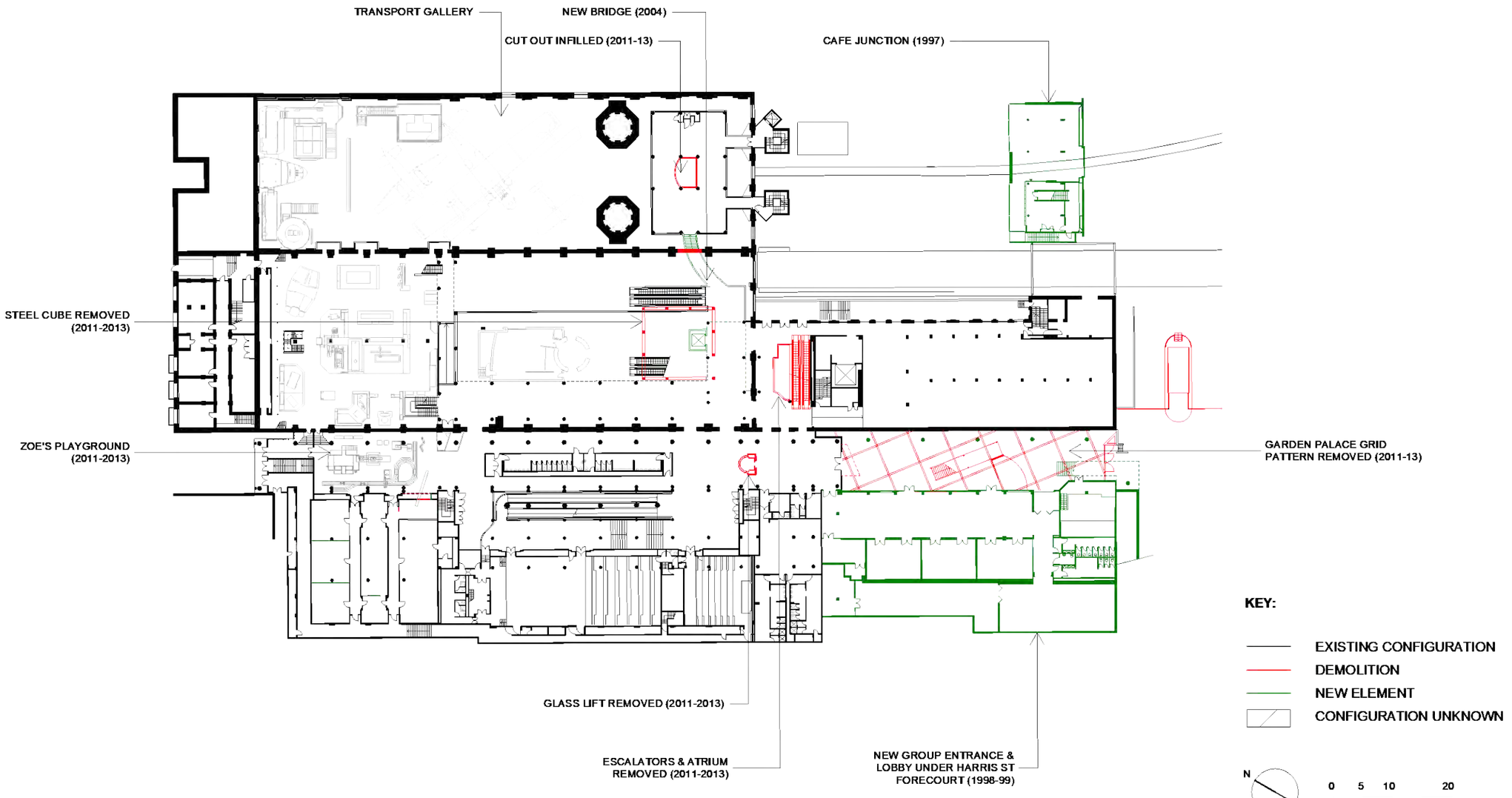


Figure 7: Stage II Powerhouse Museum Evolution Diagram for Level 2, 2013.

EVOLUTION DIAGRAMS

LEVEL 2 2022

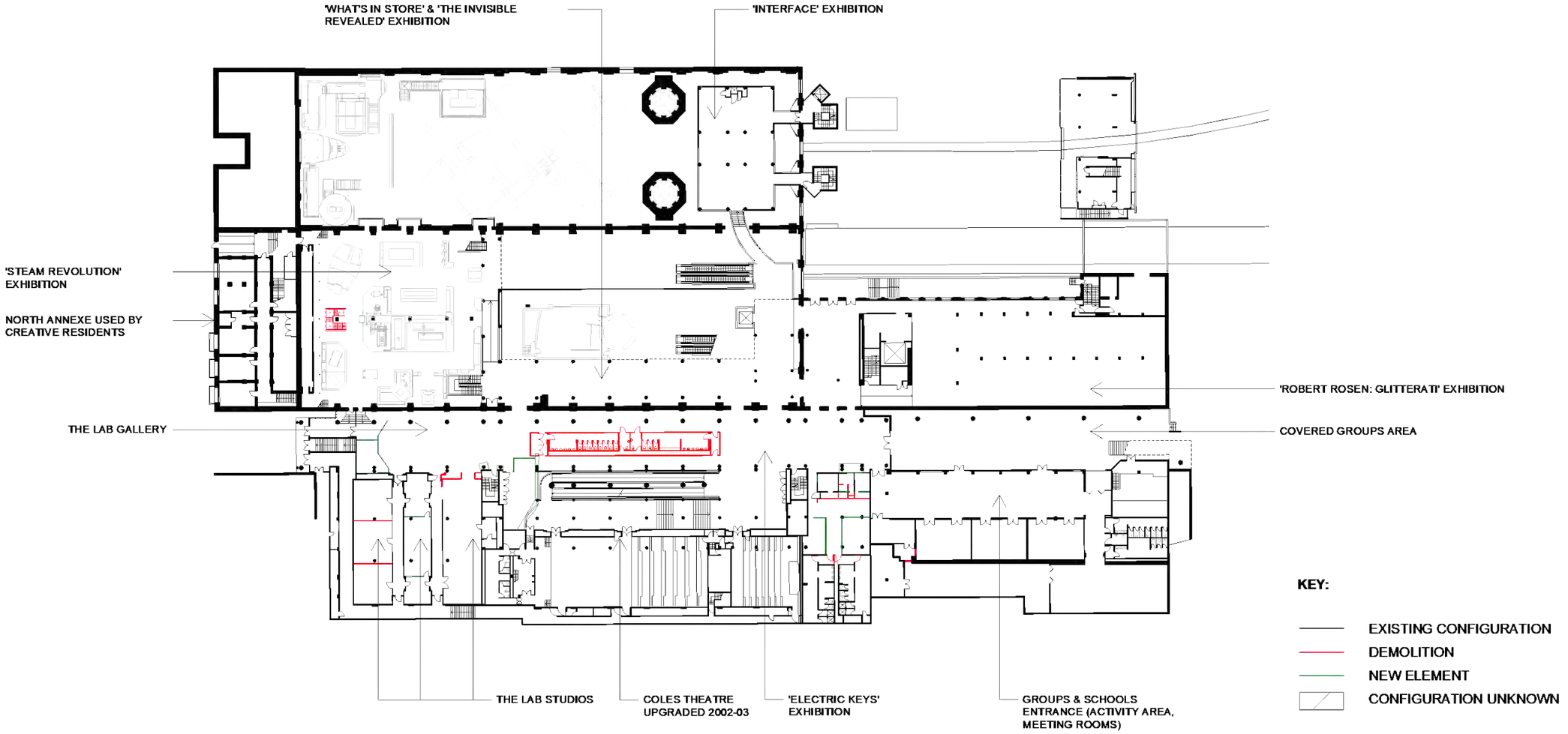
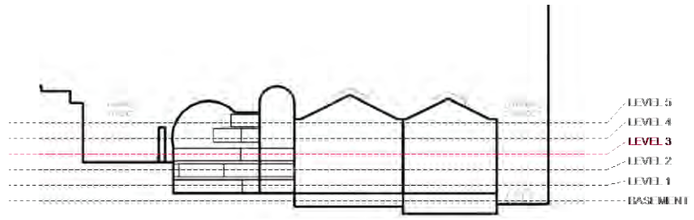


Figure 8: Stage II Powerhouse Museum Evolution Diagram for Level 2, 2022.

EVOLUTION DIAGRAMS

LEVEL 3 1988



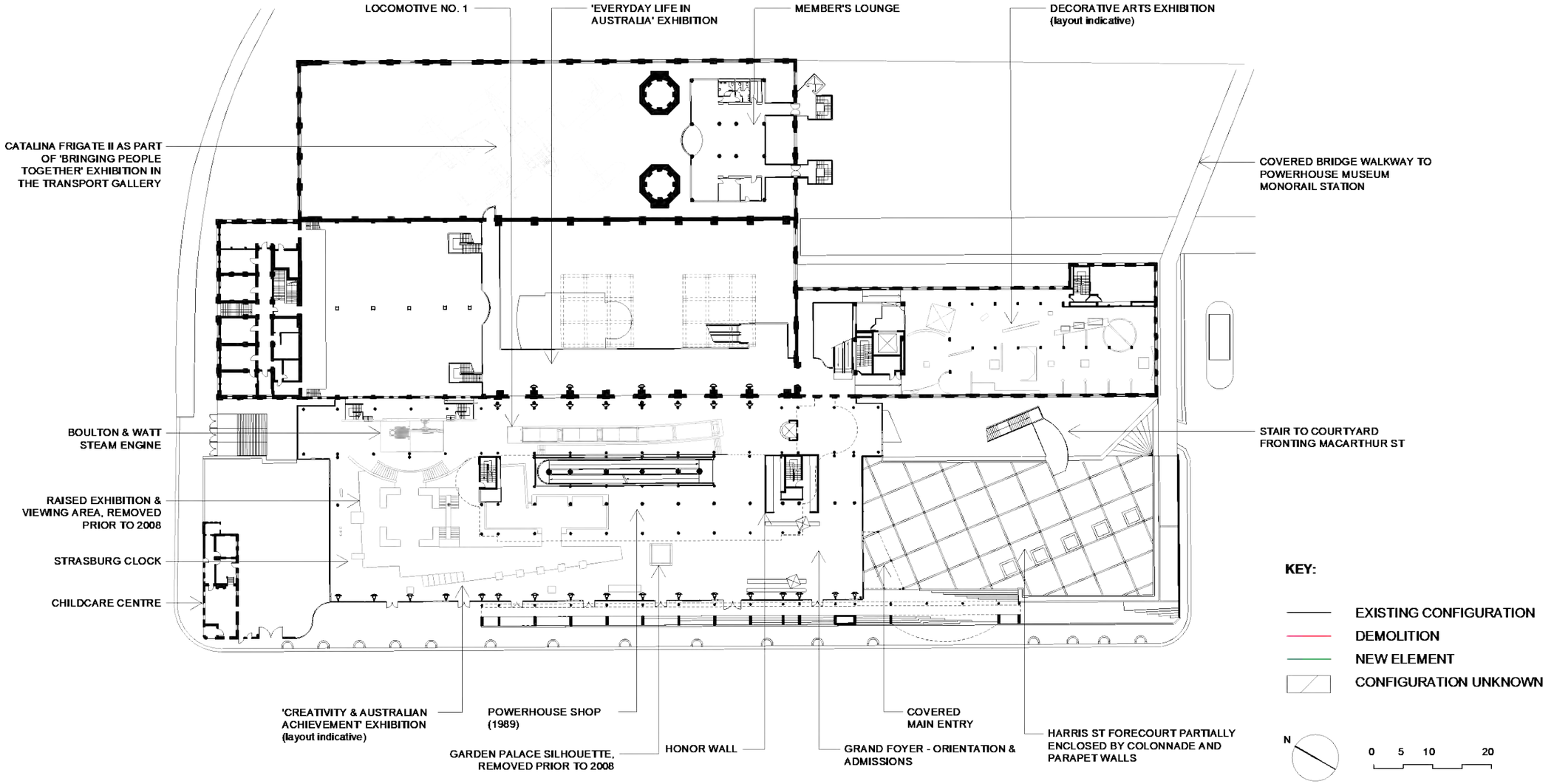


Figure 9: Stage II Powerhouse Museum Evolution Diagram for Level 3, 1988.

EVOLUTION DIAGRAMS

LEVEL 3 2013

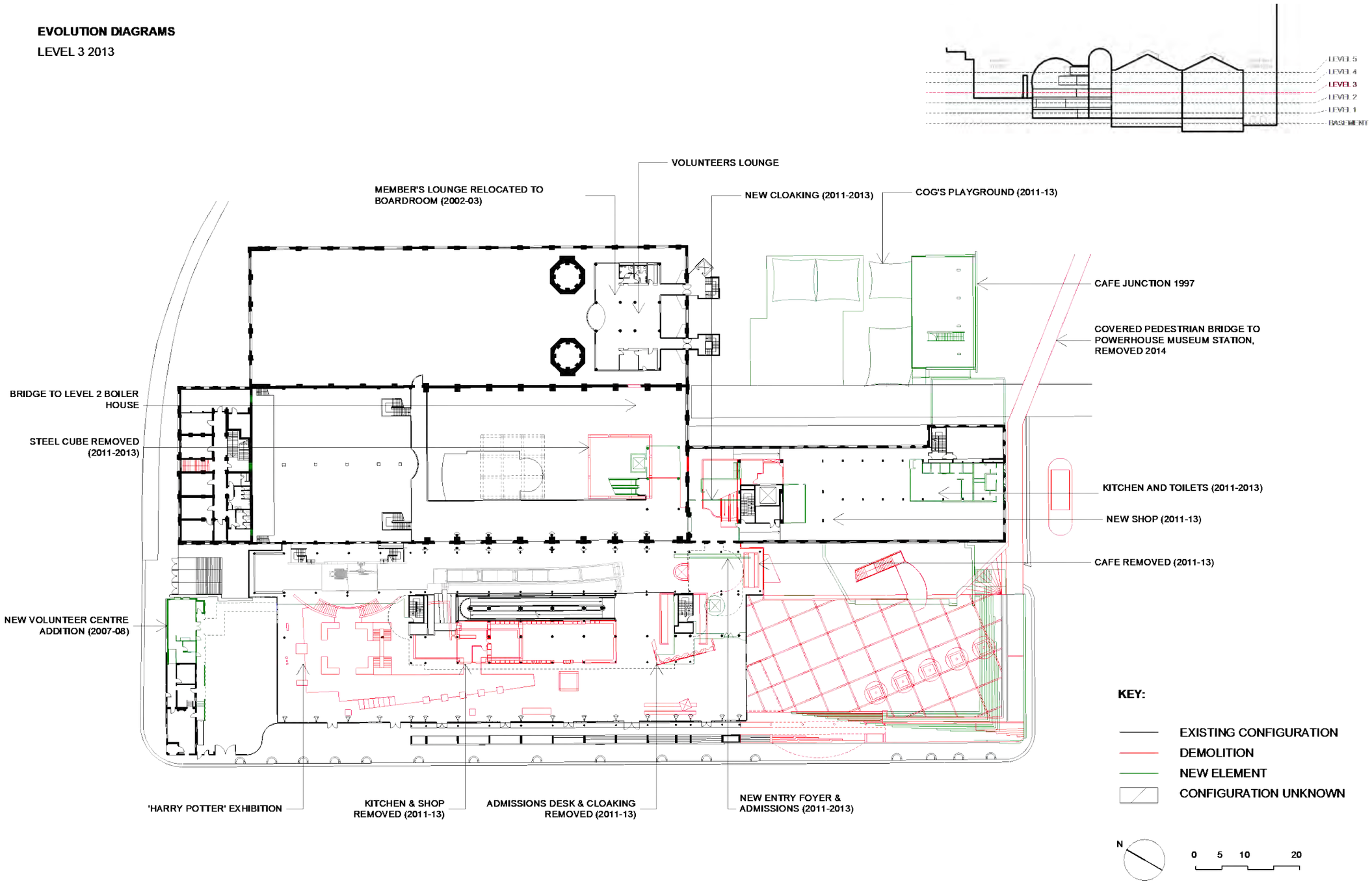


Figure 10: Stage II Powerhouse Museum Evolution Diagram for Level 3, 2013.

EVOLUTION DIAGRAMS

LEVEL 3 2022

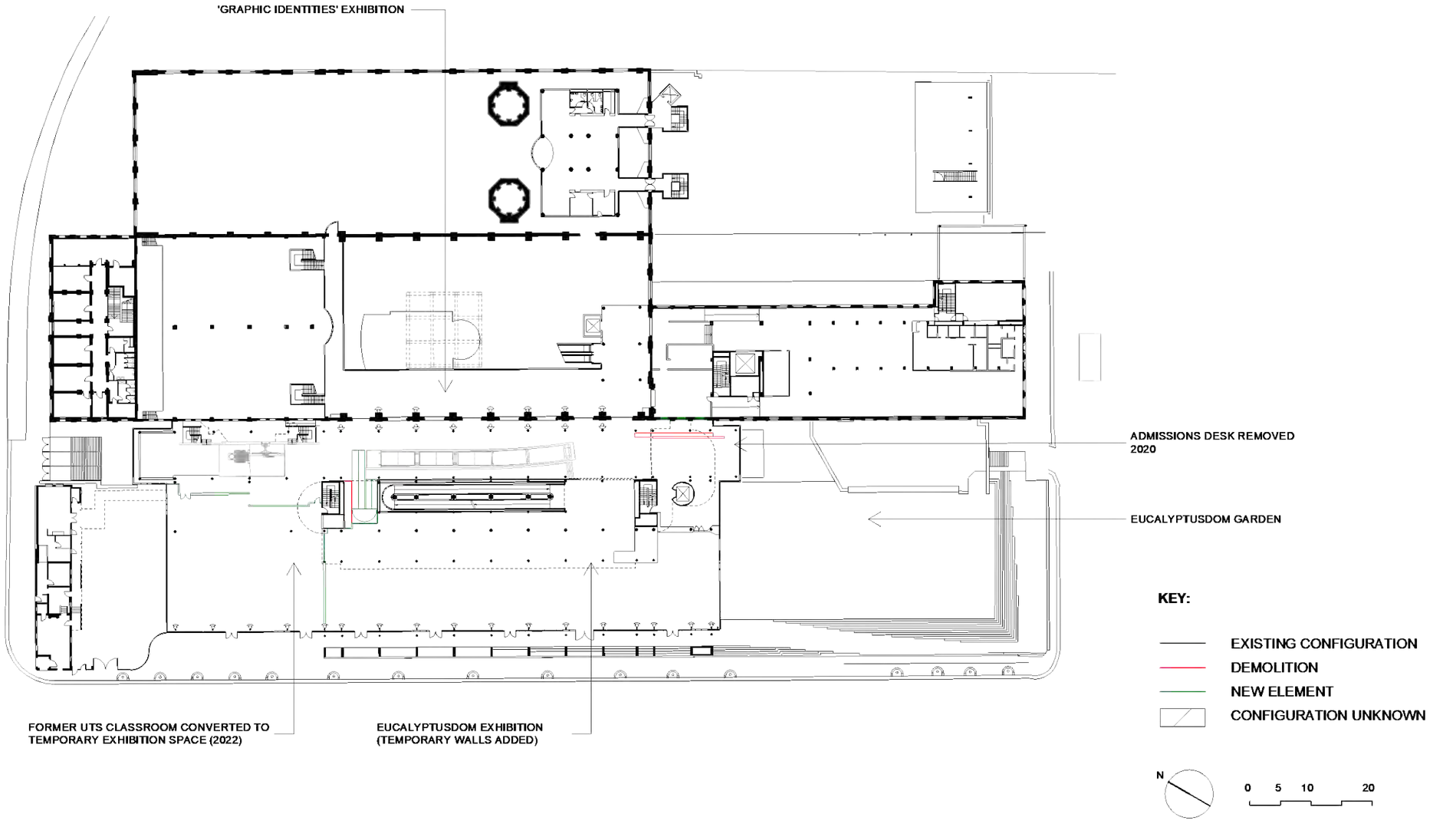
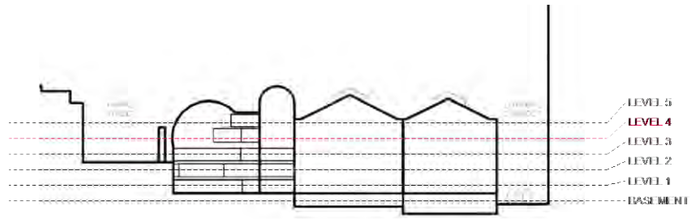


Figure 11: Stage II Powerhouse Museum Evolution Diagram for Level 3, 2022.

EVOLUTION DIAGRAMS

LEVEL 4 1988



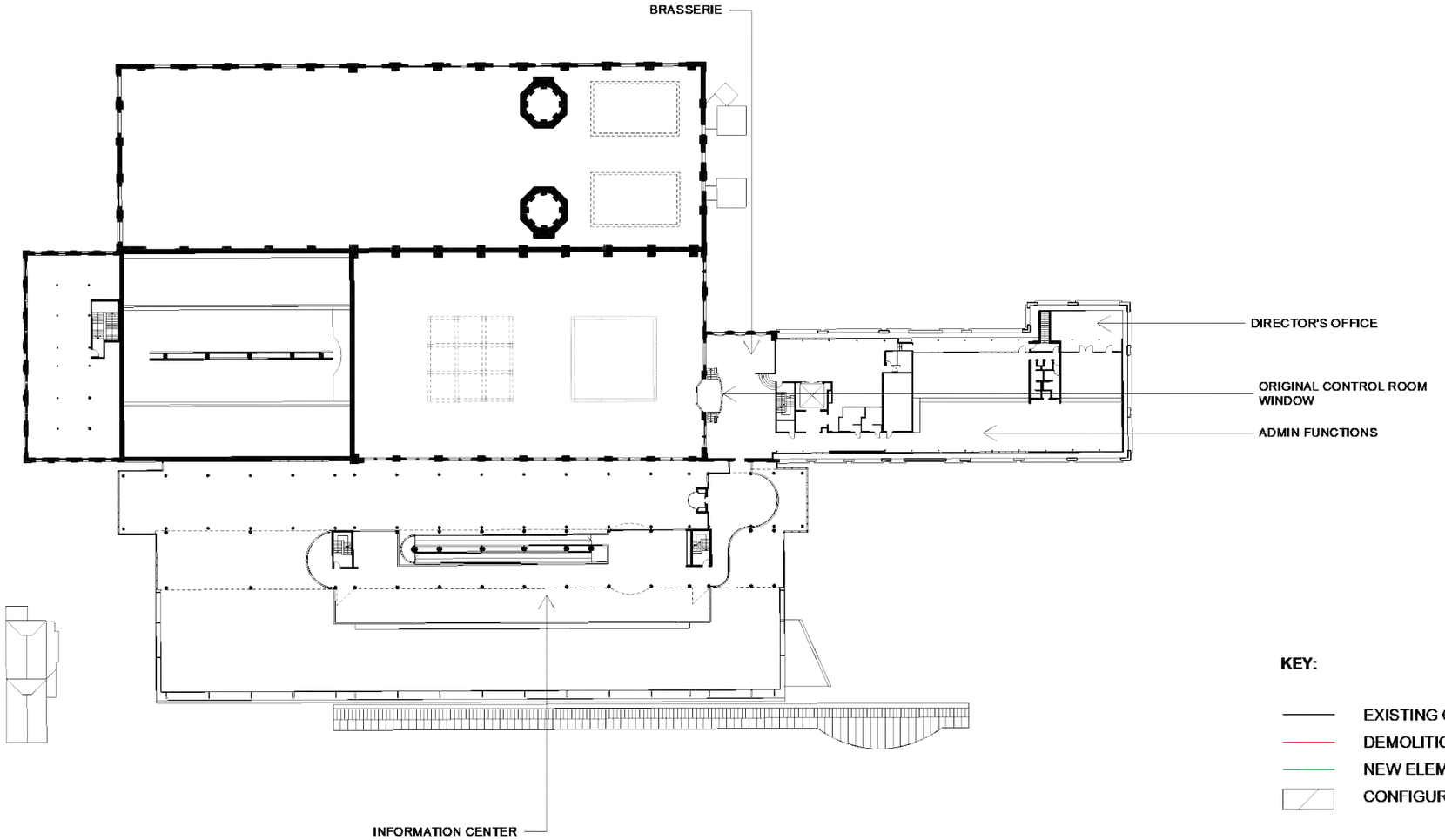


Figure 12: Stage II Powerhouse Museum Evolution Diagram for Level 4, 2018.

EVOLUTION DIAGRAMS

LEVEL 4 2013

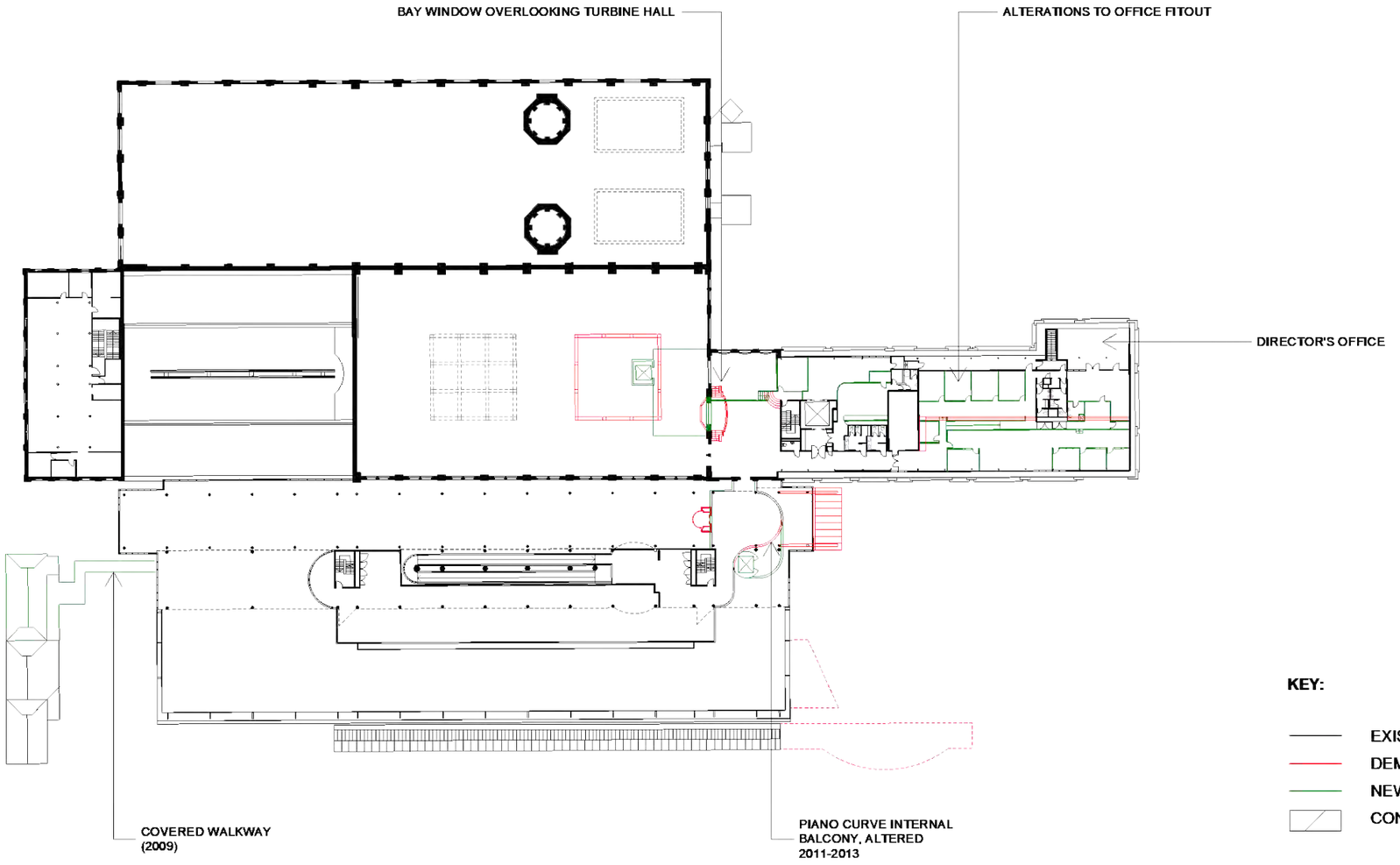
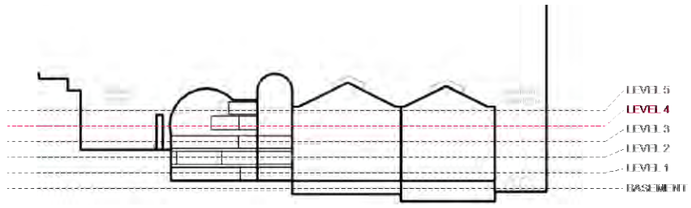


Figure 13: Stage II Powerhouse Museum Evolution Diagram for Level 4, 2013.

EVOLUTION DIAGRAMS

LEVEL 4 2022



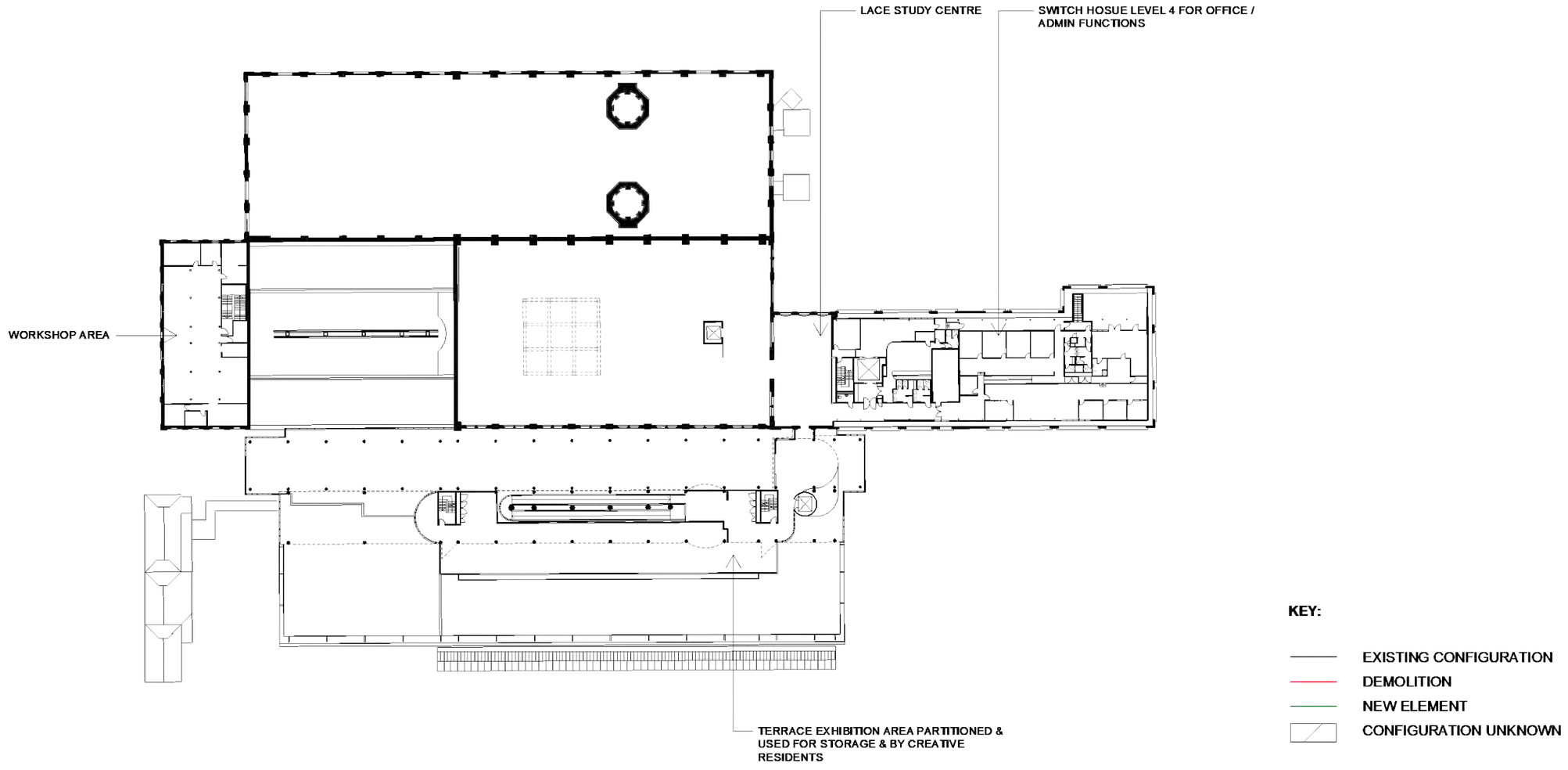


Figure 14: Stage II Powerhouse Museum Evolution Diagram for Level 4, 2022.