



Heritage Review

Ausgrid Section 170 Register

25 March 2022

(updated 28 September 2022)

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Part 1 Introduction

1.1 Executive Summary

This Heritage Review has been prepared to provide the basis for a Council decision on the potential heritage listing of eighteen (18) Ausgrid electricity substations currently listed on the agency's Section 170 heritage and conservation register as local heritage items in Woollahra Local Environmental Plan 2014 (Woollahra LEP 2014) and/or as an item of State significance in the State Heritage Register (SHR) under the *NSW Heritage Act 1977*.

There are a number of electricity substations within the Woollahra Local Government Area. These substations were constructed at different times throughout the history of the development of the area and the expansion of the electricity supply network in response. The substation designs range from historic art nouveau structures from the 1920s through to modern kiosk style substations used today.

On 22 December 2021, Council received correspondence from Ausgrid, who manage the substations, advising that they had reviewed the assets on their Section 170 Heritage and Conservation Register (s.170 Register) and intended to remove from this register eighteen (18) electricity substations of varying ages and styles. Once these substations are removed from the S.170 Register, as they are not listed in Schedule 5 of the *Woollahra Local Environmental Plan 2014* (Woollahra LEP 2014) or on the State Heritage register, there would be no heritage protection over these sites.

In response to Ausgrid's correspondence, this review of the heritage significance of the eighteen (18) electricity substations listed on the S.170 Register has been prepared by Council staff and, based on the information available, found that all of these fulfil the criteria for local heritage listing in Schedule 5 of the Woollahra LEP 2014. Accordingly, a planning proposal has also been prepared by Council staff to amend Schedule 5 to include these substations as local heritage items to ensure their ongoing preservation and maintenance.

1.2 Project methodology

This review has been prepared in accordance with the heritage significance assessment guidelines published by the NSW Heritage Office in 2001 and *Investigating Heritage Significance (2021)*.^{1,2} It is also consistent with the relevant principles and guidelines of the *Australia ICOMOS Charter for Places of Cultural Significance 2013* (the Burra Charter).³

The following steps were undertaken in the preparation of this report:

- A search of the following relevant State and federal statutory and non-statutory heritage registers:
 - State Heritage Register
 - Woollahra Local Environmental Plan 2014 (WLEP 2014)

¹ NSW Heritage Office, 2001. *Assessing Heritage Significance*.

² Heritage Council of NSW, 2021. *Investigating heritage significance - A guide to identifying and examining heritage items in NSW*.

³ Australia ICOMOS Inc, 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*.

- NSW State Heritage Inventory database
- National Trust of Australia
- Register of the National Estate
- Historical research
- Site inspection of the properties and their surrounding area
- Comparative analysis of substation buildings in the Woollahra Local Government Area (LGA).
- Review of the identified heritage significance
- Recommendations
- Review the existing S.170 Heritage Inventory sheets and produce new inventory sheets to reflect the identified significance.

1.3 Authors and acknowledgements

This report was prepared by Kristy Wellfare (Senior Strategic Heritage Officer) with substantial contribution from Flavia Scardamaglia (Senior Strategic Heritage Officer) of Woollahra Municipal Council. It was reviewed by Anne White (Manager - Strategic Planning and Place).

1.4 Limitations

This report provides an assessment of non-Aboriginal (historical) built heritage only, and does not provide an archaeological or Aboriginal heritage assessment.

The interiors of the substation buildings were not available for inspection as part of the review process.

Part 2 Background

2.1 Site identification

There are 18 sites the subject of this heritage review:

	Substation No.	Property name	Address	Year ⁴
1	94	"Dover Road"	73A Dover Road, Rose Bay	1917
2	99	"Wyuna Road"	Wyuna Road, Point Piper	1936
3	135	"William New"	65 William Street, Double Bay	1923
4	160	"James Street"	James Street, Woollahra	1925
5	173	"Wolseley Road"	582 New South Head Road, Point Piper	1926
6	185	"Birriga Road"	116 Birriga Road, Bellevue Hill	1927
7	189	"Hoddle Street"	33 Hoddle Street, Paddington	1936
8	193	"Olphert Avenue"	29A Olphert Avenue, Vaucluse	1927
9	199	"Marathon Road"	2A Marathon Road, Darling Point	1927
10	299	"Bundarra Road"	101 Drumalbyn Road, Bellevue Hill	1928
11	314	"Black Street"	1 Dalley Avenue, Vaucluse	1930
12	315	"Plumer Road"	7 Plumer Road, Rose Bay	1930
13	318	"Drumalbyn Road"	13 Drumalbyn Road, Bellevue Hill	1949
14	357	"March Street"	2A March Street, Bellevue Hill	1933
15	361	"Boronia Road"	29 Boronia Road, Bellevue Hill	1951
16	364	"Rupertswood Avenue"	1A Rupertswood Avenue, Bellevue Hill	1934
17	592	"Dunbar Street"	14 Robertson Place, Watsons Bay	1954
18	622	"Comber Street"	148 Boundary Street, Paddington	1944

⁴ The year of construction for each substation building was ascertained from the publication *Electricity Substations of the Sydney Municipal Council and other local authorities* by James Pennington (2012).

2.2 Site use

The substation sites all accommodate single storey substation buildings and are all currently used as operational substations. The sites are mostly located within the R2 Low Density Residential zone under the Woollahra LEP 2014, however a handful of sites are located in the R3 Medium Density Residential zone.

The Objectives for the R2 zone of the Woollahra LEP 2014 are:

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To provide for development that is compatible with the character and amenity of the surrounding neighbourhood.*
- *To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.*

The Objectives for the R3 zone of the Woollahra LEP 2014 are:

- *To provide for the housing needs of the community within a medium density residential environment.*
- *To provide a variety of housing types within a medium density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.⁵*

2.3 Heritage listings

2.3.1 Statutory

The substation sites are not currently identified as heritage items on the NSW State Heritage Register (SHR). Each of the substations within this report are currently listed on the Ausgrid heritage and conservation register under Section 170 of the *Heritage Act 1977*.

The sites are not identified as local heritage items, however the following five (5) sites are located within existing heritage conservation areas under Schedule 5 of the Woollahra LEP 2014:

Paddington Heritage Conservation Area (C8):

- Substation No. 189 “Hoddle Street”
- Substation No. 622 “Comber Street”

Balfour Road Heritage Conservation Area (C9):

- Substation No. 315 “Plumer Road”

Watsons Bay Heritage Conservation Area (C14):

⁵ Woollahra LEP 2014

- Substation No.592 “Dunbar Street”

Woollahra Heritage Conservation Area (C15):

- Substation No. 160 “James Street”

2.3.2 Non-statutory

The substations the subject of this review are not listed on the NSW National Trust of Australia Register or on the Register of the National Estate.

2.4 Heritage in the vicinity

The majority of the substation sites are not located in the vicinity of any listed heritage items. However, some of the substation sites have heritage items of local significance listed under the Woollahra LEP 2014 in their general locality:

- Electricity substation No. 173 “Wolseley Road” is located in the vicinity of three listed heritage items, being:
 - Cranbrook School (Item 44),
 - Bus stop shelter, former tram stop (Item 215) located to the south of the site on the opposite side of New South Head Road, and
 - One of the street name inlays included in the group item “Street Name Inlays” in Point Piper (Item 675), located on the Wolseley Road frontage at the top of the footway stair.
- Electricity substation No. 185 “Birriga Road” is located to the southeast of the interwar residential flat building and interiors, shops, garage and grounds at 285 O’Sullivan Road (Item 50).
- Electricity substation No. 199 “Marathon Road” is located within the vicinity of a listed heritage item, being the terrace house at 1 Marathon Avenue (Item 140) which is the end terrace in the row of 4 local heritage items (Items 140-143).
- Electricity Substation No. 364 “Rupertswood Avenue” is located within the vicinity of two listed heritage items, being Item 39, “The Provost (or Ancher) House - house and interiors” at 1 Rupertswood Avenue, and Item 54, “Danbury - house and interiors, gateposts and gate” located at 7 Rupertswood Avenue.

Part 3 Historical context

3.1 Introduction

This section provides a historical context of the construction of electricity substations in the Woollahra municipality. The majority of the information in this section is drawn from the 2012 James Pennington publication “Electricity Substations of the Sydney Municipal Council and other local authorities” and the existing S.170 Inventory Sheet information available on the State Heritage Inventory.

3.2 Early historical notes

The sites the subject of this review are located throughout the Woollahra Municipality. The coastal regions of Sydney between Port Jackson and Botany Bay are the ancestral territories of the Eora people. The traditional owners of the land now within the Woollahra Council area were the Gadigal (Gadigal) and the Birrabirragal people. In common with other tribes living by Sydney Harbour, the Gadigal lived in harmony with the natural resources within their country, fishing from canoes or hunting the animals that lived in surroundings. The tribe appears to have moved within their territory in response to the seasons and family connections. Shell middens and other archaeological remains in the area provide material evidence of many centuries of sustained connection to the land that also sustained them. The arrival of white settlers caused the wholesale disruption of traditional life and the cultural practices of the Eora people generally. Despite enormous challenges, today many Indigenous people identify as Eora and maintain cultural practices and a connection to Country.

The sites the subject of this review vary in their potential Aboriginal heritage sensitivity as identified in the Woollahra Aboriginal Heritage Study (2021) and this information has been included in the draft inventory sheets for each site, provided in **Appendix A**. However, a separate aboriginal heritage assessment of the sites has not been undertaken.

The sites the subject of this review are located throughout the municipality, and vary in their development history following the arrival of European settlers. The timeframes vary from those sites in Paddington and Woollahra that are located in areas that were mainly developed in the 19th century, to those sites such as those in Bellevue Hill and Vaucluse that are located within the boundaries of the historic large estates that were mainly developed in the 20th century.

3.3 Electricity supply in Sydney

The 2008 Futurepast Heritage Consulting Pty Ltd review of the Energy Australia S.170 register (Futurepast report) includes a comprehensive and detailed account of the establishment and expansion of the electricity supply network in Sydney, Newcastle and beyond in Section 2 of that report. The history of electricity supply provided below is drawn wholly from this section and is reproduced and summarised as it pertains to the Sydney area in general and the Woollahra Municipality in particular, with additional commentary on the subject sites added by the author and specific quotes identified and referenced as required.

3.3.1 Early electricity supply

The earliest efforts in electricity supply were those of individual councils such as Sydney and Newcastle seeking to supply street lighting and, later, private light and power, to their central areas. This was often in competition with gas, which was in general supplied by private companies which operated local monopolies. Demand quickly grew in all areas where electricity became available and the local enterprises progressively expanded to supply areas outside their initial administrative boundaries. This expansion and desire for cooperative enterprises across local government boundaries led to the creation of the 'county council' system. County councils could be formed to deal with a range of issues, however, the vast majority were for the provision of utility services. This was primarily electricity supply but in some cases included water supply and sewerage.

Some individual councils chose to provide electricity services on their own, such as Redfern Municipal Council and Bankstown Municipal Council. These smaller entities were however progressively purchased by or amalgamated with larger authorities from the mid-20th century. Similarly, private commercial electricity enterprises were progressively acquired by government. Administratively, EnergyAustralia, now Ausgrid, developed out of the following principal entities:

- Municipal Council of Sydney / Sydney County Council
- Balmain Electric Light and Power Supply Corporation Ltd
- St George County Council
- Mackellar County Council
- Brisbane Waters County Council
- Shortland County Council / Orion Energy⁶

3.3.2 Municipal Council of Sydney

The Woollahra municipality falls within the area served by the Municipal Council of Sydney, later the Sydney County Council. The Futurepast heritage report provides the following history for the Municipal Council of Sydney:

"Municipal Council of Sydney / Sydney County Council

Electricity was originally supplied in the central Sydney area by the Municipal Council of Sydney (MCS). While limited one-off electrical installations had been used for special events or to supply power to individual sites in the city in the 19th century, it was not until 1904 that the MCS began producing and distributing electric light and power. The first power station was built at Pyrmont and commenced operation in 1904. That power station was decommissioned in 1961 and is now the site of the Powerhouse Museum. This supply was supplemented with power purchased from the Railway Commissioners power station at White Bay and later with a second Council-operated power station at Bunnerong. The MCS supplied electricity to retail customers around the inner city, Inner West and Lower North Shore and provided bulk power to outer western and northern suburbs such as Penrith, Hornsby and Manly. As was typical for early electricity providers, the MCS was a vertically integrated business, responsible for all aspects of the electricity network, including generation, transmission, distribution and retailing of electricity. In addition, the MCS and, subsequently, the Sydney County Council, were retailers of household electrical appliances.

The MCS initially competed against a number of private electric supply companies, most of which were acquired by 1914. These included the Empire Electric Light Company⁹, the Strand Electric Light Company, the Imperial Arcade Electric Light Company and the Oxford St Electric Light Company, the Redfern Electric Light Company and the Palace Electric Light Company. These were mainly small-scale private operations supplying power principally to commercial and industrial customers. In all cases the MCS acquired the customers and the

⁶ Futurepast Heritage Consulting (2007) *EnergyAustralia - Heritage and Conservation Register Review Project (Final Report - May 2007)*p.4-5

goodwill only; the assets were disposed of by the companies, which were contractually obligated to not allow the assets to be reused for electricity supply purposes within the MCS's area of operations. The sole surviving asset from this period of private power generation appears to be the former Redfern Municipal Power Station, which has been converted into office space and is in private hands. The exception to these acquisitions was the private Electric Light and Power Supply Corporation (ELPSC), which was based in Balmain, operated the Balmain Powerstation and supplied electricity to some inner city Sydney suburbs.

The MCS Electricity Department was recast as the Sydney County Council (SCC) in 1935, with broad responsibility for electricity supply across the Sydney region. There was a rapid expansion in the electricity distribution network throughout this period, with 40-50 substations constructed annually. The substations tended to be of the prevailing architectural style of the day and many examples built during a given period are practically identical in both interior and exterior design. Smaller regional providers, such as the Bankstown Municipal Council electricity undertaking and the Sutherland Shire Council undertaking were progressively taken over by the SCC following a major review of the electricity supply systems in the greater Sydney area. The St George, Mackellar and Brisbane Water County Councils were amalgamated under the SCC banner in 1980. The scale of the SCC operation consistently made it the largest local authority in Australia throughout the second half of the 20th century.

In 1991 the SCC was reconstituted as a statutory authority and became Sydney Electricity. Sydney Electricity was ultimately merged with the Hunter regional electricity authority Orion Energy (previously known as Shortland Electricity) and corporatised to become EnergyAustralia in 1996.”

Futurepast Heritage Consulting Pty Ltd. (2008) *EnergyAustralia S.170 Overview* pp.5-6

On 1 March 2011, TRUenergy acquired the EnergyAustralia retail customer base and the electricity network business formerly known as EnergyAustralia was renamed Ausgrid.⁷

3.3.3 Power Network Expansion

Power generation and distribution in the late 19th and early 20th century has been characterised in the Futurepast report “as a battle between the competing standards of Direct Current (DC) and Alternating Current (AC)”.⁸ The original city power supply was direct current and was fed to 6 major DC substations in the central business district which converted the DC power from the powerstations to alternating current (AC) for supply to distribution substations. Some customers, such as larger industrial operations or inner city buildings with lifts, were supplied with DC power directly, although this was limited.

In addition to the DC system, there was a large AC power distribution network that expanded rapidly, with Paddington being the first suburb to receive power in 1905 via a substation in Young Street (No 9 - since demolished). This was driven by the needs of the former Paddington Royal Hospital for Women (now demolished). Expansion was initially around the inner city and inner western suburbs, and was particularly driven by industrial development in Waterloo, Botany and St Peters and, later, Marrickville, Drummoyne and Homebush. From the 1920s, the number of substations expanded rapidly, with over 350 in service in the central Sydney area by 1935. Sydney has used a mix of DC and AC systems throughout the history of the electricity supply. However, by 1930, the MCS had decided to convert to exclusively AC power, a process which was not completed until 1958, by the Sydney County Council.

⁷ EnergyAustralia website (2012) “*EnergyAustralia's retail business has been sold*”, published September 13, 2012, accessed 8 February 2022. <https://www.energyaustralia.com.au/about-us/media/news/energyaustralias-retail-business-has-been-sold>

⁸ Futurepast report, p.14

3.3.4 Substations

Substations consisted generally of standard electricity distribution substations that were generally built as modest 1 or 2 storey buildings, Zone Substations that were considerably larger in scale, and pole or outdoor substations that supplemented these. Pole substations consisted of one or more transformers mounted on one or more electricity poles. In urban areas, these type of substations were often used as temporary measures during periods of rapid expansion of the distribution network, though in rural areas the pole substation was generally the norm. This was the case in Woollahra, with several of the substations the subject of this study being located on the site of or in the vicinity of former pole substations installed to accommodate the demand for services until the permanent substations were completed, as shown in Figure 1. Outdoor substations are generally open air compounds of transformers and other electrical switching equipment contained in a fenced or brick-walled compound, generally unroofed. These are also still in use, but tend to be located within industrial areas.



Figure 1: The pole transformer that preceded the construction of Electrical Substation No.299 “Bundarra Rd” is visible in this image, taken around October 1930. By the end of 1930, the pole transformer had been removed. [Source: Ausgrid, reproduced in Pennington p518]

MCS substations were constructed mainly by the City Building Constructor at first, using day labour, but many substations were tendered out to private construction firms. Most substations were built of brick, although occasionally corrugated metal was used. In the early 1930s there was an extensive program of reroofing many Sydney area substations which had been built with timber roofs, due to fire risk, with the new roofing likely including new metal roof trusses and corrugated metal or asbestos roof sheeting. Similarly, doors and windows in substations were regularly modified; this continues to the present day. Modifications often included replacing timber windows with vents to improve internal ventilation, blocking of windows with masonry to address noise issues and the addition of security screens. Windows were also blocked up where there was a potential danger to the public from a blast, in the event of a transformer explosion. Timber doors were often replaced with metal doors or roller doors, for security and access reasons. As operational infrastructure, the Futurepast report emphasises that the replacement of substation building components continues, with an active program of replacing asbestos roofs (with corrugated metal), installing fire rated doors and improving ventilation.

The style and nature of substation construction became progressively more standardised as the electricity network expanded, with Ausgrid’s older substations ranging from very finely detailed to very plain and functional. The earliest substations tended to be large, well-ornamented public buildings, often purpose-designed and built for a specific location. However, as they became more commonplace, substations became smaller and simpler and by the late 1920s the trend was for standardised designs built to a similar size and generally designed to fit on a standard suburban subdivision block, typically 100-200m². The number of substations being constructed in the Sydney region increased substantially from the late 1920s, with dozens of substations being constructed in any one year to cope with expanding demand.

This means that, while in the early years of network construction many substations had unique characteristics and were sited in response to a particular need, from the late 1920s standardised designs were generally used and expansion was based on a need to establish and expand the

electricity grid rather than in response to localised or site-specific issues. Designs tended to be reused, sometimes with only minimal variation. This reflected several things, including the need for cost-effective construction methods, the reduction in size of electrical equipment and the speed with which substations needed to be constructed to keep pace with demand.

Designs kept pace with architectural trends, and a number of different and distinct architectural styles of substations can be identified. One-off designed substations did continue to be built well into the mid-20th century, though these examples tended to be restricted to what the MCS referred to as “high class” suburbs, particularly those in Woollahra and Mosman municipalities.⁹ This tendency toward one-off designed substations in the eastern suburbs is reflected in the variety of substation designs found within the Woollahra municipality. The Futurepast report also identifies marked stylistic differences between substations constructed by government as opposed to those constructed by the private electricity providers throughout the first half of the 20th century, which tended to be functionalist brick boxes with only the slightest decoration. In their 2008 heritage review for EnergyAustralia, Futurepast stated that “In a heritage management sense, this means that in many instances substations are essentially identical within their temporal and stylistic groupings.”¹⁰

By the 1950s the era of architecturally designed and detailed substations had ended, although the Dunbar Street substation in Watson’s Bay is a notable exception. From that point on, the freestanding metal kiosk-style substation was progressively introduced, while buildings, where they were constructed, tended towards strictly functional unadorned brick enclosures such as the Boundary Street Substation (Electricity substation No. 622) and the additions to the State Heritage Register-listed Young Street Substation (Electricity Substation No. 342) . Substation design was also influenced by the general changes in Australian building construction in the mid-20th century. The trend towards larger steel and concrete buildings saw “chamber”-style substations incorporated directly within new buildings, with the electricity provider having little or no input into the architectural style of the substation chamber, merely supplying the technical requirements which influenced the location and size of the substation within the new building. This trend also saw smaller older-style substations demolished in some areas and replaced with new chamber substations incorporated into new developments. The provision of substation infrastructure in this manner is commonplace today, particularly in high density urban areas.

The early government-run electrical authorities were aware of the need to make substations in residential areas attractive and in keeping with the surroundings, and an architect joined the substation design area of Sydney County Council in 1936. By contrast, the modern trend is to make substations essentially invisible, through incorporating them into larger buildings, placing them wholly underground or within anonymous small steel boxes which tend to be ignored in urban environments. The exception to this continues to be the zone substations and high voltage switchyards, which continue to require large buildings or areas of land to house equipment. Most of the Ausgrid assets within the Woollahra municipality at the time of writing involve modern style substations that seek to be invisible from the public domain or involve small kiosks.

The substations the subject of this review date from the period of mass expansion of the electricity network within the Woollahra Municipality and Sydney generally, in the period from 1917-1954 where the provision of these assets evolved from architecturally designed substation buildings to a more consistent utilitarian style and include exceptions that were purpose designed for “high class” suburbs or to appease the local authority such as the Dunbar Street substation in Watson’s Bay.

⁹ Futurepast report, p.15

¹⁰ Futurepast report, p.15

Part 4 Physical analysis

4.1 Site inspections

Inspections of the general setting of the substation sites visible from the street were conducted by Strategic Heritage Officers Kristy Wellfare and Flavia Scardamaglia.

Generally, the substations are in good condition, with some in need of maintenance and/or cosmetic repair such as cleaning and the removal of biological matter that does not impact on their overall integrity.

4.2 Exterior

The description of each substation, identifying its style and condition, are contained within the inventory sheets, in Appendix A. Generally, the substation buildings are mostly intact externally, in good condition, and fall into the general stylistic categories as described in the Futurepast report. Council has used the same nomenclature as the Futurepast report.

The architectural typologies identified as “unique” in the Ausgrid S170 Review are reminiscent of the modernist buildings designed by Walter Burley Griffin, Marion Mahony Griffin and their contemporaries, in particular Fyshwick House (Wyuna Road and Drumalbyn Road) and Grant House (March Street and Boronia Road) and have thus been reclassified as “Modernist” in this assessment.

4.3 Interiors and moveable heritage items

To date, access has not been available to the interiors of these sites and as such the interiors have not been inspected for assessment. However, the information available indicates that nine (9) of the substation buildings may include moveable heritage elements. As a precaution, the movable content for the following items had originally been included in the recommended listing for the following sites:

- Electricity Substation No.135 (William New)
- Electricity Substation No.173 (Wolseley Road)
- Electricity Substation No.185 (Birriga Road)
- Electricity Substation No.189 (Hoddle Street)
- Electricity Substation No.299 (Bundarra Road)
- Electricity Substation No.314 (Black Street)
- Electricity Substation No.315 (Plumer Road)
- Electricity Substation No.592 (Dunbar Street)
- Electricity Substation No.622 (Comber Street)

As part of the gateway determination issued by the Department of Planning and the Environment for the planning proposal on 18 July 2022, the matter of the proposed precautionary listing of the moveable content on these sites was raised as requiring further investigation. Condition 1(a) of the gateway approval required the planning proposal to be revised, prior to exhibition, to include details of the ‘moveable contents’ on these sites, including “description of such contents, and discussion of their heritage significance in the planning proposal and inventory sheets within the heritage review report.”

Council officers approached Ausgrid on 26 July 2022 seeking to obtain access to the substations in order to make this assessment, or, if access is not able to be obtained, that Ausgrid send recent photos of the interiors and equipment to inform the assessment. Ausgrid advised that, due to safety concerns, access to these sites was not available and, due to security concerns, photos of the interiors were unable to be provided.

Given the restrictions on access to the sites, the current details of the moveable contents that the available sources indicate may still be present within these substations, including their details and condition, are unable to be ascertained at this time. As such, the requirement of condition 1(a) to include a full description and significance assessment for the extant moveable heritage intended for inclusion in the heritage listing is unable to be satisfied, and the reference to moveable content has therefore been removed from the item title for those substations identified above. This is to allow for the proposed heritage listing of the eighteen substation buildings to proceed to public exhibition, and should not be taken as an indication that these sites no longer have potential items of moveable heritage within them.

As there is evidence indicating that these sites may continue to include fittings, fixtures and moveable content that could fulfil the criteria for listing and inclusion in the item description, it is recommended that any future opportunity to gain information on the interiors be used to inform a future heritage assessment. This may include a future project for these sites, either collectively or individually. To address this, the following recommendation is to be included in the “Recommended management” section of each of these items:

“It is recommended that the interiors of the substation, including any fittings, fixtures, or moveable content therein, also be assessed against the significance criteria as part of a future project for possible future inclusion in the listing if and when internal access to the electricity substation is granted, or information regarding the interiors is able to be provided to Council for assessment.”

4.4 Setting

The Burra Charter (Article 1.12) defines the setting of an item as “the immediate and extended environment of a place that is part of or contributes to its cultural significance and distinctive character.”¹¹ The setting of the substation buildings are generally constrained due to the small size of the sites and the presence of development on the immediately adjacent sites, with the adjacent sites often surrounding the substations. The majority of the substations considered in this report are single storey in scale and substantially smaller than the bulk and scale of the surrounding development, constraining the visual setting particularly for those sites that directly address a street frontage that is the primary frontage for the surrounding development. Further commentary is provided on the following substations the subject of this review:

¹¹ ICOMOS, 2013. *Burra Charter*

- **Wyuna Road** is within a landscape setting characterized by the topography, with the substation sitting within a publicly accessible landscape setting accommodating a substation level change, public stair and viewing platform. These elements serve to extend the setting of this substation
- **Bundarra Road** is similarly nestled into the topography but retains its presentation as a discrete building set apart from the sandstone rock formation surrounding it due to its facebrick construction.
- **Wolseley Road** is set into the retaining wall, minimising its presence on the New South Head Road frontage in a manner similar to that of **Drumalbyn Road**, though the rough sandstone blockwork of Drumalbyn Road allows it to sit quietly in its setting within the sandstone block retaining wall
- **March Street** is located within a public reserve, and has a verdant setting befitting its location. Significant views of this substation are only available from within the March Street Reserve.
- **James Street**, with its corner location and two storey scale is constrained by surrounding development but maintains a strong visual presence in the narrow James Street setting.

The exception to this trend with regard to constrained settings is **Marathon Road**. Originally, this substation had a constrained setting similar to the remainder of the substation group. However, the redevelopment of the surrounding site in the 1970s to construct a large scale residential flat building, located centrally on the development site away from the substation building left the Marathon Road substation with an extended visual curtilage and a more prominent setting than its counterparts.

4.5 Intactness

As identified in the accompanying draft inventory sheets, the majority of these buildings are mostly externally intact, with minor modifications such as the upgrading of doors being some of the few modifications carried out on these substation buildings. Many of the key elements of the original substations remain, both internally and externally, including decorative embellishments such as wrought iron window grilles and rendered finishes, decorative face brickwork, and vents in keeping with the architectural styles of the substation building. Many retain their original entry doors, often decorative and timber, including:

- Wolseley Road
- Birriga Road
- Bundarra Road
- Drumalbyn Road
- Boronia Road
- Rupertswood Avenue
- Dunbar Street

The information available indicates that some substations retain their original equipment, although access to the interiors has not been available to date. Ausgrid has advised that as 16 of the 18 substation buildings the subject of this report are operational substation buildings, access to the interiors will not be able to be made available to assess the intactness of the substation buildings.

4.6 Condition

Externally, the buildings appears to be in good and sound condition. The condition of the interiors is not known beyond the information available in the existing heritage inventory sheets, with the majority of images dating from 2008.

4.7 Modifications and dates

There are few significant modifications to the substation buildings. Some of the substations have had new entry doors installed, and the Wyuna Road substation has had a concrete trafficable roof added and a safety rail installed to allow for the use of the roof as a viewing platform. The key modifications are detailed on the inventory sheets, attached.

Part 5 Comparative analysis

5.1 Introduction

This section provides a comparative analysis of the electricity substation buildings in the Woollahra LGA and nearby.

Comparative analysis is important in understanding how a place may meet criteria (f) and (g) of the *NSW Significance Assessment* criteria. These two criteria relate to whether a place is significant because it is rare or significant because it is a good example of a common type of place. The two criteria are:

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

Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's or of the area's cultural or natural places or cultural or natural environments.


Addressing these criteria assists in understanding the heritage values of a place in the Woollahra context and the broader context of the history of New South Wales.

5.2 Electricity substation buildings in Woollahra

The following comparative analysis examines a sample of heritage listed (and non-listed) electricity substation buildings located in the Woollahra municipality as identified in the information provided by Ausgrid and a search of the State Heritage Inventory. Also included are a sample of substation buildings that have been decommissioned, some of which have been adaptively reused for other purposes.

The purpose of this comparative analysis is to gain an understanding of other examples of substation buildings built by the electricity supplier in the Woollahra LGA and, where relevant, and surrounds.

Table 1 Comparative analysis of comparable listed buildings in the Woollahra Municipality


Site	Significance and contribution	Images
Electrical Substation No.342 1 Young Street, Paddington.	<p>Electrical substation No. 342 is a listed heritage item in the Woollahra LEP (Item 273) and is listed on the State Heritage Register [SHR00939]</p> <p>Statement of Significance <i>The Paddington Zone Substation is a fine example of an externally intact Interwar Free Classical styled corner building located within the Paddington Heritage Conservation Area. The corner substation and its Interwar Functionalist styled extension make a substantial contribution to the character of the streetscape of Paddington in the vicinity of the former Paddington Women's hospital. It has significance on a state level, as the only known example of its substation type in the Sydney area.</i>¹²</p> <p>Comparative Analysis The State Heritage Inventory describes this substation as “A fine example of an unusual tuck pointed face brick building with a curved wall following its corner position at Young Street and Weedon Avenue. Designed in the Interwar Free Classical style, it features a dominant classical rendered cornice below the parapet and a pediment above the entrance roller doors flanked by multi-paned windows. This feature is repeated on both elevations.</p> <p>A streamlined Interwar Functionalist styled face brick building extends northwards along Young Street, punctuated by regular glass bricked openings. A smaller section extends along Weedon Avenue, with a decorative brick cornice that encloses a transformer yard.”</p> <p>As noted above, this SHR listed substation dates from 1926 and is a unique example in the Woollahra LGA due to its design and the 1940s Interwar Functional styled building added, and does not easily compare with the sites the subject of this review. It shares the use of face brick shown in many of the examples of its time, including the interwar</p>	 <p>Figure 2: Substation No.342 in Young Street, Paddington.. Source: State Heritage Inventory.</p>

¹² Heritage NSW, 2020. State Heritage Inventory - “Electricity substation ” <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=2710028>

stripped classical example in Bundarra Road. It shares its curved design with the later curved design of Hoddle Street, though in the Young St substation this is a response to the site constraints rather than as a design expression.

The site differs in the scale of its use, as Substation 342 is a zone substation being of a much larger overall footprint than the sites the subject of this report.

Table 2: Substations in the Woollahra Municipality that are not heritage listed

Site	Significance and contribution	Images
Double Bay Zone Substation No. 3155 76 Epping Road Double Bay	<p>The Double Bay Zone substation was built in the 1970s with design and materials that echo the late 20th century Sydney Regional style.¹³</p> <p>Comparative analysis Built in the 1970s, this zone substation postdates the substations the subject of this review, and does not relate to the period of rapid expansion of the electricity network. It also differs in scale and architectural style.</p>	 <p>Figure 3: Epping Road substation. (Source: Google Street View)</p>

¹³ Apperley, Irving and Reynolds, *Identifying Australian Architecture*, p.240

Substation No 1859
55 Darling Point Road, Darling Point

This modern concrete substation is set into a historic sandstone wall that runs along the eastern side of Darling Point Road. This substation is not a listed heritage item.

Comparative analysis

While effort has been made to limit the visual impact of this substation by continuing the sandstone walling, this substation has not been purpose designed to integrate into the landform in the same manner as the examples of Drumalbyn and Bundarra Roads and does not hold the same aesthetic significance.



Figure 4: Substation 1859, Darling Point Road, Darling Point. (Source: Google Street View)

Electricity substation No. 1003
Caledonian Road, Rose Bay

The Caledonian Road substation was put into service in 1956, and is located in Collins Avenue, Rose Bay. It is not heritage listed.

Comparative analysis

The Caledonian Road substation is unusual double-storey substation built post war in a utilitarian manner. Contrary to the arrangement of most earlier double-storey substations, the switchgear is located on the ground floor and the transformers in the open-topped enclosure on the roof. This example warrants further consideration as a rare example of a post-war two storey substation building in the Woollahra municipality.



Figure 5: Substation 1003, Caledonian Rd, Rose Bay (located in Collins Avenue) (Source: Pennington 2012, p. 648)

**Substation No.
535
Wallis Street
Woollahra**

Located at 117 Wallis Street Woollahra, this single storey interwar functionalist substation is of face brick and glass block construction with concrete trim. It is not heritage listed.

Comparative analysis:

Put into service in March 1940, this interwar functionalist substation has not changed markedly in its form and is comparable with the examples in Boundary Street in terms of its general design and materiality. Elements of its exterior are in poor condition, with spalling of the white masonry trim occurring along the Leswell Lane frontage as well as unsympathetic painting of the original face brick on the Leswell Lane elevation eroding its significance when compared with other examples.



Figure 6: Substation No 535, March 1940 (Photo: James Pennington, 2012, p.630)



Figure 7: Substation No 535 (Photo: James Pennington, 2012, p.630)

Substation No. 2002
166 Hargrave Street
Paddington

This post-war utilitarian substation building is not individually listed. This building is located in the Paddington Heritage Conservation Area.

Comparative analysis

This building is an example of a post war substation building in a utilitarian style. The original face brick has been painted and the building is not consistent with the character of the conservation area.



Figure 8: Substation No 2002. (Source: Google street view)

Kilminster Lane Substation

This substation is located on the corner of Kilminster Lane and Pickering Lane, Woollahra. The site is not individually heritage listed.

Comparative Analysis

This post-war utilitarian substation structure of face brick and concrete construction is in fair general condition with minor spalling filling the atypical lots in an early subdivision. It is similar in style to the Boundary Street



Figure 9: Kilminster Lane substation (Source: Google Street View)

**Substation No.
480
Kiaora Lane
Double Bay**

This substation is located on Kiaora Lane in Double Bay and is not heritage listed.

Comparative Analysis

This two storey post war functionalist substation was completed in 1953 and features unusual massing, white concrete detailing and glass blocks. The doors appear to be original timber doors. This substation building is an unusual double storey design due to the widening of Kiaora Ln by the local council and the consequent reduction in size of the site. The upper level consists of an opentopped yard for the transformers.¹⁴ This substation has intrusive paintwork compared with other examples and has some corrosion and spalling of the white concrete detailing in a manner that combine to undermine its contribution to the understanding of the substation group.



¹⁴ Pennington 2012, p.627

Table 3: Examples of substations that have been decommissioned and adaptively reused for other purposes



Site	Significance and contribution	Images
<p>(Former) Substation No. 328, Banksia Road Bellevue Hill</p>	<p>It is thought that this substation was put into service around the end of 1931 or the beginning of 1932. In October 1996, the property was sold, and the substation remained in service until December of that year. The substation has been adaptively reused as a dwelling, with the roof and rear part of the substation building demolished to accommodate the new use, with only the façade and parts of the side walls retained and integrated into a new dwelling.</p> <p>This former substation building is not a listed heritage item.</p> <p>Comparative analysis: This 1930s substation is in the interwar Mediterranean style and features a decorative parapet with central cartouche. It is similar in presentation to the Black Street substation (Substation No. 314) which has similar treatment to the central parapet, including central cartouche, and features a roof vent designed to spear as a typical chimney, though the two buildings appear to be arranged in mirror reverse of each other regarding chimney and secondary door placement.</p>	 <p>Figure 10: Banksia Road, Bellevue Hill, 1932 (Source: Pennington p551)</p>  <p>Figure 11: Banksia Road, Bellevue Hill, 1938 (Source: Pennington p551)</p>



Figure 12: The former Banksia Road Substation in 2019. (Source: <https://www.realestate.com.au/property/2a-banksia-rd-bellevue-hill-nsw-2023>)

**Substation
No.578 Gilliver
Ave, Vacluse**

This underground vault-type substation was put into service around the end of 1940 or early in 1941, to replace a nearby pole transformer. The early photograph above shows the heads of the two shafts, each having the dual purpose of allowing personnel entry and ventilation. The hatch for equipment access was located just beneath the surface of the ground, between the kerb and the stone-clad shaft head structure. Figure 13 shows a more distant view of the shaft head structure and also the replacement kiosk-type substation in June 2012 (to the right of



Figure 13: Gilliver Avenue underground vault type substation (undated) set into sandstone walling. (Source: Pennington, 2012 p.635)

shot). The old substation was taken out of service in March 2006. The underground vault has now been filled with sand.¹⁵

The former underground substation element is not heritage listed.

Comparative Analysis

Although this substation is within the general timeframe of the subject of this review, the underground shaft type differs from the single or double storey substation buildings considered herein. It does demonstrate that integration into the landform was consistently applied in substation planning within the subject time period.



Figure 14: Gilliver Avenue underground vault type substation (2012) set into sandstone walling. (Source: Pennington, 2012 p.635)

¹⁵ Pennington 2012, p.635

(Former)
Substation No.
85
13 Cecil St,
Paddington

The Cecil St substation was put into service in late 1916, to replace the existing Soudan St substation. Apart from some alterations to ventilation around 1928, Pennington notes that few modifications to the building were carried out other than in 1934 when an outdoor yard and associated roller door access was established at the rear of the building. The substation was taken out of service in July 1996 and the land and building were sold in September of that year.¹⁶ The site has been adaptively reused as a dwelling, with the façade and parts of the side walls and roof remaining. This site is not a listed heritage item.

Comparative analysis

The substation is of a similar era to the Dover Road Substation, however this site has been the subject of substantial alterations and additions to accommodate the adaptive reuse as a residential dwelling following its decommissioning. The former use of the site remains legible and some of the original fabric, including the façade and parts of the roof and wall remain.



Figure 15: Adaptive reuse of the former substation No. 85 (Source: <https://samcrawfordarchitects.com.au/project/substation-house/>)

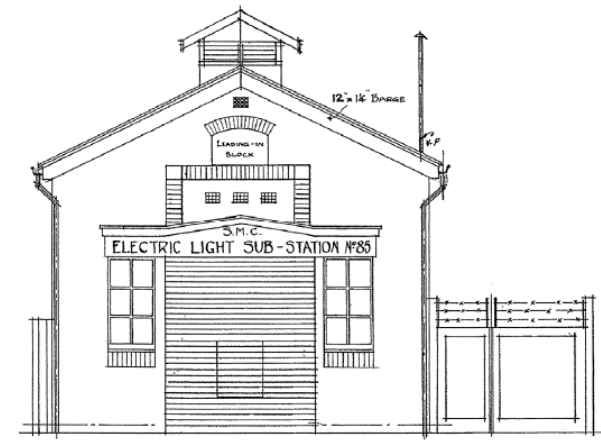


Figure 16: 1928 Drawing of the building (Source: Pennington p274)



Figure 17: Former substation No. 85, Cecil St Paddington, is now adaptively reused as a dwelling. (Source: <https://www.domain.com.au/news/renovated-paddington-substation-yours-for-285-million-20150812-gix2nh/>)

¹⁶ Pennington 2012 p43-44

5.3 Comparative analysis

The collection of substation buildings presently listed on the S.170 Heritage and Conservation Register represent the evolution of electricity supply in the Woollahra Municipality as part of the rapid expansion in the electricity supply network in Sydney in the 20th century in general, and in response to the subdivision and subsequent development of the historic estates within the Woollahra area.

The substations buildings the subject of this review, when compared with the remaining unlisted Ausgrid assets in the municipality, serve to demonstrate the evolution of substation design over time and include representative examples of each of the key substation styles, ensuring each major tranche of substation development is represented.

The comparative analysis indicates that the group of buildings the subject of this review share key elements with other listed substations and differ from the unlisted examples in their aesthetic significance and intactness

Part 6 Heritage significance assessment

6.1 Introduction

Determining the significance of heritage items is undertaken by utilising a system of assessment centred on the Burra Charter of Australia ICOMOS. The principles of the charter are relevant to the assessment, conservation and management of sites and relics. The assessment of heritage significance is based on legislation in the *NSW Heritage Act 1977* and implemented through the *NSW Heritage Manual*.

6.2 NSW Historical Themes

The use of the NSW Historical Themes is an important process in understanding how a site or relic relates to important themes to NSW and to a local area, and therefore how a site could be significant at a State or local level. There are nine broad Australian themes and 36 NSW themes, with numerous local themes relating to these. The group of substation buildings the subject of this review relates to the following NSW Historical Themes¹⁷:

Australian theme (abbrev)	New South Wales theme	Local theme
4. Building settlements, towns and cities	Utilities	Distribution of electricity
Discussion	This group of substations collectively demonstrate the rapid expansion of the electricity supply distribution network in the early to mid-20 th century in the Woollahra municipality in response to the development of sites created through the breaking up of the larger estates.	

6.3 Heritage significance assessment

6.3.1 New South Wales Heritage Assessment Guidelines

The *NSW Heritage Manual* provides seven heritage criteria to assess the significance of an item. If an item meets one of the seven heritage criteria at a local level, and retains the integrity of its key attributes, it can be considered to have local heritage significance. To be assessed for State significance an item will need to meet more than one of the seven heritage criteria at a State level, or if an item satisfies only one of the criteria, the item is of such particular significance to NSW that it should be listed.

‘State heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item. ‘Local heritage significance’, in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to

¹⁷ Heritage Council of NSW, 2006. *New South Wales Historical Themes*.

the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

The below table outlines the seven heritage criteria.

Table 4 NSW Heritage Criteria

Criteria	Description
Criterion A - Historical significance	An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)
Criterion B - Associative significance	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)
Criterion C - Aesthetic/technical significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)
Criterion D - Social significance	An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons
Criterion E - Research potential	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)
Criterion F - Rarity	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)
Criterion G - Representative	An item is important in demonstrating the principal characteristics of a class of NSW's <ul style="list-style-type: none"> • cultural or natural places; or • cultural or natural environments. or a class of the local area's <ul style="list-style-type: none"> • cultural or natural places; or • cultural or natural environments.

The following section provides a summary of the assessment of significance against the seven heritage criteria for the substation buildings the subject of this review. Discussion of each individual against the significance criteria is contained within attached heritage inventory sheets.

Criterion A – Historical significance

The electricity substation buildings the subject of this review are historically significant as examples of the critical infrastructure built by the Metropolitan Council of Sydney, and later the Sydney County Council, during the phases of rapid expansion of the suburban electricity network into the Woollahra Municipality in the early to mid-20th century.

Collectively, this group is historically significant as indicative of the evolution of substation design within the Woollahra Municipality area in the early to mid-20th Century in response to the prevailing architectural styles of their time, and in response to the design aspirations of the local council. Several of the substations such as Rupertswood Avenue, Drumalbyn Road, Black Street/Dalley Avenue and Wyuna Road, also demonstrate the Municipal Council of Sydney (and later, Sydney County Council) policy of placing finely designed buildings in what it considered to be "high class" suburbs.

Where the historical information available indicates that original interiors remain, the proposed listing includes the interiors as a precaution.

Guidelines for inclusion ¹⁸	Guidelines for exclusion
<ul style="list-style-type: none"> ✓ shows evidence of a significant human activity ✓ is associated with a significant activity or historical phase ✓ maintains or shows the continuity of a historical process or activity 	<ul style="list-style-type: none"> • has incidental or unsubstantiated connections with historically important activities or processes • provides evidence of activities or processes that are of dubious historical importance • has been so altered that it can no longer provide evidence of a particular association

All of the substations the subject of this report have been assessed as being of local significance under this criterion.

The substations the subject of this report would not meet the threshold for State significance under this criterion.

Criterion B – Associative significance

No evidence has been found to date to suggest that the substation buildings the subject of this report have strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of the local area.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> • shows evidence of a significant human occupation • is associated with a significant event, person, or group of persons 	<ul style="list-style-type: none"> • has incidental or unsubstantiated connections with historically important activities or processes • provides evidence of activities or processes that are of dubious historical importance • has been so altered that it can no longer provide evidence of a particular association

The electricity substation buildings the subject of this review would not meet the threshold of local significance under this criterion.

The electricity substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

Criterion C - Aesthetic/technical significance

Each of the electricity substation buildings the subject of this review are considered to be of aesthetic significance as each building in the review retains its original design integrity, ranging from Art Nouveau thorough to the modern Functionalist, demonstrating the evolution of substation design through the period of rapid expansion of the electricity network into the Woollahra Municipality and the Sydney suburbs generally.

¹⁸ For the purpose of the assessment, dots indicate the points in the guidelines, whilst the ticks indicate points in the guidelines that have also been met.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> • shows or is associated with, creative or technical innovation or achievement • is the inspiration for a creative or technical innovation or achievement ✓ is aesthetically distinctive • has landmark qualities ✓ exemplifies a particular taste, style or technology 	<ul style="list-style-type: none"> • is not a major work by an important designer or artist • has lost its design or technical integrity • its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded • has only a loose association with a creative or technical achievement

All of the electricity substation buildings the subject of this review are of local significance under this criterion.

The electricity substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

Criterion D - Social significance

No community survey has been undertaken at this time. It is noted that electricity substations, including the James Street and Wolseley Road substations that are considered as part of this review, have been the subject of graphic artworks by Barocky Chocky, celebrating them as historic buildings.¹⁹ It is also noted that the Instagram account @substationsofsydney also features the Olphert Avenue and Hoddle Street substations the subject of this review. These artistic and social media ventures highlighting the substation buildings indicate a regard within the broader community for these buildings.

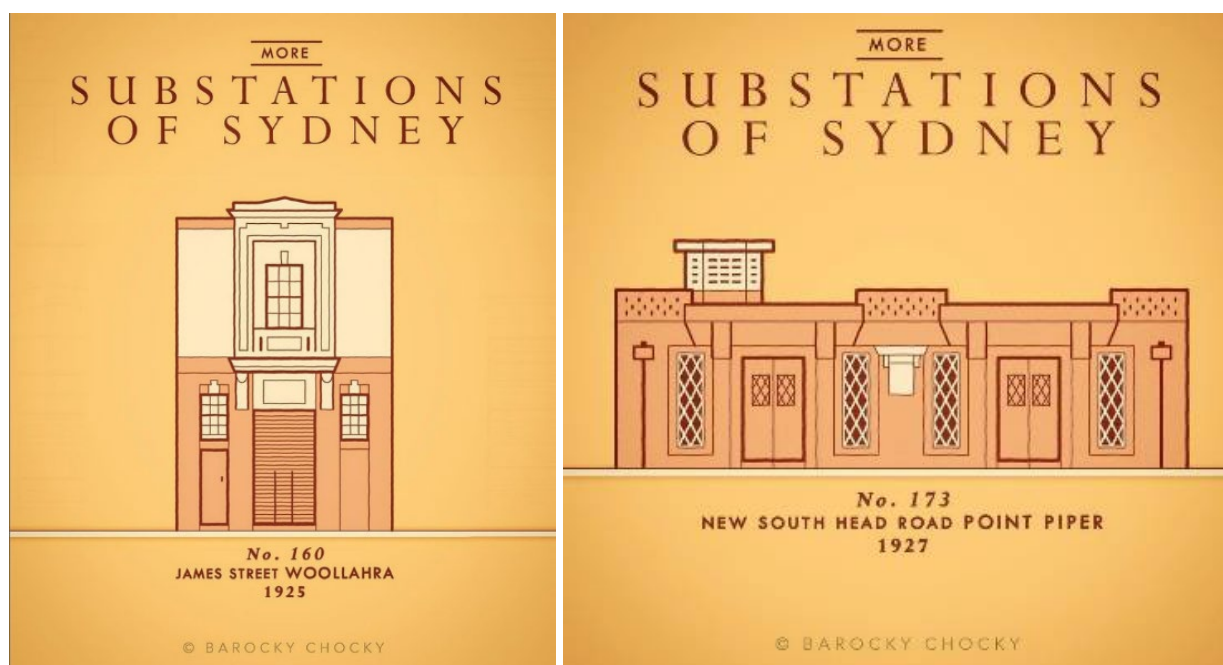


Figure 18: Collected graphic works of substation buildings in the Woollahra LGA. (L) James Street, (R) Wolseley Road (noted in the graphic as New South Head Road). (Source: @Barockychocky via instagram)

¹⁹ Barocky Chocky is a graphic artist with an interest in historic buildings, including historic theatres, post offices, and substations. As part of his work, he has produced image collections devoted to electricity substations in Sydney, from which these images have been taken with permission.



Figure 19: Collected graphic works of substation buildings in the Woollahra LGA. From left: Dover Road, Rupertswood Avenue, Birriga Road, Dalley Avenue (Source: @Barockychocky via instagram)

Although the sites may prove upon further investigation to have social significance, based on the information available at this time the substations buildings are not deemed to have social significance.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> is important for its associations with an identifiable group is important to a community's sense of place 	<ul style="list-style-type: none"> is only important to the community for amenity reasons is retained only in preference to a proposed alternative

The substation buildings the subject of this review would not reach the threshold for local significance under this criterion.

The substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

Criterion E – Technical/Research potential

The review of the information available on the substation buildings the subject of this review does not indicate that these buildings have potential to yield new or further substantial scientific and/or archaeological information. The substation buildings were the first structure to be constructed on each site and the historical archaeological potential of the overall site is therefore low.

As part of the 2021 Woollahra Aboriginal Heritage Study, a municipality-wide approach was taken to identifying areas of Aboriginal heritage potential within the municipality. The resulting sensitivity mapping is informed by the known historical development patterns and the underlying geomorphic features of the municipality, where the aboriginal heritage of the sites is not yet understood, to identify areas of Aboriginal heritage potential.

The following sites have been identified as being on potentially sensitive land on the Woollahra Aboriginal sensitivity mapping produced as part of the 2021 Woollahra Aboriginal Heritage Study.

- Dover Road
- Wyuna Road
- Wolseley Road
- Birriga Road
- Olphert Avenue
- Dunbar Street
- Black Street
- Drumalbyn Road

- March Street
- Boronia Road
- Rupertswood Avenue

The likelihood of these substation sites giving rise to any unexpected archaeological findings remains low due to the landform and development history of these sites, however future development of these site would trigger the requirement for site specific review of the Aboriginal heritage potential of these sites and an unexpected findings protocol would apply in addition to other Council policies.

Nine (9) out of the eighteen (18) substations the subject of this review are identified in the history as potentially having extant historic equipment, and this was originally reflected in the proposed listings for these sites which included “including moveable content” in the item title. At its meeting of 17 March 2022, the Woollahra Local Planning Panel recommended that the significance assessment for technical/research potential be updated for each of the substations to reflect the potential for the substation interiors to yield further information about the electricity supply in Woollahra, and acknowledging that access has not been able to be arranged to undertake this assessment due to the majority of the sites being operational substations. The draft inventory sheets for the relevant substations have been updated in response to this advice.

The gateway determination issued on 18 July 2022 also sought a detailed description and assessment of any moveable content in the inventory sheet for any substation intended on being listed with its moveable heritage content. As this condition is unable to be satisfied due to the restrictions on access and information on the substations, this element has been removed from the proposed listings, though the potential remains.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> • has the potential to yield new or further substantial scientific and/or archaeological information • is an important benchmark or reference site or type • provides evidence of past human cultures that is unavailable elsewhere 	<ul style="list-style-type: none"> • the knowledge gained would be irrelevant to research on science, human history or culture • has little archaeological or research potential • only contains information that is readily available from other resources or archaeological sites

The substation buildings the subject of this review may meet the threshold for local significance under this criterion upon further investigation.

The substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

Criterion F - Rarity

Of the eighteen substation buildings, five (5) have been identified as being rare examples of their type within the Woollahra Municipality due to their unusual design language that responds to the surrounding built form of the “high-class” suburbs, and, in the case of Drumalbyn Road and Wyuna Road, includes specific design responses to the topography of their sites.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> • provides evidence of a defunct custom, way of life or process 	<ul style="list-style-type: none"> • is not rare • is numerous but under threat

<ul style="list-style-type: none"> • demonstrates a process, custom or other human activity that is in danger of being lost • shows unusually accurate evidence of a significant human activity ✓ is the only example of its type ✓ demonstrates designs or techniques of exceptional interest • shows rare evidence of a significant human activity important to a community 	
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The following substation buildings meet the threshold for local significance under this criterion:

- Dover Road
- Wyuna Road
- James Street
- Hoddle Street
- Drumalbyn Road

The substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

Criterion G – Representative

The substation buildings the subject of this report are representative examples of the substation buildings erected during the period of expansion of the electricity supply network in Sydney in the 20th Century. Collectively, they also provide an understanding of the evolution of substation design over this period, and may provide greater understanding of the changing technologies involving electricity supply. The substations include a variety of designs, each responding to the prevailing architectural styles of their period of design and construction, and, in a number of instances, providing a bespoke response to their setting and their locality, being set within the “high class” suburbs of Sydney’s east.

Guidelines for inclusion	Guidelines for exclusion
<ul style="list-style-type: none"> • is a fine example of its type ✓ has the principal characteristics of an important class or group of items • has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity • is a significant variation to a class of items ✓ is part of a group which collectively illustrates a representative type • is outstanding because of its setting, condition or size • is outstanding because of its integrity or the esteem in which it is held 	<ul style="list-style-type: none"> • is a poor example of its type • does not include or has lost the range of characteristics of a type • does not represent well the characteristics that make up a significant variation of a type

The substation buildings the subject of this review are of local significance under this criterion.

The substation buildings the subject of this review would not meet the threshold for State significance under this criterion.

6.3.2 Statements of Heritage Significance

The existing statements of heritage significance in the State Heritage Inventory have been reviewed and, where necessary, updated. Statements of significance for each of the substation buildings the subject of this review are included in the updated heritage inventory sheets prepared by Council officers, at **Appendix A**.

Part 7 Conclusions and recommendations

7.1 Conclusions

This report has reviewed the heritage significance of the electricity substations that have been identified for removal from the Ausgrid Section 170 Heritage and Conservation Register. It has concluded that, based on the information available at the time of writing, the buildings meet the threshold for local heritage significance. All of the substations were found to be of local heritage significance for historical, aesthetic, associational, and representative significance. A small number of substations were assessed as also being locally rare due to their modernist design aesthetic.

This report has concluded that this group of buildings do not meet the threshold for State heritage significance.

7.2 Recommendations

7.2.1 Recommended heritage listing

Each of the eighteen (18) substations the subject of this review are recommended to be added to the heritage schedule of the Woollahra LEP 2014 as items of local heritage significance. The items and their recommended descriptions are collated in Table 5 below.

Table 5: Items recommended for listing

Item description	Address	Lot & DP
Electricity Substation No.94	73A Dover Road, Rose Bay	Lot 1 in DP 121861
Electricity Substation No.99	Wyuna Road, Point Piper	Road reserve
Electricity Substation No.135	65 William Street, Double Bay	Lot 1 in DP 172768
Electricity Substation No.160	James Street, Woollahra	Lot 1 in DP 587872
Electricity Substation No. 173	582 New South Head Road, Point Piper	Lot 1 in DP 1103924
Electricity Substation No.185 including brick fence	116 Birriga Road, Bellevue Hill	Lot Y in DP 415489
Electricity Substation No.189	33 Hoddle Street, Paddington	Lot 1 in DP 187153
Electricity Substation No.193	Olphert Avenue, Vacluse	Lot 28 in DP 666593
Electricity Substation No.199	Marathon Road, Darling Point	Lot 1 in DP 315729 and Lot A in DP 415567
Electricity Substation No.299 including brick fence	Drumalbyn Road, Bellevue Hill	Lot A in DP 320729
Electricity Substation No.314 including front fence	1 Dalley Avenue, Vacluse	Lot 35 in DP 1108999
Electricity Substation No.315 including brick fence	7 Plumer Road, Rose Bay	Lot 1 in DP 1079372
Electricity Substation No.318	13 Drumalbyn Road, Bellevue Hill	Lot 1 in DP 328329

Item description	Address	Lot & DP
Electricity Substation No.357 including front and side stone walls	March Street, Bellevue Hill	Lot 1 in DP 607315
Electricity Substation No.361, including front fence and side stone wall	Boronia Road, Bellevue Hill	Lot O in DP 17114
Electricity Substation No.364	1A Rupertswood Avenue, Bellevue Hill	Lot 1 in DP 184315
Electricity Substation No. 592	14 Robertson Place, Watsons Bay	Lot 1 in DP 231114
Electricity Substation No. 622	148 Boundary Street, Paddington	Lot 1 in DP 231114

7.2.2 Recommended management

It is recommended to manage the substations buildings and their significant components in accordance with the Woollahra LEP 2014 and Burra Charter Principles.

It is recommended that the interiors, particularly of those substations identified as having potential to include extant items of potential heritage significance, including any fittings, fixtures, or other moveable content therein, be considered as part of a future heritage listing project if and when internal access to the electricity substation is granted, or information regarding the interiors is able to be provided to Council for assessment.

It is recommended that all future proposals for modifications to the buildings should respect the form and style of the buildings and their significant fabric. All remaining intact fabric on the external façades and intact interiors should be retained and conserved. Elements lost may be restored or reconstructed to a known prior state in accordance with Burra Charter principles. There should be no substantial additions or alterations to the significant elevations except to return the building to a prior known state. It is recommended that future development be carried out in accordance with a conservation management document, and that detailed internal and external photographic record be made and lodged with Woollahra Council and the Local Historical Association.

The impact of future works on the heritage significance of the buildings are to be assessed against the relevant heritage provisions of the Woollahra LEP 2014 and in accordance with the Heritage Council of NSW publication 'Statements of Heritage Impact' as contained in the NSW Heritage Manual. Proposed works are to be guided by the conservation principles and guidelines of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter) 2013.

Part 8 Bibliography

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