

Corridor Estates

In the 1970s, the Commission also developed a number of smaller estates along the Liverpool – Campbelltown corridor at suburbs including Macquarie Fields, Airds, Minto and Claymore. The development of these so called ‘corridor estates’ coincided with a general move away from developing the large-scale, low density estates that typified the 1950s and 60s; focus was placed instead on the development of medium density suburbs utilising the townhouses typology first used at Mount Druitt.

Figure 97 – Proposals for the Macquarie Fields ‘corridor estate’, dated 1970-71



Source: *The Housing Commission of New South Wales Annual Report, 1970-71*, p. 24.

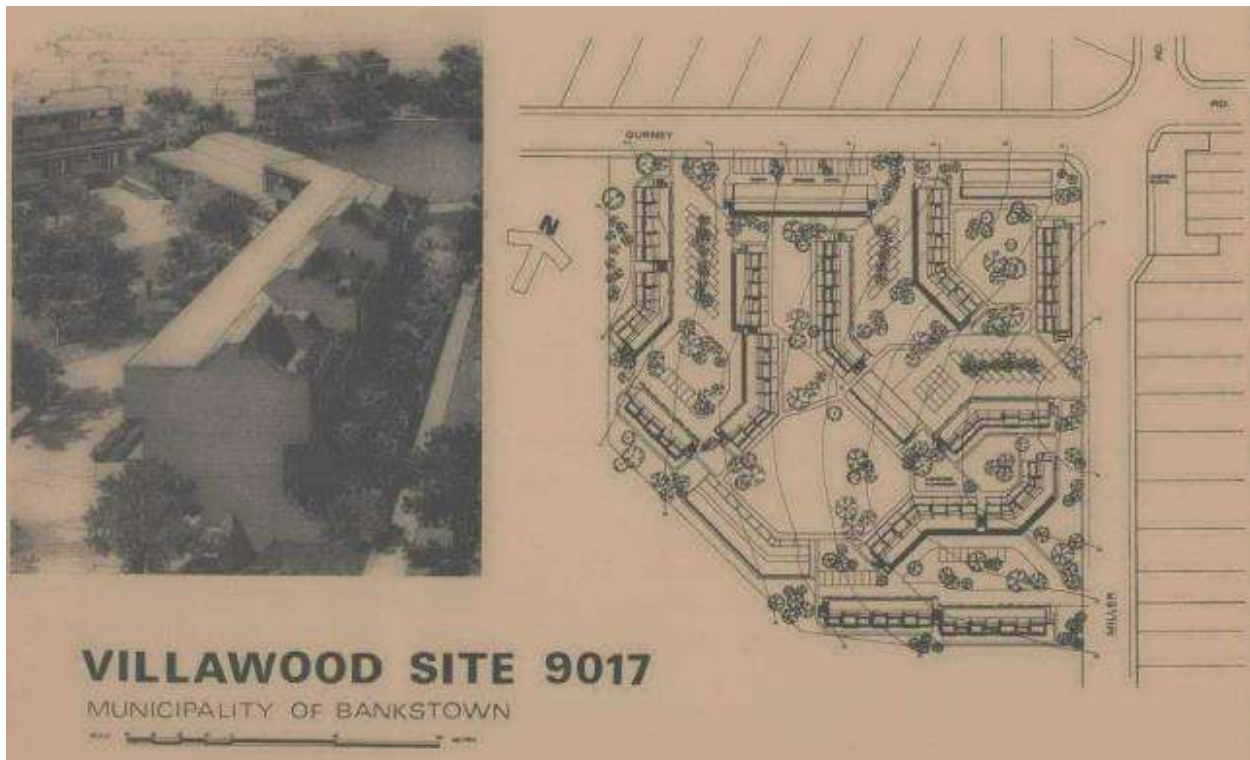
These estates, the first being Macquarie Fields, were characterised by a smaller overall area of development, a high percentage of townhouses, and the use of the ‘Radburn’ style layout. During this time, townhouses in the ‘Radburn’ layout were also incorporated into some of the older neighbourhood estates, including Windale.

Micro-Estates

The 1980s saw further evolution of the 'public housing estate' as conceived and developed from the 1940s onwards, with the Commission deciding in 1975, for the first time, to redevelop parts of its own housing stock.

The principal example of this was the introduction of a micro-estate in to the established public housing at Villawood/East Fairfield; a number of earlier fibro cottages were demolished to make way for a 'micro-estate' planned in the 'Radburn' style. The cottages set on a conventional street grid were replaced with townhouses and maisonettes that faced away from the streets, had common driveways, and small private streets.

Figure 98 – Plan of the 'Villawood Site', 1975



Source: *The Housing Commission of New South Wales Annual Report, 1975, p. 10.*

‘Urban Renewal’ and the Modern ‘Slum’ Clearance Movement

The ‘slum’ clearance movement, initiated at Millers Point and The Rocks in the first decades of the 20th century and refined at Erskineville in the 1930s, was continued in the late 1940s and 1950s in concert with the heightened activity of the Housing Commission in the post-war years. Though ‘slum’ clearance efforts continued to be underpinned by a desire to remove inadequate and overcrowded terrace housing in these areas, the approach to public housing development from the 1940s was very different to that seen in at Millers Point/The Rocks in the 1910s, and more closely followed the example set at Erskineville; removal of the ‘slums’ was now balanced by a greater emphasis on providing appropriate replacement housing.

As before, the areas of concern were predominately inner-city suburbs which had been overdeveloped in the pre-war years; of particular concern were the suburbs of Surry Hills, Redfern, and Waterloo, located to the immediate south of the CBD. From the 1940s onwards, the large-scale ‘slum’ clearance initiatives undertaken in these suburbs were remodelled as ‘urban renewal’.

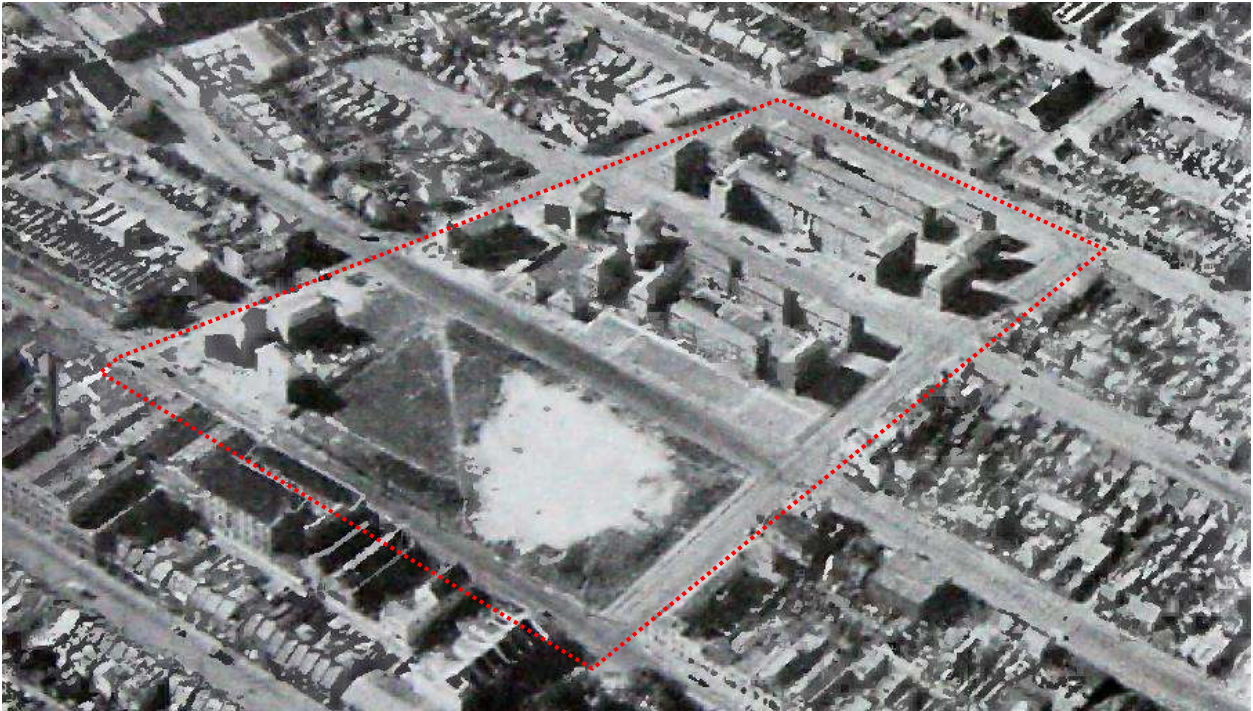
Waterloo and Redfern

The suburb of Waterloo was primarily established around industrialism. From the 1850s to the 1880s and in response to the intensive use of the land for grazing and for industries associated with the neighbouring swampland, including wool washing and brickworks, the suburb was subject to increasing residential development in the form of terrace houses and workers cottages. The subsequent establishment of the Eveleigh Railways yards, as well as the opening of a number of tanneries, brickworks and market gardens, firmly established the area’s industrial character prior to the turn of the century. Like other Sydney suburbs, the growth of the area gave rise to issues concerning sanitation, poor quality housing, and overcrowding.

In order to provide the greatest number of dwellings whilst maintaining the newly established standards of living, existing building stock was subject to wholesale demolition from 1948 onwards. Walk-up apartments were erected across six blocks in Redfern from 1949 and 1961 and across five blocks and three part blocks in Waterloo between 1951 and 1971. These walk-up flats were of the same typology as those constructed at Erskineville.

In an effort to further improve amenity, the Housing Commission designed a number of high-rise buildings in the early 1960s, which were to be set in open parkland. Construction commenced on the 10-storey McKell Building in 1963, and on the 17-storey Poets Corner Development in 1966, both buildings being located in Redfern. Between 1970 and 1974 the 17-storey Cooks, Banks, Solander and Martin Buildings were constructed, and in 1976 the 30-storey Matavai and Turanga Buildings were erected, with the latter being specifically designed for elderly tenants.

Figure 99 – Demolition works for the purpose of ‘slum clearance’ at Redfern in 1954 (clearance area indicated in red)



Source: *The Housing Commission of New South Wales Annual Report, 1954, p. 18.*

Figure 100 – Two storey walk-up flat building constructed in Walker Street, Redfern, c. 1955



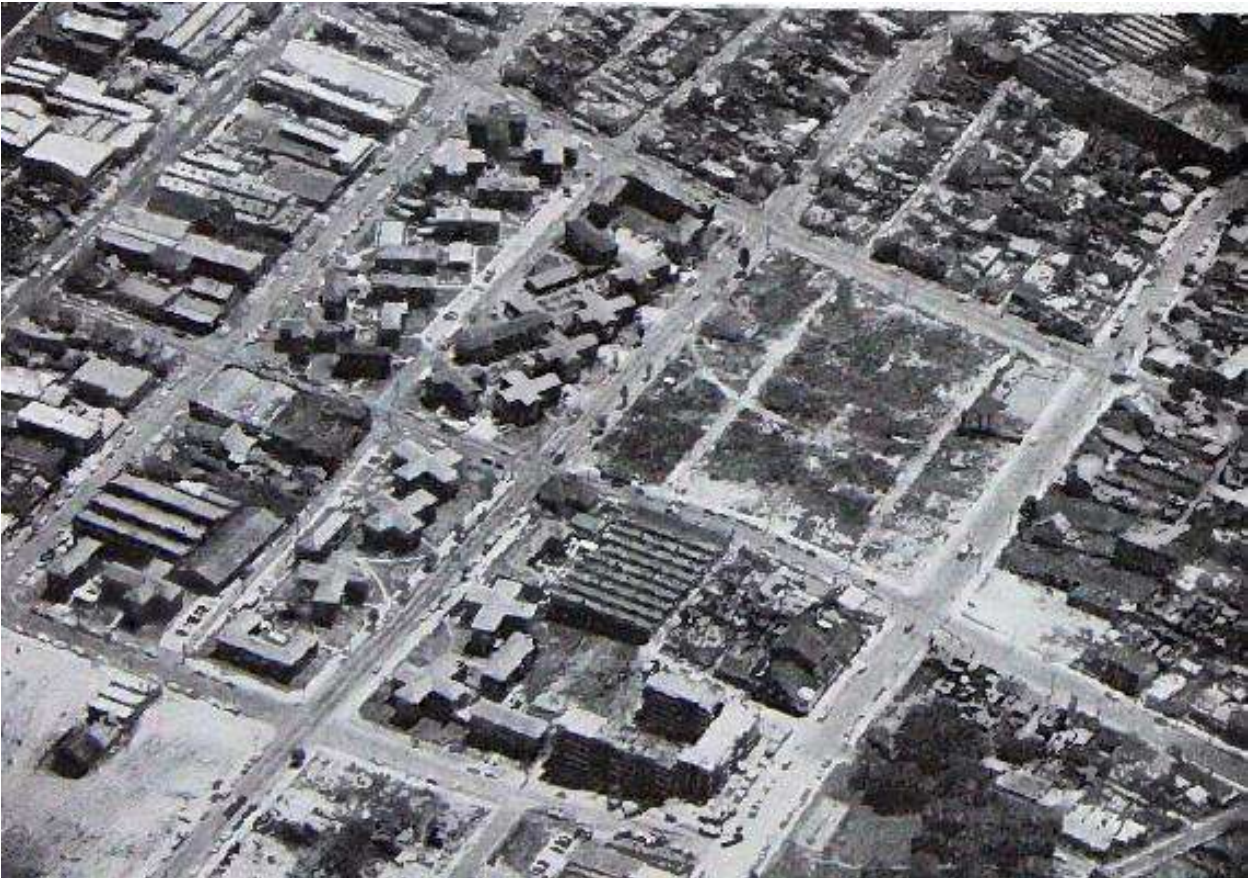
Source: *The Housing Commission of New South Wales Annual Report, 1955, p. 19.*

Figure 101 – ‘Slum clearance’ in Redfern in the 1950s, showing demolition works and new flats constructed by the Housing Commission



Source: *The Housing Commission of New South Wales Annual Report, 1956, p. 17.*

Figure 102 – Part of the Commission’s ‘slum’ clearance area in Waterloo, showing redeveloped and cleared sites, c. 1965



Source: *The Housing Commission of New South Wales Annual Report, 1965-66, p. 16.*

Figure 103 – “James Cook”, one of the 17-storey towers constructed within the Waterloo SSP, dated 1970



Source: *The Housing Commission of New South Wales Annual Report, 1970, p. 2.*

Figure 104 – View of one of the Waterloo towers during construction, c. 1975



Source: *The Housing Commission of New South Wales Annual Report, 1975, p. 22.*

In April 1972, the (then) NSW Housing Commission issued a 'Housing Area Notification', to resume and redevelop 32 hectares of land south of Redfern Park in Waterloo. Over the next year, it developed an internally preferred redevelopment proposal that involved demolishing 500 existing low-rise dwellings (mainly terraced housing), and replacing them with 827 modern low-rise dwellings and six 30-storey tower blocks.

There was extensive community opposition to the proposal; bolstered by the conservation movement, the South Sydney Residents Action Group (SSRAG) led a campaign against the project that resulted in the Builders Labourers Federation placing a Green Ban on the site in February 1973. SSRAG argued that the Housing Commission of NSW had too narrow a vision, and were intending on creating large estates to house socially segregated groups without access to adequate health, welfare, cultural and other facilities.⁷¹

Following the abandonment of the above discussed plan, the suburb was eventually subject to a program of rehabilitation and renewal in the late 1980s and 1990s. This is discussed in further detail, below.

⁷¹ UrbanGrowth NSW Development Corporation, 2011, *Draft Redfern-Waterloo Building Environment Plan: Stage 2 (BEP 2)*, Redfern-Waterloo Authority: Sydney.

‘Cities in the Sky’ - The Evolution of the Flat Building as Public Housing: 1960s – 1970s

As the ‘slum clearance’ movement continued throughout the 1950s and 60s in the inner-city and the demand for housing increased, it became increasingly apparent that land was at a premium; to address this, ‘high-rise’ public housing was introduced into the Commission’s building stock style vernacular.

The program commenced with the simply designed ‘Greenway’ in Kirribilli in 1954, but over the following 20 or so years the philosophies and architecture behind the high-rises would both evolve and be refined. The use of the high-rise as public housing culminated with the construction of the 30-storey towers Matavai and Turanga at Waterloo in 1976, which were to be the tallest and last of their kind to be built in Australia.

The use of the high-rise as public housing in New South Wales was underpinned by the theories of French planner and architect Le Corbusier, who was one of the originators of the international school of architecture. His approach to public housing centred around high-rise blocks connected by walkways so as to create space on the ground plane for parks, walkways and leisure amenities.

Le Corbusier and Public Housing

Le Corbusier developed much of his approach to and theories around urban planning and architectural design in response to the Industrial Age; both the ‘urban chaos’ it generated and the principles of mass production and democracy that underpinned it. Within this context, Le Corbusier advocated an approach to urban design and planning whereby the principles of rational design translated to a greater sense of democracy, egalitarianism and social order.

This was expressed by the use of prefabricated and standardised building components, which he believed to be representative of modernism and egalitarianism, and the incorporation of specific design elements including minimal ornamentation, repetitive units, regularity and straight lines. High-rise apartment buildings were seen by Le Corbusier as the building typology most able to express this ideal, allowing for repetitive, simple dwellings with generous open space at the ground plane achieved through vertical construction.

Le Corbusier’s overarching theory that urban design and architecture could influence social practice was expressed as follows:

‘On the day when contemporary society, at present so sick, has become properly aware that only architecture and city planning can provide the exact prescription for its ills, then the time will have come for the great machine to be put in motion and begin its functions.’⁷²

The intention was for high-rise buildings to incorporate common areas and open galleries (to duplicate the functions of sidewalks and street) within the buildings and larger green spaces at the ground plane that would encourage social relations amongst tenants; through this design elements, Le Corbusier foresaw the high-rises as being self-contained neighbourhoods or ‘cities in the sky’. Le Corbusier’s overarching theories were expressed by the modernist residential housing design principle known as ‘Unité d’habitation’.

The public housing program of the 1950s in the United States was heavily influenced by Le Corbusier’s theories of design and environmental determinism. Like that seen in New South Wales, the public housing program in the U.S. was based largely around ‘slum clearance’ and urban redevelopment, with Le Corbusier’s high rises selected as the model style for new residential development in these areas. Also like that seen in New South Wales and elsewhere including the U.K., the U.S. public housing program and its use of the high-rise was criticised for imposing a forced order on tenants within buildings that were developed by designers and planners in isolation, and without adequate consultation with the inhabitants themselves or purposeful thought about the reality of specific demographics living in such environments.

Despite the intention of the high-rises as ‘cities in the sky’, the reality of public housing developments influenced by Le Corbusier in the U.S. was that they ultimately fostered a sense of isolation and alienation in their tenants, and allowed for the intensification of unfavourable activities and behaviour. Despite this, Le Corbusier’s overarching approach to public housing was adopted internationally, with examples in Australia, the U.K., Europe, Russia, and Asia.

The movement headed by Le Corbusier was a possible inspiration for the development of public housing sites in New South Wales, however, there is no direct evidence of his theories being consciously included in the Waterloo housing project. It has been postulated, however, that even had Le Corbusier not championed the high-rise, it still would have eventually become a widely used public housing building typology; given the

⁷² Le Corbusier, 1967, *The Radiant City*, New York: Orion Press, p. 142.

shortage of land in 'slum clearance' areas where populations were highest and land was at a premium, building vertically for the purposes of public housing was essentially inevitable.⁷³

International Examples of High-Rise Public Housing

The following examples provide a broad overview of the use of the high-rise typology internationally.

La Cité Radieuse, Marseille, France, c. 1952

The first and most famous of Le Corbusier's Unité d'habitation developments is the Cité Radieuse, located in Marseille, France. The building was constructed between 1947 and 1952, and was developed in conjunction with Le Corbusier's designers Shadrach Woods and George Candilis.

The building, which is raised on large *piloti*, comprises 337 apartments arranged over 12 storeys, and was constructed in *béton brut* (or rough cast concrete). Internally, relatively narrow flats are mostly arranged as two-storey duplexes with a double-height living room at one end. One level of each apartment stretches the full 21-metre depth of the block, creating a layout where pairs of homes interlock around a central access corridor. This arrangement meant that these access corridors – known as 'streets' – only needed be accommodated on every third floor; there are therefore just five in total.

When first opened, the building's 7th and 8th floors contained an assortment of shops, eateries, galleries and a hostel for guests. The hostel has since become a hotel, and the shops have seen a change in tenants. Originally, the roof housed a nursery, running track and pools, but is now used as an open air museum space. The building was subject to renovations in 2010-2013.

In July 2016, the Le Cité Radieuse, along with a number of Le Corbusier's buildings, were inscribed as UNESCO World Heritage Sites.

Figure 105 – View of Le Cité Radieuse, date unknown



Source: <http://i34.tinypic.com/dcg5si.jpg>

⁷³ Radford, G., 1999, 'Housing Ideals and Realities: New Historical Explorations', *Journal of Urban History*, 25, 720.

Cabrini-Green, Chicago, U.S., c. 1942-1962

The development of 'Cabrini-Green' began in 1942 with the construction of the Francis Cabrini Rowhouses, with the Cabrini Extensions North and South having been added in 1958, followed by the William Green Homes in 1962. Upon completion, the complex totalled 70 acres on Chicago's near North Side, and housed up to 15,000 people within 3,607 units across a number of buildings, many of which were 'high-rise' (between seven and 19 storeys). Again, this complex was developed as part of a 'slum clearance' program.

As seen at other public housing estates of the period, Cabrini-Green soon devolved, and became synonymous with drugs, crime and violence. Following years of tension and financial issues, the U.S. Department of Housing and Urban Development took over the Chicago Housing Authority in 1995 and in 1999 the Department announced a 'plan of transformation' for the city, which was to involve the demolition of the high-rise buildings at Cabrini-Green.⁷⁴

Demolition of the buildings began in 2000, and were completed by 2011. Only the 1942 Rowhouses have been retained, with the remainder of the land to be redeveloped my mixed-income developments.

Figure 106 – Aerial view of Cabrini-Green, c. 1999



Source: <https://www.britannica.com/media/full/1995752/200068>

⁷⁴ <https://www.britannica.com/topic/Cabrini-Green>

Pruitt-Igoe, St Louis, U.S., c. 1954

The Wendell O. Pruitt Homes and William Igoe Apartments, collectively known as Pruitt-Igoe, were joint urban housing projects first occupied in 1954 in the U.S. city of St. Louis, Missouri. The complex comprised 33 individual buildings of 11 storeys each across 57 acres of land. The complex was developed as part of a 'slum clearance' program, and was designed by architect Minoru Yamasaki who also designed the World Trade Centre towers and the Lambert-St. Louis International Airport main terminal.

Living conditions in Pruitt-Igoe declined soon after construction was completed in 1956, and by the late 1960s, the complex had become renowned for its poverty, crime, and racial segregation. All 33 buildings were demolished with explosives in the mid-1970s, and the project has become an icon of failure of urban renewal, public-policy planning and the 'failure' of government-sponsored housing.⁷⁵

Figure 107 – View of Pruitt-Igoe from the air, shortly following completion in 1954



Source: <http://www.pruitt-igoe.com/YAMA/wp-content/uploads/2010/09/P-I99.jpg>

The Park Hill Flats, Sheffield, U.K., c. 1961

The Park Hill Flats in Sheffield, South Yorkshire, England, was constructed between 1957 and 1961 as part of a 'slum clearance' program. The Flats were designed by architects Jack Lynn and Ivor Smith under the supervision of John Lewis Womersley, Sheffield Council's City Architect.

The Flats feature a reinforced concrete frame, partly board marked, with concrete balcony fronts and brick infill in four shades. They comprise a total of 995 flats on 17 acres, as well as 31 shops, four pubs, a laundry boiler house, refuse station and garage. The flats and maisonettes were designed on a steeply sloping site (gradient 1 in 10) keeping a constant roof level, so that the height of the blocks range from four to thirteen storeys.

Access decks at every third floor serve maisonettes on and above the deck and one-storey flats set below. The innovative width of these four 'street decks' was a key feature of the architects' concept; all save the uppermost (Norwich Row) debouches on to ground level at some part of the scheme, and are served by 13 lifts and two large goods' lifts which gave milk floats and other services direct access to the decks, enhancing the image of 'streets in the sky'.

The Flats received a Grade II Heritage Listing in 1998, on the basis of the following assessment of significance:

'Park Hill is of international importance. It is the first built manifestation of a widespread theoretical interest in external access decks as a way of building high without the problems of isolation and expense encountered with point blocks. Sheffield and the London County Council had the only major local authority departments designing imaginative and successful public housing in the

⁷⁵ <http://www.pruitt-igoe.com/urban-history/>

1950s, and this is Sheffield's flagship. The decks were conceived as a way of recreating the community spirit of traditional slum streets, with the benefit of vehicular segregation.

*Park Hill has been regularly studied by sociologists ever since it opened, and is one of the most successful of its type. The deck system was uniquely appropriate here because the steeply sloping site allowed all but the uppermost deck to reach ground level, and the impact of the long, flat-topped structure rising above the city centre makes for one of Sheffield's most impressive landmarks. The result was Britain's first completed scheme of post-war slum clearance and the most ambitious inner-city development of its time.*⁷⁶

Park Hill is currently being subject to a program of extensive renovation, which will provide around 200 new dwellings and 2,500 square metres of commercial space. Renovations have already been undertaken on the complexes northern block, with the building stripped back to the concrete frame and a new façade applied. The expected completion date of all renovation works is late 2019.

Figure 108 – The Park Hills Flats, showing the original façade (left) in contrast to the newly applied façade of the northern block (right), c. 2015



Source: Paul Dobraszczyk, 2015, via <https://www.theguardian.com/cities/2015/aug/14/park-hill-brutalist-sheffield-estate-controversial-renovation>

⁷⁶ <https://historicengland.org.uk/listing/the-list/list-entry/1246881>

The Robin Hood Gardens, Poplar, U.K., c. 1972

The Robin Hood Gardens is a residential estate in Poplar, London, which was designed in the 1960s by architects Alison and Peter Smithson, and completed in 1972. It was built as a council housing estate with homes spread across 'streets in the sky' similar to that seen at the Park Hill Estate (refer above). Its conception and design was heavily influenced by Le Corbusier's Unité d'Habitation.

The estate comprises two long curved blocks facing each other across a central green space, and in total covers 1.5 hectares (3.7 acres). The blocks are built from precast concrete slabs, are between seven and 10 storeys high, and contain 213 flats. The flats themselves are a mixture of single-storey apartments and two-storey maisonettes, with wide balconies (the 'streets') on every third floor.

A redevelopment scheme, involving the demolition of Robin Hood Gardens as part of a wider local regeneration project, was approved in 2012; however, as of March 2016 the estate was still intact and many flats were still occupied.

A campaign was mounted in 2008 by Building Design magazine and the Twentieth Century Society to have The Robin Hood Gardens listed as a historical landmark in order to save it from destruction, with support from Richard Rogers and the late Zaha Hadid. However, English Heritage did not back the proposal, with its commissioners overruling the advice of its own advisory committee; this decision was made on the basis that the estate did not fully meet the strict criteria for listing post-war buildings, and because the building had suffered serious shortcomings from the start, with designers having been forced to compromise on issues including the width of the access decks.

Interestingly, the campaign to save Robin Hood Gardens drew very little support from those who actually had to live in the building, with more than 75% of residents supporting its demolition when consulted by the local authority.

Figure 109 – The Robin Hood Estate, c. 2012



Source: http://i.telegraph.co.uk/multimedia/archive/03347/robin-hood-01_3347684b.jpg

Trellick Tower, Kensal Town, U.K., c. 1972

Trellick Tower was designed in the Brutalist style by architect Ernő Goldfinger, with construction of the 31-storey flat building completed by 1972. It comprises 217 flats, six shops, an office, and youth and women's centres. Its façade design incorporates bush-hammered in-situ reinforced concrete with some pre-cast pebble-finished panels, and timber cladding to balconies.

Figure 110 – Image of Trellick Tower, c. 2016



Source: <https://static.standard.co.uk/s3fs-public/thumbnails/image/2016/05/25/17/trellick-tower.jpg>

Each third corridor floor contains six one-bedroom flats in each wing, with a storey of two-bedroom flats above and below reached off the same level. The 23rd and 24th floors contain five two-storey maisonettes and two flats. All the living rooms and kitchens to the two-bedroom flats, have balconies forming a distinctive pattern across the main façades that is interrupted by the maisonette floor.

In 1998 the Tower was listed as a Grade II Heritage Building, based on the following brief assessment of significance:

*'Included as the ultimate expression of Goldfinger's philosophy of high-rise planning. It also embodies the best ideas of the time on high rise housing.'*⁷⁷

The majority of the flats in the building have been retained as public housing.

⁷⁷ <https://historicengland.org.uk/listing/the-list/list-entry/1246688>

The Heygate Estate, Elephant and Castle, U.K., c. 1974

The Heygate Estate was a large housing estate designed by architect Tim Tinker and completed in 1974. Like other public housing developments of a comparable scale designed in the same period, it was influenced by Le Corbusier and incorporated public walkways similar to those seen at other developments.

The Estate was demolished between 2011 and 2014 as part of the Elephant and Castle Regeneration Scheme. The Estate was widely criticised for having a dark reputation for crime, poverty, and dilapidation.⁷⁸

Figure 111 – View of The Heygate Estate prior to complete demolition works, c. 2013-2014



Source: <http://www.oblivionstate.com/forum/topic/6551-the-heygate-estate-visited-may-to-july-2013-london-february-2014/>

⁷⁸ <http://www.dailymail.co.uk/news/article-2316072/Poignant-pictures-decaying-crime-ridden-housing-estate-fallen-ruin-remaining-residents-await-bulldozers.html>

Examples of High-Rise Public Housing in New South Wales

The following examples provide a broad overview of the use of the high-rise typology in public housing in New South Wales.

Greenway, Kirribilli, c. 1954

New South Wales' first 'high-rise' public housing development, 'Greenway', located in Kirribilli, was opened in 1954 and at the time was the largest flat complex in Australia. It was named after the colony's first public architect, Francis Greenway, and comprises four buildings consisting of 309 one and two bedroom flats. Height restrictions in Sydney at the time were 150 feet, with Greenway standing 130 feet tall, or 12 storeys. It was designed by architect Percy J. Gordon of the firm Morrow & Gordon, and bears a resemblance to comparable housing 'project' buildings that were constructed in Manhattan in the 1940s.

Figure 112 – A perspective of 'Greenway', dated 1948



Source: *The Housing Commission of New South Wales Annual Report, 1948*, p. 11.

Figure 113 – Greenway, as it currently appears



Source: http://sydneywebcam.smugmug.com/photos/53689079_CbDSd-L.jpg

Owing to the post-war materials shortage, construction of the building took six years and the overall design of the building was simple and restrained so as to save costs; it was designed in a modern Functionalist style that was popular in Australia in the 1930s, which sought to relate the building's form to its function, and avoid 'unnecessary decoration'. The building was appealing to tenants because of the inclusion of modern appliances, included electric stoves, stainless steel sinks, and built-in cupboards.

Greenway has been recognised on the Royal Australian Institute of Architects (RAIA) Register of Significant 20th Century Buildings in New South Wales ('RAIA Register') (RAIA #4700812).

Sir John Northcott Place, Surry Hills, c. 1961

At the time of its construction in 1961, Sir John Northcott Place ('Northcott') in Surry Hills was the largest single flat building to have been constructed by the Housing Commission. Northcott was designed by renowned architects Lipson & Kaad, and is 15 storeys high. The building encompassed 429 units, shops, meeting rooms and other social amenities. It is reported that Lipson regarded the project as a high point of his career, and an opportunity to design socially responsible architecture.⁷⁹

It cost a total of £1.25 million to construct Northcott, and was officially opened by then Premier J.R. Heffron in December 1961; the Queen would attend a further 'opening' celebration two years later in 1963. At the time, Northcott was touted as a 'pioneering project', with the Sydney Morning Herald publishing the following in its editorial:

*'...the gradual acceptance by Australians of high-density living and the dwindling of the old insistence that the only acceptable form of housing is a detached dwelling on an individual allotment. The Housing Commission has recognised and accepted this and a large proportion of its building is now multi-storey.'*⁸⁰

Northcott has been recognised on the RAIA Register (RAIA #4702886).

Figure 114 – John Northcott Place nearing completion c. 1961



Source: *The Housing Commission of New South Wales Annual Report, 1961, p. 8.*

⁷⁹ HeriCon Consulting, 2013, *The Modern Movement in New South Wales: a Thematic Study and Survey of Places*, commissioned by the Heritage Council of NSW, p. 56.

⁸⁰ Sydney Morning Herald, 18 December 1961.

William McKell Place, Redfern, c. 1964

The high-rise building program continued in Redfern with the building of William McKell Place ('McKell Place') in 1964, which was designed by architects Morrow & Gordon and contained 284 flats across six blocks of eight, nine and 10 storeys.

Figure 115 – Artist's impression of McKell Place, as featured in the Commission's annual report of 1961



Source: *The Housing Commission of New South Wales Annual Report, 1961, p. 9.*

One of the economical features of the building was the incorporation of lifts which only stopped at every third floor. Laundries, which were later a source of considerable complaint, were situated in the stair tower on every third floor with one laundry per six flats.⁸¹

McKell Place has been recognised on the RAIA Register (RAIA #4702898).

Figure 116 – McKell Place under construction, c. 1962-93



Source: *The Housing Commission of New South Wales Annual Report, 1962-63, p. 28.*

⁸¹ Sydney Morning Herald, 30 June 1964.

Poet's Corner, Redfern, c. 1965

Opposite to McKell Place, the 'Poet's Corner' development was constructed. Completed by the mid-1960s, this developed comprised three 17-storey blocks named after Australian poets Henry Kendall, Dame Mary Gilmore, and Henry Lawson. It was designed by architecture firm Peddle Thorp & Walker, and was designed to also contain a small shopping centre.

Like McKell Place, Poet's Corner has also been recognised on the RAIA Register (RAIA #4702896).

Figure 117 – Artist's impression of one of the Poet's Corner blocks, with construction to commence c. 1964



Source: *The Housing Commission of New South Wales Annual Report, 1962-63, p. 10.*

Figure 118 – The scale of McKell Place (centre) in relation to the surrounding 17-storey Poet's Corner blocks, c. 1966



Source: *The Housing Commission of New South Wales Annual Report, 1966-67, p. 16.*

Rosebery Apartments, Rosebery, c. 1967

The Rosebery Apartments were designed by Harry Seidler and had been constructed by 1967. It comprised two nine-storey blocks, and a total of 225 apartments.

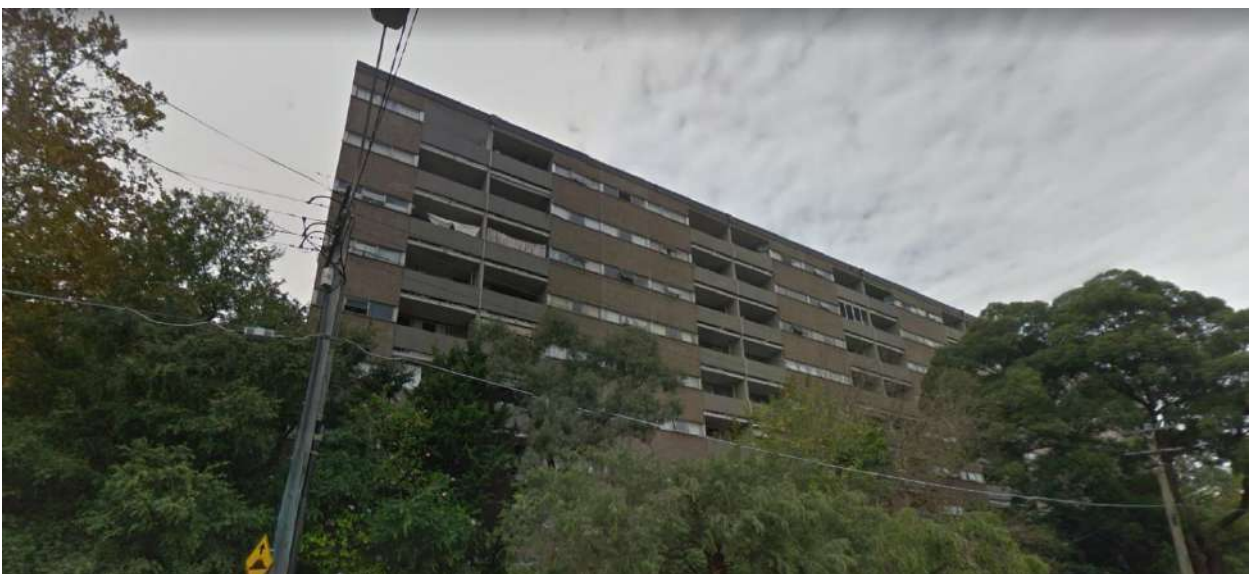
The apartment building was designed in the brutalist style, expressing function through the use of off-form concrete and a free standing lift and stair tower between slab blocks, linked to them by foot bridges. The building is often cited as one of Seidler's best works, and is recognised on the RAIA Register (RAIA #4702910).

Figure 119 – The Rosebery Apartments, c. 1967



Source: Abel, C., 2004, *Architecture, Technology and Process*, Architectural Press: Oxford, Fig. 5.14

Figure 120 – View of Seidler's Rosebery Apartments from Maloney Road, 2016



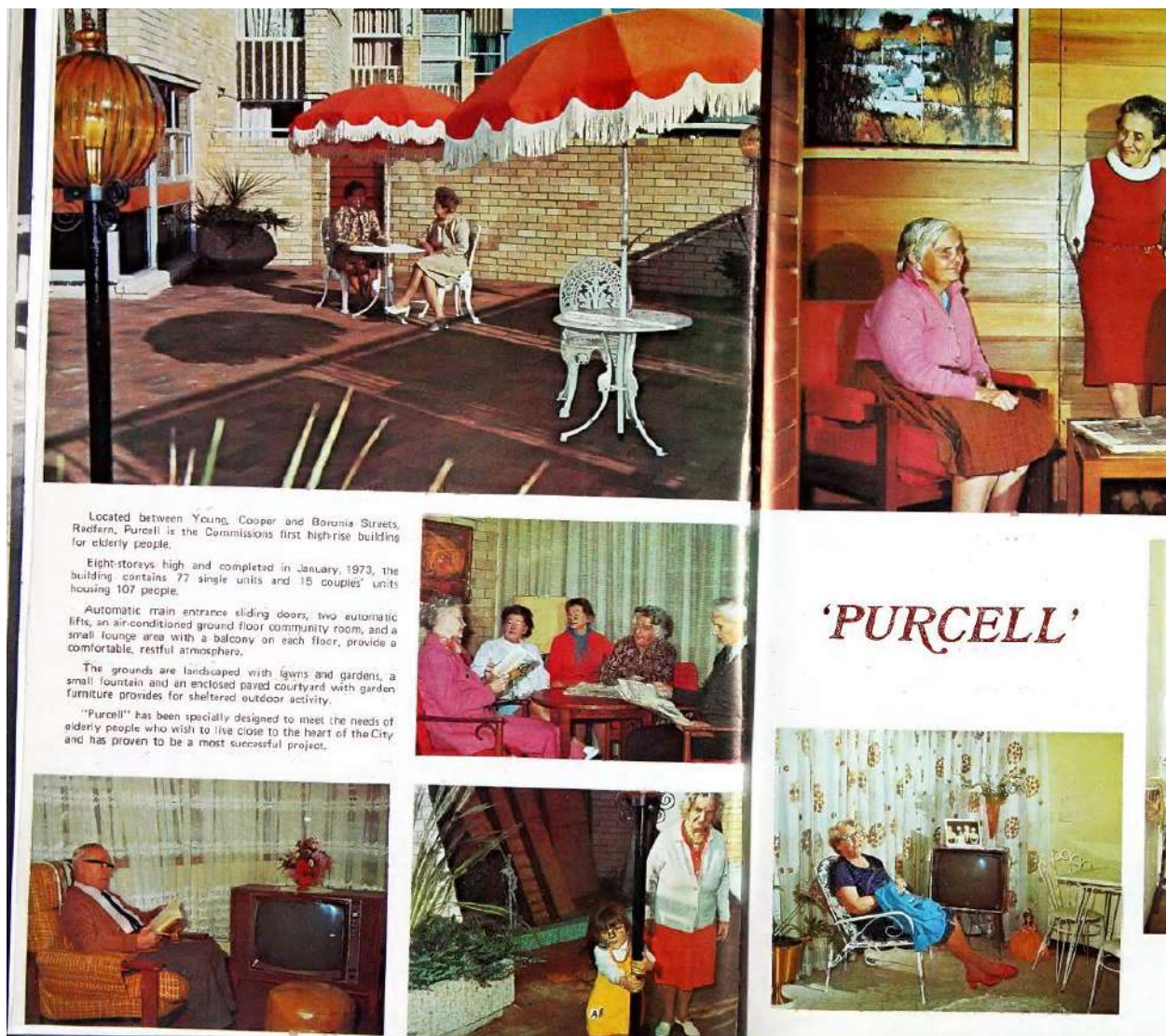
Source: Google Street View, April 2016

Purcell, Redfern, c. 1973

The *Report of the Royal Commission of Inquiry on the Landlord and Tenant (Amendment) Act 1948*, which appeared in 1961, put further pressure on the Commission to provide low cost housing and particularly to accommodate pensioners and elderly tenants generally.

Up until the mid-1960s, aged flats constructed by the Commission were typically contained within the three storey walk-up flats, or in the single storey units. The construction of specifically designed high rise blocks for the aged did not come until Liberal moves in the early 1970s saw the creation of Purcell, an eight-storey block built as part of the continuing Redfern slum clearance scheme and intended to rehouse elderly people who occupied inner city slum dwellings and who wanted to 'remain close to the heart of the city'.

Figure 121 – Excerpt from the 1973 Housing Commission Annual Report, showing a two-page spread on the 'successful' Purcell development



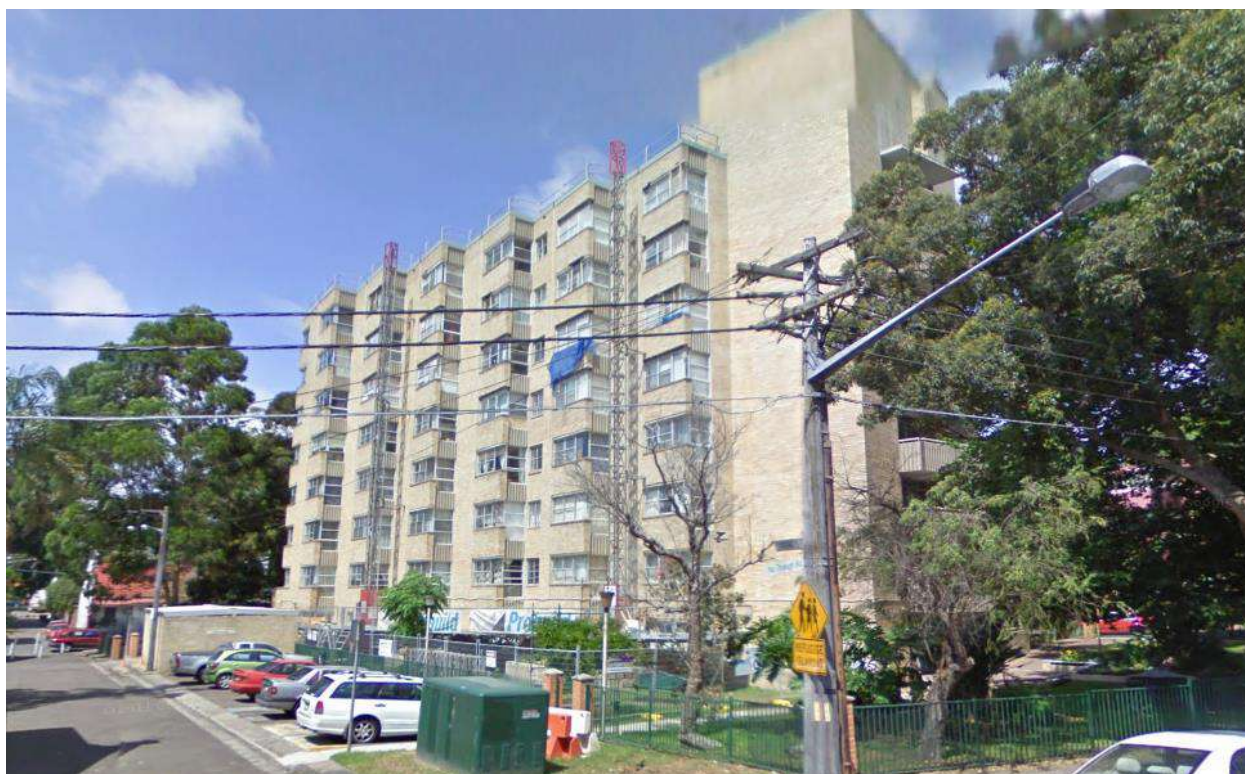
Source: *The Housing Commission of New South Wales Annual Report, 1973.*

Purcell, completed by January 1973, consisted of 77 single flats and 15 flats for couples; it provided housing for a total of 107 aged people. The block contained an air-conditioned ground floor community room, two lifts, and a small lounge on each floor. The landscaped grounds contained an enclosed courtyard with garden furniture to allow for 'sheltered outdoor activity'.

The innovative features of Purcell revealed an attempt by the Commission to improve those aspects of design that researchers most criticised in its earlier blocks of high rise flats, especially landscaping, open space and community amenities.

Again, Purcell has been recognised on the RAIA Register (RAIA #4702900).

Figure 122 – View of Purcell from Cooper Street



Source: Google Streetview, June 2014

The Waterloo Estate, Waterloo, c. 1970-1982

As Purcell demonstrated, the Commission's approach to the use of the high-rise and larger flat buildings evolved over time, particularly in response to criticisms of the use of this type of building stock for elderly residents and for families with children. In 1974 the Commission appointed a research team from Macquarie University to study the attitudes of its tenants towards high rise and walk-up flats, particularly in the 'slum' clearance areas in the inner city.

Overall, the study found that found that 76% of high rise residents gave proximity to the city as the reason for their choice of dwelling type and accepted any drawbacks of the high rise to be in a convenient location, and that most regarded themselves as considerably better off in terms of their previous accommodation.⁸² The study did, however, make recommendations regarding design features that could improve the quality of life in high-rise buildings. This included private laundries, soundproofing, play areas and a more intimate use of outdoor areas.

The high-rise buildings constructed at the Waterloo Estate in the 1970s represented an attempt by the Commission to practically express these research findings. As such, the Waterloo high-rise scheme, which was constructed amongst a number of two and three-storey walk-up flat buildings constructed in the 1940s-60s, contained many new features not previously seen in public housing high-rise buildings.

James Cook, the first to be completed in May 1970 comprised a 17-storey block of 196 two bedroom and 16 one bedroom flats together with a shopping mall of five shops. The Commission claimed that 'the atmosphere achieved in the ground floor foyer and associated management office is one designed to create a sense of identity for the residents'. Modern play equipment was installed in three areas as well as 'carefully positioned' garden furniture throughout the landscaped grounds. Each flat had its own laundry.⁸³ Other blocks built between 1970 and 1974 included the 17-storey Banks, Marton and Solander buildings, all completed July 1973.

⁸² Thompson, R., 1986, *Sydney's Flats: A Social and Political History*, thesis submitted for the degree of Doctor of Philosophy of Macquarie University, School of History, Philosophy & Politics, p. 190.

⁸³ The Housing Commission of New South Wales Annual Report, 1970, p.18.

Figure 123 – View from the roof of the ‘James Cook’ building, Waterloo, showing play areas. Dated c. 1910



Source: *The Housing Commission of New South Wales Annual Report, 1970, p. 15*

In 1974 work began on the two tallest blocks ever contemplated by the Commission. The 30 storey towers called Matavai and Turanga, after landfalls on the voyage of Captain Cook's Endeavour, were to house 524 old people, many of whom had been on the Commission's waiting list for five years. The South Sydney Action Group, whose activities were directed largely by the Labor dominated South Sydney Council, alleged that the flats would encourage high suicide rates, mental depression and general instability amongst tenants. It induced the NSW Branch of the Builders Labourers Federation (BLF) to impose a 'green ban' on Commission plans for further high rise flats.

Pensioner organisations and old people living in the area objected to the green ban, arguing that the Action Group had no right to dictate to them where they should live. Mr Jim Sharrock, a 69 year old retired resident of a Commission flat in Redfern and an executive member of the Council for the Aging, organised a block of 80 old people who attended a meeting between the BLF, the Resident Action Group and pensioners. As a result the BLF agreed to lift the ban and acknowledged that it had 'made a mistake'.⁸⁴

In anticipation of potential tension around the use of high-rise developments in Waterloo, the Commission had consulted some fifty 'potentially influential allies' in the early planning stages for the project.⁸⁵ This included the Sydney Hospital, Sydney City Mission, Sydney Home Nursing Service, Rachel Forster Hospital, Council for the Aging, the Wayside Chapel and the Department of Social Work at the University of New South Wales. In 1973, a year before construction began, the Commission invited Dr Margaret Mead, the renowned social anthropologist, to comment on the two tower blocks and inspect other Commission projects as well as present the Keynote Address at the Building Science Forum Conference on 'Building for People'. She observed that there was no reason why high rise should not work as it gave the old 'security, company and independence'.⁸⁶

Figure 124 – Anthropologist Dr. Margaret Mead visiting the Waterloo high-rise scheme, 1975



Source: *The Housing Commission of New South Wales Annual Report, 1975, p.22*

⁸⁴ Sydney Morning Herald, 21 August 1973.

⁸⁵ Thompson, R., 1986, *Sydney's Flats: A Social and Political History*, thesis submitted for the degree of Doctor of Philosophy of Macquarie University, School of History, Philosophy & Politics, p. 192.

⁸⁶ Sydney Morning Herald, 21 August 1973.

The Commission's tower blocks in Waterloo were the last of their type to be built. This was due to a number of factors including changes to funding, continued criticisms and public opposition against high-rise buildings as public housing, and the continued evolution of the Housing Commission's approach to public housing design and town planning, which was at that time becoming increasingly concerned with the integration of public and private housing so as to minimise the segregation and stigmatisation of public housing tenants within self-contained estates.

Figure 125 – Matavai and Turanga soon after completion, dated 1977



Source: *The Housing Commission of New South Wales Annual Report, 1977, p. 19*

The Sirius building at the Rocks, completed in 1980 and discussed further below, was the first of the new-look Commission high rise. This was followed soon after by two major blocks within the existing Waterloo Estate, 'Dobell' and 'Drysdale', which comprise 130 flats over seven-storeys and were completed in 1983.

These buildings, which form part of the 'Artist's Corner' of the Estate, were designed in a series of stepped back terraces allowing flats on every level to have their own private family courtyard area, which was intended to facilitate family living within a higher density inner city context. 'Dobell' and 'Drysdale' signify the Commission's trend away from massive tower blocks in the inner city, and a refocusing on the provision of low rise medium density housing of a greater variety than previously seen.

The buildings are loosely referential to Anchor Mortlock & Woolley's 'Penthouse Apartments' located at 58-61 New Beach Road, Darling Point. These flats, constructed c. 1966, were designed in the Sydney School style and were considered seminal in the development of townhouse design in Sydney.⁸⁷

Figure 126 – Apartment buildings introduced to the Waterloo Estate c. 1983, known as 'Drysdale' and 'Dobell'



Source: *The Housing Commission of New South Wales Annual Report, 1980, p. 9.*

⁸⁷ Quinlisk, M. on behalf of Clive Lucas, Stapleton & Partners Pty Ltd, c. 2004, *Heritage and Contemporary Architecture: Engaging with the Architects as Part of Local Heritage Listing*, prepared for Woollahra Council.

Figure 127 – Apartment buildings introduced to the Waterloo Estate c. 1983, known as 'Drysdale' and 'Dobell'



Source: *The Housing Commission of New South Wales Annual Report, 1980, p. 9.*

The Sirius Building, The Rocks, c. 1980

The Sirius Building ('Sirius') at the Rocks, completed in 1979 and opened to residents in 1980, was the first of the new-look Commission high rise, and the last of public housing development of that scale and visual prominence to be constructed in New South Wales.

The National Heritage List nomination for the building notes:

Sirius was built in response to the Millers Point community's opposition to the Sydney Cove Redevelopment Authority's plans to demolish historic buildings along the Western side of Circular Quay in order to build high-rise office towers. This plan would have displaced hundreds of residents who have lived in the area for generations. The Resident Action Group was formed to rally against the decision and was aided by the Builders Labourers Foundation and leader Jack Munday to place one of the famous Green Bans on the area, which prevented the development and removal of residents until an appropriate solution was found that benefitted both parties. Out of this conflict the government agreed to the Green Ban conditions and commissioned a building to house displaced residents, which was the Sirius Building. The building symbolized a win for the community of Millers Point and lifted the Green Ban on the area.⁸⁸

The below figure shows the 1963 proposal that was halted by The Rocks Green Ban and community action.

⁸⁸ http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=place_name%3Dsirius%3Blatitude_1dir%3DS%3Blongitude_1dir%3DE%3Blongitude_2dir%3DE%3Blatitude_2dir%3DS%3Bin_region%3Dpart%3Bkeyword_PD%3D0%3Bkeyword_SS%3D0%3Bkeyword_PH%3D0;place_id=106312

Figure 128 – 1963 proposal for The Rocks, which did not go ahead



Source: <http://millerspointcommunity.com.au/the-place/sirius/>

Sirius was designed by Commission architect Theodore 'Tao' Gofers to accommodate a wide range of demographics and family types. The building was specifically designed to address the concerns raised in the previous decade regarding the use of high-rise and high-density buildings as public housing; it included a number of features that were specifically incorporated so as to improve the quality of living for its tenants, including public spaces designed to encourage resident interaction, level security lift access, built in distress alarms and a loading dock for furniture and equipment. Incorporating both aged and family housing in a single building was a decided step away from the schemes recently completed in other inner-city areas (like Waterloo).

The below figure shows an artist's impression of the building, prior to construction; the building was based on a three-storey prototype built at San Souci.

Figure 129 – An artist's impression of the Sirius building, dated 1977



Source: *The Housing Commission of New South Wales Annual Report, 1977, p. 11.*

Figure 130 – The San Souci prototype for the Sirius Building



Source: <http://millerspointcommunity.com.au/the-place/sirius/>

Sirius has been identified as being aesthetically significant as the physical:

*'... representation of an important move by the Housing Commission of the mid 1970s, away from modernist ideals of housing in towers or slab blocks on cleared sites towards [architectural] solutions that involved community participation and sympathetic contextual placement of such housing and retention of long time low income residents in historic inner urban precincts'*⁸⁹

It has also been identified to have landmark qualities owing to its highly visible presence within views of Circular Quay from Sydney Harbour and from the Harbour Bridge travelling or facing south. It is also aesthetically distinct within its context owing to its strong Brutalist character, asymmetrical massing and distinctive fenestration; it is one of the most thoughtful and refined architectural offerings of the Housing Commission.

In March 2014, the NSW state government announced plans to sell the site and in 2015, tenants of the public housing complex were relocated. The Heritage Council of NSW unanimously recommended the building for heritage listing following a meeting of the Council in December 2015.

In 2015, Stephen Davies, Director of Urbis Heritage (the authors of this report), was a sitting member of the Heritage Council.

Recommendations of the Heritage Council are usually accepted by the Minister (Mark Speakman); however, in a statement released on 31 July 2016, the Minister declined to heritage list the building, saying it could reduce the site value by approximately \$70 million, which is equivalent to 240 social housing units.

The decision to heritage list Sirius was reviewed on October 25, 2017, by the Minister (Gabrielle Upton) and she declined to heritage list the building⁹⁰

The full extract can be viewed at <http://www.environment.nsw.gov.au/heritageapp/minister.aspx>

The building was officially listed for sale by the State Government in December 2017.

⁸⁹ Professor Phillip Goad, 2015, quoted in http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=place_name%3Dsirius%3Blatitude_1dir%3DS%3Blongitude_1dir%3DE%3Blongitude_2dir%3DE%3Blatitude_2dir%3DS%3Bin_region%3Dpart%3Bkeyword_PD%3D0%3Bkeyword_SS%3D0%3Bkeyword_PH%3D0;place_id=106312

⁹⁰ Gabrielle Upton, Decision pursuant to Section 34(1) of the Heritage Act 1977, October 25 2017.

Examples of High-Rise Public Housing Elsewhere in Australia

Victoria

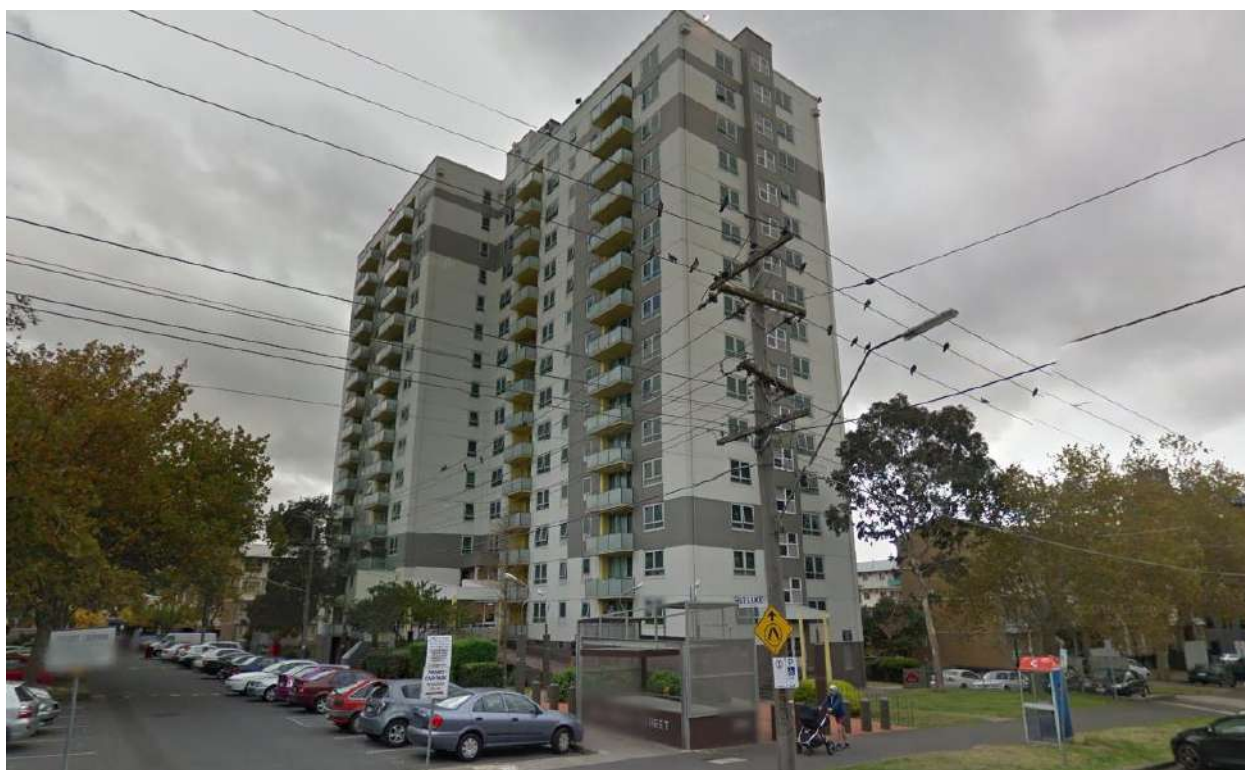
Although extensive, the high-rise building program of the New South Wales Housing Commission was not as extensive as that of its Victorian counterpart, and did not occur as early. While tower blocks became a major type of public housing in Melbourne, they accounted for less than 5% of the New South Wales public housing stock, and these were predominately concentrated within the inner city 'slum clearance' areas. There are around 21 sites in Victoria where high-rise public housing developments occurred. The below provides a non-exhaustive overview of these.

Emerald Hill Court Flats, South Melbourne

Constructed c. 1960-62, this 17-storey concrete tower represented the Housing Commission's first foray into high-rise apartment construction. As such, it marked the start of the Commission's ambitious and controversial high-rise programme that transformed Melbourne's inner suburbs during the 1960s.

It may also possibly be an early local use of slip-form concrete construction. It was designed by Sir Bernard Evans on behalf of the Housing Commission of Victoria.⁹¹

Figure 131 – View of Emerald Hill Court, April 2015



Source: Google Street View

Emerald Hill was identified as a building of heritage significance in a 2008 heritage study of post-war built heritage in Victoria. Although the development is not individually listed, it forms part of the Emerald Hill Residential Precinct, which is listed on the Port Phillip local government area heritage list (Ref: HO440).

⁹¹ Heritage Alliance Conservation Architects and Heritage Consultants, October 2008, *Survey of Post-War Built Heritage in Victoria: Stage One*, prepared for Heritage Victoria, p. 213.

Park Towers, South Melbourne

Park Towers is a 32 storey high-rise flat block designed and built between 1962 and 1969, and officially opened in 1970. It was designed by Roy Prentice on behalf of the Housing Commission of Victoria.

Park Towers was the tallest, most ambitious, most architecturally considered and most celebrated of the high-rise blocks built by the Housing Commission of Victoria in the 1960s. At the time, it was not only one of the tallest blocks of flats in Australia but also one of the tallest pre-cast load-bearing concrete buildings in the world.⁹²

In terms of a comparative analysis, Park Towers provides the closest comparison to Matavai and Turanga, the 30-storey towers within the Waterloo SSP. Whilst the architectural height of Park Towers is recorded as 92 metres, that of Matavai and Turanga is recorded as 97 metres.

Like Emerald Hill, Park Towers was identified as a building of heritage significance in a 2008 heritage study of post-war built heritage in Victoria. Although the development is not individually listed, it forms part of the Emerald Hill Residential Precinct, which is listed on the Port Phillip local government area heritage list (Ref: HO440).

Figure 132 – Park Towers, South Melbourne, date unknown







Source: <http://australiaforeveryone.com.au/melbourne/images/sth-melb-park-towers.jpg>



⁹² Heritage Alliance Conservation Architects and Heritage Consultants, October 2008, *Survey of Post-War Built Heritage in Victoria: Stage One*, prepared for Heritage Victoria, p. 214.




Other Examples of High-Rises as Public Housing in Victoria




Table 6 – Example of high-rise building typology use for public housing in Victoria




Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Albert Park	Victoria Avenue (corner of Reed St) 1 building (I-Shaped)	
Brunswick	Barkly Street (corner of McKay St) 1 building (S-Shaped)	



Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Carlton	Elgin Street (corner of Nicholson St) 2 buildings (I-Shaped)	
	Lygon Street (Lygon St) 4 buildings (2 S-Shaped, 1 Y-Shaped, 1 T-Shaped)	




Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Collingwood	Hoddle Street (between Perry & Vere Streets) 2 buildings (S-Shaped)	
	Wellington Street (between Perry & Vere Streets) 1 building (S-Shaped)	



Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Fitzroy	Atherton Gardens (Brunswick St) 4 buildings (S-Shaped)	
Flemington	Racecourse Road (Racecourse Rd) 4 buildings (4 S-Shaped)	
Footscray	Gordon Street (corner of Shepherd St) 1 building (T-Shaped)	

Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Kensington	56 Derby Street 1 building (L-Shaped)	
	94 Ormond St 1 building (I-Shaped)	
North Melbourne	Boundary Road (Boundary Rd) 3 buildings (1 S-Shaped, 1 Y-Shaped, 1 T-Shaped)	

Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
	Canning Street (corner of Boundary Rd) 1 building (I-Shaped)	
Northcote	Heidelberg Road (near Merri Creek) 1 building (S-Shaped)	
Prahran	King Street (corner of Little Chapel St) 2 buildings (T-Shaped)	

Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
Richmond	112 Elizabeth Street 4 buildings (S-Shaped)	
	Highett Street (corner of Lennox St) 1 building (S-Shaped)	

Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
St Kilda	Inkerman Street (corner of Henryville St) 1 building (T-Shaped)	
South Yarra	Malvern Road (between Bray St & Surrey Rd) 3 buildings (2 Y-Shaped, 1 S-Shaped)	
Williamstown	Floyd Lodge (corner of Thompson St and Hanmer St) 1 building (I-Shaped)	

Suburb	Location/ Summary Description	Photograph <i>(Source: Google Street View)</i>
	Nelson Place (corner of Pasco St) 1 building (S-Shape)	
Windsor	Union Street 1 building (S-Shaped)	

Western Australia

Wandana Apartment Block, Subiaco, Perth

The Wandana Apartment Block, constructed c. 1956, is listed on both the Western Australia State Heritage Register, as well as the Subiaco Municipal Inventory. The building has been recognised for its aesthetic, historic and social values, as well as its representativeness and rarity, as follows:

Aesthetic Value

Wandana Apartment Block, with its considered massing and limited palette of materials is a good example of the post-war international style of architecture. The lawns and gardens, designed to complement the building, add to the aesthetic quality of the place. As the first multi-storey residential building providing public housing in Perth, and one of the first in Australia, the place demonstrates design innovation and achievement. The physical dominance of the ten storey building in the complex over the surrounding single storey residential buildings gives it a landmark quality.

Historic Value

Wandana Apartment Block is associated with the debate concerning the provision of appropriate public housing in cities and the question of high rise accommodation that was prevalent in western countries in the post-World War II period and which involved architects, planners and sociologists. The place is important as an attempt to provide low cost public housing for a range of household types close to the city centre at a time of rapid population growth. The place has significance as the first multi-storey public housing apartment block in the State. The lawns, gardens, playgrounds, shops and community facilities established at the time of construction were designed to provide amenities and services for residents.

Figure 133 – The Wandana Apartment Block, 2008



Source: <https://perthsbest.wordpress.com/2008/01/16/wandana/attachment/375/>

Wandana Apartment Block was constructed as a result of the vision of Herb Graham, the Minister for Housing at the time. Graham was responsible for implementing the new concepts of public housing in Western Australia in the 1950s. Wandana Apartment Block was designed by Perth architect Harold Krantz, who was prominent in the field of flat design in Perth and who promoted the principles of standardisation and economies of scale in construction. The landscaping was designed by prominent landscape architect, John Oldham.

Social Value

The place is valued for its association with the provision of public housing. Specifically it was an example of the experiment in multi storey housing that caused much controversy and discussion on the nature of housing in Australia and elsewhere in the 1950s and 60s.

The place is valued by the various residents who have lived in the neighbourly community of the multi storey public apartment since its construction in 1954. The dominance of Wandana Apartment Block in the Subiaco community and its continuity of function contribute to the community's sense of place.

Rarity and Representativeness

Wandana Apartment Block was the first multi-storey public housing block built in the Western Australia and as such represents the State Government's adoption of the post-World War II social planning philosophies already being implemented in Europe and America at the time. In a national context, high rise public housing did not occur in Melbourne until the 1960s and Wandana is therefore possibly one of the earliest examples in Australia. Wandana Apartment Block is representative of a number of multi-storey residential buildings constructed to provide public housing in the post-World War II era, both in Australia and other Western countries.⁹³

Urban Renewal and Conservation in the Late 20th Century: 1970s – 1990s

Following the era of the 'high rise' as public housing and the community opposition it generated (particularly at Waterloo), the Housing Commission, which was re-branded as the NSW Department of Housing in 1986 (and Housing NSW in 2008), again shifted their focus. The idea of 'urban renewal' was reconsidered and repackaged; rather than demolishing older housing stock and replacing it wholesale with medium and high density housing, the Commission instigated a more restrained renewal program based on renovating existing dwellings and introducing appropriate and sympathetic low-scale infill housing designed in a referential style.

The Whitlam Labor Government (1972-1975) encouraged the general rehabilitation and renewal program that characterised the Commission's activity in the 1970s through to the 1990s. By the mid-1980s, five major urban renewal estates were undergoing rehabilitation and infill development, being Waterloo, Glebe, Daceyville, Millers Point and Lyndhurst. These projects heralded the first time the Commission/Department had sought to rehabilitate terrace housing, which until this time had continued to be associated with the pervasive idea of the inner-city 'slum'.

The Glebe Renewal Project

The suburb of Glebe was initially surveyed in 1870, with 400 acres of land subsequently being granted to the Church of England. The area was subdivided by the Church in 1828; 25 lots were disposed of, while two lots to the north east (later known as St Phillips) and one lot of the south west (later known as Bishopthorpe) were retained. Both were later subdivided, and further housing constructed. By the 1880s the suburb grew as increasing numbers of city workers relocated to Glebe in an effort to escape the poor living conditions of the CBD.

The population grew exponentially, and the suburb was adversely impacted by the depression of the 1930s. Up until the 1960s, both the Church and the City of Sydney made several attempts to improve the standards of housing in the area, and were able to redevelop, reconstruct and upgrade part of the St Phillips precinct. As was the case with other suburbs, particularly those discussed above, redevelopment plans floated throughout the 1960s and 70s, which involved the erection of high rise buildings, were met with opposition

⁹³ <http://inherit.stateheritage.wa.gov.au/Public/Content/PdfLoader.aspx?id=b5efc0a6-3586-43fd-b269-62d755cf8276&type=assessment>

from residents. This opposition was underpinned by the conservation movement, and a recognition of the social and heritage significance of the area.

In 1974 the Commonwealth Government stepped in and acquired the area from the Church. It was later acquired by the (then) Housing Commission of NSW. A program of rehabilitation was initiated by the Commonwealth Government, but due to limited funding only 237 of the intended 710 existing dwellings had been upgraded by the time the Urban Renewal Group of the Department of Housing took control of the project.⁹⁴

Similar to the redevelopment of Woolloomooloo, the Urban Renewal Group sought to redevelop Glebe while conserving the heritage values and range of architectural styles present in the area. In addition to this, community consultation was emphasised throughout the process. Through a combination of rehabilitation, renovation and infill development, the program resulted in an increase of 155 dwellings and approximately 900 bedrooms across the suburb. Examples of these dwellings are shown in Figure 134, below.

Figure 134 – Contemporary infill public housing within the historical Glebe Estate



Picture 90 – Properties along Wentworth Park Road, featuring referential dormers, verandahs and overall form in a contemporary style



Picture 91 – Property on Wentworth Park Road featuring a referential bay window and verandahs in a contemporary style



Picture 92 – Property at the corner of Mitchell Lane and Wentworth Street, featuring referential parapets, verandahs and overall form



Picture 93 – Property at Wentworth Park Road, featuring referential verandahs and overall form in a contemporary style

⁹⁴ Gregory, J. and Richardson, R. 1993, *New South Wales Case Study: Evolution or Revolution – the Glebe Estate, Sydney*, in National Capital Planning Authority, *Restructuring Public Housing Precincts*, Occasional Paper, Series 1, Paper 4, report prepared for Department of Health, Housing and Community Services, Australian Government Publishing Service: Canberra.

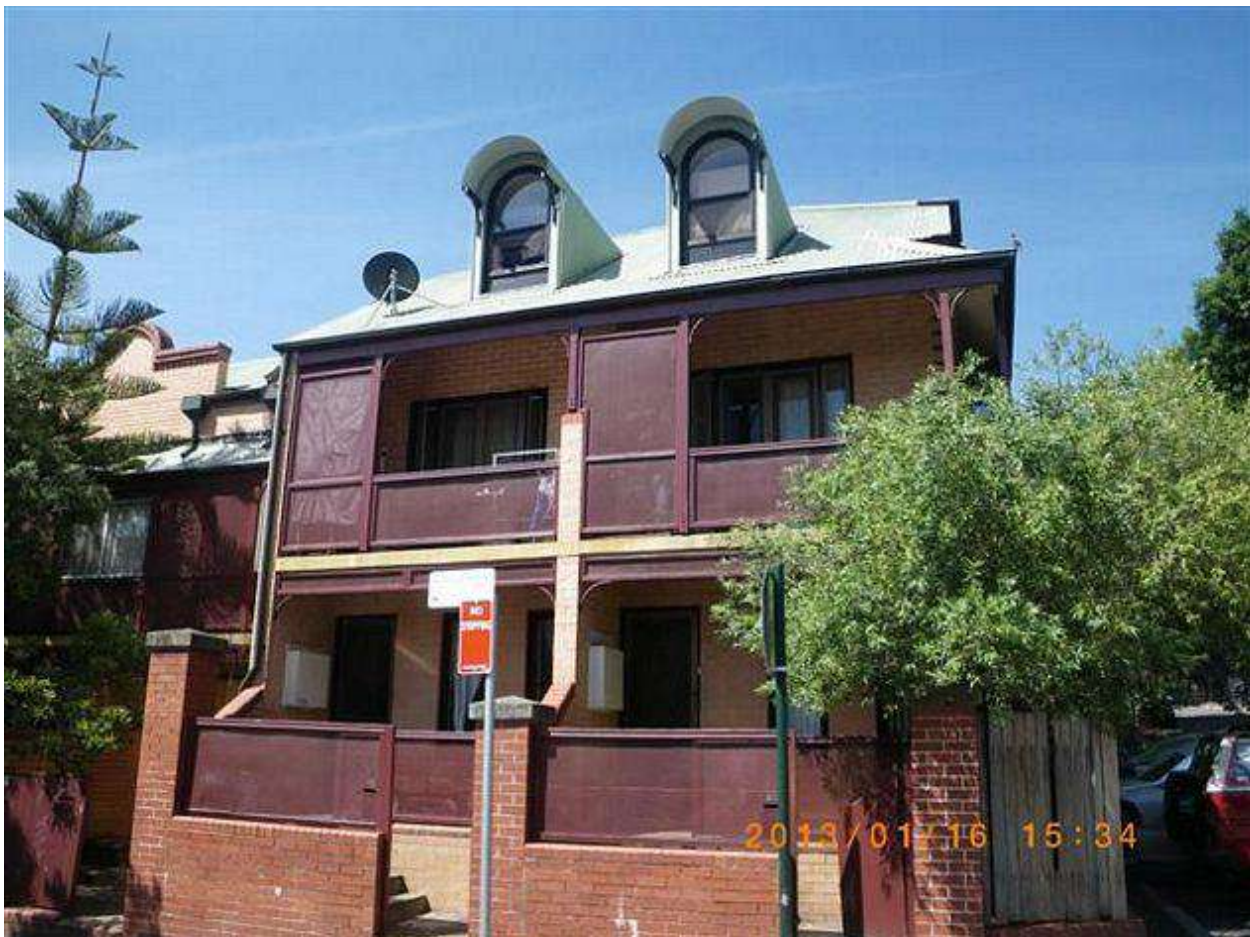
As part of urban renewal programs undertaken in other suburbs between the 1940s and 1970s (also known as 'slum clearance'), existing housing stock was typically demolished and replaced, rather than retained, conserved and rehabilitated. As conservation was not prioritised, infill development that respected the existing character of the neighbouring buildings and overall suburb had not been necessary. Significantly, the rehabilitation of Glebe's public housing stock, which did involve the construction of infill buildings, represented the first such attempt by the (then) Housing Commission of NSW to combine redevelopment with conservation. This was evidence of the beginning of the 'conservation movement'.

As the above photographs demonstrate, the infill housing constructed at Glebe, like that of the suburbs discussed below, as well as that of Millers Point, was designed to be referential to the historic and heritage listed properties that characterise the suburb. Properties along Wentworth Park Road in particular are similar in design to those on Forbes Street, Woolloomooloo, which sought to represent the arches, parapets and verandahs of neighbouring and nearby heritage properties in a contemporary style.

It is noted that a row of referential infill terrace houses in Glebe have been recognised as having heritage significance via a local heritage listing on Sydney's current local environmental plan (Sydney LEP 2012, Item No. I659). These terraces, located at 82-96 Bridge Road, Glebe and constructed c. 1988, have been identified as significant on the basis of being an:

*'...excellent example of modern infill development in character with historic townscape architectural significance... recent example in chronological development of workers housing to be seen in Glebe from 1840s to the present.'*⁹⁵

Figure 135 – View of the referential infill terraces at 82-96 Bridge Road, Pyrmont, dated 2013



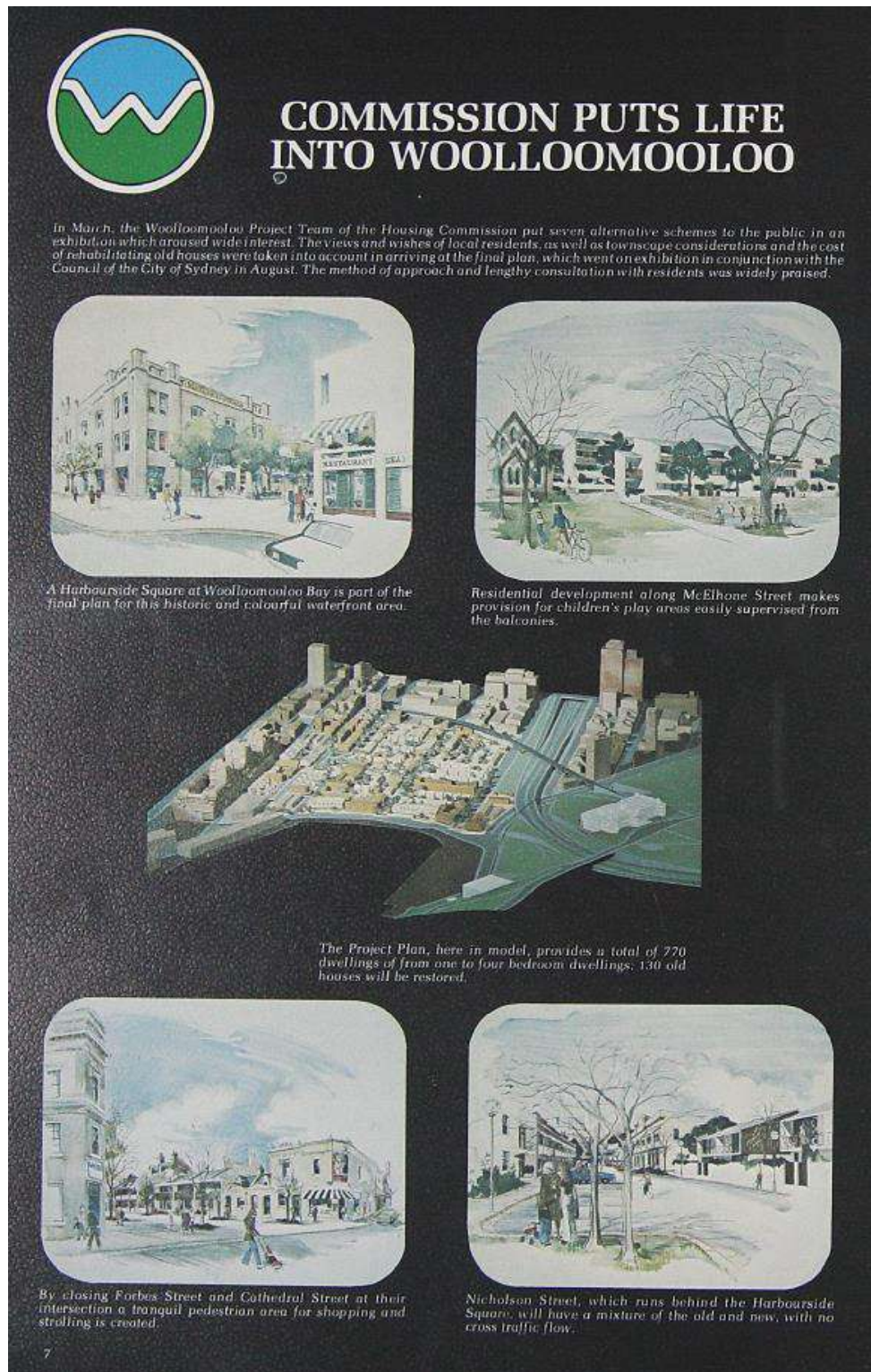
Source: <http://www.environment.nsw.gov.au/heritageapp/HeritageItemImage.aspx?ID=2427854#ad-image-0>

⁹⁵ <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2427854>

The Woolloomooloo Renewal Project

The 'Woolloomooloo Project' was initiated by the Housing Commission of NSW in 1975. The Project, which involved the reconstruction of the suburb, was underpinned by an appreciation of the heritage significance of the area, and an acknowledgement of the wide range of architectural styles and variable quality of the existing buildings, which were seen to require a different approach from other urban renewal programs that had previously been undertaken. In line with the conservation movement, the Housing Commission described it as '*... not just a conservation project or redevelopment but a combination of both*'.

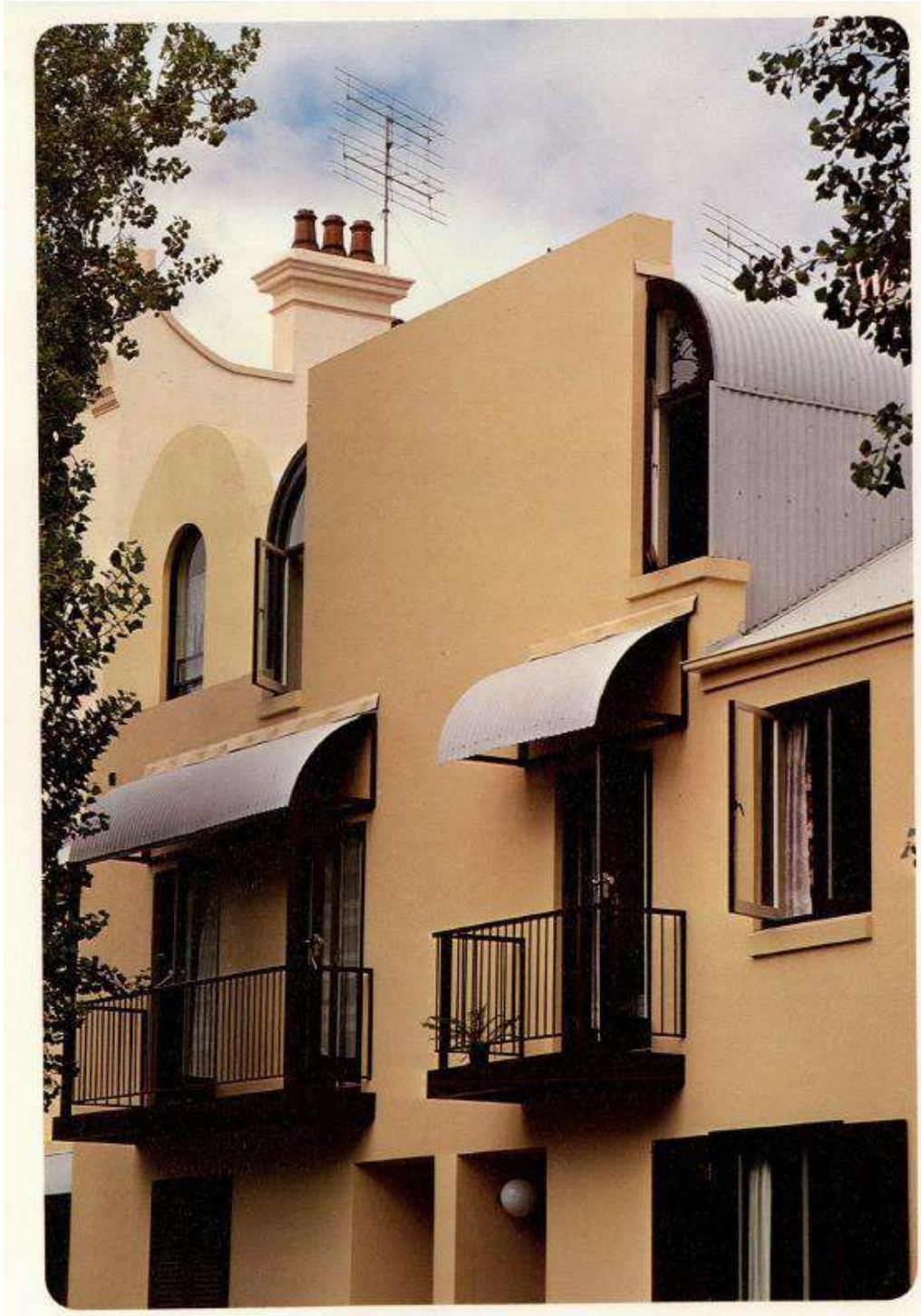
Figure 136 – Information regarding the Woolloomooloo Renewal Project, dated 1976



Source: The Housing Commission of New South Wales Annual Report, 1976, p. 7.

To manage this unique situation, the Housing Commission divided the area into a series of smaller jobs, and engaged different architectural firms to design infill housing for each. Examples of infill housing constructed as part of the Project include those along Forbes Street, and within the land bounded by Dowling, Cathedral and Judge Streets. Architectural consultants involved in the Project include Ancher Mortlock and Woolley and Philip Cox and Associates. The latter consultants were also involved in the similar program of rehabilitation and redevelopment that was undertaken in Millers Point throughout the 1980s and early 1990s (refer below). Their infill housing on Forbes Street, which was constructed between Victorian terrace houses on both sides, was designed so as to repeat the arches, parapets and verandahs of the neighbouring dwellings.

Figure 137 – Referential infill housing in Woolloomooloo, located at 92-100 Forbes Street



Source: *The Housing Commission of New South Wales Annual Report, 1979, p. 9.*

Overall, the Project included 770 dwellings, 130 of which were to be rehabilitated for public housing. Similar to that seen at other rehabilitation and renewal sites, rehabilitation in Woolloomooloo involved the restoration of façades, the upgrading of interiors by providing new kitchens, bathrooms, and laundries, and the repair or replacement of services, fixtures and fittings.⁹⁶

As was the case with Glebe, the Woolloomooloo Project was heavily influenced by the conservation movement, and this influence is still in evidence today. Varied examples of the successful integration of traditional housing with contemporary infill housing are present in Woolloomooloo. Examples have been provided in Figure 138, above.

The Woolloomooloo Project garnered substantial interest; it was featured in a number of journals, both in Australia and overseas, and won two prizes in the N.S.W. Building Society's 1980 Design Awards. No. 92-100 Forbes Street (refer Figure 137 above) has also been recognised on the RAIA Register (RAIA #4703088).

Figure 138 – Contemporary infill public housing within the historic suburb of Woolloomooloo



Picture 94 – Central courtyard located at the corner of Cathedral and Dowling Streets, showing the integration of public housing in different styles and from different periods within a single block



Picture 95 – View from the central courtyard located at the corner of Cathedral and Dowling streets, showing the rear of properties located on Dowling Street (contemporary on left and Victorian to right)



Picture 96 – Terraces along Forbes Street, designed a simple referential style



Picture 97 – Terraces along Forbes Street, featuring referential parapets, verandahs, arched windows and overall form in a contemporary style

⁹⁶ The Housing Commission of NSW, 1979, *Woolloomooloo Project: The New Architecture of Woolloomooloo*, The Housing Commission of NSW: Sydney.



Picture 98 – Terraces along Forbes Street, featuring referential parapets, arched windows and overall form in a contemporary style



Picture 99 – Terraces along Forbes Street, featuring referential arched windows and overall form in a contemporary style

Millers Point

Following the Harbour Trust's role as landlord in Millers Point in the first decades of the 20th century, control of the area was transferred to the Maritime Services Board (MSB) upon its inception in 1936. The Housing Commission and later the Department of Housing progressively assumed control of nearly 400 properties from the MSB from 1982 onwards.

As seen at other suburbs, the Department of Housing's Urban Renewal Group prepared a Strategy Plan which brought together detailed studies of the area (including an inventory of buildings, social history, archaeology, landscape, and demographics) to formulate an operational framework for the rehabilitation and infill program to be undertaken in the suburb.

The established heritage significance of Millers Point as a precinct was a key consideration in the preparation of this Plan, as was developing methods that appropriately balanced heritage with the projected living needs of the residents. Throughout the suburb, a total of 394 older buildings of heritage significance were rehabilitated, and 32 infill buildings constructed. As was the case elsewhere, infill buildings were designed in a referential style intended to be sympathetic to the existing, surrounding building stock.

Select example of infill development within the precinct are provided below.

Figure 139 – Infill development within Millers Point, constructed in the 1980s and 1990s

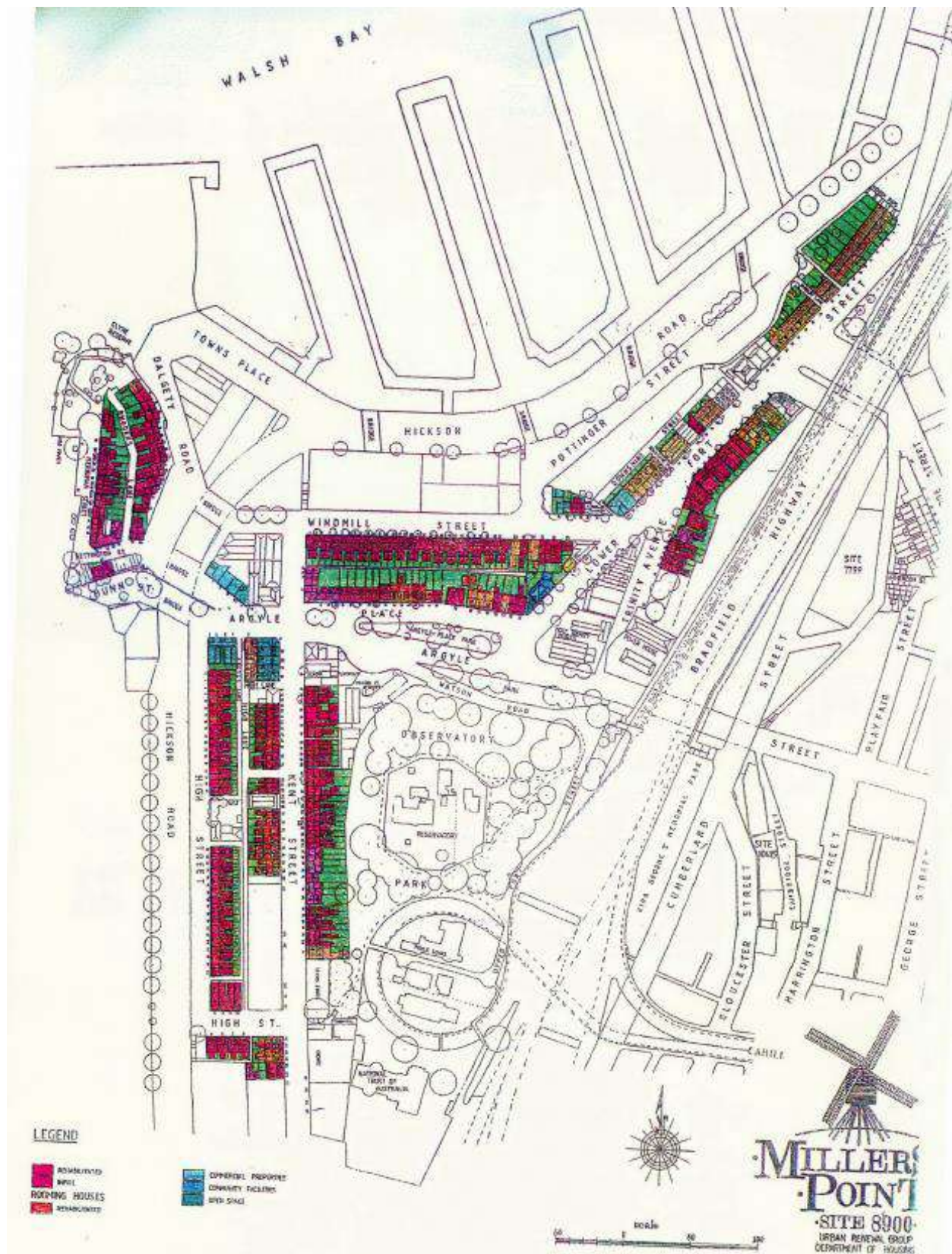


Picture 100 – 54A & 54B Kent Street



Picture 101 – 2-8 Kent Street and 16-20 Argyle Place

Figure 140 – Plan of Millers Point showing rehabilitated (red) properties and infill development (purple)



Source: Department of Housing Library, date unknown, Visit by Minister for Urban Affairs and Planning and Minister for Housing: Waterloo Housing Estate.

Redfern and Waterloo

Following the abandonment of the 1972 plan to resume and redevelop 32 hectares of land south of Redfern Park in Waterloo, limited building stock in these suburbs was eventually subject to a program of rehabilitation and renewal in the late 1980s and 1990s, which mirrored those undertaken in Daceyville, Glebe and Woolloomooloo.

This program included the construction of a number of infill buildings, including 3-4 storey apartments (e.g. along Pitt Street), 2-3 storey terrace housing (e.g. overlooking Redfern Park and Oval), 1-2 storey townhouses at Explorer Place and other infill types in Walker Street. These infill developments, like those in other suburbs, were designed in a 'contextual' manner, so as to fit into the streetscapes of existing conservation areas. Examples of infill housing constructed in Redfern/Waterloo as part of the program have been provided in Figure 141, below.

Infill housing in Walker Street (located between Phillip and Wellington Streets) constructed as part of this program has since been recognised by the Royal Australian Institute of Architects, and was awarded the Lloyd Rees Award for Outstanding Design in 1993.

Figure 141 – Contemporary infill public housing within the historic suburbs of Redfern/Waterloo



Picture 102 – Terraces along Phillip Street, featuring referential parapets, arched windows and overall form in a contemporary style. Victorian terraces shown at right of frame



Picture 103 – Terraces along Chalmers Street, featuring referential verandahs and overall form in a contemporary style. Victorian terraces shown at left of frame



Picture 104 – Terraces along Chalmers Street, featuring referential parapets, verandahs and overall form in a contemporary style. Victorian terraces shown at right of frame



Picture 105 – Award winning infill development at Walker Street

Phillip Cox and Partners Pty Ltd

Philip Cox commenced his first practice with Ian McKay in 1963. In 1967 Cox founded his own practice, Philip Cox and Associates. Through to the late 1970s, the practice focused primarily on domestic and school architecture, as well as the conservation of historic buildings. In 1980, the firm commenced work on the new township of Yulara at Ulura (Ayers Rock), which was awarded the Royal Australian Institute of Architects Sir Zelman Cowen Award in 1984.

For the remainder of the 1980s, the firm designed a number of significant public buildings for the 1988 Australian Bicentenary including the Sydney Football Stadium (now Aussie Stadium) and the Sydney Exhibition Centre. The success of these projects led to the establishment of offices in Melbourne, Brisbane and Perth in addition to the existing Sydney and Canberra offices. Over the next several decades the firm continued to grow, taking on a range of projects in Singapore, China, and Dubai, as well as Australia.

From the mid-1970s onwards, Philip Cox and Partners were involved in a number of public housing projects in and around Sydney. They were commissioned to design infill housing as part of the Woolloomooloo Renewal Project (1975-1983) and the Millers Point rehabilitation works (early 1980s). This body of work coincides with the early years of the practice,

At this time, Cox was also the architect responsible for initially implementing the American Radburn design for public housing in New South Wales. The Radburn design is typified by the backyards of homes facing the street and the fronts of homes facing each other over common yards.

It is often referred to as an urban design experiment which is typified by failure due to the laneways used as common entries and exits to the houses helping ghettoise communities and encourage crime; it has ultimately led to efforts to 'de-Radburn' or partially demolish American Radburn designed public housing areas.

When interviewed in 1998, the architect responsible for introducing the design to public housing in New South Wales, Philip Cox, was reported to have admitted with regards to an American Radburn designed estate in the suburb of Villawood, "Everything that could go wrong in a society went wrong," "It became the centre of drugs, it became the centre of violence and, eventually, the police refused to go into it. It was hell."

APPENDIX D ABORIGINAL CULTURAL HERITAGE ASSESSMENT – WATERLOO ESTATE

STATUTORY FRAMEWORK

The following legislation, which has been sourced from the *Guide to Investigation, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, provides the primary context for Aboriginal heritage management in NSW: the *National Parks and Wildlife Act 1974* (NPW Act), the *Environmental Planning and Assessment Act 1979* (EP&A Act), the *National Parks and Wildlife Regulation 2009* and the *Heritage Act 1977* (the Heritage Act).

Other relevant legislation includes the Aboriginal Land Rights Act 1983, the Native Title Act 1993 (Cth), the NSW Native Title Act 1994 and other Australian Government legislation.

The National Parks and Wildlife Act 1974 (NSW)

The National Parks and Wildlife Act 1974 (NSW) (the 'NPW Act') is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales. The Office of Environment and Heritage (OEH) administer the NPW Act. The NPW Act provides statutory protection for Aboriginal objects by making it illegal to harm Aboriginal objects and Aboriginal places, and by providing two tiers of offence against which individuals or corporations who harm Aboriginal objects or Aboriginal places can be prosecuted. The NPW Act defines Aboriginal objects and Aboriginal places:

Aboriginal object means 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.

Aboriginal place means any place declared to be an Aboriginal place under section 84. The highest tier offences are reserved for knowledgeable harm of Aboriginal objects or knowledgeable desecration of Aboriginal places. Second tier offences are strict liability offences—that is, offences regardless of whether or not the offender knows they are harming an Aboriginal object or desecrating an Aboriginal place—against which defences may be established under the National Parks and Wildlife Regulation 2009 (NSW) (the 'NPW Regulation').

Section 87 of the NPW Act establishes defences against prosecution under s.86 (1), (2) or (4). The defences are as follows:

- An Aboriginal Heritage Impact Permit (AHIP) authorising the harm (s.87(1)).
- Exercising due diligence to establish Aboriginal objects will not be harmed (s.87(2)).

Due diligence may be achieved by compliance with requirements set out in the National Parks and Wildlife Regulation 2009 (the NPW Regulation) or a code of practice adopted or prescribed by the NPW Regulation (s.87(3)).

Changes to the NPW Act were made effective on 1 October 2010 and include;

- Increased penalties for Aboriginal heritage offences, in some cases from \$22,000 up to \$1.1 million in the Case of companies who do not comply with the legislation;
- Prevention of companies or individuals claiming 'no knowledge' in cases of serious harm to Aboriginal heritage places and objects by creating new strict liability offences under the Act;
- Introduction of remediation provisions to ensure people who illegally harm significant Aboriginal sites are forced to repair the damage, without need for a court order;
- Unification of Aboriginal heritage permits into a single, more flexible permit; and
- Strengthened offences around breaches of Aboriginal heritage permit conditions.

The National Parks and Wildlife Regulation 2009 (NSW)

The NPW Regulation 2009 (cl.80A) assigns the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (NSW Department of Environment, Climate Change and Water 2010) (the Code) as one of the codes of practice that can be complied with pursuant to s.87 of the NPW Act.

Disturbed land is defined by cl.80B (4) as “disturbed if it has been the subject of a human activity that has changed the land’s surface, being changes that remain clear and observable”. Examples given in the notes to cl.80B (4) include “construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure)”.

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (the Code) describes the process that must be followed and the actions that must be taken by a proponent, and the site conditions that must be satisfied, to show due diligence in the consideration of potential harm to Aboriginal objects.

The Due Diligence Code sets out a basic framework with the following steps followed in order to make an assessment of whether or not proposed activities may impact Aboriginal objects:

- **Step 1.** Will the activity disturb the ground surface?
- **Step 2a.** Search the AHIMS database and use any other sources of information of which you are already aware
- **Step 2b.** Activities in areas where landscape features indicate the presence of Aboriginal objects
- **Step 3.** Can the harm or the activity be avoided?
- **Step 4.** Desktop assessment and visual inspection
- **Step 5.** Further investigations and impact assessment

The process set out in the Code involves consideration of harm to Aboriginal objects at increasing levels of detail, with additional information incorporated at each step and used to support the decisions being made. If the proposed activities are not “low impact activities” (a defence for which is provided under the Regulation) the considerations result in a determination of whether or not;

- further approval (an AHIP) under the NPW Act is required, or;
- Due Diligence obligations for the protection of Aboriginal objects are discharged by the process under the Code.

Aboriginal consultation is not required for an investigation under the due diligence code (DECCW 2010:3). However, if the due diligence investigation shows that the activities proposed for the area are likely to harm objects or likely objects within the landscape, then an Aboriginal Heritage Impact Permit will be required with full consultation.

A record of the due diligence procedure followed must be kept to ensure it can be used as a defence from prosecution (DECCW 2010:15).

Following a due diligence assessment (where an AHIP application was not required), an activity must proceed with caution. If any Aboriginal objects are identified during the activity, then works should cease in that area and OEH notified (DECCW 2010:13). The due diligence defence does not authorise continuing harm.

National Native Title Register (NNTR)

The Native Title Act 1993 (Cth) (NTA) provides the legislative framework to;

- recognise and protect native title;
- establish ways in which future dealings affecting native title may proceed and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title;
- establish a mechanism for determining claims to native title; and
- provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The NSW Native Title Act 1994 was introduced to make sure the laws of NSW are consistent with the Commonwealth's NTA on future dealings. It validates past and intermediate acts that may have been invalidated because of the existence of native title. The National Native Title Tribunal has a number of functions under the NTA, including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims.

Other Acts

The Australian Government Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth) may be relevant if any item of Aboriginal heritage significance to an Aboriginal community is under threat of injury or desecration and state-based processes are unable to protect it. The Environment Protection and Biodiversity Conservation Act 1999 (Cth) may also be relevant to some proposals, particularly where there are heritage values of national significance present.

CONSULTATION PROCESS

The (then) Department of Environment, Climate Change and Water (DECCW) (now OEH) established a set of *Aboriginal Cultural Heritage Consultation Requirements (ACHCRs) for Proponents*, which were endorsed in 2010.

The intention of the ACHCRs is to establish the requirements for consultation with the registered Aboriginal parties as part of the heritage assessment process to determine potential impacts of proposed activities on Aboriginal cultural heritage and to inform decision making for any application for an AHIP. The ACHCRs require consultation with Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places as relevant to a proposed project area/development zone in accordance with these requirements.

These requirements:

- apply to all activities throughout New South Wales that have the potential to harm Aboriginal *objects* or *places* and that requires an AHIP;
- replace the *Interim Community Consultation Requirements for Applicants*, December 2004; and
- support other (then) DECCW policies and procedures that provide direction and guidance for AHIP proponents in determining Aboriginal cultural heritage impacts.

These consultation requirements are also required to be undertaken prior to any test excavation occurring in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW* (2010).

It is also noted that consultation in accordance with the ACHCRs is a requirement of the *Nominated State Significance Precinct – Waterloo: Study Requirements*, issued by the NSW Government Department of Planning & Environment (NSW DPE) and issued 19 May 2017.

Further detail regarding the consultation process for the subject site is included in Section 3.6.4 of this report, and the 'Summary of Consultation Outcomes: Engagement Report on the Waterloo Metro Quarter' report, prepared by Urbis and dated 2018.

Environmental Context

The following information is largely sourced from the AHMS *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*.⁹⁷ Where required, this has been supplemented with additional information by Urbis.

Land-use History/Disturbance

As has been outlined in the Historical Overview presented at Section 3.3.2, the SSP study area has been subject to residential, commercial and industrial development for over 150 years. This has resulted in significant modifications to the landscape, including 'truncation' or cutting and filling works, the construction of buildings and associated landscaping, and the installation of services across the site. In some areas, particularly in association with the Endeavour Estate and the eastern side of the site generally (where topography is/was steepest), this has resulted in impacts over two metres deep. This is shown in Figure 142, overleaf.

However, it was noted in the previous AHMS assessment that in association with the Tuggerah soil landscape, artefacts have been identified at depths greater than two metres within the surrounding area.⁹⁸ The implications of the underlying geology and soil landscape on archaeological potential are considered further below.

Topography and Hydrology

The SSP study area is situated on a landscape that was originally characterised by moderate to steep slopes which likely reflect the upper slopes and crests of large sand dunes. There is a sharp and notable increase in slope and elevation towards the eastern portion of the study area, primarily associated with the local rise in the topography around the Our Lady of Mt Carmel School. Levelled areas have been created throughout the study area to enable development, and this has resulted in significant modification to the original topography.

To the south of the study area the elevation declines, and prior to European contact land to the south contained a large number of swamps, creeks and wetlands known as the Waterloo Swamps (alternate names include Lachlan Swamps or Botany Wetlands). The Swamps were formerly a network of fresh water and marshland that extended from what is now known as Botany Bay to Centennial Park, with parts of the system being located within 200 metres of the study area.

Shea's Creek, now known as the Alexandria Canal, was a tributary of the Cooks River and is located approximately 550 metres to the southwest of the study area. Two lagoons, one of which is known as Boxley's Lagoon, are located to the northwest of the site in Redfern; the ethnographical record strongly suggests that these lagoons were frequented by Aboriginal people during the contact period.

Soils

The site is situated on the Tuggerah soil landscape. This soil landscape is characterised as an aeolian landscape, and consists of a variety of deep (greater than two metres) loamy sands and peats commonly found in dune fields.⁹⁹ It is noted that the geotechnical assessment prepared for the study area (refer below) identifies that the site is also underlain by quaternary alluvium sands; the interaction between the Aeolian and alluvium sand deposits in this area is not clear, and has been heavily impacted by environmental processes over time, as well as by more contemporary development and associated disturbances.

Within this soil landscape generally, recent and Pleistocene (>10,000 years BP) cultural materials are commonly encountered, and archaeological finds at depths greater than two metres are not uncommon within this context. It is noted that while development in the local area and immediate study area would have resulted in significant disturbance to the upper part of the dune profile, deeper deposits may remain intact below. This has been confirmed by the relevant geotechnical studies.

⁹⁷ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014.

⁹⁸ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 16.

⁹⁹ Chapman, G. A., & Murphy, C. L., *Soil Landscapes of the Sydney 1:100 000 sheet*. Sydney: Soil Conservation Service of N.S.W., 1989.

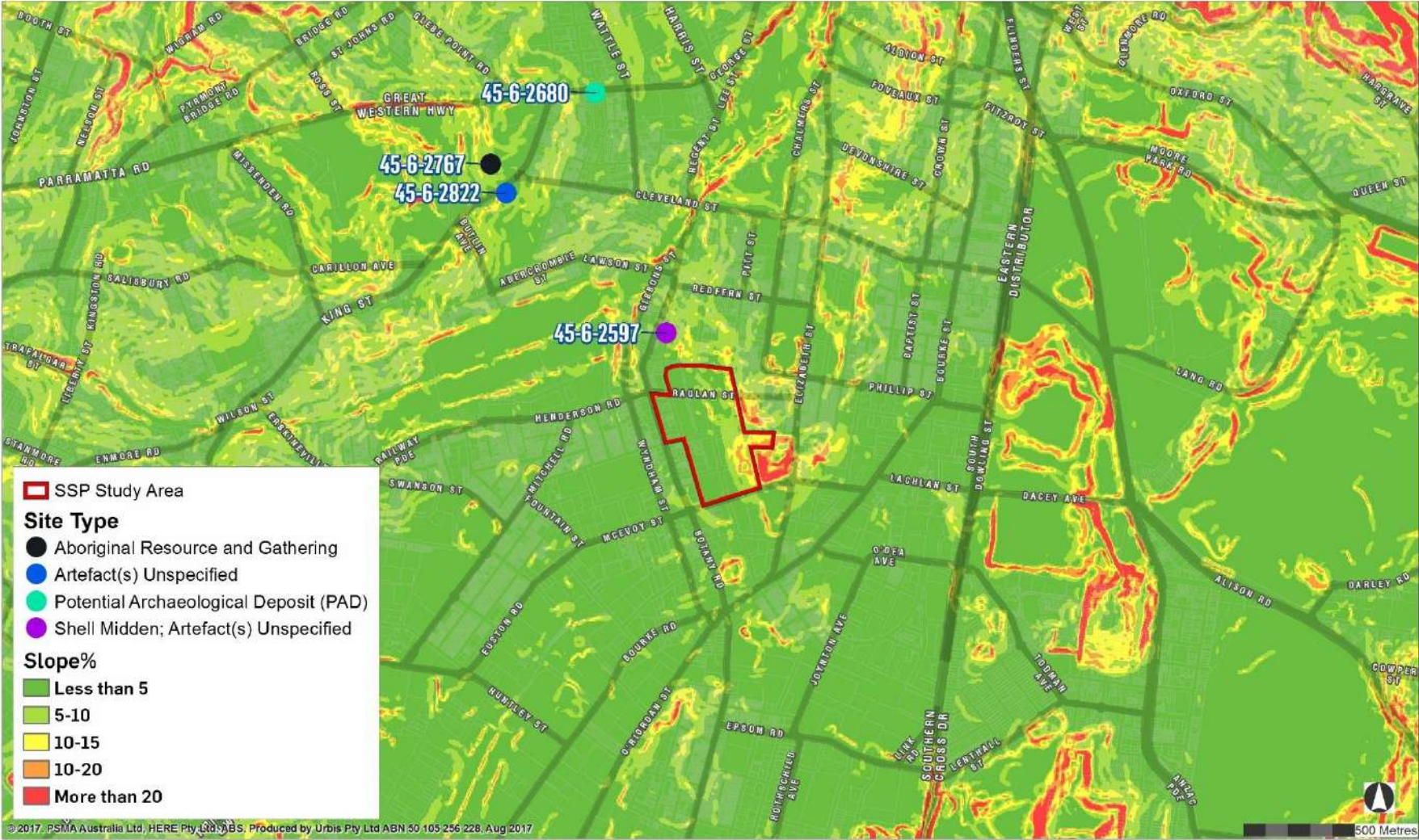
Figure 142 – Overview of disturbance within the SSP study area



STAGE 1 ABORIGINAL CULTURAL HERITAGE STUDY: WATERLOO STATE SIGNIFICANCE PRECINCT (SSP) STUDY AREA

EXTENT OF LANDSCAPE MODIFICATION ACROSS THE SSP STUDY AREA

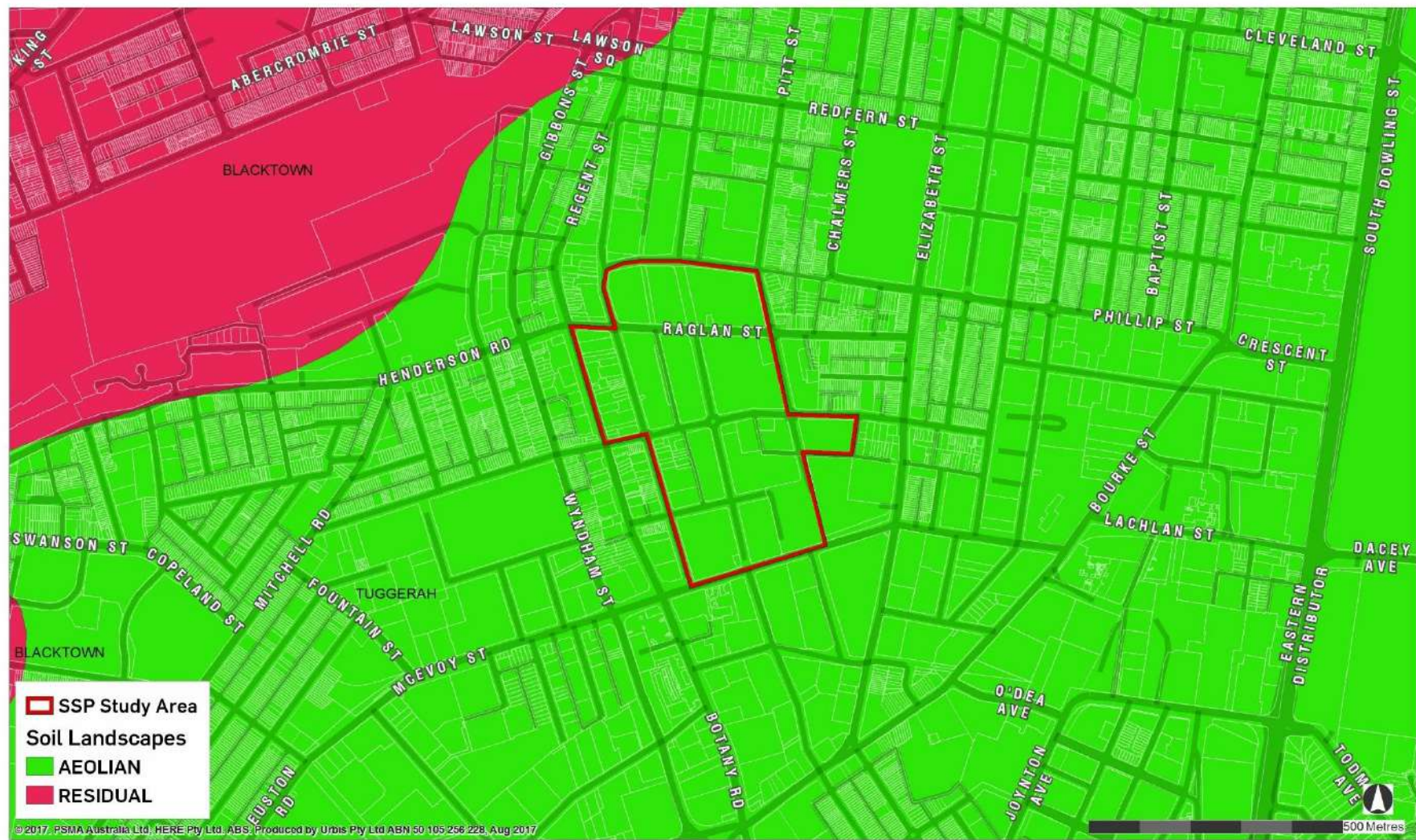
Figure 143 – Topography of the SSP study area



STAGE 1 ABORIGINAL CULTURAL HERITAGE STUDY: WATERLOO STATE SIGNIFICANCE PRECINCT (SSP) STUDY AREA

TOPOGRAPHY

Figure 144 – Soil landscapes in and within proximity to the SSP study area



STAGE 1 ABORIGINAL CULTURAL HERITAGE STUDY: WATERLOO STATE SIGNIFICANCE PRECINCT (SSP) STUDY AREA
SOIL LANDSCAPES

Geology

As touched on above, the SSP study area is, in association with the aeolian Tuggerah soil landscape, underlain by quaternary (Holocene and Pleistocene) alluvium. This comprises wind-blown, fine to medium grained, well sorted marine quartz sand commonly referred to as the Botany Sands.

The bedrock underlying the Botany Sands is either:

- Ashfield Shale, underlain by the Mittagong Formation and/or Hawkesbury Sandstone; or
- Hawkesbury Sandstone.

The Ashfield Shale is expected across most of the SSP study area, though faulting that has led to uplifting and removal of the Ashfield Shale through erosion to the east of the study area.

Ashfield Shale is described as black to dark grey shale and laminate, while the Mittagong formation is an intermediate unit sometimes present between the Ashfield Shale and Hawkesbury Sandstone. It is sometimes referred to a transition bed between the fine-grained Ashfield Shale and relatively coarse-grained Hawkesbury Sandstone and is described as shale, laminite, and medium grained quartz sandstone. The Hawkesbury Sandstone is described as medium to coarse-grained quartz sandstone, very minor shale and laminite lenses.¹⁰⁰

The AHMS report notes that a source of silcrete, a type of stone commonly used by Aboriginal people to manufacture stone implements, is known to occur in Newtown, which indicates that good quality workable stone was locally available to Aboriginal people in the past.¹⁰¹

Flora and Fauna

Prior to European settlement and the intensive development of the subject site and surrounding landscape, the study area is likely to have situated within a transitional zone between the Eastern Suburbs Banksia Scrub (ESBS) vegetation community and open woodland forest. This is based on the underlying geology and soil landscapes.

ESBS is a sclerophyllous heath/scrub community that occurs on disjunct patches of nutrient poor aeolian dune sand along the Sydney coast. Small patches of woodland, low forest or limited wetter areas may be present within ESBS, depending on site topography and hydrology. Common species of the community include wallum banksia, heath-leaved banksia, old man banksia, pink wax flower, variable swords edge, coastal tea tree, broom heath, and the grass tree.¹⁰² Open woodland within the Sydney Basin is most typically characterised by eucalypt species.

The above vegetation communities would have provided habitats for a variety of animals, as well as providing potential food and raw material sources for Aboriginal people. The nectar of the banksia flower is known to have been sourced by Aboriginal people in the past, while the dry cones of the flowers are known to have been used as firebrands, to strain drinking water, or as tools (e.g. needles).¹⁰³

The grass tree had many uses; nectar was collected from the long flowering spikes with a sponge made of stringybark, while the stalks from old flowers and fruits were used as tinder. The heart of the flower stem is edible, and the long dry stem could be used to make light spear shafts while the soft wood provided the base for a fire-drill used for fire making. The soft bases of young leaves are sweet, and have a nutty flavour, and tough leaves were used as knives to cut meat. Resin was used as glue to fasten barbs in spears or axe heads to handles, and roots are known to have been eaten. Further, grass trees flower in response to fire, making them a more useful natural resource in the past.¹⁰⁴

¹⁰⁰ AECOM, May 2017, *Phase 1 Geotechnical and Contamination Study: Waterloo*, prepared for UrbanGrowth NSW.

¹⁰¹ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 41.

¹⁰² NSW Department of Environment and Conservation, 2004, *Eastern Suburbs Banksia Scrub Endangered Ecological Community Recovery Plan*, NSW Department of Environment and Conservation: Hurstville.

¹⁰³ Nash, Daphne. 2004. *Aboriginal Plant Use in South-Eastern Australia*. edited by Australian National Botanic Gardens, p. 2.

¹⁰⁴ Nash, Daphne. 2004. *Aboriginal Plant Use in South-Eastern Australia*. edited by Australian National Botanic Gardens, p. 5-6.

Eucalyptus trees were a particularly important resource; leaves were crushed and soaked for medicinal purposes, bowls, dishes, and canoes were made from the bark, and spears, boomerangs and shields were crafted from the hard wood.¹⁰⁵

Typical animals which may have been present in the area and hunted by Aboriginal people in the past include kangaroos, wallabies, wombats, sugar gliders, possums, echidnas, a variety of lizards and snakes, birds, as well as native rats and mice. These animals may have been utilised as a source of food, or as a resource for the manufacture of implements and ornaments.¹⁰⁶

Relevant Geotechnical Studies

As part of the overarching SSP project, AECOM has prepared a *Phase 1 Geotechnical and Contamination Report*. This report has identified the following preliminary geotechnical model, which is based on available borehole data in the vicinity of the SSP study area.

Table 7 – Preliminary geotechnical model for the SSP study area

Geotechnical unit	Description	Depth to top of unit (m)	Unit thickness (m)
Fill	Likely to be variable sands or clays containing silt, gravel, possibly waste materials	Ground surface	Less than 1
Tuggerah Aeolian Sands and Botany Alluvium Sands	Sand: mainly fine to medium grained, loose and medium dense	0.6 to 1.6	1 to 6
Residual Soil	Silty Clay: medium plasticity, very stiff and hard	2.2 to 5.2	2.7 to 6
Ashfield Shale	Shale: extremely weathered to highly weathered, very low to medium strength	7.8 to 14.6	1.2 to 9.2
Mittagong Formation and/or Hawkesbury Sandstone	Sandstone: mainly fresh rock with medium to high strength	9.2 to 22.5	Not proven

As this Phase 1 report identifies, however:

*The unit depths, thicknesses and material properties presented in Table 1 should not be assumed to represent the maximum or minimum values on the site. Actual unit boundaries and material properties can be highly variable, particularly for fill.*¹⁰⁷

To date no physical geotechnical investigation has occurred within the study area specifically. As such, the information presented in Table 7 is indicative only. Borehole investigations, which are to be undertaken within the study area as part of the overall SSP project, will provide more accurate information regarding the actual sub-surface conditions within the study area, and how contemporary development has impacted them.

Such data is available for an adjacent site, being the former Rachel Forster Hospital at 134-144 Pitt Street, immediately north of the current study area. Two geotechnical studies were undertaken of the site, which identified:

The soil profile across the site was characterised generally by fill materials consisting of brown to light brown/grey to light grey gravely silty sand with brick and crushed concrete fragments and minor ash traces, grass and tree rootlets, dry; overlying natural brown to light grey sand, fine to medium

¹⁰⁵ Nash, Daphne. 2004. *Aboriginal Plant Use in South-Eastern Australia*. edited by Australian National Botanic Gardens, p. 7-8.

¹⁰⁶ Attenbrow, V. 2003. *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*: UNSW Press, p. 70-76.

¹⁰⁷ AECOM, May 2017, *Phase 1 Geotechnical and Contamination Study: Waterloo*, prepared for UrbanGrowth NSW.

grained, dry (0.3 to 2.5 m BGL [below ground surface]); overlying natural red/grey clay, medium-high plasticity, dry (0.3 to 6m BGL).¹⁰⁸

AHMS, who worked on this site for the purposes of archaeology, identified that for the purposes of Aboriginal heritage the natural sand between 0.3 and 2.5 metres below ground surface was of interest. This is because this sand unit has the potential to reflect part of the under-lying dune system common in this region, and has been demonstrated to be a deposit with potential to contain buried Aboriginal objects.

AHMS further noted that grey coloured sands and sandy loams are indicative of former A-horizon topsoils because it suggests they contain a humic content derived from surface vegetation, and it is these upper units that have potential to contain cultural deposits associated with Aboriginal use of the area before European settlement.

Given the proximity of the former Rachel Forster Hospital site, and in the absence of geotechnical data from within the current study area, it can be assumed that a similar sub-surface profile will be present within the Waterloo SSP. Similar humic sands up to 2.5 metres in depth would be of interest for the purposes of archaeology if found to be present within the current study area.

Summary

A review of the environmental context suggests that resources, including food (flora and fauna) and raw material sources, would have been available in and around the SSP study area in the past. Topographically, the study area would have been easily accessed and navigated on foot.

The study area also would have been well relatively sourced with subsistence resources, including flora, fauna and water. Within 200 metres to the south of the study area, and prior to European contact, a network of fresh water and marshland swamps, creeks and wetlands known as the Waterloo Swamps (alternate names include Lachlan Swamps or Botany Wetlands) was formerly located. Shea's Creek, now known as the Alexandria Canal, is also located approximately 550 metres to the southwest of the study area, and lagoons were located to the northeast. These water sources would have provided a significant resource for Aboriginal people in the past, both in the form of water as well as the provision of riverine/lacustrine resources generally, including food in the form of shellfish and fish.

Original vegetation and associated fauna would have also provided an abundance of natural resources for use as food, or for the manufacture of tools and general equipment. As discussed above, vegetation species present in the study area, including various eucalypt and banksia species, are known to have been used by Aboriginal people in the past.

Preferred raw stone materials such as chert, mudstone, quartz and silcrete do not naturally occur in the immediate area. However, this is not to say that such material may not have been brought to the immediate area from farther afield either for working or use, as is typically seen to be the case as low-density artefact sites within the Sydney Basin. The known silcrete source present in Newtown, which is located in relative proximity to the study area, indicates that quality workable stone was locally available to Aboriginal people in the past.¹⁰⁹

¹⁰⁸ *Environmental Investigations*, 2012, Unpublished report to Kaymet Corporation Pty Ltd.: Kaymet Corporation Pty Ltd. Additional environmental investigations. 134-150 Pitt Street, Redfern, NSW.

¹⁰⁹ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 41.

ARCHAEOLOGICAL CONTEXT

The purpose of reviewing the relevant heritage information is to assist in identifying whether Aboriginal objects or places are present within the subject property. An understanding and review of the relevant archaeological context is critical in formulating predictive models and assessing the archaeological potential area.

Ethnohistorical Context

At the time of European settlement, the Aboriginal people of the Sydney region were organised into named territorial groups. The groups local to the study area would most likely have belonged to the Darug (Dharug), Gundundurra and the Dharawal (Thurawal) language groups.¹¹⁰

However, as noted in the 2014 AHMS report, there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups of the greater Sydney region. These debates have arisen largely because by the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late 19th Century, Aboriginal groups had been broken up and reconfigured by European settlement activity.

Sydney region archaeologist and historian Val Attenbrow has cautioned:

Any boundaries mapped today for (these) languages or dialects can only be indicative at best. This is not only because of an apparent lack of detail about such boundaries in the historical documents, but because boundaries between language groups are not always precise line'.¹¹¹

Language groups such as the Darug included a number of sub-groups often referred to as 'clans', based upon religious and/or totemic associations to country. Ethno-historical evidence indicates the Redfern/Waterloo area may have been part of the land occupied by the Cadigal or coastal Darug clans.¹¹²

Known Uses of Local Resources

The following summary of ethnohistorical accounts of local resource sites being used by Aboriginal people in the past has been sourced directly and in its entirety from the AHMS 2014 assessment.¹¹³

After European arrival, the swamp at Redfern (in the vicinity of Redfern Park) was a focus of Aboriginal use and occupation, being favoured by Indigenous people visiting the town of Sydney, and the site of ritualised disputes following the enclosure of Hyde Park.

Obed West, a 19th century Sydney resident, recalled:

Boxley's Clear [Redfern] was a great rendezvous of the blacks and was one of their great feasting grounds as well as the scene of many a hard-fought battle. The clearing at Redfern, being nicely adjacent, was chosen by the natives as the place of meeting for the settlement of disputes, in lieu of the Racecourse. This also was the spot where the blacks were punished by their comrades for breaches of their tribal laws....¹¹⁴

West also noted the diverse food resources available to the Aboriginal inhabitants of early 19th Century Redfern:

....Boxley's Lagoon these days was the home of vast numbers of red-bills, wild ducks, snipe, landrail and other game now rarely seen anywhere near Sydney. Eels were also plentiful in the water, and in the bush were bandicoots, possums and native cats which the youths of the time would chase with dogs when the nights were favourable....¹¹⁵

¹¹⁰ Attenbrow, 2010: 221-222.

¹¹¹ Attenbrow, V., *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*. Sydney: UNSW Press, 2002, pp.34-35.

¹¹² AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 30.

¹¹³ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 30-31.

¹¹⁴ Marriot, E. W, 1988, *The Memoirs of Obed West. A Portrait of Early Sydney*, Barcom Press, p. 45-46.

¹¹⁵ Marriot, E. W, 1988, *The Memoirs of Obed West. A Portrait of Early Sydney*, Barcom Press, p. 45-46.

West observed Aboriginal camping around the fringes of Redfern, possibly including the elevated landforms such as the current subject area.

Round the edges of the clear were camping grounds of the blacks, and little do people know who live in comfortable houses with steam trams running past their doors, realize that they are sleeping on the houses and graves of the aboriginals.¹¹⁶

The historical evidence summarised above indicates Aboriginal people occupied Redfern during the early 19th century and used the local area for camping, gathering food, traditional fighting, meeting and transit. This indicates that material evidence of Aboriginal occupation and use is likely to survive in less disturbed areas of Redfern and the immediately adjacent Waterloo.

AHMS Mapping Project – Mapping Sydney’s Ethnohistorical Record

To assist in the development of Aboriginal Cultural Heritage Assessments, AHMS has initiated a mapping project to explore early historical texts and diaries to identify spatial locations where Aboriginal activities were observed. The AHMS project ‘Mapping Sydney’s Aboriginal Past’ provides a spatial understanding of Aboriginal activity around the point of contact. It consists of an interactive map, a searchable database of site-specific ethnographic evidence, and a range of other tools which bring a spatial perspective to the primary sources.

The database was created by systematically reviewing the early primary sources for the Sydney region and plotting any site-specific ethnographic evidence on an interactive map. The area of study extended from the Hunter River in the north to Jervis Bay in the south, and as far west as the Lachlan River. The sources consulted ranged from James Cook’s visit to Botany Bay in 1770 through to Missionary James Backhouse’s visit to the colony in 1835-1837. In total, this project reviewed over fifty primary sources, including all major First Fleet journals and all relevant volumes of the Historical Records of Australia.

A search of AHMS’ ethnographic database reveals no specific observations within the Waterloo SSP study area. Only one ethnographic recording is evident in close proximity to the study area, specifically an Aboriginal track. This database entry, as included in AHMS 2014 study, reads as follows:

Date: 31 May 1788

Location: Leading away from Cockle Bay and the site where convicts Samuel Davis and William Okey were killed.

Sources: William Bradley, A Voyage to New South Wales, December 1786 - May 1792: The Journal of Lieutenant William Bradley of HMS Sirius (Sydney: Ure Smith Pty Limited, 1969), 31 May 1788; Watkin Tench, A Narrative of the Expedition to Botany Bay (London: Prepared J. Debrete, 1789), Chapter IX, January-February 1788; David Collins, An Account of the English Colony in New South Wales, Volume 1 (London: T. Cadell Jun. and W. Davies, 1798), Chapter VI; John Hunter, An Historical Journal of the Transactions at Port Jackson and Norfolk Island (London: Printed for John Stockdale, 1793), September 1789.

Quotes: Bradley: Saturday. 31 May 1788: The Governor with a party went to the place where the two Men had been killed by the Natives, the boat returned leaving them in a Natives path which they meant to follow until they met with the Natives.

Sunday. 1st June. The Governor & party return’d by land to Sydney Cove: He had followed the path to the NW arm of Botany Bay, met with a party of Armed Natives of 210; The Governor & one of their principal people, met unarmed, one of the Natives advanced to shew a wound which he had received in the shoulder apparently with an Axe; they were all friendly, the Women shew’d every disposition to be very familiar; a quantity of dried fish was found among these people & bones which from the size were supposed to belong to the Kangaroo. Orders were this day given, that no party under 6 armed Men were to go into the woods on account of the Natives being so numerous.

Tench, February 1788: In spite, however, of all our precautions, they soon found the road to Botany Bay, in visits to the French, who would gladly have dispensed with their company.

¹¹⁶ Marriot, E. W., 1988, *The Memoirs of Obed West. A Portrait of Early Sydney*, Barcom Press, p. 46.

Collins, March 1789: Immediately on this being known in the settlement, an armed party was sent out with an officer, who found the body of the man that had been killed, stripped, and lying in the path to Botany Bay.

Hunter, September 1789: this route being now well known, and the path well trodden, it was not an unpleasant walk.

*Other: This route is marked in as a path on Charles Grimes' map 'A topographical plan of the settlements of New South Wales, including Port Jackson, Botany Bay and Broken Bay', 1799. MAP RM 711. See also Paul Carter, *The Road to Botany Bay* (London: Faber and Faber Ltd, 1987).¹¹⁷*

The map presented in the AHMS report showing the location of this track is provided at **Figure 145**.

Temporal Range of Occupation

Aboriginal occupation of the Sydney region is likely to have spanned at least 20,000 years, although dates of more than 40,000 years have been claimed for artefacts found in gravels of the Cranebrook Terrace on the Nepean River.¹¹⁸ Late Pleistocene occupation sites have been identified on the fringes of the Sydney basin and from rock shelter sites in adjoining areas. Dates obtained from these sites were 14,700 BP at Shaws Creek in the Blue Mountain foothills,¹¹⁹ c.11,000 BP at Loggers Shelter in Mangrove Creek,¹²⁰ and c.20,000 BP at Burrill Lake on the South Coast.¹²¹

The majority of sites in the Sydney region, however, date to within the last 3,000 to 5,000 years, with many researchers proposing that occupation intensity increased from this period.¹²² This increase in sites may reflect an intensity of occupation which was influenced by rising sea levels, which stabilised approximately 6,500 years ago. Older occupation sites along the now submerged coastline would have been flooded, with subsequent occupation concentrating on and utilising resources along the current coastlines and in the changing ecological systems of the hinterland.¹²³

¹¹⁷ AHMS, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment*, 2014, p. 34.

¹¹⁸ Nanson et al. 1987; Stockton 1993; Stockton & Holland 1974.

¹¹⁹ Kohen et al. 1984.

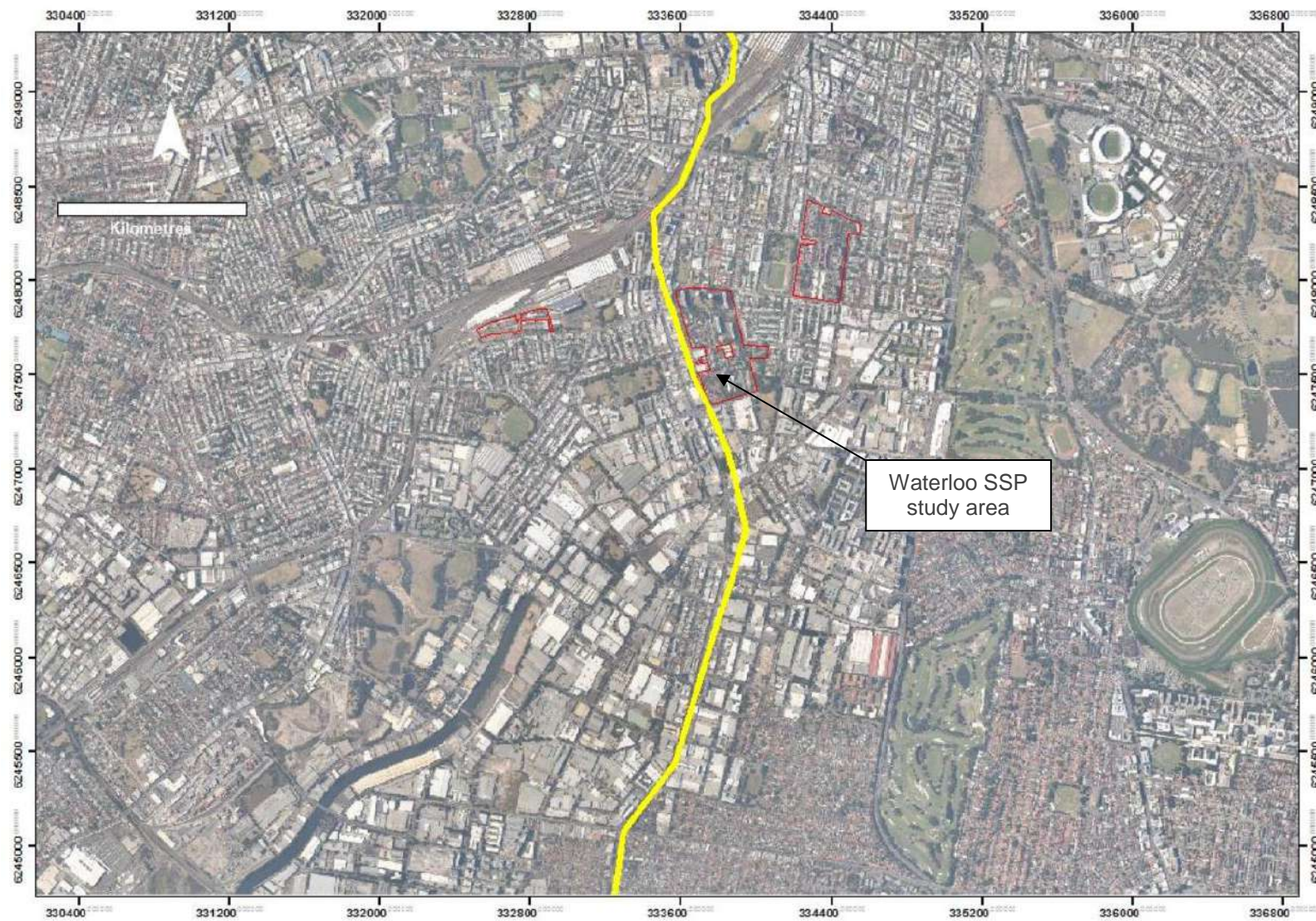
¹²⁰ Attenbrow 1981, 2004.

¹²¹ Lampert 1971.

¹²² Kohen 1986; McDonald 1994; McDonald & Rich 1993.

¹²³ Attenbrow 2003.

Figure 145 – Map of Aboriginal trackway documented in the vicinity of the SSP study area (indicated)



Source: AHMS, Redfern, Waterloo and South Eveleigh Urban Renewal Sites, Desktop Aboriginal Heritage Assessment, 2014, p. 38, Figure 24.

Regional Site Patterns

Over the last few decades and in association with the increasing spread of urban development, the Cumberland Plain to the west of the Sydney CBD has become the most intensively investigated archaeological landscape in Australia. Through these investigations, regional archaeological site patterns have been developed and, generally speaking, the principles of these patterns can and have been applied to the Sydney Basin more generally. More recent works have contributed to refining these models.¹²⁴

Within the broad Sydney region, the dominant site types (in the 15-20 per cent frequency range) are rock shelters with midden deposit, rock shelters with art, rock art engravings and open artefact scatters. Less common site types, in the 5-15 per cent range, include rock shelters with artefacts, grinding grooves and open middens.¹²⁵

The most common site types found on the Cumberland Plain are open artefact scatters/open camp sites, followed by scarred trees and isolated finds. Shelter sites and grinding grooves are also found, although mainly around the periphery of the Plain in sandstone geology, such as that which characterises the coastal areas of the Sydney Basin. Key trends are summarised below:

- Site frequency and density are directly related to the location of sites within the landscape;
- Complex sites are usually located close to permanent water sources, with major confluences being a key requirement for occupation sites, and would have been used intensively by larger groups, or used repeatedly by smaller groups over a longer period of time;
- Sites with large numbers of artefacts can occur on ridge tops and hill crests;
- Sites situated in alluvial soils retain the potential for stratified deposits;
- Potential Archaeological Deposits (PADs) are most likely to be located along valley floors and low slopes in well-drained areas; and surface artefact distribution does not accurately reflect the composition or density of subsurface archaeological deposits. Some areas with few or no surface manifestations have often been shown to contain subsurface archaeological deposits;
- Artefact scatters are most commonly linked to the close proximity of permanent water sources in areas such as creek and river banks and alluvial flats. The majority of these sites are located within 100 metres of permanent fresh water;
- Artefact assemblages generally comprise a small proportion of formal tool types with the majority of assemblages dominated by unretouched flakes and debitage;
- High concentrations of artefacts are more likely to be located within resource rich areas;
- Silcrete is the dominant raw material used for tool manufacture, followed by chert (also known as tuff). Silcrete sources are located in the north-western Cumberland Plain at places such as St Marys, Plumpton Ridge, Marsden Park, Schofields, Riverstone, Deans Park, Llandilo and Ropes Creek. Other raw materials include indurated mudstone from Nepean River gravels, quartz, porphyry and hornfels which may be derived from Rickaby's Creek gravels, and basalt;
- Stands of remnant old growth vegetation retain the potential for scarred trees to be present; however, large scale land clearance of the plain in general means that such stands of vegetation are rare; and
- Evidence of post-contact camp sites may be located in close proximity to early European houses and farms, or official buildings.

Further to the above, extensive excavation across the Cumberland Plain has since shown that areas with no surface evidence often contain sub-surface deposits buried beneath current ground surfaces. This is a critical consideration in aggrading soil landscapes, such as those commonly found across the Cumberland Plain and Botany Bay landscapes. In a 1997 study of the Cumberland Plain, McDonald found that 17 out of

¹²⁴ AMBS 2013: 27

¹²⁵ AHMS, 2014, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites – Desktop Aboriginal Heritage Assessment* prepared for the Urban Growth Development Corporation, p. 40.

61 excavated sites had no surface artefacts before excavation, and that the ratio of recorded surface to excavated material was 1:25.¹²⁶

None of the excavated sites could be properly characterised on the basis of surface evidence. In short, surface evidence (or the absence of surface evidence) does not necessarily indicate the potential, nature or density of sub-surface material. The results of McDonald's study clearly highlight the limitations of surface survey in identifying archaeological deposits in this landscape. The study also shows the importance of test excavation in establishing the nature and density of archaeological material on the Cumberland Plain.¹²⁷

Literature Review (Archaeological Assessments Undertaken in the Local Area)

In comparison with the Cumberland Plain, a relatively limited number of Aboriginal sites have been identified and recorded in urban Sydney contexts. Recorded site types include open campsites, middens, rock engravings, rock shelters and historic burials.

The limited number of recorded sites within the Sydney CBD area is directly related to the long and intensive history of development; over 200 years of European development has destroyed the majority of Aboriginal sites that would have originally existed along the shores of Sydney Harbour and its associated streams and bays.

The majority of Aboriginal sites identified within the Sydney CBD have been recorded during the course of historical archaeological excavations associated with development projects. Aboriginal sites and objects were identified in pockets of remnant topsoil either beneath or between historical archaeological contexts.¹²⁸

Lampert, R.J, 1985, *Excavation Report on Mort's Bond Store*, unpublished report to the Department of Environment and Planning

In 1985 Lampert excavated a midden and camp site at Mort's Bond Store, (previously located at East Circular Quay). The site had been truncated by construction of the building and was in a highly disturbed condition. It contained shell and bone, as well as stone artefacts manufactured from red and grey silcretes, quartz, quartzite and chert. The artefacts were comprised of flakes, flaked pieces and cores. Lampert hypothesised that the stone material was sourced from quarries on the Cumberland Plain.

Attenbrow, V, 1992, 'Shell Bed or Shell Midden', *Australian Archaeology* No. 34

Another midden was uncovered during building works near the historic building "Lilyvale" on the corner of Cumberland and Essex Streets, The Rocks, just to the north west of the present study area. It had been highly disturbed by the construction of terrace houses in the 1830s and was subsequently destroyed by the construction of a hotel (AHIMS 45-6-1853).

AHIMS 45-6-2580 (original reporting not available)

During historic excavations in relation to the construction of the eastern distributor at Woolloomooloo, an artefact scatter was uncovered. This site was subsequently excavated by Brayshaw (AHIMS 45-6-2580). This site, which was located near a spring, contained 4 silcrete, 4 chert, 2 quartz artefacts plus one quartzite and one chalcedonic silica artefact. They were found at a depth of about one metre in "disturbed topsoil, overlain by fill".

AHIMS 45-6-2651 (original reporting not available)

During historic excavations in respect of development works located at William Street (to the south of the present Study Area), an artefact scatter was uncovered. This was subsequently excavated and the artefacts included fine quartz debitage and cores, silcrete flakes and tuff cores and flakes (AHIMS 45-6-2651).

GML Heritage, Angel Place Project 1997, *Archaeological Excavation Volume 3, Salvage Excavation of Site #45-6-2581*, report prepared for AMP Asset Management Australia, the NSW Heritage Council and NPWS (NSW)

¹²⁶ McDonald, J., *Archaeological Test Excavation of PAD 1 CSIRO Laboratory, Ian Clunies Ross Research Laboratory*, Report to CSIRO Australia, 1997.

¹²⁷ AHMS, 2014, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites – Desktop Aboriginal Heritage Assessment* prepared for the Urban Growth Development Corporation, p. 40.

¹²⁸ AHMS, 2014, *Redfern, Waterloo and South Eveleigh Urban Renewal Sites – Desktop Aboriginal Heritage Assessment* prepared for the Urban Growth Development Corporation, p. 41.

GML conducted salvage excavations of site 45-6-2581 in Angel Place, situated between George and Pitt Streets in Sydney's CBD and located approximately 3 km to the north of the subject site. The site straddles the former alignment of the Tank Stream. Technological analysis of 54 flaked stone artefacts recovered during the excavations revealed that on-site reduction of various materials including silicified tuff, indurated mudstone, silcrete and quartz had taken place. The original size of the site could not be determined due to development impacts. However, the artefact distribution suggested that there was a contiguous distribution of lithics along the banks of the original creek, likely to have been deposited from repetitive or continuous Aboriginal occupation.

It was concluded that the site is likely to have been a point of first contact between the original Aboriginal occupants of the Tank Stream Valley and the European settlers arriving in Sydney Cove in 1788. However, no unequivocal physical evidence of contemporary Aboriginal contact and/or occupation was detected at the site.

Steele, D, 2002, *Aboriginal Archaeological Excavation: Quadrant Development Site, Broadway & Mountain Street, Sydney, NSW, containing DECC Site 45-6-2629, unpublished report to College Square Residential Pty Ltd*

In 2002 Steele undertook Aboriginal archaeological test excavation and monitoring at a block situated at Broadway and Mountain Streets, approximately 600 m to the southwest of the current project area. Testing in 1 x 1 metre squares was undertaken along the bank and upslope of Blackwattle Creek, which traverses the site.

One small remnant patch of original topsoil (measuring c. 5 x 15 metres) was tested and produced approximately 20 Aboriginal flaked stone artefacts. All items were less than 10 millimetres in maximum dimension, and the assemblage generally consisted of non-diagnostic pieces. Consent to destroy the site was subsequently granted, with the provision of monitoring of the works, but no further Aboriginal artefacts were recovered.

Steele, D, 2006, *Final Aboriginal Archaeological Excavation Report: The KENS Site (Kent, Erskine, Napoleon and Sussex Streets), Sydney, NSW, containing DECC Site 45-6-2647 and associated areas of PA, unpublished report to Leighton Contractors Pty Ltd*

In 2006 excavations were undertaken at the KENS site, bounded by Kent, Erskine, Napoleon and Sussex Streets in the Sydney CBD. A total of 952 artefacts were excavated, with silcrete being the dominant raw material type. Tuff and quartz artefacts were also present.

The excavation report interpreted the site as being occupied between 2,800 BP to 1788.

AHMS, 2007, *Former Rachel Forster Hospital – Initial Archaeological Assessment, unpublished report to Redfern-Waterloo Authority and AHMS, 2012, *Former Rachel Forster Hospital Site Aboriginal Heritage Impact Assessment, prepared for Kaymet Corporation Pty Ltd**

AHMS undertook a preliminary assessment of this site in 2007 and prepared an Aboriginal Heritage Impact Assessment in 2012. The site is the Former Rachel Forster Hospital site located at 34 Pitt Street, Redfern, to the immediate north of the Waterloo URS site.

The assessments identified that the subject site would have moderate to high potential for Aboriginal objects/sites to be present. In addition the assessments identified that local landscape features of the site (on the crest of a dune) and landscape features in the vicinity of the site (several water resources), increases the likelihood that the locality was used by Aboriginal people in the past.

Specifically, the assessments identified that naturally occurring soil deposits are likely to occur below historic occupation layers are typical of those found within the Tuggerah and Newport soil landscapes which cover extensive portions of south and eastern Sydney. Both are aeolian sands, laid down c10,000 years BP, with the Tuggerah landscape forming extensive dune fields, while the Newport landscape forms a sand mantle over earlier soil horizons. The date of formation of these sand deposits is therefore well within the known timeframe for Aboriginal occupation in the Sydney Basin.

The assessments identified that the site is located near the former presence of numerous streams and swamps within these soil landscapes was a resource zone that was attractive to Aboriginal people, as demonstrated by numerous early historic accounts of the late Eighteenth and early Nineteenth Centuries. This, combined with the documented identification of Aboriginal sites by archaeological investigations within development contexts on former dune fields and beside former water sources (e.g. Angel Place, Sydney, and Prince of Wales Hospital, Randwick), suggested that the natural soil have some potential to contain

remains of Aboriginal occupation in areas where soil deposits have not been substantially removed by the construction of the hospital.

AHMS, 2009, National Indigenous Development Centre – Aboriginal Heritage Impact Assessment, unpublished Report for Indigenous Land Corporation

In 2007, AHMS undertook an assessment of the proposed National Centre for Indigenous Excellence located between George, Phillip and Cope Streets, Redfern, located in proximity to the current study area.

The assessment identified that the site had potential to be on aeolian (wind-blown) dunes in the general vicinity of Black Wattle Creek, a significant water source running through the southern edge of the (now) Sydney CBD. These findings, along with the relatively undisturbed nature of the site, prompted test excavations.

Excavations consisted of four 1m² test pits located within a larger historic excavation of several mid-late 19th century residences on the site. The test pits reached depths of up to 90 centimetres and confirmed the aeolian nature of the area. However, no Aboriginal objects were recovered as part of the excavations.¹²⁹

Comber, J, 2012, Darling Quarter (formerly Darling Walk), Darling Harbour, Aboriginal Archaeological Excavation Report, unpublished report to Casey & Lowe Pty Ltd on behalf of Lend Lease Bovis

In 2012 Comber undertook an Aboriginal archaeological assessment and excavation at Darling Harbour, at a site which had previously been developed with a large commercial building that was demolished prior to excavation. The excavation was undertaken close to the former shoreline, with soils contained therein being silty alluvium.

A redeposited midden with ten stone artefacts (predominately chert) was identified. The ten artefacts comprised unretouched flakes and flaked pieces with no features that could be used to attribute the artefacts to the phases described by McCarthy or Gould.

GML, Heritage, 2012, 200 George Street, Sydney, Aboriginal Archaeological Excavation, report prepared for Mirvac Property

A Due Diligence Assessment prepared by GML in 2012 concluded that the 200 George Street project area had some potential for Aboriginal archaeological deposits. A Potential Archaeological Deposit (PAD) was registered on the AHIMS database as #45-6-3081.

Archaeological investigations of PAD #45-6-3081 did not positively identify any Aboriginal archaeological deposits; that is, the potential archaeological deposit was not realised. Natural soil profiles were identified in Area 4 and Area 8 during historical archaeological excavation, but Aboriginal objects were not identified in either area during consequential works.

GML concluded that the location of their Study Area on the banks of the intertidal zone of the Tank Steam resulted in extensive reclamation activity throughout the 1800s, preserving the pre-European landscape intact. However, the geomorphology of this area, with stepped sandstone and highly organic estuarine soils, appears to have made it unsuitable to Aboriginal people, or unsuitable for conserving an archaeological signature relating to any activity which did occur. Hence, unexcavated portions of the 200 George Street study area were assessed to hold very low to no archaeological potential for further in situ Aboriginal archaeological deposits.

In Area 4 the natural soil profiles were deemed to have no archaeological potential due to the nature of their deposition within marine environments. In Area 8 the geomorphology was similarly unlikely to result in the deposition of in situ archaeological deposits due to a highly irregular bedrock surface.

The AHIMS card for 45-6-3081 was updated following the excavations to reflect these findings, with the site status modified to 'Not a Site'.

Stening, T, 2015, (IN PREP), Darling Harbour Live (formerly SICEEP PPP), Darling Harbour: Aboriginal Archaeological Excavation Report, unpublished report to Casey & Lowe on behalf of Lend Lease

Comber Consultants were also engaged to undertake Aboriginal archaeological excavations at the former International Convention Centre on the western side of Darling Harbour. As part of these excavations, a total of 63 stone artefacts were identified; silcrete was the dominant material, and the artefacts were

¹²⁹ AHMS, "Redfern, Waterloo and South Eveleigh", s.5.2.3.

predominately flaked pieces (nine unretouched flakes and one retouched flake). Of these, 44 were identified as representing a 'discrete knapping floor on the edge of a midden'.

Based on an analysis of the artefacts it was determined that the assemblage belonged to Gould's 'Australian small tool tradition' and the Bondaian phase of McCarthy's Eastern Regional Sequence. Radiocarbon dating and environmental information indicates the midden was deposited in the mid-1800s.

Summary of the Literature Review

The above literature review demonstrates that archaeological sites present within the vicinity have been uncovered within sites/properties that have been subject to a similar degree of disturbance as the current study area.

Site types uncovered at comparable sites include artefact sites and shell midden sites. This suggests that the study area has the potential to contain similar archaeological deposits within less disturbed areas of the site and in association with residual natural soil profiles.

Given the known presence of residual natural soil profiles within the site, the known potential for archaeological material to be recovered from similarly developed sites, and the location of the study area in relation to what would have been major resource sites (the Waterloo Swamps, Shea's Creek, Boxley's lagoon) for Aboriginal people in the past means archaeological potential cannot be discounted without further sub-surface investigations being undertaken.

AHIMS: Registered Aboriginal Sites or Places in or within the vicinity of the Study Area

A search of the AHIMS database undertaken on 27 July 2017 for the area contained within the following co-ordinates, with a buffer of 1000 metres allowed for:

- Lat, Long From: -33.901, 151.1983;
- Lat, Long To: -33.8947, 151.2069.

This search revealed that no registered Aboriginal sites, objects or places are located in or within 100 metres of the SSP study area.

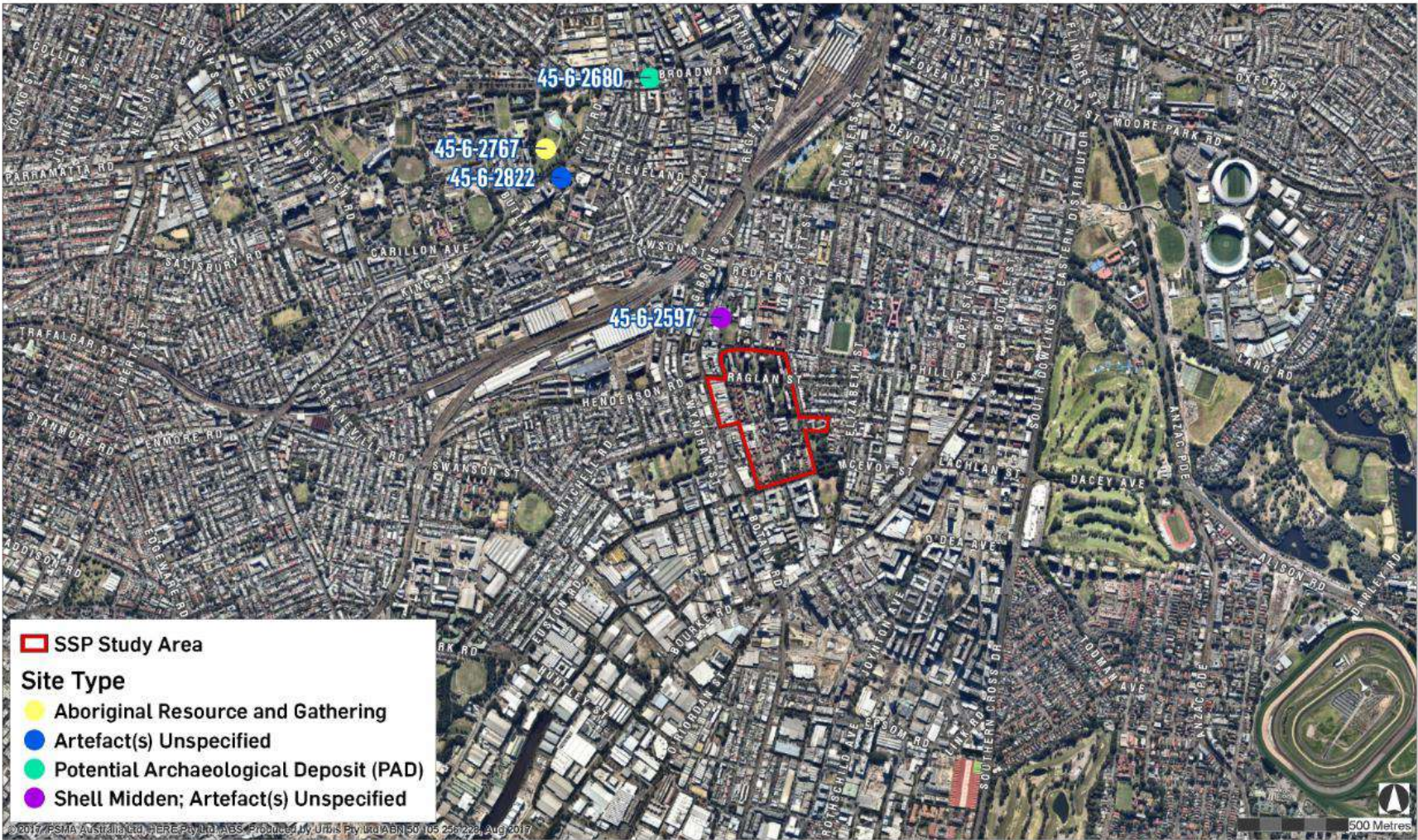
The site types, number of sites and frequency of sites within the area has been summarised in Table 8, below, and shown in relation to the study area in Figure 146, overleaf.

Table 8 – Results of the extensive AHIMS search conducted for the SSP study area

Site Type	Number	Frequency %	Ranking
Potential Archaeological Deposit	1	25%	-
Artefact(s) Unspecified	1	25%	-
Shell Midden; Artefact(s) Unspecified	1	25%	-
Aboriginal Resource and Gathering Site	1	25%	-
TOTALS	4	100%	-

However, within the wider search radius, a total of four Aboriginal sites have been recorded, the closest of which is located approximately 200 metres to the north of the study area. This site is registered as 'Wynyard Street midden', and a review of the site card indicates this is a shell scatter located in a park near Gibbons Street, just south of Redfern Station. Other site types include a potential archaeological deposit (PAD) located on Broadway, an Aboriginal resource and gathering site located within the University of Sydney Campus, and an unspecified artefact site located on City Road. All three of these sites are located more than a kilometre to the northwest of the SSP study area.

Figure 146 – AHIMS search results for the SSP study area



STAGE 1 ABORIGINAL CULTURAL HERITAGE STUDY: WATERLOO STATE SIGNIFICANCE PRECINCT (SSP) STUDY AREA
AHIMS SEARCH RESULTS

PREDICTIVE MODEL

In terms of archaeology, predictive modelling is used to present a model, or series of testable statements, about the nature and distribution of evidence of Aboriginal land use in the study area, based on the historical, environment, archaeological context. To achieve this, a predictive model must characterise the patterning of material traces across the local and/or regional area, consider the distribution of natural resources and probable land-use strategies employed by Aboriginal people in the past, and consider the spatial and temporal relationships of sites.

Based on this, an identification of the material traces that are likely to be present in the study area can be made, along with inferences as to the nature of Aboriginal occupation of the landscape in the past.

Site Types

The following descriptions of Aboriginal site types is not exhaustive, but does include the most commonly encountered/recording site types, as they appear on the AHIMS.

Artefact Scatters

Artefact scatters are defined by the presence of two or more stone artefacts in close association (i.e. within fifty metres of each other). An artefact scatter may consist solely of surface material exposed by erosion, or may contain sub-surface deposit of varying depth. Associated features may include hearths or stone-lined fireplaces and heat treatment pits.

- Artefact scatters may represent:
- Camp sites: involving short or long-term habitation, manufacture and maintenance of stone or wooden tools, raw material management, tool storage and food preparation and consumption;
- Hunting or gathering activities;
- Activities spatially separated from camp sites (e.g. tool manufacture or maintenance); or
- Transient movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility, including vegetation cover, ground disturbance and recent sediment deposition. Factors such as poor light, vegetation, and leaf litter may obscure artefact scatters and prevent their detection during surface surveys. In addition, because artefact scatters are located on the ground surface, and are not fixed to the ground or any other surface, they can be easily disturbed and/or moved from their original contexts, or damaged. The likelihood of identifying artefact scatters in highly disturbed and intensively used areas is generally very low.

Shell Middens

Shell middens are places where the debris from eating shellfish and other food has accumulated over time. They can contain:

- Shellfish remains;
- Bones of fish, birds, and land and sea mammals used for food;
- Charcoal from campfires;
- Tools made from stone, shell, and bone.

Shell middens are found throughout Australia, usually close to a shellfish source. They are generally found on the coast, but can be around inland lakes, swamps, and river banks. Within New South Wales, middens are typically found:

- On headlands;
- On sandy beaches and dunes;
- Around estuaries, swamps and the tidal stretches of creeks and rivers;
- Along the banks of inland rivers, creeks, and lakes.

Middens are also typically found in well placed camping or activity areas, being areas that are easily accessible, and which are located close to generous a shellfish resource. They are often fairly close to fresh water on a level, sheltered surface.

Bora/Ceremonial Sites

Bora grounds are a type of ceremonial site associated with initiation ceremonies. They are usually made of two circular depressions in the earth, sometimes edged with stone. Bora grounds can occur on soft sediments in river valleys and elsewhere, although occasionally they are located on high, rocky ground where they may be associated with stone arrangements.

Burials

Human remains tended to be placed in hollow trees, caves or sand deposits. Usually burials are only identified when eroding out of sand deposits or creek banks, or when disturbed by development. Aboriginal communities are strongly opposed to the disturbance of burial sites. The probability of detecting burials during archaeological fieldwork is typically extremely low.

Carved/Scarred Trees

Scarred trees contain scars caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters. Ethnographic records suggest that carved trees were still relatively common in NSW in the early 20th century. They were commonly used as markers for ceremonial or symbolic areas, including burials.

Grinding Grooves

Grinding groove are elongated, narrow depressions in soft rocks (particularly sedimentary), generally associated with watercourses. They are most often found in association with sandstone. The depressions are created by the shaping and sharpening of ground-edge hatchets.

Lithic Quarries

A lithic quarry is the location of an exploited stone source. Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur; this includes chert, quartz, mudstone, and silcrete. Reduction sites, where the early stages of stone artefact manufacture occur, are often associated with quarries.

Rock Shelters with Art/Engravings and/or Occupational Deposits

Rock shelters include rock overhangs, shelters or caves, which were used by Aboriginal people for shelter, temporary occupation, and resource processing and/or preparation. Rock shelter site may contain artefacts, midden deposits and/or rock art/engravings. These sites will only occur where suitable geological formations are present.

Stone Arrangements

Stone arrangements include circles, mounds, lines or other patterns of stone arranged by Aboriginal people. Some were associated with bora grounds or ceremonial sites, and others with mythological or sacred sites. Hill tops and ridge crests which contain stone outcrops or surface stone, and have been subject to minimal impacts from recent land use practices, are potential locations for stone arrangements. Stone arrangements are also typically located on relatively flat, open land.

Predictive Model

The potential for each of the above identified site types to be present within the study area is assessed in Table 9, below. This assessment has been informed by the historical, archaeological and environmental context of the study area, the development and current and past uses of the study area, and the results of the AHIMS search.

Table 9 – Predictive model for archaeological sites within the study area

Site Type	Discussion	Potential
Artefact Scatter/Deposit	<p>Within the study area, there is potential for stone artefacts to occur in within residual sand deposits. This is supported by a review of relevant archaeological investigations that have been undertaken in the vicinity of the study area, which has demonstrated that Aboriginal artefactual material can be recovered from relatively intact, deep sand deposits, despite contemporary disturbance having occurred.</p> <p>Based on a review of the ethnohistorical and archaeological record for the local area, this potential is anticipated to be limited to low density artefact deposits. This is because previous investigations have strongly indicated that the occupation of areas away from the immediate foreshore was relatively sporadic; the ethnographical record supports this, in that it evidences that larger groups were more likely to establish semi-permanent 'villages' in closer proximity to permanent water sources, such as in the eastern suburbs or northern arm of Botany Bay.¹³⁰</p> <p>Higher density artefact scatters are more likely to occur where more focused and/or repeated Aboriginal occupation has occurred, such as in association with suitable resource procurement sites (eg. along higher order watercourses and on adjacent low gradient simple slopes or spur crests).</p> <p>The geology of the study area does not suggest that raw stone materials preferred for working were readily available within the immediate vicinity, though known raw stone material sources are known to have been available in the broader local landscape (Newtown). The archaeological record provides strong evidence that the immediate availability of raw material does not preclude archaeological potential as materials were often sourced elsewhere and transported.</p> <p>In addition to the above, the extent to which the study area has been disturbed over time places further limitations on the potential for artefact deposits to be uncovered from the site. Until geotechnical assessment is undertaken within the study area boundaries, the presence of residual soils within the site is an assumption only.</p> <p>No artefacts were recovered from the immediately adjacent former Rachel Forster Hospital site, despite a similar sub-surface profile to that expected at the current study area being encountered.</p> <p>The overall potential for stone artefacts to be present within the study area is therefore assessed as low.</p> <p>The overall potential for surface artefact scatters to be present within the study area is assessed as nil, for the reasons outlined above.</p>	Low

Site Type	Discussion	Potential
Shell Middens	<p>Given the distance between the study area and known former water bodies/water courses, it is considered that there is low potential for shell midden deposits to be present within undisturbed natural soil layers.</p> <p>Typically, shell midden sites are identified in closer proximity to water courses, and they are more common in association with coastal areas, estuaries, tidal zones, and known resource procurement/camping sites (such as Boxley's Lagoon to the northeast).</p> <p>Although middens have been recorded on the fringes of water bodies such as swamps, this is less common. The extent to which the study area has been disturbed also limits the potential for <i>in situ</i> midden deposits to be uncovered.</p> <p>It is noted, however, that a midden site has been recorded in relative proximity to the current study area, being approximately 230 metres to the north.</p> <p>Any shell material, if present, would have to be analysed in order to determine how it was deposited; for example, shell material is often found within fill. If assessed to have been deposited in association with cultural activities such as resource processing, further investigation may also be required to determine the status of any such material as constituting material of Aboriginal cultural significance, as opposed to representing non-Aboriginal deposition (e.g. food remains of early British settlers).</p> <p>Overall, the potential for shell midden(s) to be present at the study area is assessed as low.</p>	Low
Bora/Ceremonial Sites	<p>The study area has been severely disturbed as a result of early site clearance, historical development and contemporary redevelopment. As such, it is considered that there is no potential for any identifiable physical evidence of bora and/or ceremonial sites to be present within the study area.</p> <p>Although there is no currently available historical or ethnohistorical evidence specific to the study area or land in its immediate vicinity to suggest that it was used for ceremonial/dreaming practices or purposes, this cannot be definitively discounted.</p> <p>It is considered that if such an association exists, it is relatively unlikely to have an identifiable physical presence within the study area, but may be established through consultation with relevant Aboriginal stakeholders, groups or organisations.</p>	<p>Nil</p> <p>However, refer to adjacent discussion</p>
Burials	<p>Based on previous/current land uses and the associated disturbance, as well as the general absence of suitable hollow trees, and suitable caves, the potential for burial sites to occur within the study area is considered to be very low to nil.</p> <p>There is no specific historical or cultural information to suggest that burials are likely to be present in the area.</p>	Very low - nil
Carved/Scarred Trees	<p>Carved/scarred trees are typically found in association with stands of original vegetation. Land use impacts over time, which have involved the extensive clearance of vegetation across NSW generally, has resulted in this site type becoming extremely rare.</p> <p>Given the complete vegetation clearance and extensive redevelopment of the study area, it is considered that the potential for carved/scarred trees is nil.</p>	Nil

Site Type	Discussion	Potential
Grinding Grooves	Grinding grooves are most likely to be located in sedimentary bedrock (sandstone) along watercourses. Based on the environmental context of the study area, the potential for this site type to occur within the study area is assessed as nil.	Nil
Lithic Quarries	Lithic quarries occur in association with outcrops of suitable stone material. The underlying geology of the study area, which is not characterised by an abundance of any of the preferred raw stone materials, suggests that there is no potential for such outcrops to be present in the study area. The potential for lithic quarries to be present is therefore considered to be very low.	Nil
Rock shelters with Art/Engravings and/or Occupation Deposit	Based on the topography, geology and soil landscape of the study area, no rock shelters are or would previously have been present. As such, the potential for this type of site is assessed as nil.	Nil
Stone Arrangements	Stone arrangements are typically situated on hill tops, or along ridge crests that contain stone outcrops and/or surface stone, and are more likely to be located on relatively flat, open land. Based on the topography of the study area as well as the extent to which it has been disturbed, the potential for stone arrangements to be present is assessed as nil.	Nil

Summary

The predictive model presented in Table 9, above, demonstrates that the potential for Aboriginal archaeological sites within the study area is highly dependent upon the presence/absence of particular landscape features, and the extent to which the area has previously been disturbed.

Based on a review of these factors, it has been determined there is a low degree of potential for shell midden of stone artefact deposits to be present within the study area; however, if present, such site types are not assessed to have any potential to have a visible, surface present, and if present would likely be limited to low-density deposits.

All other site types, including carved/scarred trees, bora/ceremonial sites and stone arrangements, rock shelter sites, and lithic quarries are considered to have a very low level to nil of potential to occur within the study area. This is based on a number of factors, including the relatively low number of such site types having been previously identified in the area generally, the environmental context, and the extent to which the study area has been disturbed (including complete vegetation clearance).

Archaeological investigations undertaken elsewhere within the Sydney CBD support the above predictions; artefact deposits and middens have been found at comparably developed sites within the CBD, including at Cumberland Place in The Rocks and at Angel Place further south along George Street.

It is acknowledged that the sub-surface conditions of the study area cannot be definitively characterised without further (physical) investigation; no geotechnical investigations have been undertaken within the study area itself, with the assessment of archaeological potential presented in this report based on a desktop assessment of the study area's sub-surface condition and the results of geotechnical investigations undertaken in the surrounding landscape.

Despite this acknowledged limitation, the review of the historical, environmental, and ethnohistorical context of the study area presented in this report demonstrates that the study area retains a degree of potential, however limited, to contain Aboriginal archaeological material or objects.

If present, archaeological material is predicted to occur in the less disturbed areas of the site, and in proximity to known resource areas, such as the Waterloo Swamp and Shea's Creek to the south/southwest of the study area. This is in accordance with the findings of the 2014 AHMS study.

Based on this, it is considered that the archaeological potential of the Waterloo Estate area requires further investigation in the form of archaeological test excavation in order to determine the presence or absence of archaeological material on site, as well as to investigate the nature and extent of any such material if found to be present.

In the event that Aboriginal archaeological material is found within the Waterloo Estate area, it would make a relatively rare and highly significant contribution to the archaeological record. Preserved Aboriginal archaeological sites are relatively rare within the Sydney CBD and inner-city fringe areas, and within highly urbanised and developed contexts generally.

It is noted that the Aboriginal track represented an intangible cultural element that is not considered to have the potential to have a physical presence. As such, an assessment of the potential for any physical evidence of this track to be present has not been considered as part of this assessment. Notwithstanding, it is noted that the track is located outside and to the west of the current study area.

ARCHAEOLOGICAL FIELD SURVEY

A visual inspection of the SSP study area was undertaken by Urbis Senior Archaeologist Karyn Virgin on 2 June 2017. As part of their 2014 assessment, AHMS also undertook a visual inspection of the study area.

Survey Methodology, Aims and Strategy

Survey Methodology

The study area was surveyed in accordance with the requirements set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.¹³¹

Survey Aims

The aim of the visual survey was to identify, if present, any potential Aboriginal archaeological sites or objects, as well as to identify any landscape features that may indicate the likely presence of Aboriginal archaeological material or sites.

Survey Strategy

The study area in its entirety has been subject to both historic and contemporary development, with no undeveloped areas or unmodified natural landscape areas retained on site. As such, no landscape features on which to base a survey strategy were determined to be present.

As a result of the above, no survey strategy was employed for the visual inspection; the SSP study area was inspected as a single survey unit. Generally, the landform comprised in this single survey unit has been identified as 'flat to gently sloping cleared land'.

Survey Units

For the specific purposes of this investigation and due to the limitations of the site, the study area was treated as a single survey unit.

Generally, the landform comprised in this single survey unit has been identified as 'flat to gently sloping cleared land'.

Limitations

A comprehensive site survey of the SSP precinct was not possible due to existing tenancies and security. As such, the visual inspection was limited to publicly accessible portions of the study area;

Field Methods

The survey was conducted on foot (pedestrian). All accessible areas of the SSP study area were inspected, though many areas were not accessible due to access restrictions (such as existing tenancies, fencing, and security issues). Given the highly developed nature of the site, this did not impact an overall understanding of site conditions.

During the survey, the SSP study area was recorded through the use of representative digital photography and field notes.

Ground Surface Visibility

Ground surface visibility is the amount of bare ground (or visibility) on the exposures which might reveal artefacts or other archaeological materials. It is important to note that visibility, on its own, is not a reliable indicator of the detectability of buried archaeological material. Things like vegetation, plant or leaf litter, loose sand, stony ground or introduced materials will affect the visibility. Visibility has been described by (then) DECCW (now OEH) as 'what conceals'.¹³² Ground surface visibility has been assessed for the study area in relation to the gradings of visibility set out in the table below. As per requirements, the ratings have been graded to the nearest 10%.

¹³¹ DECCW, 2010, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*

¹³² DECCW, 2010, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*: 39

Table 10 – Gradings of ground surface visibility

Ground surface visibility rating	Overall Rating	Description
0-29%	Low	Heavy to moderate vegetation with scrub foliage, tree cover and/or floor debris (leaves etc). Ground surface not clearly visible, though patches of visibility caused by animal tracks, erosion etc may be present.
30-59%	Moderate	Moderate to low levels of vegetation, scrub and/or tree cover. Small to moderate patches of ground surface associated with animal tracks, erosion, ploughing grading, clearing, etc visible across the study area.
60-100%	High	Low to very low levels of vegetation, and little to no scrub cover. Moderate to large areas of visibility due to more extensive disturbances associated with larger scale events like ploughing, grading, mining, and extensive erosion.

Overall, ground surface visibility within the study area was identified to be moderate (around 50%). This is due primarily to the presence of extensive built form (building stock), as well as roadways, asphalted areas (carparking, pathways) which has obscured the ground surface across much of the study area.

However, where such elements are not present, ground surface visibility is high with the remainder of the study area comprising open, grassed space that functions as the yard areas for the residential properties, as well as extensive open space at the ground plane of the Endeavour Estate.

Ground Surface Exposure

Ground surface exposure is different to visibility because it estimates the area with a likelihood of revealing buried artefacts or deposits rather than just being an observation of the amount of bare ground. It is the percentage of land for which erosion and exposure was sufficient to reveal archaeological evidence on the surface of the ground. In contrast to visibility, exposure has been described by (then) DECCW (now OEH) as 'what reveals'.¹³³

Ground surface exposure within the study area was observed to be limited. This is due to the extent to which the study area has been developed with built form, as well as the presence of roadways, carparking etc.

The yard areas of residential properties and the open landscaped space around the Endeavour Estate is grassed; within these contexts, areas of exposure were observed to be limited to the periphery of hard landscaping elements such as pathways, garden edgings, and retaining walls.

Overall, ground surface exposure was low, at less than 5%.

¹³³ DECCW, 2010, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*: 37

Survey Coverage and Survey Coverage Data

Survey coverage data is required to be recorded as part of an archaeological survey so as to document the conditions present during the survey, and to enable an assessment of the survey's effectiveness. Moreover, recording survey coverage data allows for an assessment of the obtrusiveness of Aboriginal objects (i.e. whether objects are readily visible, or buried, or otherwise obscured); this is necessary because the obtrusiveness of Aboriginal objects will influence the survey results. The specific conditions affecting the detection of Aboriginal objects can be described in terms of what reveals and what conceals the objects.¹³⁴

The key factors that influence survey coverage include ground surface visibility and ground surface exposure and accessibility. The survey coverage data for the survey is presented in Table 11, below.

Table 11 – Survey coverage data

Survey Unit	Landform	Survey Unit Area (square metres)	Visibility %	Exposure %	Effective Coverage Area (sq m)	Effective Coverage %	Number of Sites
1	Flat to gently sloping cleared land	180, 000 Approximate only	50%	5%	4,500	2.5%	None

Photographs of the Study Area

Figure 147 – Typical vegetation within the study area (Urbis 2017)



Picture 106 – Contemporary plantings (less than 45 years old) within the open landscaped area surrounding the Endeavour Estate



Picture 107 – Contemporary plantings (less than 45 years old) within the open landscaped area surrounding the Endeavour Estate

¹³⁴ DECCW, 2010, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*: 16

Figure 148 – Typical site conditions, showing limited ground surface exposure despite high visibility in the more open areas (Urbis 2017)



Picture 108 – Open landscaped space showing areas of exposure on slopes



Picture 109 – Ground surface visibility and exposure within the yard areas of residential buildings

Figure 149 – General disturbance within the study area (Urbis 2017)



Picture 110 – Example of earlier commercial development in the study area



Picture 111 – Landscaping within the study area



Picture 112 – General development in the study area



Picture 113 – General development in the study area

Site Recording and Field Survey Results

The purpose of an archaeological survey aimed at identifying and recording sites is to create or contribute to the existing record of the material traces or evidence of Aboriginal land use. This information can then be used in archaeological assessments to interpret the Aboriginal history of a specific study area, and to inform the archaeological record for the wider local area. The first priority in recording any Aboriginal object must always be to avoid or minimise, as far practicable, the risk of harm to the object itself.

Any Aboriginal sites that are identified during an archaeological investigation must be recorded and submitted for registration on the AHIMS. In recording sites, any material traces of past Aboriginal land use, as well as the spatial extent/identifiable boundaries, must be recorded. At a minimum, the site recording methods must provide enough information to complete a current AHIMS site recording form.

It should be noted, however, that not all Aboriginal cultural sites identified by Aboriginal stakeholders will contain identifiable material traces or be associated with distinct landform features. The extent and boundaries of these sites need to be mapped based on consultation with and input from stakeholders.

Survey Results

A predictive model of the SPP study area was formulated on the basis of a review of relevant environmental, historical and archaeological information. Based on AHIMS data and the results of previous archaeological investigations of and in the vicinity of the study area, it was predicted that the site types most likely to be present within the study area would be limited to low density stone artefact or shell midden deposits.

If present, this site type was considered most likely to be found in association with the less disturbed areas of the study area, and in closer proximity to known resource areas (being Waterloo Swamp to the south). Due to their sub-surface nature, such site types would not have a readily discernible surface presence.

Based on the topography of the study area, as well as the extent to which it has been disturbed and cleared of vegetation, the potential for other site types such as scarred/carved trees, open artefact scatters, bora/ceremonial grounds, and stone arrangements was assessed as being very low to nil.

No such sites were identified during the survey, and vegetation was observed to exclusively comprise stands of regrowth trees or contemporary plantings. Signs of extensive disturbance were noted throughout the study area, and as expected, ground surface visibility was generally very low, with intermittent and small areas of exposure only (less than 5%). No raw stone material suitable for working was identified during the visual inspection.

As predicted, no new Aboriginal sites were identified as a result of the survey. This was expected, particularly given:

- The study area had previously been surveyed, and no Aboriginal sites or objects were identified; and
- The extent to which the study area has been disturbed through continuous residential and commercial development;
- The limited instances of ground exposure and highly modified landscape.

AREA OF IDENTIFIED ARCHAEOLOGICAL POTENTIAL

The predictive model presented in Table 9, above, demonstrates that there is a low degree of potential for shell midden or stone artefact deposits to be present within the study area. If present, such archaeological material is predicted to occur in the less disturbed areas of the site, and in proximity to known resource areas, such as the Waterloo Swamp and Shea's Creek to the south/southwest of the study area. This is in accordance with the findings of the 2014 AHMS study.

Based on this summary of archaeological potential, a discrete area archaeological potential has been identified. This area is shown in the below figure. This area of identified archaeological potential is in accordance with that identified in the 2014 AHMS study.

Figure 150 – Area of identified archaeological potential



STAGE 1 ABORIGINAL CULTURAL HERITAGE STUDY: WATERLOO STATE SIGNIFICANCE PRECINCT (SSP) STUDY AREA
AREA OF IDENTIFIED ARCHAEOLOGICAL POTENTIAL

CULTURAL HERITAGE VALUES AND STATEMENT OF ARCHAEOLOGICAL AND CULTURAL SIGNIFICANCE

Cultural significance is a concept that assists appraisal of the value of places. The places that are likely to be of significance are those that help us understand the past, enrich the present, and may be of value to future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects (Australia ICOMOS, 1999).

Cultural Heritage Significance and Values

The cultural heritage significance and values of an area and of any Aboriginal archaeological sites within that area can be assessed using the four criteria outlined in the *Burra Charter*: aesthetic, historic, scientific and social/ spiritual. These criteria are described below.

Social/Spiritual Value

Social/spiritual value concerns the spiritual, traditional, historical or contemporary associations and attachments which the place or area has for the present-day Aboriginal community. Places of social significance have associations with contemporary community identity. These aspects of heritage significance can only be determined through consultative processes with one or more Aboriginal communities. As such, they are archaeologically invisible and can only be identified with the aid of Aboriginal interpretation. If such sites are known, they hold particular cultural significance to contemporary Aboriginal people. Furthermore, sites of significance are not restricted to the period prior to contact with Europeans. Often events related to the contact period, and at times to the period since European settlement, may be important to the local Aboriginal communities.

Historic Value

Historic value refers to the associations of a place with a person, event, phase or activity of importance to the history of an Aboriginal community. Historic places may or may not have physical evidence of their historical importance, however the significance will be generally greater where evidence of the association or event survives in situ, or where the settings are substantially intact. Some events or associations may be so important that the place retains significance regardless of subsequent treatment. In relation to Aboriginal cultural heritage, many post-contact places and sites have historic value.

Aesthetic Value

Aesthetic value refers to aspects of sensory and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, as well as the smell and sounds associated with the place and its use. With regard to pre-contact Aboriginal cultural heritage sites, the placement within the landscape would be considered under this criterion. Individual artefacts, sites and site features may also have aesthetic significance.

Scientific (Archaeological) Value

Scientific (archaeological) value refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information. Scientific or archaeological significance may be assessed by placing a site, feature or landscape in a broader regional context and by assessing its individual merits in the context of current archaeological discourse.

Assessment of Cultural Heritage Significance and Values

An assessment of cultural heritage significance and values incorporates a range of values which may vary for different individual groups and may relate to both the natural and cultural characteristics of places or sites. Cultural significance and Aboriginal cultural views can only be determined by the Aboriginal community using their own knowledge of the area and any sites present, and their own value system.

All Aboriginal heritage evidence tends to have some contemporary significance to Aboriginal people, because it represents an important tangible link to their past and to the landscape.

Consultation in accordance with the ACHCRs is a requirement of the *Nominated State Significance Precinct – Waterloo: Study Requirements*. Further detail regarding the consultation process for the subject site is

included in Section 3.6.4 of this report, and the 'Summary of Consultation Outcomes: Engagement Report on the Waterloo Metro Quarter' report, prepared by Urbis and dated 2018.

It is a recommendation of this report that consultation in accordance with the ACHCRs is undertaken prior to any test excavation being undertaken within the Waterloo Estate. This is to ensure that an appropriate assessment of cultural heritage significance and values is undertaken in consultation with the Aboriginal community.

Scientific (Archaeological) Significance

Scientific significance, also referred to as archaeological significance, is determined by assessing an Aboriginal heritage site or area according to archaeological criteria. The assessment of archaeological significance is used to develop appropriate heritage management and impact mitigation strategies. Criteria for archaeological significance have been developed in accordance with OEH guidelines, as shown in Table 12, below.

Table 12 – Scientific (archaeological) significance criteria

Significance Criteria	Description
Research Potential	Does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state's natural and cultural history?
Representativeness	How much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
Rarity	Is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
Education Potential	Does the subject area contain teaching sites or sites that might have teaching potential?
Condition	What is the condition of the site? Does it appear to have been impacted/altered?

Assessment of Scientific (Archaeological) Significance

As no sites have been identified within the study area, an assessment of scientific significance cannot be undertaken.

RECOMMENDATIONS AND MITIGATION MEASURES FOR MANAGING THE ARCHAEOLOGICAL RESOURCE

General measures and strategies for the management of the potential Aboriginal archaeological resource within the study area are provided below. The purpose of these recommendations is to allow for the effective and appropriate management of any potential Aboriginal archaeological material, sites or objects that may be present within the study area and which will be impacted or harmed by eventual redevelopment works within the precinct.

A key consideration in selecting suitable mitigation measures and management strategies is the recognition that Aboriginal cultural heritage is of primary importance to the local Aboriginal community; decisions about the management of identified Aboriginal archaeological sites should be made in consultation with the registered Aboriginal stakeholders.

Recommendation 1

It is recommended that further investigation of the Aboriginal archaeological potential of area of identified archaeological potential in the form of test excavation be undertaken in order to:

- Determine the presence/absence of Aboriginal archaeological material, sites or objects within the study area;
- If present, determine and characterise the nature, extent and archaeological (scientific) value of any such material, sites, or objects present within the area of proposed impact (yet to be determined).

Test excavation within the area of identified archaeological potential is to be undertaken in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*. Refer to Requirements 16a, 16b, and 17 specifically.

Recommendation 2

A sampling strategy for the test excavations must be developed by the archaeologist engaged to undertake the investigations in accordance with Requirement 15b of the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*.

This strategy must

- provide a framework for sampling all potential archaeological deposits (PAD) that are at risk of harm (within the subject area)
- describe the differentiation of the PAD to be test-excavated from the surrounding archaeological landscape (i.e. explain why the PAD is anticipated to be of higher significance than the continuous distribution of archaeological material in which it exists), and – test those areas of PAD that have no archaeological exposure or visibility, or – test the boundaries of known sites (where appropriate)
- confirm areas of low potential (where relevant)
- comply with the methods described in the Code
- describe how the sampling area relates to the area that is proposed to be impacted by the proposed activity.

Recommendation 3

In accordance with Requirement 15c of the Code, at least 14 days before undertaking any test excavations the relevant NPWS (formerly DECCW EPRG) regional office must be notified, in writing, of the following:

- the location of the proposed test excavation and the subject area
- the name and contact details of the legal entity with overall responsibility for the project
- the name and contact details of the person who will be carrying out the test excavations where this is different to the legal entity with overall responsibility for the project
- the proposed date of commencement, and estimated date of completion, of the test excavations

- the location of the temporary storage location for any Aboriginal objects uncovered during the test excavations.
- a copy of the sampling strategy for test excavation must also be provided.

The archaeologist engaged to undertake the investigations should provide this notification.

Recommendation 4

Consultation in accordance with the ACHCRs is a requirement of the *Nominated State Significance Precinct – Waterloo: Study Requirements*. Further detail regarding the consultation process for the subject site is included in Section 3.6.4 of this report, and the ‘Summary of Consultation Outcomes: Engagement Report on the Waterloo Metro Quarter’ report, prepared by Urbis and dated 2018.

It is a recommendation of this report that consultation in accordance with the ACHCRs is undertaken prior to any test excavation being undertaken within the Waterloo Estate. This is to ensure that an appropriate assessment of cultural heritage significance and values is undertaken in consultation with the Aboriginal community.

Recommendation 5

In the event that any Aboriginal archaeological material, objects or sites are encountered during test excavation, they should be appropriately recorded and managed in accordance with the relevant guiding documents, and in consultation with OEH and the relevant Aboriginal parties, particularly the relevant local Aboriginal land council.

Recommendation 6

In the event that any Aboriginal archaeological material, objects or sites are encountered within the study area during test excavation, appropriate arrangements for the deposition and safe keeping of this material or objects must be determined and agreed upon in consultation with the relevant Aboriginal parties, as below:

- (bb) by returning the Aboriginal objects to an Aboriginal owner or Aboriginal owners entitled to, and willing to accept possession, custody or control of, the Aboriginal objects in accordance with Aboriginal tradition, or
- (cc) by otherwise dealing with the Aboriginal objects in accordance with any reasonable directions of an Aboriginal owner or Aboriginal owners referred to in paragraph (a), or
- (dd) if there is or are no such Aboriginal owner or Aboriginal owners – by transferring the Aboriginal objects to a person, or a person of a class, prescribed by the regulations for safekeeping.

OEH should also be consulted in the event that Aboriginal archaeological material or objects are uncovered during excavation.

Recommendation 7

In the event that Aboriginal object/s are identified elsewhere in the SSP study area (outside of the area of identified archaeological potential) during works in the future, then all works in the immediate area must cease and the area cordoned off. OEH must be notified by ringing the Enviroline 131 555 so that the site can be adequately assessed and managed.

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