

20 Non-Aboriginal heritage

This chapter outlines the potential non-Aboriginal heritage impacts associated with the M4-M5 Link project (the project). A detailed non-Aboriginal heritage impact assessment has been undertaken for the project and is included in **Appendix U** (Technical working paper: Non-Aboriginal heritage).

The Secretary of the NSW Department of Planning and Environment (DP&E) has issued environmental assessment requirements for the project; these are referred to as Secretary's Environmental Assessment Requirements (SEARs). **Table 20-1** sets out these requirements and the associated desired performance outcomes that relate to non-Aboriginal heritage, and identifies where they have been addressed in this environmental impact statement (EIS).

Table 20-1 SEARs – non-Aboriginal heritage

Desired performance outcome	SEARs	Where addressed in the EIS
14. Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places. The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	1. The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of listed heritage items inclusive of: (c) environmental heritage, as defined under the <i>Heritage Act 1977</i> (including potential items of heritage value, conservation areas, built heritage landscapes and archaeology);	Non-Aboriginal environmental heritage values, including conservation areas, built heritage landscapes and archaeology have been identified in section 20.2 . The impacts of the project on these values are assessed in section 20.3 . The cumulative impact assessment of the project on non-Aboriginal heritage is included in Chapter 26 (Cumulative impacts).
	(d) items listed on the National and World Heritage lists; and	There are no items listed on the National and World Heritage lists within the study area.
	(e) heritage items and conservation areas identified in local and regional planning environmental instruments covering the project area.	Potential impacts of the project on non-Aboriginal heritage values, conservation areas, built heritage landscapes and archaeology have been assessed in section 20.3 .
	2. Where impacts to State or locally significant heritage items are identified, the assessment must: (a) include a significance assessment and statement of heritage impact for all heritage items (including any unlisted places that are assessed of heritage value);	Assessments of heritage significance of State and local items are included in section 20.2 . Statements of heritage impact are summarised in section 20.3 and included in Appendix U (Technical working paper: Non-Aboriginal heritage).

Desired performance outcome	SEARs	Where addressed in the EIS
	(b) provide a discussion of alternative locations and design options that have been considered to reduce heritage impacts;	A discussion of the evolution of the project and alternative options considered is included in Chapter 4 (Project development and alternatives).
	(c) in areas identified as having potential archaeological significance, undertake a comprehensive archaeological assessment in line with Heritage Council guidelines which includes a methodology and research design to assess the impact of the works on the potential archaeological resource and to guide physical archaeological test excavations and include the results of these excavations;	The archaeological potential within the study area is outlined in section 20.2 . The methodology for the non-Aboriginal heritage assessment is outlined in section 20.1 . An assessment of potential impacts of the project on archaeology is provided in section 20.3 .
	(d) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, increased traffic, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant);	Potential impacts of the project on non-Aboriginal heritage have been assessed in section 20.3 .
	(e) provide a comparative analysis to inform the rarity and representative value of any heritage places proposed for demolition;	A comparative analysis of the rarity and representative value of non-Aboriginal heritage items that may be impacted by the project is included in Appendix U (Technical working paper: Non-Aboriginal heritage).
	(f) outline measures to avoid and minimise those impacts in accordance with the current guidelines; and	Recommended management measures to minimise impacts on non-Aboriginal heritage are outlined in section 20.4 .
	(g) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).	The non-Aboriginal heritage impact assessment has been prepared by suitably qualified heritage consultants GML Heritage Pty Ltd (refer to Appendix U (Technical working paper: Non-Aboriginal heritage).

20.1 Assessment methodology

20.1.1 Overview

The non-Aboriginal heritage impact assessment for the project identifies non-Aboriginal heritage values within the project footprint, assesses the potential impacts of the project on these values and identifies appropriate management measures to minimise these impacts. The methodology for the assessment included:

- Desktop review of statutory heritage lists including the State Heritage Register (SHR), heritage schedules on Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs) (including deemed SEPPs such as Sydney Regional Environmental Plans (SREPs)), Section 170 Heritage and Conservation Registers (S170 Registers), the National Heritage List (NHL) and the Commonwealth Heritage List (CHL)
- Review of previous heritage reports, archaeological zoning plans and archaeological assessments prepared for relevant items and areas within the study area. This informed the preparation of detailed land use histories, which formed the basis for identifying potential heritage sites and historical archaeological resources
- Field surveys of the study area to inspect listed heritage items, heritage conservation areas (HCAs) and potential archaeological sites, and to identify potential heritage items that may be affected by the project
- Desktop historical research to inform the impact assessment, including review of relevant conservation management plans (CMPs) and other plans of management
- Assessment of potential heritage impacts from construction and operation of the project. Cumulative impacts on non-Aboriginal heritage are assessed in **Chapter 26** (Cumulative impacts)
- Recommendation of appropriate environmental management measures to avoid, mitigate and/or manage potential impacts on relevant non-Aboriginal heritage values.

20.1.2 Legislation and policy framework

The methodology for the non-Aboriginal heritage assessment applies the NSW heritage criteria set out in *Assessing Heritage Significance, NSW Heritage Manual* (NSW Heritage Office 2001). The assessment has been undertaken in accordance with the requirements of the *Heritage Act 1977* (NSW), including identification of potential impacts on items of heritage value, HCAs, built heritage landscapes and archaeology. The following relevant legislation and guidelines have also been considered:

- *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (SREP SHC), a deemed SEPP
- Sydney Regional Environmental Plan No. 26 – City West (SREP 26), a deemed SEPP
- Sydney Local Environmental Plan 2012 (Sydney LEP 2012)
- Ashfield Local Environmental Plan 2013 (Ashfield LEP 2013)
- Leichhardt Local Environmental Plan 2013 (Leichhardt LEP 2013)
- Marrickville Local Environmental Plan 2011 (Marrickville LEP 2011)
- *Assessing Heritage Significance for Historical Archaeological Sites and 'Relics'* (Heritage Branch of the NSW Department of Planning 2009)
- *Historical Archaeology Code of Practice* (NSW Heritage Office 2006)
- *NSW Skeletal Remains: Guidelines for Management of Human Remains* (NSW Heritage Office 1998)

- *Criteria for the assessment of excavation directors* (Heritage Council of NSW 2011)
- *NSW Heritage Manual* (Heritage Office and Department of Urban Affairs and Planning 1994)
- *How to Prepare Archival Records of Heritage Items* (NSW Heritage Office 2003)
- *Assessing Heritage Significance*, NSW Heritage Manual update (Heritage Council of NSW 2002a)
- *Statements of Heritage Impact*, NSW Heritage Manual update (Heritage Council of NSW 2002b)
- *Archaeological Assessments: Archaeological Assessment Guidelines* (NSW Heritage Office 1996)
- *Historical Archaeological Sites: Investigation and Conservation Guidelines* (Heritage Council of NSW 1993)
- *The Burra Charter: the Australia International Council on Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance 2013* (the Burra Charter) (ICOMOS 2013).

20.1.3 Previous reports

A review of archaeological and historical reports relevant to the project was completed and included the following:

- Rozelle Rail Yards Site Management Works review of environmental factors (REF) (Roads and Maritime 2016)
- M4 East EIS – Non-Aboriginal Heritage Impact Assessment (GML 2015)
- M4 East EIS (AECOM & GHD 2015a)
- New M5 EIS – Non-Aboriginal Heritage Impact Assessment (AECOM 2015a)
- New M5 EIS (AECOM 2015b)
- Various heritage reports including CMPs and archaeological assessments as referenced in **Appendix U** (Technical working paper: Non-Aboriginal heritage).

20.1.4 Field survey

Listed non-Aboriginal heritage items and areas identified as having the potential to be impacted (either directly or indirectly) by the project were subject to a targeted inspection to determine their current condition. Non-listed items of potential heritage significance were also identified during these inspections and assessed as having local significance. These inspections were used to inform an assessment of potential impacts on non-Aboriginal heritage values (potential impacts are assessed in **section 20.3**).

This process comprised:

- Review of known non-Aboriginal heritage listings to identify those properties with the potential to be directly or indirectly impacted during the construction or operation of the project
- Compilation of available information of potentially impacted non-Aboriginal heritage listings, including past inspection photographs, as a baseline reference
- Field inspections of the identified listings, which involved recording the current condition of each site. Each listed item was externally photographed and compared to past descriptions and photos. Interior features and/or conditions were determined based on the details provided within their respective database where relevant
- Field investigation of other potential non-listed items of non-Aboriginal heritage, in addition to those known heritage listings that may be impacted by the project
- Updates to existing background information with the results of the field inspections.

Field surveys were carried out between May 2016 and May 2017 and included a pedestrian and vehicle survey. Sites marked on parish plans or identified as part of the survey were inspected and:

- The structure and/or features identified at each site were recorded
- Photographs were taken of the structures/features with details maintained in a photo log
- The structures/features were then assessed for historical significance.

20.1.5 Study area

The study area for the non-Aboriginal heritage impact assessment comprises the project footprint and a buffer determined by the character and visual corridors surrounding the project footprint to ensure indirect impacts are appropriately assessed (ie visual impacts). The study area is separated into six areas that would be subject to surface disturbance as part of the project and the area above the mainline tunnel alignment. The six areas of surface disturbance comprise:

- Area 1 – Haberfield/Ashfield (Option A around Wattle Street, and Option B around Alt Street and Bland Street)
- Area 2 – Leichhardt (around Darley Road)
- Area 3 – Rozelle, Lilyfield and Annandale (around the Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road)
- Area 4 – Iron Cove (around Victoria Road)
- Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road)
- Area 6 – St Peters (around the St Peters interchange).

Within the six areas of surface disturbance, 11 Historical Archaeological Management Units (HAMUs) have been identified to assess the level of archaeological potential within the study area, as outlined in **Table 20-2**. There are no HAMUs at Area 1 - Haberfield (for Option A¹ only) and Area 6 - St Peters as these areas have been previously assessed as part of the M4 East and New M5 projects. Option B at Haberfield/Ashfield contains construction ancillary facilities which have not previously been subject to assessment by the M4 East project. This area has therefore been included in the M4-M5 Link assessment.

¹ The EIS includes two possible combinations of construction ancillary facilities around Haberfield which have been grouped together in this EIS and are denoted by the suffix *a* (for Option A) or *b* (for Option B) (eg C1a Wattle Street civil and tunnel site, which is part of Option A).

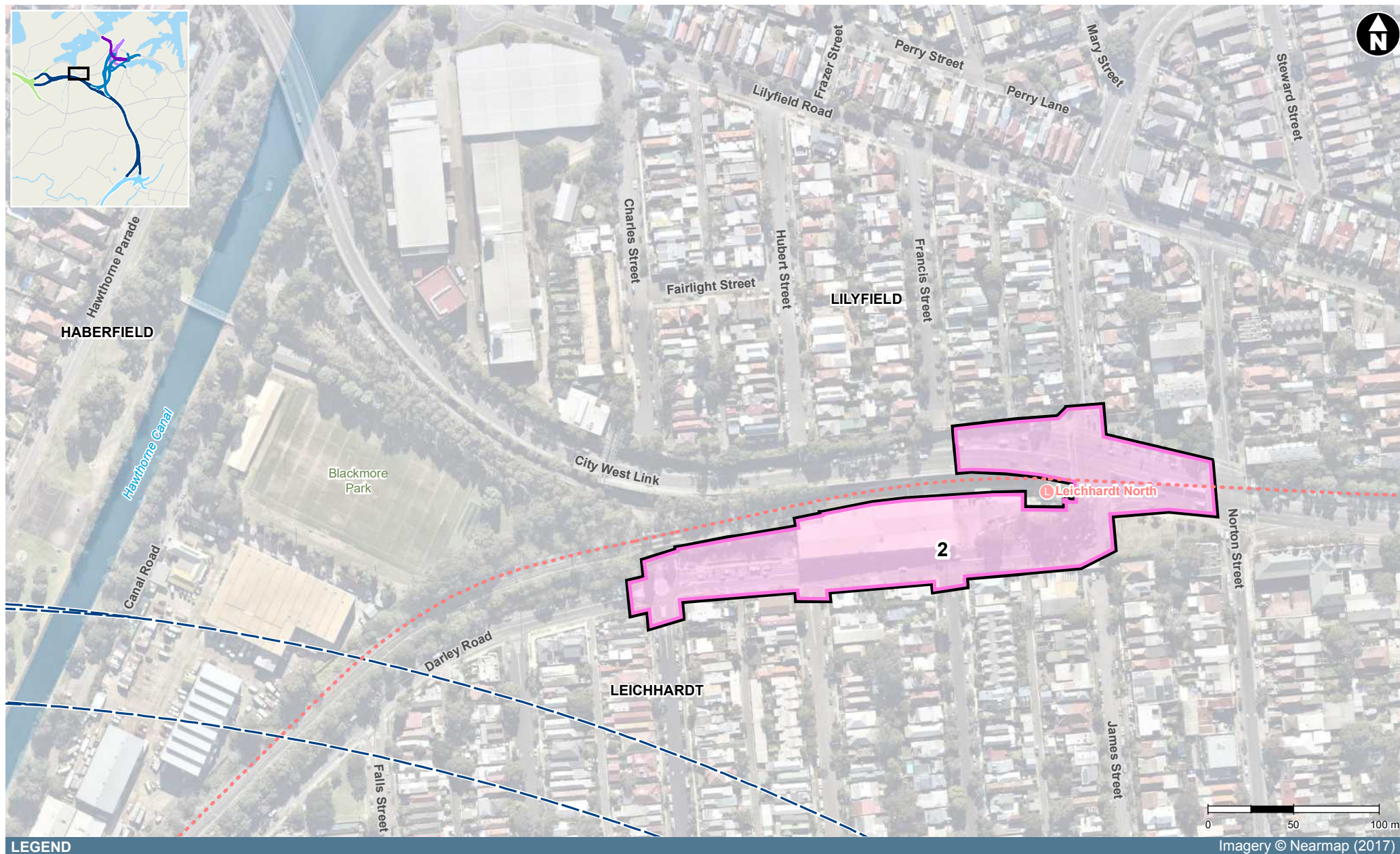
Table 20-2 HAMUs within the study area

Area	HAMU number	HAMU name
Area 1 – Haberfield/Ashfield	HAMU 1	Haberfield/Ashfield
Area 2 – Leichhardt	HAMU 2	Darley Road
Area 3 – Rozelle, Lilyfield and Annandale	HAMU 3	Lilyfield Road and Gordon Street
	HAMU 4	Victoria Road/City West Link
	HAMU 5	Rozelle Rail Yards (West)
	HAMU 6	Rozelle Rail Yards (East)
	HAMU 7	White Bay Power Station
Area 4 – Iron Cove	HAMU 8	Iron Cove
	HAMU 9	Manning Street bioretention facility
Area 5 – Annandale	HAMU 10	Bignell Lane
	HAMU 11	Parramatta Road/Pymont Bridge Road
Area 6 – St Peters	None	N/A

The study area and HAMUs are presented in **Figure 20-1** to **Figure 20-6**.



Figure 20-1 Area 1 - Haberfield/Ashfield and HAMUs



LEGEND

Existing features	M4-M5 Link	Historical Archaeological Management Units (HAMUs)
--- Light rail	Mainline	HAMU 2
ⓘ Light rail stop	- - - Tunnel	
	Study area	

Figure 20-2 Area 2 - Leichhardt and HAMUs

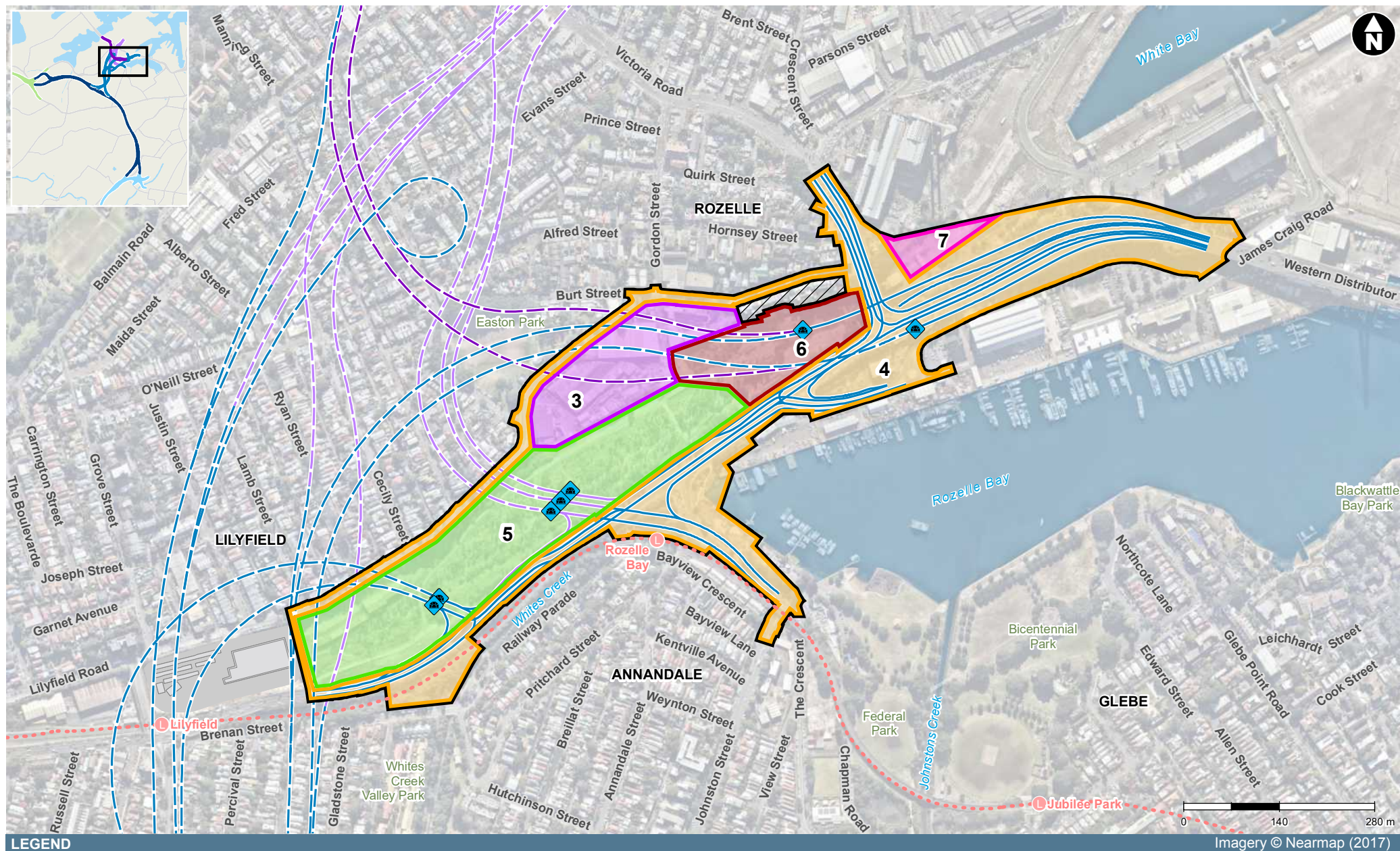


Figure 20-3 Area 3 - Rozelle, Lilyfield and Annandale and HAMUs

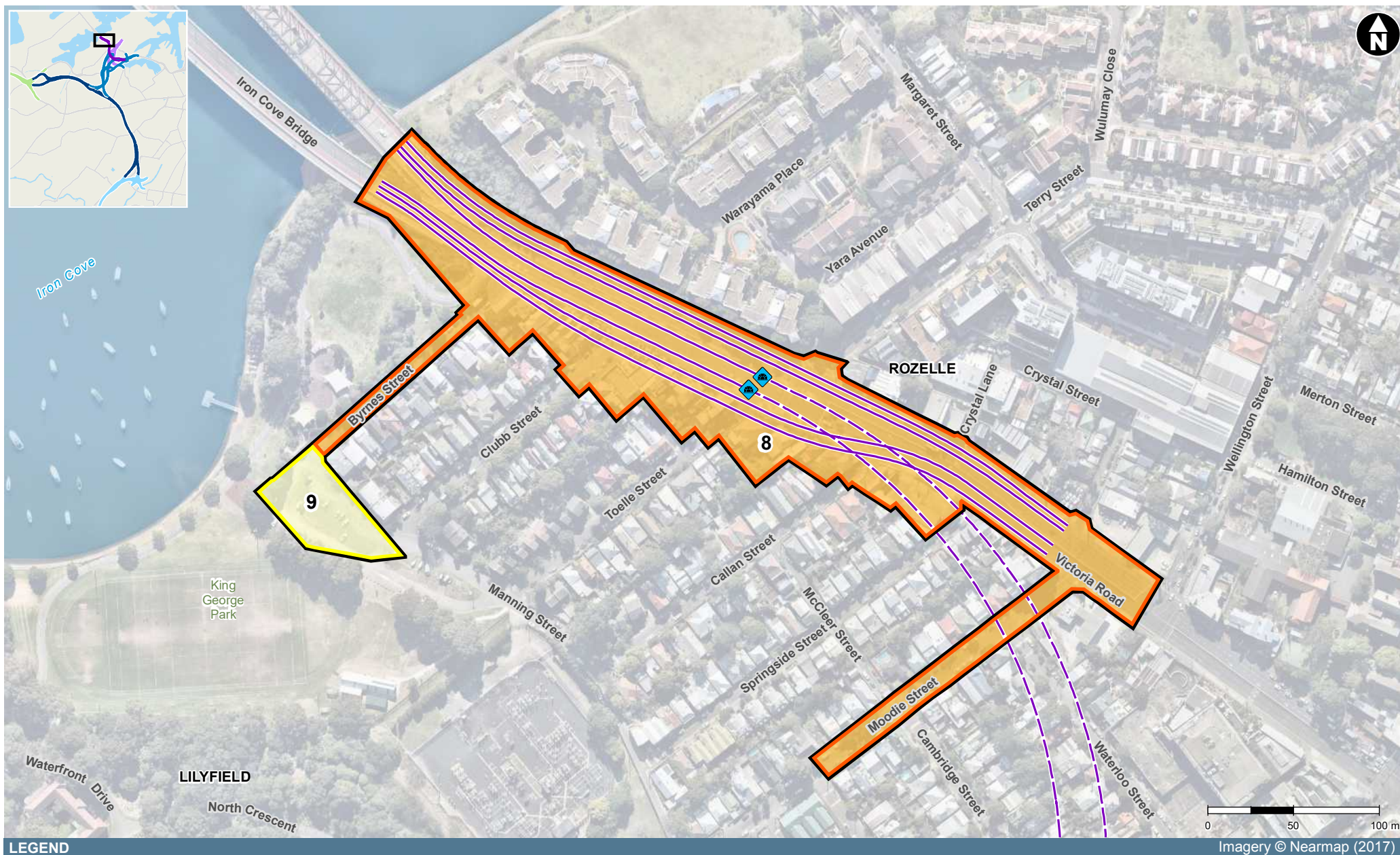


Figure 20-4 Area 4 - Iron Cove and HAMUs

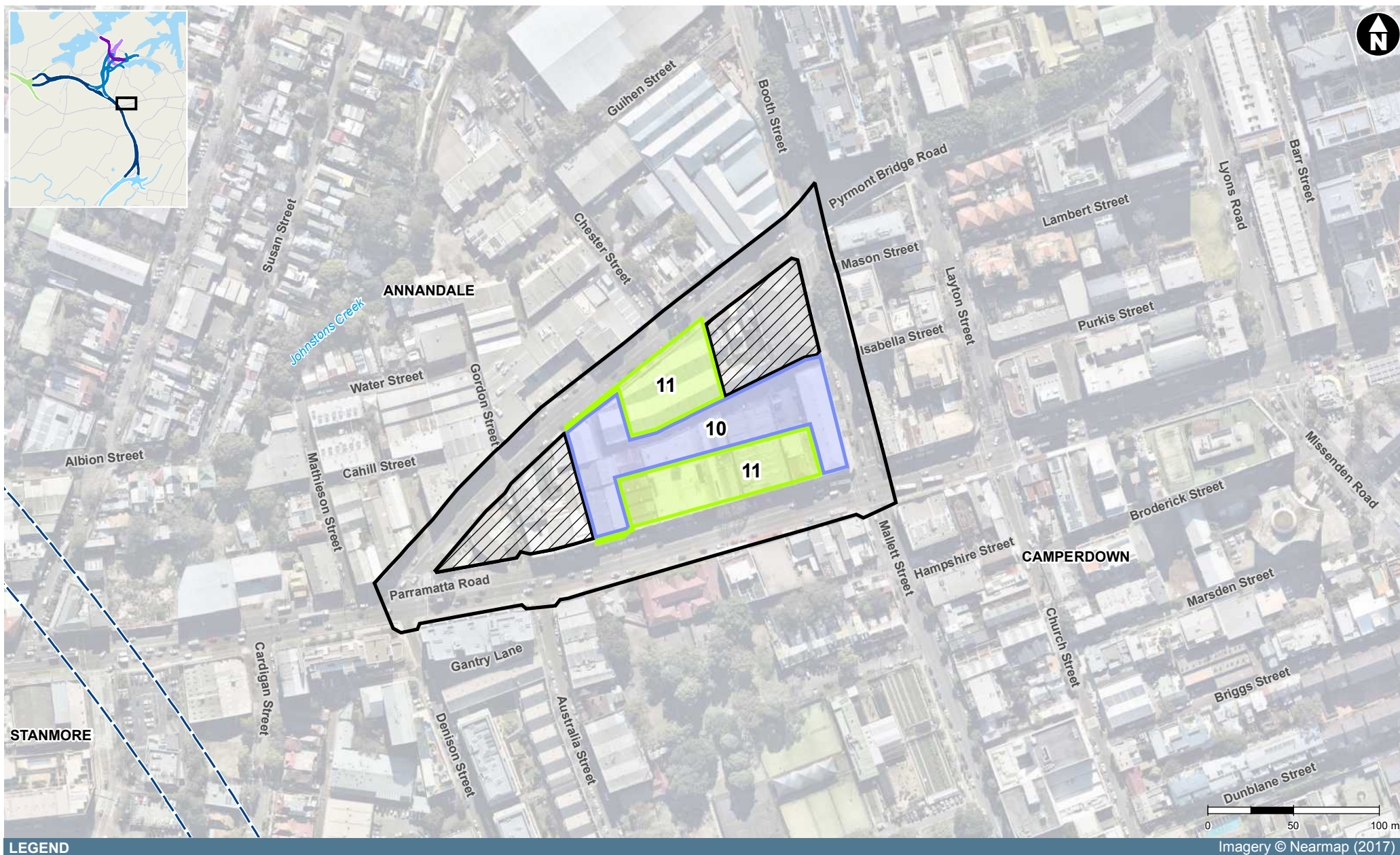
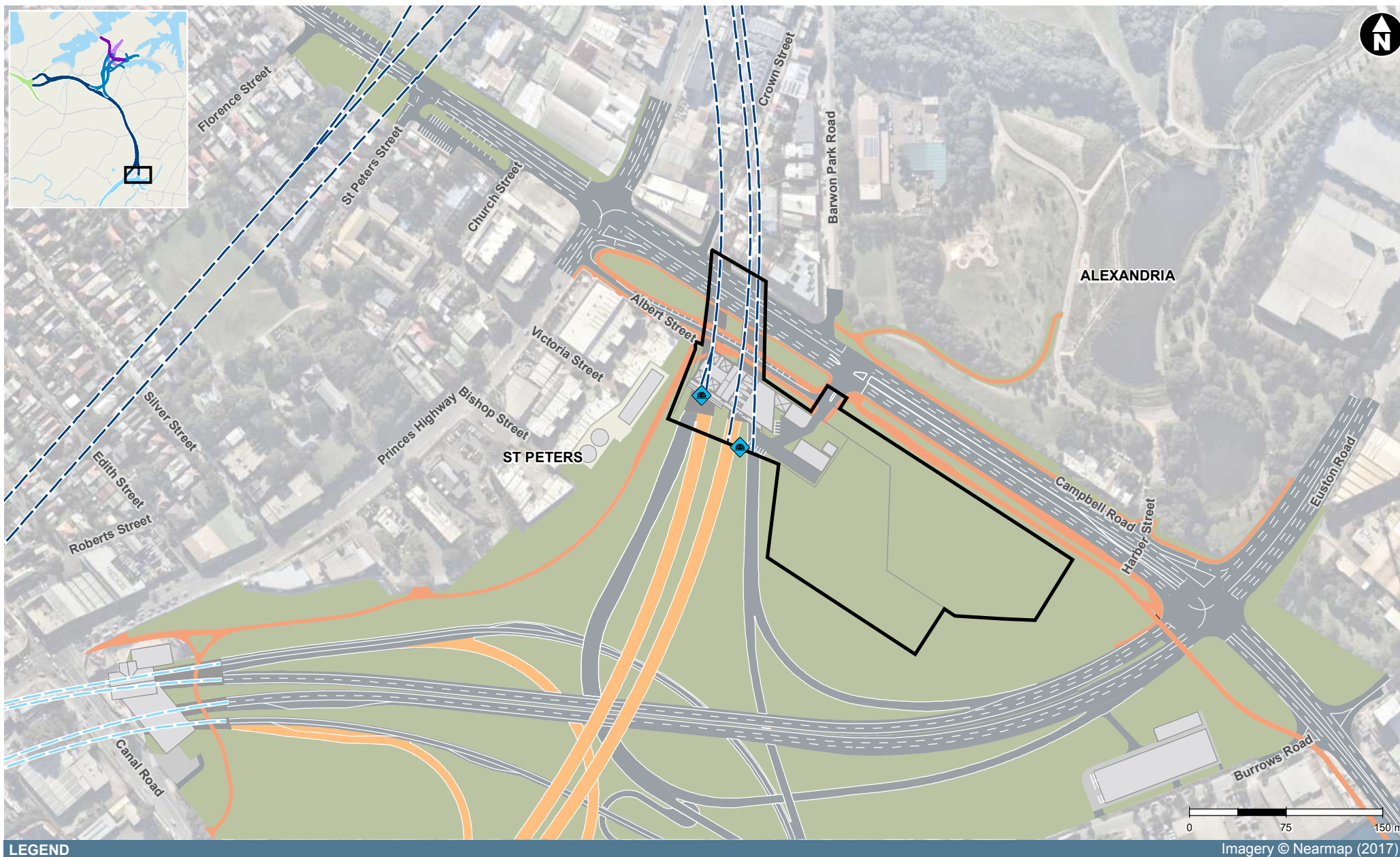


Figure 20-5 Area 5 - Annandale and HAMUs



LEGEND

New M5

- Tunnel
- Proposed future
- Sydney Gateway connections (non-operational as part of M4-M5 Link)

- Building
- Surface road
- Shared path
- Land subject to New M5 UDLP

Project features

- ◆ Tunnel portal

M4-M5 Link

- Mainline
- Tunnel

- Study area

Historical Archaeological Management Units (HAMUs)

No HAMUs on this figure
(previously assessed by New M5)

Figure 20-6 Area 6 - St Peters and HAMUs

20.1.6 Assessment of built heritage significance

An assessment of built heritage significance was carried out for each listed heritage item or potential heritage item identified within the study area. This included heritage items and HCAs that may be subject to demolition, visual, setting, vibration and/or settlement impacts from the project.

The statements of significance for the assessed built heritage items have been drawn from the relevant state and local statutory and non-statutory heritage registers listed in **section 20.1.1**. Additional information on significance, including heritage curtilages, has been drawn from conservation reports, such as CMPs, conservation plans and heritage impact statements, where available. This detail is included in **Appendix U** (Technical working paper: Non-Aboriginal heritage).

20.1.7 Archaeological assessment

The assessment of historical archaeological potential associated with various phases of history within the study area was based on consideration of the physical evidence observed during the field surveys, identified areas of previous disturbance, historical information about the development and occupation of the study area and previous archaeological assessments and investigations.

Each HAMU has been assessed for archaeological deposits. Based on this assessment the potential for archaeological remains within each HAMU has been designated as either nil, low, moderate or high. Following the assessment of potential archaeology for the individual HAMUs, a preliminary heritage significance assessment was completed for each HAMU. Each HAMU has been ascribed either nil, local or state heritage value in relation to its archaeological resources.

As the mainline tunnels would be generally located more than 20 metres below ground level, they are not likely to impact historical archaeology.

20.1.8 Approach to the assessment of potential impacts

Impact ratings have been established to rank the degree of impact (ie severity) on non-Aboriginal heritage, as outlined in **section 20.3**. These impact ratings have been used for previous similar projects including the CBD and South East Light Rail Heritage Impact Assessment (GML 2013) and M4 East Non-Aboriginal Heritage Impact Assessment (GML 2015). It should be noted that the impact severity is not related to the significance of the heritage item.

The assessment has assigned an impact type to each heritage item and HCA as follows:

- Settlement (above tunnel)
- Setting (including visual impacts)
- Vibration
- Partial demolition
- Full demolition.

Table 20-3 Non-Aboriginal heritage impact severity

Impact severity rating	Description
Major adverse	Severe, long-term and possibly irreversible impact on a heritage item that cannot be fully mitigated.
Moderate adverse	Adverse impact on a heritage item that could be reduced through appropriate mitigation measures.
Minor adverse	Minor adverse impact on a heritage item which may also be temporary and/or reversible.
Neutral	No heritage impact.
Minor positive	Minor benefit to a heritage item, such as removal of intrusive elements or fabric or a substantial improvement to the item's visual setting.
Moderate positive	Moderate benefit to a heritage item, such as removal of intrusive elements or fabric or a substantial improvement to the item's visual setting.
Major positive	Major benefit to a heritage item, such as reconstruction of significant fabric, removal of intrusive elements or reinstatement of an item's visual setting or curtilage.

20.2 Existing environment

20.2.1 Rozelle Rail Yards

Roads and Maritime is carrying out a suite of site management works on part of the Rozelle Rail Yards site. The works are needed to manage the existing environmental and safety issues at the site and would also improve access to surface conditions, which would allow for further investigation into the location of utilities and the presence of contamination and waste.

The site management works were subject to a separate environmental assessment. The works were assessed in an REF which was approved by Roads and Maritime under Part 5 of the EP&A Act in April 2017.

Key features of the works relevant to this heritage assessment include removal of existing above ground rail infrastructure including gantries, railway lines, ballast, sleepers and buildings (excluding the southern penstock, switching station, transformer and rail infrastructure to the east of the Victoria Road bridge) generally to a depth of 500 millimetres below ground level, except where drainage channels and sediment basins are required. **Chapter 2** (Assessment process) provides further information on the scope and timing of activities to be carried out as part of the site management works.

Site management works will be carried out over a period of around 12 months and commenced in mid-2017. As the site management works will occur before the commencement of construction of the M4-M5 Link, the existing environment in this section is described as the finished site following completion of the site management works. In addition, potential cumulative impacts from the site management works and the construction and operation of the M4-M5 Link project have been assessed and are described in **Chapter 26** (Cumulative impacts).

A heritage impact assessment was undertaken to inform the REF for site management works at the Rozelle Rail Yards (Roads and Maritime 2016). The assessment concluded that the site management works would not impact any listed heritage or potential historical archaeology items within the Rozelle Rail Yards. Minor adverse impacts were identified to Rozelle Rail Yards as a whole, being removal of the lighting tower and the Port Authority Building. These items were considered to have potential local significance as representative of the operation of the Rozelle Rail Yards in the first part of the 20th century. Recommended management measures included the appropriate treatment of fabric, salvage and retention of some of the key elements where possible (being the lighting tower and the rail

gantries) and the incorporation of historic values into the future urban design and interpretive works for the area.

20.2.2 Historical overview

This section provides an overview of the historical development of the land within the study area.

Area 1 – Haberfield/Ashfield

Haberfield and Ashfield located around seven kilometres west of the Sydney central business district (CBD). Haberfield retains a largely intact subdivision layout from the Federation era with many heritage listed items. Almost all of the suburb of Haberfield, from Dobroyd Canal (Iron Cove Creek) to Hawthorne Canal and northwest to Iron Cove (excluding the properties along Parramatta Road), is listed as an HCA of local (and nominated state significance) under the Ashfield LEP 2013.

Haberfield was Australia's first fully planned and developed 'garden suburb' and is largely intact, with the form, materials, scale and setbacks of the predominantly brick Federation and interwar period houses and their landscaped gardens. The tree-lined streets provide consistent and aesthetically significant streetscapes. Land on the northern side of Parramatta Road between Dobroyd Parade and O'Connor Street, Haberfield, originally formed part of the Dobroyd Estate granted to Nicholas Bayley in 1803, known as Sunning Hill Farm. Land opposite this on the southern side of Parramatta Road from Page Avenue to Ashfield Park was originally part of a grant to Augustus Alt.

A businessman names Simeon Lord purchased Sunning Hill in 1805 and renamed it 'Dobroyd'. His daughter Sarah Anne married Dr David Ramsay in 1825, and the couple were given the Dobroyd Estate as a component of Sarah's dowry. The Ramsay's built a timber cottage and garden on the property in 1826, named Dobroyd House. An additional house was constructed on the Dobroyd Estate west of Dobroyd House in 1855 called Yasmar.

The land from eastern side of Alt Street to eastern side of Bland Street was inherited by Mary Louisa Ramsay and contained Yasmar House. She sold the portion of land to Joseph and Albert Grace who subdivided it in 1905. This is the location of the proposed construction ancillary facilities containing the sites for the construction scenario Option B.

The block of land bound by Frederick, Henry, Alt Streets and Parramatta Road was purchased in 1859 by Thomas Wild from the Ashfield Estate subdivision. In the 1860s, Wild built a house on his land which he called 'Gordon'. In 1876 the entire site was purchased by Thomas Walker for the establishment of the Ashfield Infants Home. The Home's aim was for the shelter and care of foundling and orphaned children. This home remains on the site and the complex has, over the years, been enlarged with the construction of additional structures. No significant development was undertaken on the northern portion of the block fronting Parramatta Road.

The Parramatta Road frontage was developed in the early 1920s and was an early commercial strip. Businesses along this strip in 1924 included two grocers, a hairdresser, a motor garage (one of the earliest of many that would occupy parts of Parramatta Road), a timber yard, an electrician and a draper.

With the increasing ownership of cars in Sydney and the spreading suburbs, much of the land along Parramatta Road at Haberfield and Ashfield was redeveloped and now includes industrial sites including several car dealerships which remain the main business in this area. Within the project footprint for construction scenario Option B, most residential buildings have been replaced by open car parking or dealership showrooms. On the west side of Parramatta Road, this has included deep excavation into the slope of the site to the southwest. A row of early twentieth century buildings remain on the corner of Parramatta Road and Bland Street.

Within Area 1 at Haberfield for Option A, the following activities have already occurred as part of the M4 East project:

- Demolition of 53 properties within the Haberfield HCA for the construction of new motorway infrastructure, including dive structures, cut-and-cover tunnels, tunnels and noise barriers around the Wattle Street interchange

- Site clearing, levelling and installation of construction ancillary facilities for the M4 East project known as the Wattle Street and Walker Avenue civil sites and the Northcote Street tunnel site.

The heritage impacts of these works have been assessed as part of the M4 East EIS, including the construction of a ventilation facility near Parramatta Road (AECOM 2015). Cumulative impacts of the M4-M5 Link with other WestConnex component projects, including the M4 East project, are described and assessed in **Chapter 26** (Cumulative impacts).

Area 2 – Leichhardt

Leichhardt is located about six kilometres west of the Sydney CBD. Residential development along Darley Road and the surrounding area is characterised by a broad range of architectural styles and typologies dating from the Victorian era to the present day, with a high degree of alterations and modifications to most properties. The Darley Road civil and tunnel site (C4) would be located on land originally forming part of a 270 acre grant to Ensign Hugh Piper in 1811, which he named the 'Macquarie Gift'. His brother, Captain John Piper, was granted the 165 acres adjacent to Ensign Piper's grant in 1811, and named the land 'Piperston'. Captain Piper's land in Leichhardt was later sold off in four portions. Area 2 is located within the 92 acres purchased by Jean Charles Prosper de Mestre in 1832. De Mestre became insolvent in 1843 and died later that year. After his death, the land was purchased by Henry Alfred Hindson. Hindson kept the property for 11 years and sold it to James Henderson in February 1856, who six months later sold it to George William Lord.

The former Goods Line, a former freight railway line route that connected Sydney Yard and the Sydney-Parramatta railway line to the shipping port of Darling Harbour, also runs adjacent to the Darley Road civil and tunnel site (C4). Development of the Goods Line has resulted in significant development modifications to the landscape.

In 1871, the suburbs of Leichhardt, Lilyfield and Annandale were incorporated in the Municipality of Leichhardt. Leichhardt was already well serviced by horse-drawn buses but there was mounting public pressure for steam trams. The tram network was completed in 1884 and was further extended north along Norton Street in 1889. The Abbotsford line was opened in 1890 and the trams were electrified by 1905.

Other key historical developments in the area included:

- The Goods Line and Leichhardt Goods Yards (1910–1916)
- Construction of Darley Road (1919–1923)
- Operation of the Leichhardt Goods Yards for various uses including the Inner West Light Rail Extension and the Leichhardt North light rail stop (although outside the study area) (1916–present)
- City West Link (2000–present).

Area 3 – Rozelle, Lilyfield and Annandale

Rozelle, Lilyfield and Annandale (around the Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) are located around three kilometres west of the Sydney CBD. This area includes the Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road. The area is characterised by light industrial development, interspersed with parkland constructed above areas of 19th century reclamation and bisected by a network of modern roads. Late 19th century residential developments surround the northern boundary of the area.

Rozelle was originally part of the 550 acre Balmain Estate granted to William Balmain in 1800. The southern portion of the area is reclaimed land which was once part of the estuary of Rozelle Bay. With the spread of industry, there was pressure to develop the land with housing for workers and by the 1880s, the basic street layout of the peninsula was established. Original housing from the 1890s saw terraces and freestanding houses built along Lilyfield Road and Gordon Street. A number of these buildings remain today.

Easton Park was partially reclaimed from five acres of low lying, probably flood-prone, land. It was resumed for recreation ground in 1889 and proclaimed as Easton Park in 1890. Located close to the

foreshore, it was the sole public space for recreation in Rozelle until additional lands were reclaimed at Rozelle Bay, White Bay and Iron Cove, and parkland created in the early 1900s.

In the early 19th century, the waterfronts around White Bay and Blackwattle Bay became home to industries relocating from inner Sydney. The first of these was the abattoir established on Glebe Island in 1860, followed by other noxious industries. By the mid-late 1800s, the shoreline was well developed with a range of industries utilising the ready access to ships.

The closure of the abattoir in 1912 led to the larger scale industrialisation of the neighbourhood. The waterfront was levelled for the construction of wharves, including what became the Glebe Island container terminal, and the Rozelle Bay wharves. The White Bay Power Station was built by the NSW Rail Commissioners on a series of amalgamated residential lots and the reclaimed mudflats of White Bay. The power station was originally built to power the rapidly expanding tramway network, but after becoming fully operational in 1917, it gradually produced more and more power initially for the electrified rail network and then for general use. The White Bay Power Station is now listed on the SHR.

Closely associated with the White Bay Power Station is the southern penstock in the north-eastern part of the Rozelle Rail Yards, east of Victoria Road Bridge. The southern penstock formed part of the power station cooling water system, which was integral to the operation of the complex.

In 1916, the Rozelle Rail Yards (then known as the Rozelle Marshalling Yard) were created as part of the Goods Line. The Rozelle Rail Yards were created by filling in much of the Whites Creek estuary, and through the quarrying of the rugged sandstone outcrops along the foreshore. The Rozelle Rail Yards were a locomotive depot until World War II, with an engine shed, turntable, water columns and coal storage facilities. Two large brick overbridges, the Catherine Street overbridge and the Victoria Road overbridge, were constructed in the 1920s as part of a larger rollout of overbridges across the Goods Line network.

In 1988, the last train of export grain arrived from Parkes at the Rozelle Rail Yards. In 1996, the Goods Line from Pyrmont to Rozelle closed. In 2000, the light rail line to Lilyfield opened, using the tracks from the Rozelle Rail Yards near Brennan Street. For a few years the yards were used irregularly, including for the unloading of wheat and the storage of concrete, but were completely closed in 2007.

Area 4 – Iron Cove

Area 4 is oriented along Victoria Road, a major thoroughfare located around three to four kilometres to the west of the Sydney CBD. The residential development fronting Victoria Road and occupying the adjacent cross streets is predominantly late 19th century workers' housing. Iron Cove Bridge links the suburb of Rozelle to the suburb of Drummoyne to its northwest. The area is a small scale, irregular subdivision that exhibits a variety of building types and construction methods including single-fronted cottages, two storey terraces, and free-standing timber and stone single storey cottages, most with small front gardens.

The Iron Cove area is located in the south-western corner of the 550 acre Balmain Estate (also relevant to Area 3 above). In 1801, Balmain sold his entire holding for five shillings to John Bothwick Gilchrist in order to settle a debt. Balmain returned to England and this transaction remained unknown until after his death. The legality of the land transfer from Balmain to Gilchrist was challenged by Balmain's descendants and further development of the area was initially blocked. The first land was eventually sold in 1835.

From the 1830s to 1850s, Balmain developed as a suburb with a strong maritime industry. Along its coastline were boat yards, slipways, ships and wharves providing connections to the city via regular ferry services. In 1873, the government purchased Callan Park, located on the west of the Balmain boundary line, for the purpose of constructing a mental health hospital. The Callan Park Hospital was to provide relief from overcrowding and additional resources for the Gladesville Hospital for the Insane. The first patients from Gladesville were transferred to Callan Park in 1877 and housed in Garry Owen House.

Also in 1873, Iron Cove Bridge was being built to connect Drummoyne and Rozelle. The original bridge was constructed of wrought-iron lattice girders and opened in 1882. In 2009, works began constructing a second bridge over Iron Cove. The second bridge was completed and opened in 2011. The adjacent parkland was restored at the same time.

King George Park was the site of a United States' service-men encampment during World War II. Possibly related to the encampment, there appears to be air raid trenches on historical aerial photos, visible as a zig-zag to the south of Victoria Road dug into the headlands by Iron Cove (refer to Figures 4-49 and 4-50 of **Appendix U** (Technical working paper: Non-Aboriginal heritage)).

The site of the proposed bioretention facility on Manning Street at Rozelle remained vacant during this period, however an aerial photograph from 1943 suggests that a stormwater drain ran through the area, and into the Iron Cove Bay.

Since the 1920s, there were discussions to widen Victoria Road to accommodate the rapidly increasing population. This did not occur until the 1882 Iron Cove Bridge was replaced in 1955 with the existing Art Deco steel truss bridge. In 1959, buildings 206 to 222 Victoria Road (between Callan Street and Springside Street) were purchased and demolished to make way for a petrol station and car park.

Area 5 – Annandale

Annandale is located around four kilometres south-west of the Sydney CBD and is characterised as a mixed use commercial/residential area oriented around Parramatta Road. The area is generally occupied by medium density development of predominantly industrial character. Buildings date primarily from the early to mid-20th century, punctuated by contemporary apartment developments.

The Annandale area is part of Governor William Bligh's 240 acre grant, made to him by Governor Philip Gidley King in 1806. Bligh's wife died in 1813 and he died in 1817. After his death, his landholdings were passed on to his six surviving daughters.

By the 1840s, the Camperdown Estate was in the ownership of Sir Maurice O'Connell, who had married Bligh's widowed daughter, Mary Putland. In 1842, the Camperdown Estate was subdivided and sold. Most of the blocks were villa allotments, up to two hectares in size, but there were also smaller residential lots. New streets were also laid out, including a new alignment of George Street (present day Parramatta Road).

Parramatta Road was constructed in the first years of the colony to link the two European settlements of Sydney and Rose Hill (later renamed Parramatta). It is highly probable, although no written account confirms it, that the first European-made track between the two settlements followed an Aboriginal pathway. The creation date of the first European-made track also remains unknown, but was likely to have been sometime in 1790 or 1791.

By 1924, the residential cottages along Parramatta Road at Annandale were being replaced with factories, stores and shops. There have been minimal physical changes to the Annandale area since the 1940s. In 1937, the Bank of NSW purchased 164 Parramatta Road. The Bank of NSW was established by Governor Macquarie in 1817 and was Australia's oldest financial institution. In 1982 the Bank of NSW merged with the Commercial Bank of Australia Ltd and changed its name to Westpac Banking Corporation.

Area 6 – St Peters

St Peters is located around five to six kilometres south of the Sydney CBD. Area 6 comprises a mostly cleared area south of Campbell Road. There are industrial areas to the east and west of the area, and Sydney Park to the north. Land comprising Area 6 formed part of a large parcel of land granted to William Hutchinson, who gave the area the name 'Waterloo'. Subsequently during the 20th century, the area was used as a brickworks, and later as a landfill site.

While St Peters was subject to an early colonial land grant, the land was swampy and therefore remained undeveloped. Plans from the 1890s show Barwon Park as the Central Brick and Tile Company kilns. These kilns were used to manage and stockpile waste and were eventually demolished. It is unlikely that any deposits or material from the former Central Brick and Tile

Company remain in-situ, as these are likely to have been disturbed by activities associated with the subsequent waste facility established on the site.

The heritage impacts of these works have been assessed as part of the New M5 EIS (AECOM 2015b). Cumulative impacts of the M4-M5 Link with other WestConnex component projects, including the New M5 project, are described and assessed in **Chapter 26** (Cumulative impacts).

20.2.3 Historical archaeology

This section describes the historical archaeological potential of the study area. The heritage significance of each HAMU has been determined at the state or local level. This section also describes the potential impact on the archaeological resource resulting from construction of the project.

Area 1 – Haberfield/Ashfield

The archaeological potential and significance at Haberfield (Area 1) for Option A has been previously assessed as part of the M4 East project (GML 2015) and are being managed during construction of the M4 East project.

In this location, the construction works as part of the M4-M5 Link project comprise the internal fitout of the Parramatta Road ventilation facility, continued use of existing construction ancillary facilities, tunnelling of the mainline tunnels and tie-ins with the underground tunnel connections (constructed as part of the M4 East project). These works would not impact archaeological remains within this area, beyond the impacts already assessed and associated with the M4 East project.

The construction ancillary facilities at Haberfield/Ashfield for Option B have not been previously assessed by the M4 East project and have therefore been included in this assessment. These sites include the Parramatta Road West civil and tunnel site (C1b) and Parramatta Road East civil site (C3b). The Haberfield civil site (C2b) is within the same footprint as the ancillary facility for Option A (the Haberfield civil and tunnel site (C2a)) and has been assessed by the M4 East project. The two sites (C1b and C3b) are separated by Parramatta Road, which runs in a north–south direction. HAMU 1 is located in Area 1.

Table 20-4 summarises the past developments in the area and the nature, level and extent of previous disturbance. **Table 20-5** summarises the potential for archaeological remains to be present within HAMU 1, and the significance of those remains. HAMU 1 is assessed as having moderate or high potential to contain archaeological remains.

Table 20-4 Summary of previous disturbance at Haberfield/Ashfield (Area 1)

Past development	Nature of disturbance	Level of disturbance
Basement excavation of late 19th and early 20th century buildings	Disturbance of agricultural landscape features and fence lines.	Moderate to high
Building foundations, cutting and levelling of late 20th century buildings	Surface clearing and localised impacts resulting from excavation for building foundations.	Moderate to high
Services	Excavation for services (water, gas, sewage) would have completely removed any remains within the trench footprint.	Moderate
Construction of Parramatta Road	Construction and maintenance of road way.	Low to moderate

Table 20-5 Potential archaeological presence at Haberfield/Ashfield (Area 1)

HAMU	Listed archaeological items	Archaeological potential	Significance
HAMU 1 – Haberfield/Ashfield	None	Moderate or high potential associated with late 19th to early 20th century building footings and services beneath road surfaces and footpaths.	Nil

Area 2 – Leichhardt

The Darley Road civil and tunnel site (C4) would be oriented around the former Goods Line, which has historically resulted in significant modifications to the landscape. The topography of this area slopes steadily downwards from east to west towards Hawthorne Canal. HAMU 2 is located in Area 2.

Table 20-6 summarises the past developments in the area and the nature, level and extent of previous disturbance. **Table 20-7** summarises the potential for archaeological remains to be present within HAMU 2, and the significance of those remains.

HAMU 2 is assessed as having no potential to contain archaeological remains.

Table 20-6 Summary of previous disturbance at Leichhardt (Area 2)

Past development	Nature of disturbance	Level of disturbance
Goods Line	Excavation of sandstone bedrock, and levelling of ground surface for construction of the railway Goods Line.	High
Early 20th century reclamation	Filling and levelling within waterfront and estuary areas.	Low to moderate
20th century warehouses	Excavation and levelling to create a level surface for construction of the existing building.	High
Stormwater drainage system	Excavation for the stormwater culvert and pipe trenches.	High
Construction of Hawthorne Canal	Reclamation for the construction of the Hawthorne Canal.	High
Services (excavation for service trenches)	Excavation for services (water, gas, sewage) would have completely removed any remains within the trench footprint.	Moderate

Table 20-7 Potential archaeological presence at Leichhardt (Area 2)

HAMU	Listed archaeological items	Archaeological potential	Significance
HAMU 2 – Darley Road	None	Nil	Nil

Area 3 – Rozelle, Lilyfield and Annandale

The majority of the Rozelle area has been modified by historical development. HAMUs 3, 4, 5, 6 and 7 are located in Area 3. **Table 20-8** summarises the past developments in the area and the nature, level and extent of previous disturbance. **Table 20-9** summarises the potential for archaeological remains to be present within the HAMUs identified in Area 3, and the significance of those remains.

HAMUs in Area 3 range from low to high degrees of archaeological potential. HAMU 3 and HAMU 6 have potential for locally significance archaeological remains, while HAMU 4 and HAMU 5 do not meet the threshold for significance. HAMU 7 is considered to have high potential for state significant archaeological remains associated with White Bay Power Station.

Table 20-8 Summary of previous disturbance at Rozelle, Lilyfield and Annandale (Area 3)

Past development	Nature of disturbance	Level of disturbance
Progressive reclamation	Multiple phases of filling and levelling within waterfront and estuary areas.	Moderate
Quarrying and cutting sandstone	Excavation of sandstone bedrock, and levelling of ground surface.	High
Construction of Victoria Road, City West Link and Western Distributor	Demolition of previous structures and any earlier deposits, and earlier street alignments for new, upgraded or wider roads.	High
18th and 19th century buildings	Surface clearing and some excavation for footings.	Low
20th century buildings (cutting and levelling)	Demolition of pre-existing buildings and complete removal of any earlier deposits.	Moderate to high
Infrastructure and services (excavation for service trenches)	Excavation for services (water, gas, sewage) and infrastructure (trams on Lilyfield Road) would have completely removed any remains within the trench footprint.	Moderate

Table 20-9 Potential archaeological presence at Rozelle, Lilyfield and Annandale (Area 3)

HAMU	Listed archaeological items	Archaeological potential	Significance
HAMU 3 – Lilyfield Road and Gordon Street	None	Moderate to high potential associated with early residential occupation on Gordon Street, previous phases of industrial activity and reclamation activities of the Rozelle foreshore prior to 1890. Most sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the property boundary with Lilyfield Road.	Local
HAMU 4 – Victoria Road/City West Link	None. The southern penstock and associated subsurface elements of the White Bay Power Station cooling system are discussed in section 20.2.4.	Low to moderate potential associated with: <ul style="list-style-type: none"> • Early residential occupation on Weston Road and Abattoir Road • Early road alignments of Weston Road and Barnes Street predating the 1960s upgrades to Victoria Road • Alignment of Abattoir Road prior to construction of Rozelle Rail Yards and White Bay Power Station • Subsurface structural remains and the basement of the White Bay Hotel • Reclamation activities of the Rozelle foreshore prior to 1890, including early stages of bridging Glebe Island, and channelisation 	Nil

HAMU	Listed archaeological items	Archaeological potential	Significance
		<p>of Whites Creek.</p> <p>Most sites or features in this HAMU are likely to have been disturbed or destroyed by sandstone quarrying, late 20th century developments and road infrastructure development. Remains of the White Bay Hotel have likely been extensively disturbed by the fire which destroyed the hotel, and subsequent demolition.</p>	
HAMU 5 – Rozelle Rail Yards (West)	<p>None.</p> <p>The Lilyfield Road Stormwater Canal (listed under SREP 26) is located underground in this HAMU. While the above ground section of the canal is listed, the underground section is not listed and has potential archaeological significance.</p>	<p>Low to high potential associated with:</p> <ul style="list-style-type: none"> • Early road alignments of Abattoir Road prior to construction of the Rozelle Rail Yards • Reclamation activities of the Rozelle foreshore during the 19th and 20th centuries • 19th century drainage infrastructure associated with channelising the creek, and early 20th century drainage infrastructure associated with the stormwater canal. <p>Some sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the northern boundary and levelling and subsequent modifications of the Rozelle Rail Yards.</p>	Nil
HAMU 6 – Rozelle Rail Yards (East)	None	<p>Low to high potential associated with:</p> <ul style="list-style-type: none"> • Early industrial occupation on Lilyfield Road including structural remains and associated artefact deposits in areas which have been quarried and filled for the construction of the rail yards • Reclamation activities of the Rozelle foreshore during the 19th and 20th centuries. <p>Some sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the northern boundary and levelling and subsequent modifications of the Rozelle Rail Yards.</p>	Local
HAMU 7 – White Bay Power Station	<p>White Bay Power Station is a listed heritage item of state significance, with significant archaeological components of the system known to exist both within and outside the SHR curtilage.</p> <p>Impacts on this item are also discussed in section 20.3.2.</p>	<p>High potential for archaeological elements of White Bay Power Station water channels associated with the southern penstock (the specific location of the channels is unknown).</p>	State

Area 4 – Iron Cove

The majority of the project footprint at Area 4 - Iron Cove has been heavily disturbed by historical developments which have likely impacted on earlier archaeological remains. HAMUs 8 and 9 are located in Area 4.

Table 20-10 summarises the past developments in the area and the nature and level of previous disturbance. **Table 20-11** summarises the potential for archaeological remains to be present within the two HAMUs identified in Area 4, and the significance of those remains.

HAMU 8 is considered to have no archaeological significance, while HAMU 9 is considered to have low potential for locally significance archaeological remains.

Table 20-10 Summary of previous disturbance at Iron Cove (Area 4)

Past development	Nature of disturbance	Level of disturbance
Construction of Iron Cove Bridge abutment	Excavation for the bridge head and adjacent construction ancillary facility.	High
Former petrol station underground tanks at 212–218 Victoria Road	Complete removal of earlier remains within the tank/s footprint.	High (localised)
Cutting and levelling for late 19th / early 20th century buildings	Excavation of bedrock to create level surfaces; areas of fill may have potentially buried remains.	Low to moderate
Construction of existing Victoria Road	Demolition of previous structures and any earlier deposits, and earlier street alignments for new, upgraded or wider roads.	High
Services (excavation for service trenches)	Excavation for services (water, gas, sewage) would have completely removed any remains within the trench footprint.	Moderate
Establishment of King George Park	Demolition of earlier buildings, and modification of the landscape including construction of new roads; areas of fill may have potentially buried remains.	Low to moderate

Table 20-11 Potential archaeological presence at Iron Cove (Area 4)

HAMU	Listed archaeological items	Archaeological potential	Significance
HAMU 8 – Iron Cove	None	<p>Low potential associated with:</p> <ul style="list-style-type: none"> Remains of a quarry that may have extended into the study area within King George Park adjacent to Byrne Street Remains of zigzag air-raid trenches visible on the 1943 aerial Truncated footings and artefact scatters from 1890s houses at 212–218 and 224 Victoria Road Earlier road surfaces, drainage features and services within adjoining side streets (including Byrnes, Clubb, Toelle and Callan streets). <p>Sites or features in this HAMU are likely to have been heavily disturbed or removed by modern developments (ie construction of Iron Cove Bridge abutment and the ongoing upgrade of Victoria Road and intersections).</p>	Nil
HAMU 9 – Manning Street bioretention facility	None	<p>Moderate to high potential of truncated footings and deposits associated with 1890s houses.</p> <p>Although localised service excavation would have resulted in areas of disturbance, the introduction of fill to create the parkland may have buried earlier remains, which could survive intact beneath the modern ground surface.</p>	Local

Area 5 – Annandale

The majority of the Annandale (around Pyrmont Bridge Road and Parramatta Road) area has been artificially modified by historical urban development. HAMUs 10 and 11 are located in Area 5.

Table 20-12 summarises the past developments in the area and the nature and level of previous disturbance. **Table 20-13** summarises the potential for archaeological remains to be present within the two HAMUs identified in Area 5, and the significance of those remains.

HAMU 10 encompasses those areas that have a moderate or high degree of archaeological potential. HAMU 11 contains areas that have a low potential for archaeological remains. Both HAMUs meet the threshold for local significance.

Table 20-12 Summary of previous disturbance at Annandale (around Pyrmont Bridge Road and Parramatta Road) (Area 5)

Past development	Nature of disturbance	Level of disturbance
20th century buildings (basement excavation)	Demolition of late 19th century buildings and excavation for basement levels.	Moderate to high
20th century buildings (building foundations, cutting and levelling)	Surface clearing and localised impacts resulting from excavation for building foundations.	Moderate
Services	Excavation for services (water, gas, sewage) would have completely removed any remains within the trench footprint.	Moderate
Construction of Bignell Lane	Construction and maintenance of road way.	Low

Table 20-13 Potential archaeological presence at Annandale (around Pyrmont Bridge Road and Parramatta Road) (Area 5)

HAMU	Listed archaeological items	Archaeological potential	Significance
HAMU 10 – Bignell Lane	None	<p>Moderate to high potential associated with:</p> <ul style="list-style-type: none"> Western half of the c1860s Didliston House (building footings and deposits) Footings and deposits associated with c1890s houses Early 20th century services beneath Bignell Lane Early to mid-19th century property boundaries and garden/agricultural remains External structures and features associated with the Bignell and Clarke steam joinery works (the main building is outside this HAMU). <p>Given the size of the 20th century buildings and the absence of basements within this HAMU, there is potential for archaeological remains to survive beneath the existing floor slabs and between building footings.</p>	Local
HAMU 11 - Parramatta Road/ Pyrmont Bridge Road	None	<p>Low potential associated with:</p> <p>Eastern half of the c1860s Didliston House (building footings and deposits)</p> <p>Footings and deposits associated with c1890s buildings</p> <p>Remains of the Bignell and Clarke Steam joinery works (main building)</p> <p>Early to mid-19th century property boundaries and garden/agricultural remains.</p>	Local

Area 6 – St Peters

The archaeological potential and significance at St Peters (Area 6) has been previously assessed as part of the EIS for the New M5 project. Archaeological remains are being managed during the construction of the New M5. Archaeological remains are being managed during construction of the New M5. For the purpose of the non-Aboriginal heritage impact assessment, it has been assumed that the proposed construction works associated with the New M5 project within this area have been completed and mitigation measures relating to impacts on archaeological remains have been implemented.

20.2.4 Heritage items and conservation areas

This section identifies the existing listed heritage items and HCAs within or adjacent to the project footprint. Listed heritage items and HCAs identified within the study area relevant to this assessment are summarised in **Table 20-14** and shown in **Figure 20-7** to **Figure 20-14**.

Items with the potential to be directly affected by the project are shaded in **Table 20-14**. The significance of these heritage items and HCAs are discussed further in **Appendix U** (Technical working paper: Non-Aboriginal heritage).

Potential impacts on items above the current mainline tunnel alignment are assessed in **section 20.3.4**.

Table 20-14 Historic heritage items within the study area

Area	Item	Address	Significance	Register
Haberfield/Ashfield (Area 1)	Haberfield HCA	Haberfield	Local (potential for State)	<ul style="list-style-type: none"> Ashfield LEP 2013(ID C42)
	Houses	146–148 Ramsay Street, Haberfield	Local	<ul style="list-style-type: none"> Ashfield LEP 2013(ID 451)
	Houses	150–152 Ramsay Street, Haberfield	Local	<ul style="list-style-type: none"> Ashfield LEP 2013(ID 452)
	Commercial building	476 Parramatta Road, Ashfield	Local	<ul style="list-style-type: none"> Ashfield LEP 2013(ID 273)
Leichhardt (Area 2)	Leichhardt (Charles St) Underbridge (Charles Street)	Dulwich Hill to Rozelle Goods Line (Charles Street), Leichhardt	Local	<ul style="list-style-type: none"> RailCorp S170 (#4805738)
Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) (Area 3)	White Bay Power Station	Victoria Road and Robert Street, Rozelle	State	<ul style="list-style-type: none"> State Heritage Register (#01015) SREP 26 (#11) Sydney Harbour Foreshore Authority S170 Ausgrid S170 (#74)
	Brennan's Estate HCA	Rozelle	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C16)
	Easton Park HCA	Rozelle	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C18)
	Easton Park	Rozelle	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I752)
	Sewage Pumping Station No. 6	168 Lilyfield Road, Rozelle	Local	<ul style="list-style-type: none"> Sydney Water S170 (#4571704)
	Hornsey Street HCA	Rozelle	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013(ID C19)
	Whites Creek Stormwater Channel No. 95	Railway Parade to Parramatta Road, Rozelle	Local	<ul style="list-style-type: none"> Sydney Water S170 (#4570343)
	Street trees – row of palms on Railway Parade	Railway Parade, Annandale	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I78)
	Avenue of <i>Phoenix canariensis</i>	Railway Parade, Annandale	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I79)

Area	Item	Address	Significance	Register
	Annandale (Railway Parade) Railway Bridge	Railway Parade, Annandale	Local	<ul style="list-style-type: none"> SREP 26 (#7) RailCorp S170 (4803231)
	Arched Bridge (at Whites Creek)	Whites Creek, Annandale	Local	<ul style="list-style-type: none"> SREP 26 (#8)
	Annandale (Johnston Street) Underbridge	Johnston Street	Local	<ul style="list-style-type: none"> SREP 26 (#9) RailCorp S170 (4803229)
	Stormwater Canal	Lilyfield Road, Rozelle	Local	<ul style="list-style-type: none"> SREP 26 (#6)
	'Cadden Le Messurier'	84 Lilyfield Road, Rozelle	Local	<ul style="list-style-type: none"> SREP 26 (#3)
	Former Hotel	78 Lilyfield Road, Rozelle	Local	<ul style="list-style-type: none"> SREP 26 (#2)
Iron Cove (Area 4)	Iron Cove Bridge (aka RTA Bridge No. 65)	Victoria Road, Drummoyne	State	<ul style="list-style-type: none"> SREP SHC (#17) RTA S170
	Iron Cove HCA	Drummoyne	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C6)
Annandale (around Pyrmont Bridge Road and Parramatta Road) (Area 5)	Kerb and gutter	Chester Street, Camperdown	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I613)
	Warehouse, including interiors	52–54 Pyrmont Bridge Road, Camperdown	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I616)
	Former Grace Bros Repository including interiors	6–10 Mallett Street, Camperdown	Local	<ul style="list-style-type: none"> Sydney LEP 2012 (ID I2242)
	Bridge Road School (former Camperdown Public School), including interiors	127 Parramatta Road, Camperdown	Local	<ul style="list-style-type: none"> Marrickville LEP 2011 (ID I5)
St Peters (Area 6)	Terrace group including interiors	2–34 Campbell Road, Alexandria	Local	<ul style="list-style-type: none"> Sydney LEP 2012 (ID I12)
	Remaining brick road and footpath paving and stone guttering	near 2 Bishop Street, St Peters	Local	<ul style="list-style-type: none"> Marrickville LEP 2011 (ID I283)

20.2.5 Potential heritage

During the field surveys, buildings and structures of potential heritage value were investigated to identify items with heritage value that are not listed and may be directly or indirectly impacted by the project. Items of potential heritage significance were identified and were therefore subject to heritage values assessment and impact assessment. These items are outlined in **Table 20-15** (items subject to full or partial demolition are shaded).

Table 20-15 Potential heritage items identified within the study area

Area	Item	Address	Potential significance
Area 1 – Haberfield/ Ashfield	Single storey brick Federation cottage	135 Bland Street, Haberfield	Local
	Single storey brick Federation cottage	136 Bland Street, Haberfield	Local
	Single storey brick Federation cottage	138 Bland Street, Haberfield	Local
	Single storey brick Federation cottage	139 Alt Street, Ashfield	Local
	Single storey brick Federation cottage	144 Alt Street, Ashfield	Local
Area 3 – Rozelle and Lilyfield	Victoria Road bridge	Rozelle	Local
	Sandstone cutting within the Rozelle Rail Yards	Rozelle	Local
	Former White Bay Hotel site foundations (plinth and archaeology)	Rozelle	Local
	Southern Penstock (associated with the White Bay Power Station)	Rozelle	State
Area 4 – Iron Cove	Property at 260 Victoria Road	Rozelle	Local
	Property at 262 Victoria Road	Rozelle	
	Property at 264 Victoria Road	Rozelle	
	Property at 266 Victoria Road	Rozelle	
	Properties at 248 Victoria Road	Rozelle	Local
	Terraces at 250 Victoria Road	Rozelle	
	Single storey interwar brick house	8 Callan Street, Rozelle	Local
Area 5 – Annandale	Former Bank of NSW building	164 Parramatta Road, Annandale	Local

These potential heritage items are shown in **Figure 20-8** to **Figure 20-11** and discussed in **Appendix U** (Technical working paper: Non-Aboriginal heritage). No items of potential heritage significance were identified at St Peters (Area 6).

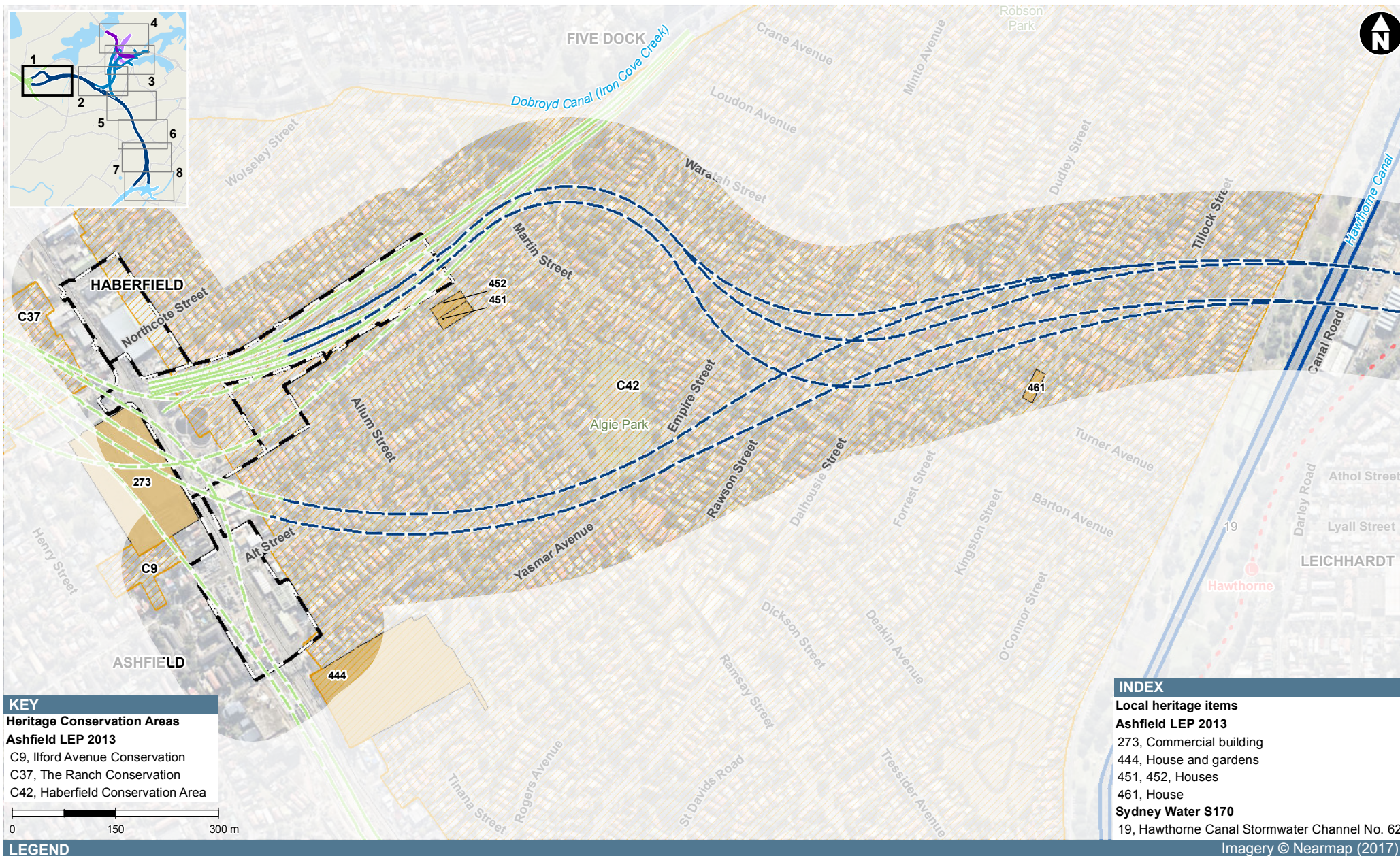


Figure 20-7 Heritage items within 100 metres of the project footprint – Map 1

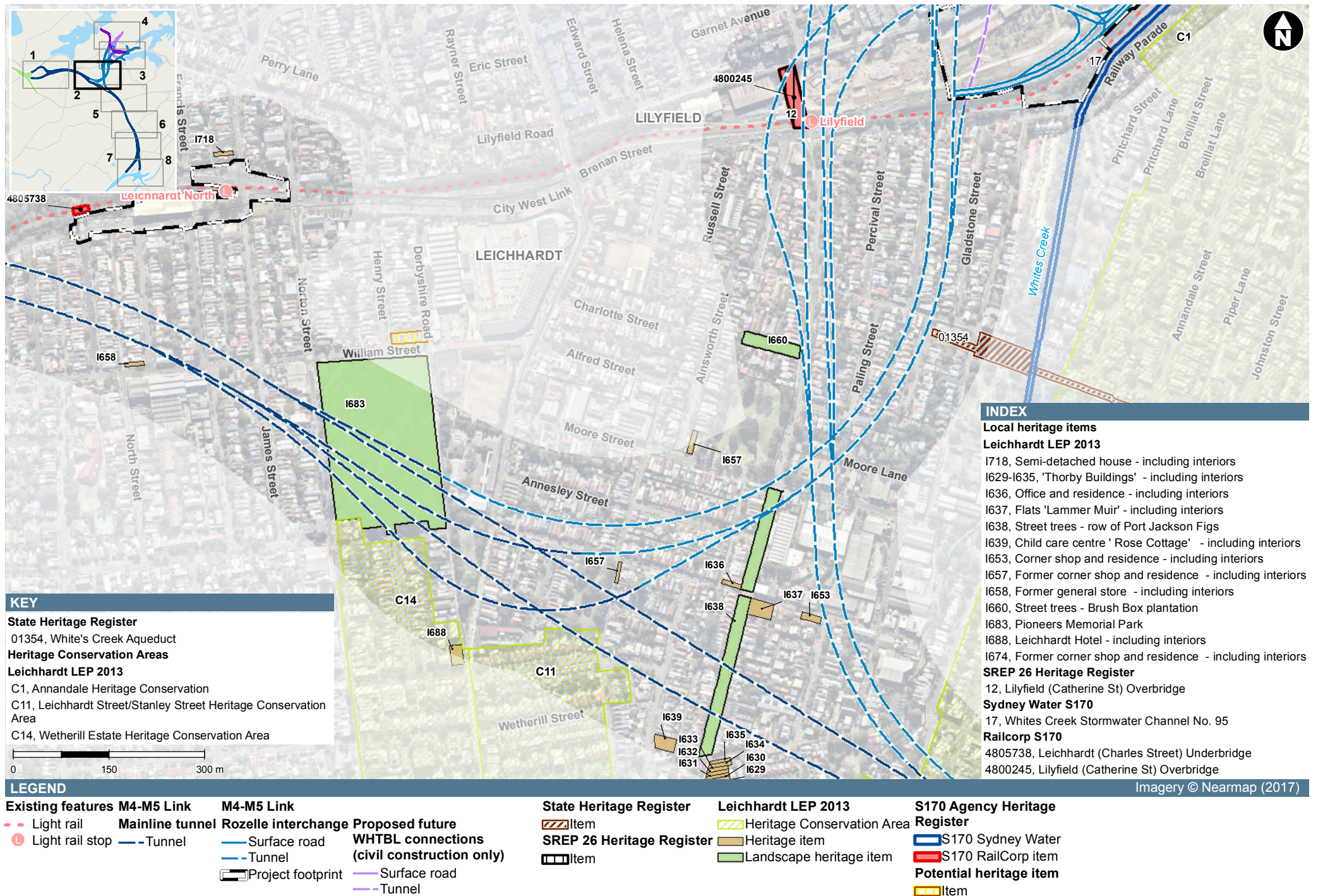


Figure 20-8 Heritage items within 100 metres of the project footprint – Map 2

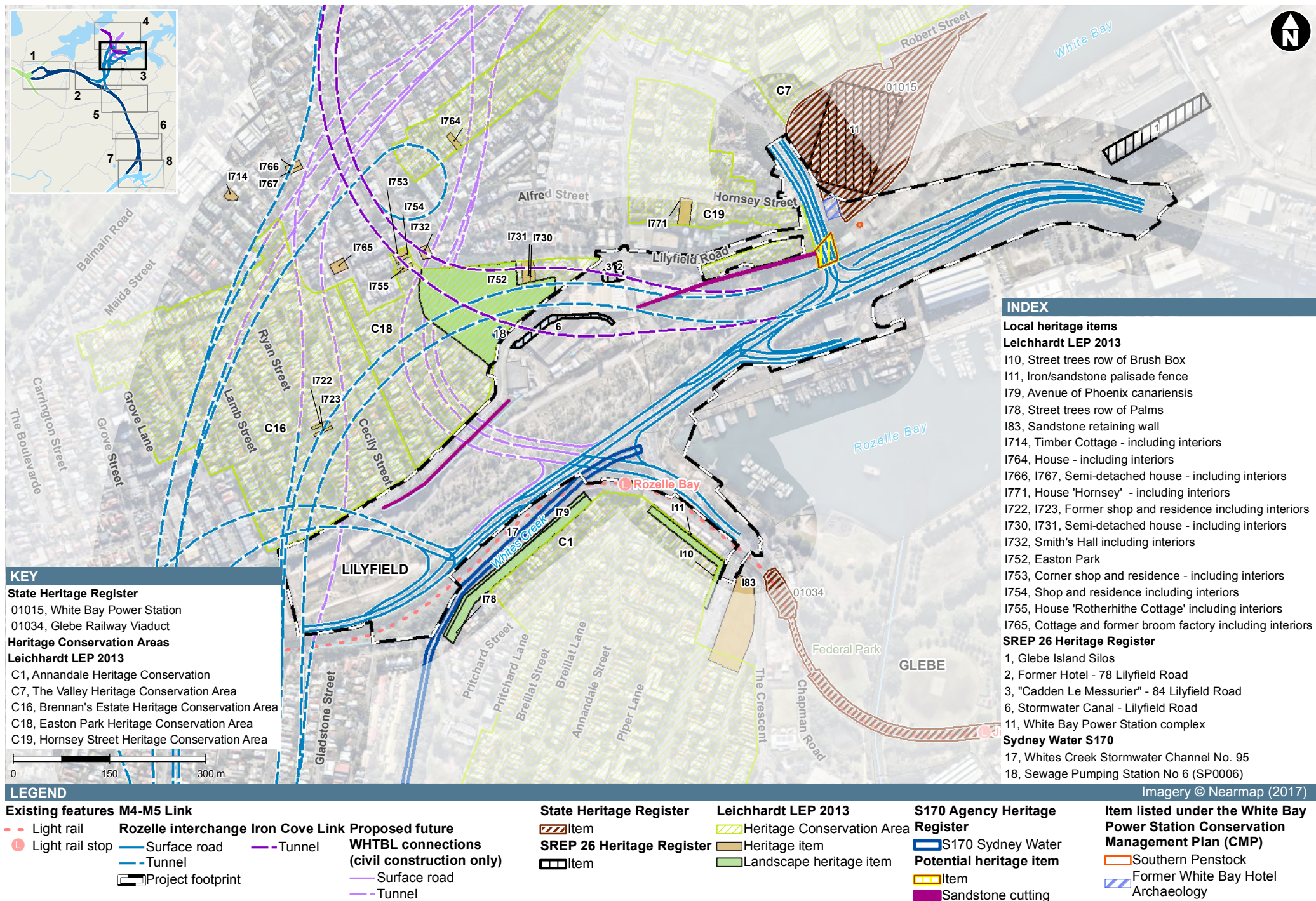


Figure 20-9 Heritage items within 100 metres of the project footprint – Map 3

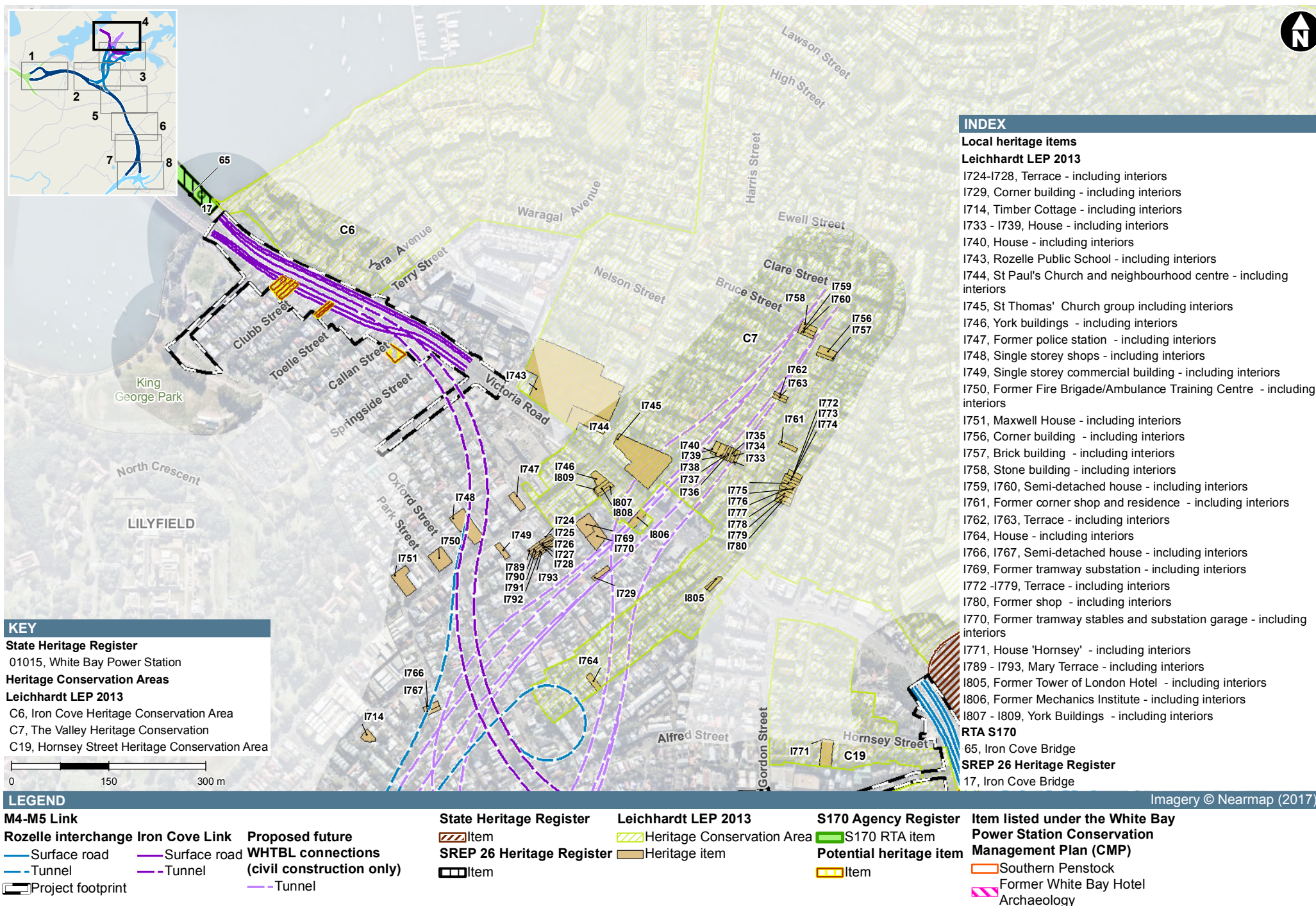


Figure 20-10 Heritage items within 100 metres of the project footprint – Map 4

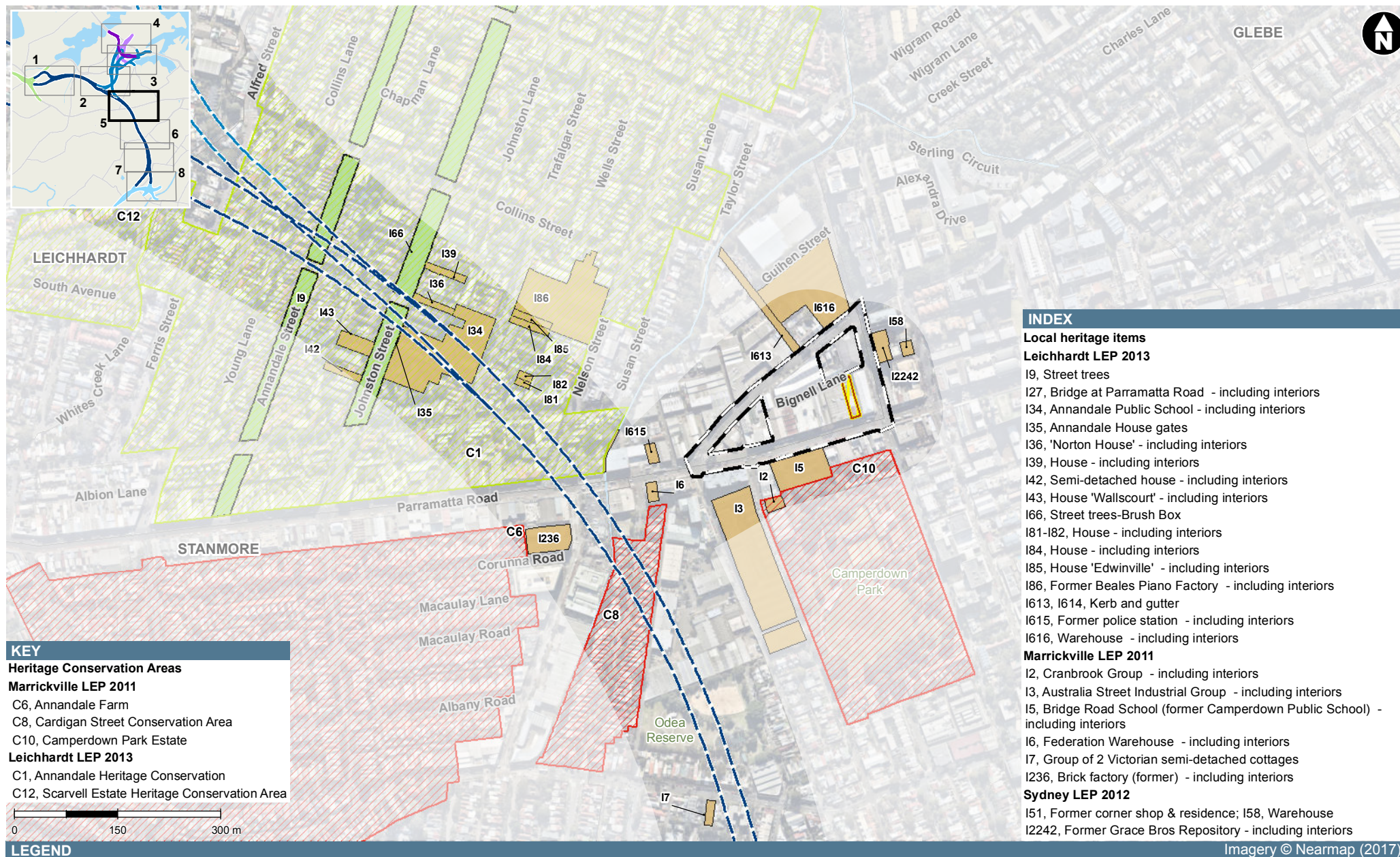


Figure 20-11 Heritage items within 100 metres of the project footprint – Map 5

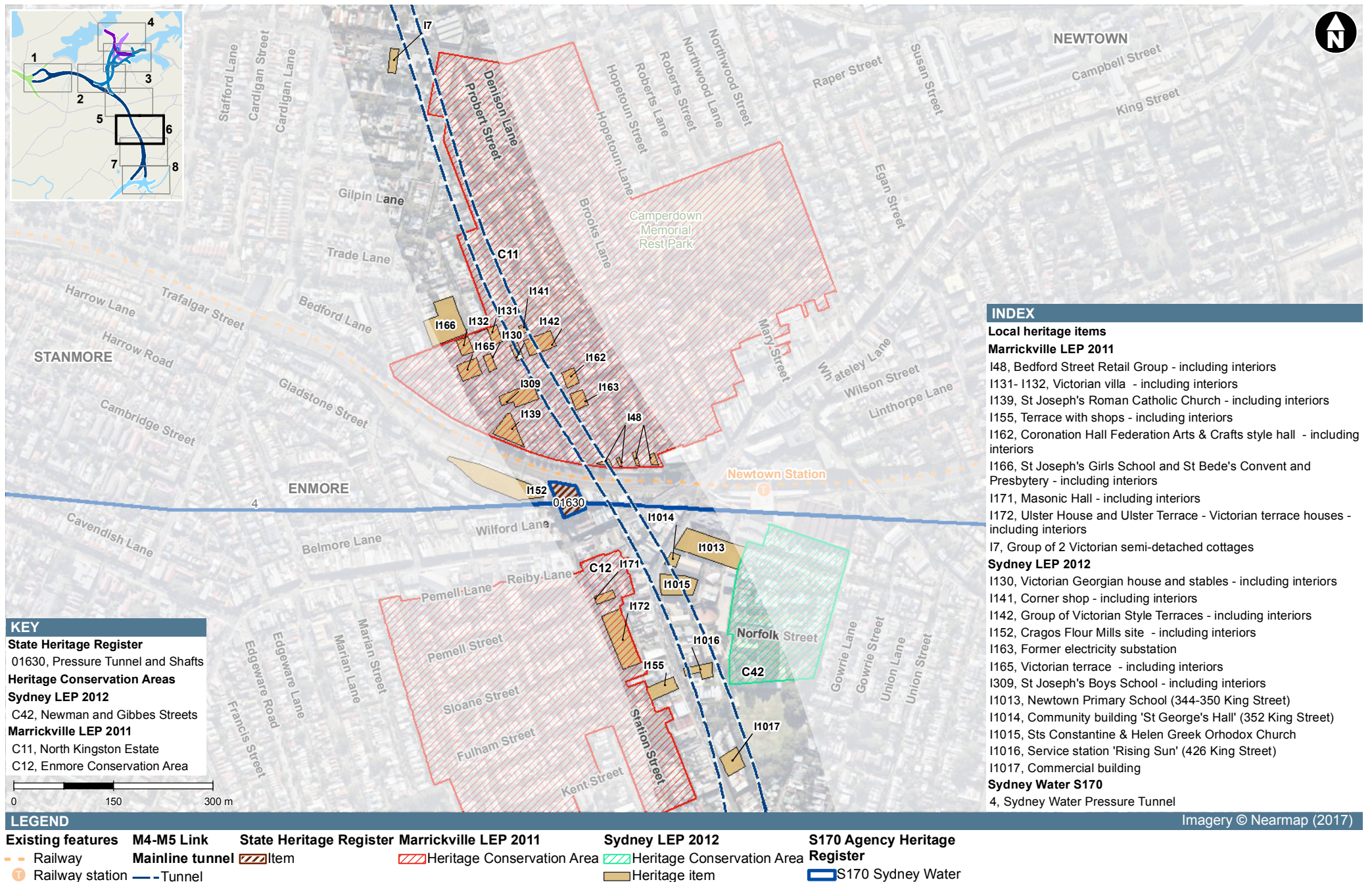


Figure 20-12 Heritage items within 100 metres of the project footprint – Map 6

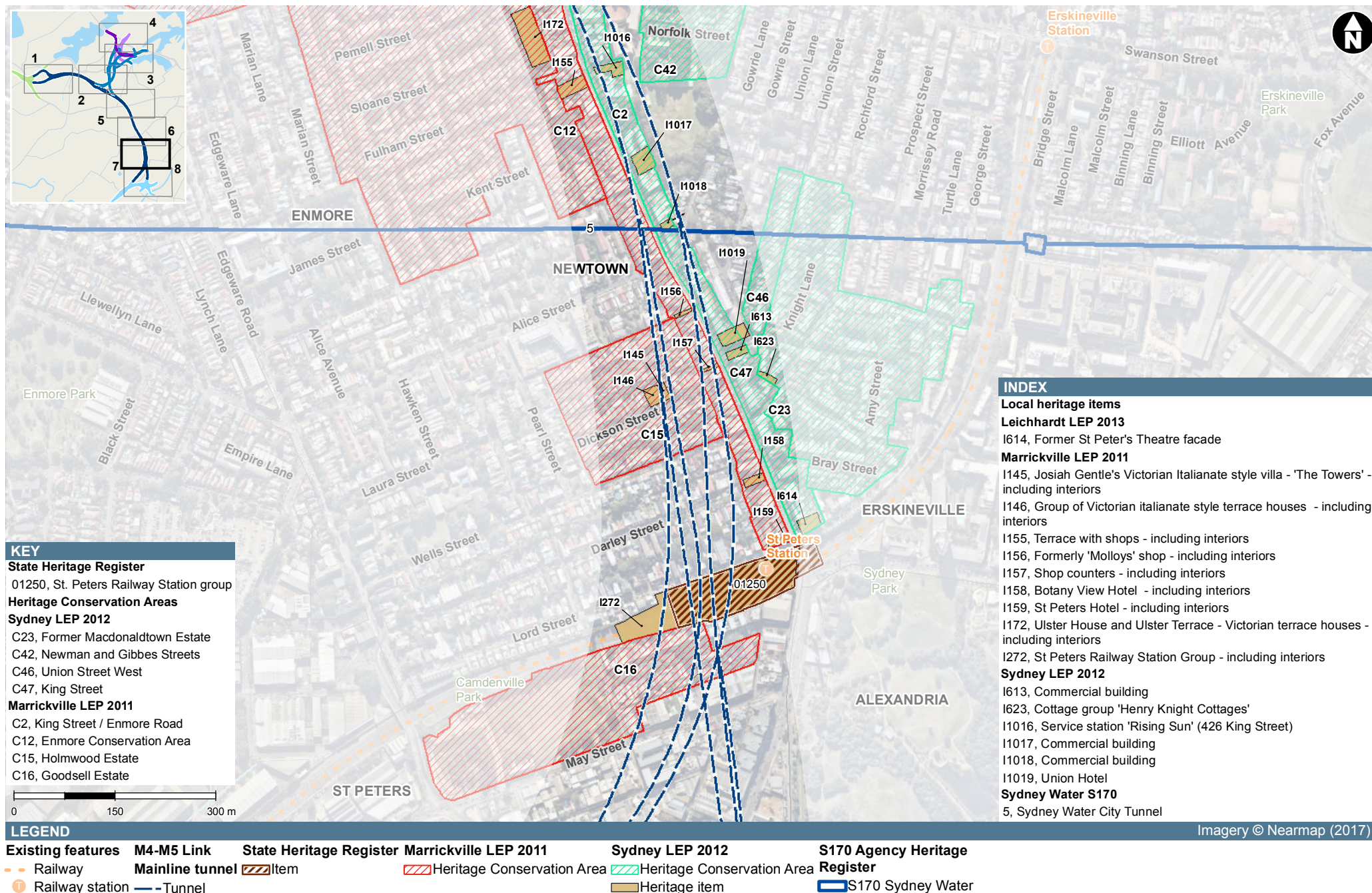


Figure 20-13 Heritage items within 100 metres of the project footprint – Map 7

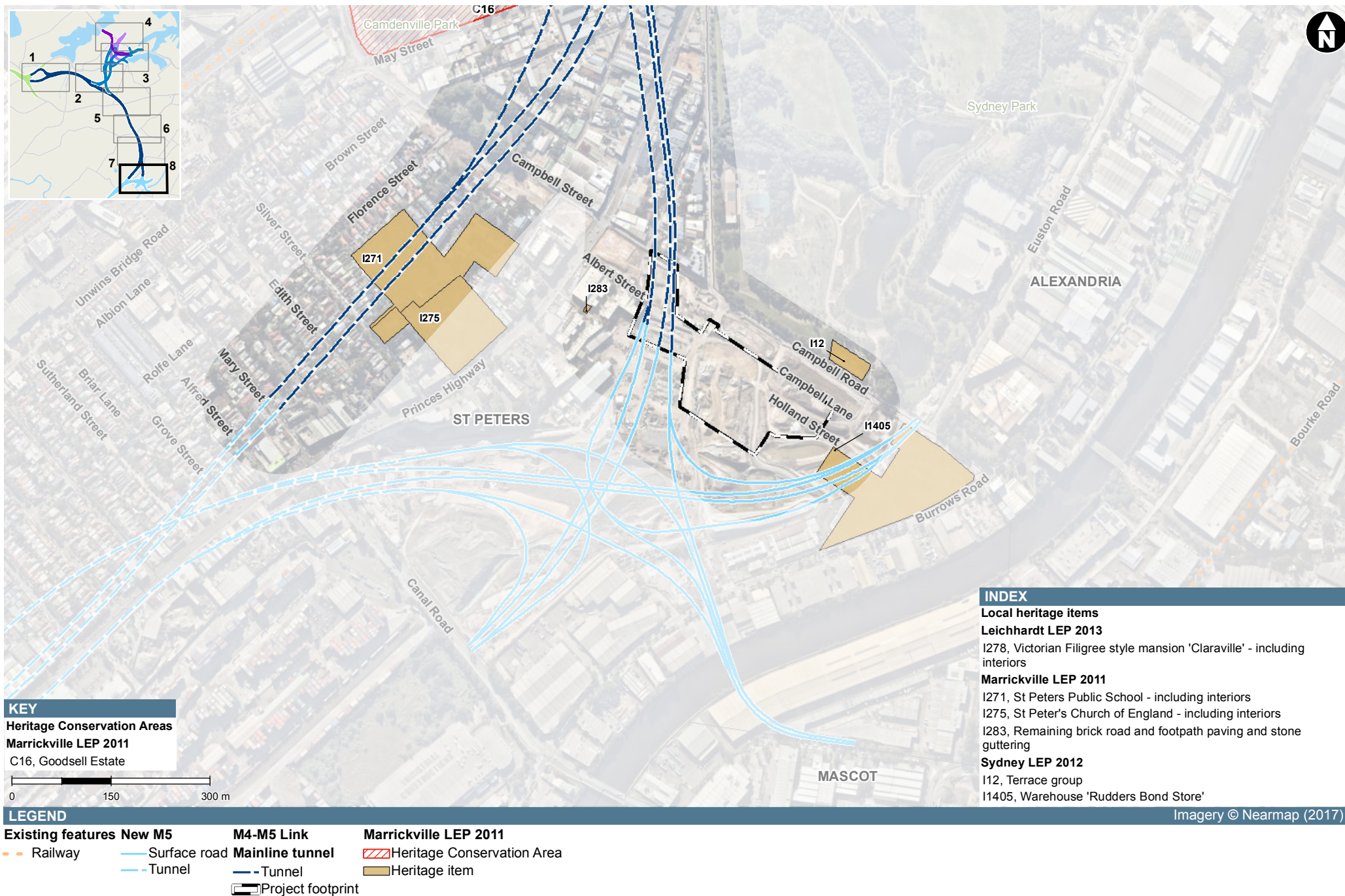


Figure 20-14 Heritage items within 100 metres of the project footprint – Map 8

20.3 Assessment of potential impacts

20.3.1 Historical archaeology

Surface works associated with construction of the project have the potential to affect the archaeological resources identified in **section 20.2**. **Table 20-16** outlines the potential impacts on the identified HAMUs.

Where required, management measures to mitigate potential impacts on archaeological resources within the study area have been recommended. These are included in **section 20.4**.

Table 20-16 Potential impacts on HAMUs within the study area

HAMU	Activity	Potential impacts
HAMU 1 – Haberfield/ Ashfield	Works within HAMU 1 would include: <ul style="list-style-type: none"> • Enabling works • Tunnelling • Surface earthworks and structures • Finishing works. 	Given that significant archaeological remains are considered unlikely in this HAMU, the project would have no impact on significant archaeological remains.
HAMU 2 – Darley Road	Works within HAMU 2 would include: <ul style="list-style-type: none"> • Enabling works • Drainage • Tunnelling • Construction of a permanent water treatment plant • Finishing works. 	Given previous developments within this HAMU are likely to have completely removed any archaeological remains, project works would have no impact on significant archaeological remains.
HAMU 3 – Lilyfield Road and Gordon Street	Works within HAMU 3 would include: <ul style="list-style-type: none"> • Enabling works • Tunnelling • Surface works and structures • Drainage • Pavement • Operational ancillary facilities • Finishing works. 	<p>Deep excavation would result in a major adverse impact on archaeological remains, while surface works (such as drainage and finishing works) would have more localised impacts on archaeological remains that may be present within this HAMU.</p> <p>To mitigate these impacts, management measures outlined in section 20.4 would be implemented, including preparation of a Historical Archaeological Research Design (HARD) which would include an assessment of any detailed design plans to develop a methodology and scope for a program of test excavation to determine the nature, condition and extent of potential archaeological remains.</p>

HAMU	Activity	Potential impacts
HAMU 4 – Victoria Road/City West Link	<p>Works within HAMU 4 would include:</p> <ul style="list-style-type: none"> • Enabling works • Surface works and structures • Bridgeworks • Drainage • Pavement • Finishing works. 	<p>This HAMU is considered to have a low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance. Therefore, the works proposed in this HAMU are considered to have no impact on significant archaeological remains.</p>
HAMU 5 – Rozelle Rail Yards (West)	<p>Works within HAMU 5 would include:</p> <ul style="list-style-type: none"> • Enabling works • Tunnelling • Surface earthworks and structures • Drainage • Pavement • Operational ancillary facilities • Finishing works. 	<p>This HAMU has low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance. Therefore, project works in this HAMU would have no impact on significant archaeological remains.</p>
HAMU 6 – Rozelle Rail Yards (East)	<p>Works within HAMU 6 would include:</p> <ul style="list-style-type: none"> • Enabling works • Tunnelling • Earthworks and associated structures • Drainage • Pavement • Finishing works. 	<p>Deep excavation would result in a major adverse impact on archaeological remains, while surface works (such as drainage and finishing works) would have more localised impacts on archaeological remains that may be present within this HAMU.</p> <p>To mitigate these impacts, management measures outlined in section 20.4 would be implemented, including preparation of a HARD which would include an assessment of any detailed design plans to develop a methodology and scope for a program of test excavation to determine the nature, condition and extent of potential archaeological remains.</p>

HAMU	Activity	Potential impacts
HAMU 7 – White Bay Power Station	Works within HAMU 7 would include construction of the temporary City West Link to Anzac Bridge alignment, which would cross over the southern penstock of the power station complex.	<p>The extent of excavation in this area is unknown at this stage and would be confirmed during detailed design. However, physical and indirect impacts on this heritage element should be avoided. The potential for impacts on these elements would be managed via the preparation of a HARD to guide archaeological investigation of the HAMU.</p> <p>Further details of management measures for the White Bay Power Station are outlined in section 20.4 and include implementing protective measures for the water channels and southern penstock.</p>
HAMU 8 – Iron Cove	<p>Works within HAMU 8 would include:</p> <ul style="list-style-type: none"> • Enabling works • Earthworks and associated structures • Tunnelling • Pavement • Operational ancillary facilities • Finishing works. 	This HAMU has low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance. Therefore, project works in this HAMU would have no impact on significant archaeological remains.
HAMU 9 – Manning Street bioretention facility	Works within HAMU 9 would include construction of a new bioretention facility and upgrades to the existing car park within King George Park, adjacent to Manning Street at Rozelle, to treat stormwater runoff generated by the surface road works associated with the Iron Cove Link.	<p>These works would require excavation in the area of identified archaeological potential, and are therefore likely to result in a major adverse impact on archaeological remains of local significance.</p> <p>To mitigate this impact, management measures outlined in section 20.4 would be implemented, including preparation of a HARD which would include an assessment of any detailed design plans to develop a methodology and scope for a program of test excavation to determine the nature, condition and extent of potential archaeological remains.</p>
HAMU 10 – Bignell Lane	<p>Works within HAMU 10 would include:</p> <ul style="list-style-type: none"> • Enabling works • Earthworks and associated structures • Pavement • Finishing works. 	<p>Deep excavation would result in a major adverse impact on archaeological remains, while surface works (such as drainage and finishing works) would have more localised impacts on archaeological remains that may be present within this HAMU.</p> <p>To mitigate this impact, management measures outlined in section 20.4 would be implemented, including preparation of a HARD which would include an assessment of any detailed design plans to develop a methodology and scope for a program of test excavation to determine the nature, condition and extent of potential archaeological remains.</p>

HAMU	Activity	Potential impacts
HAMU 11 – Parramatta Road/Pyrmont Bridge Road	<p>Works within HAMU 11 would include:</p> <ul style="list-style-type: none"> • Enabling works • Earthworks and associated structures • Tunnelling • Pavement • Finishing works. 	<p>Deep excavation would result in a major adverse impact on archaeological remains, while surface works (such as drainage and finishing works) would have more localised impacts on archaeological remains that may be present within this HAMU.</p> <p>To mitigate this impact, management measures outlined in section 20.4 would be implemented, including preparation of a HARD which would include an assessment of any detailed design plans to develop a methodology and scope for a program of test excavation to determine the nature, condition and extent of potential archaeological remains.</p>

20.3.2 Heritage items and conservation areas

Construction of the project has the potential to impact on the heritage significance of the listed heritage items and HCAs in **Table 20-14**. Potential direct heritage impacts of the project include:

- Full or partial demolition of listed heritage items
- Full demolition of non-listed buildings assessed as having heritage values (potential heritage item)
- Full demolition of contributory buildings within an HCA
- Modifications to listed and potential heritage items/structures
- Removal of heritage vegetation
- Inadvertent damage to heritage trees/roots.

Potential indirect impacts of the project could include:

- Impacts on the curtilage or visual setting of heritage items or HCAs at Haberfield and St Peters
- Continued use of existing construction ancillary facilities in the vicinity of heritage items or HCAs
- Vibration impact from earthworks, piling and tunnelling activities
- Settlement from tunnelling activities.

Table 20-17 provides a summary of the listed heritage items that could potentially be impacted by the project.

In summary, the following impacts on non-Aboriginal heritage are expected from the project:

- Three listed heritage items would be fully demolished (major adverse impact):
 - Stormwater Canal at Rozelle (local)
 - ‘Cadden Le Messurier’ at Rozelle (local)
 - Former Hotel Rozelle (local)
- One item would be partially demolished (moderate adverse impact):
 - Whites Creek Stormwater Channel No. 95 at Rozelle (local)
- Several other items would be subject to potential indirect impacts through vibration, settlement and visual setting.

Items subject to full and/or partial demolition are shaded in **Table 20-17**. These items are shown in **Figure 20-15** to **Figure 20-17**.

Table 20-17 Summary of potential impacts on listed heritage items

Area	Item	Significance	Register	Impact type	Impact rating
Area 1 – Haberfield and Ashfield	Haberfield HCA	Local (potential for State)	<ul style="list-style-type: none"> Ashfield LEP 2013 (ID C42) 	Setting, vibration and settlement	Neutral
	Commercial Building (currently Bunnings Warehouse) at 476 Parramatta Road	Local	<ul style="list-style-type: none"> Ashfield LEP 2013 (ID I273) 	Setting, vibration and settlement	Neutral
Area 2 – Leichhardt	Leichhardt (Charles Street) Underbridge ¹	Local	<ul style="list-style-type: none"> RailCorp S170 Register (#4805738) 	Setting (from removal of existing trees along the northern boundary of the Darley Road civil and tunnel site (C4)), vibration	Minor adverse
Area 3 – Rozelle, and Lilyfield	White Bay Power Station ¹	State	<ul style="list-style-type: none"> SHR (01015) SREP 26 (11) Pacific Power S170 Register (74) 	Setting and minor curtilage encroachment	Minor adverse
	Brennan's Estate HCA	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C16) 	Setting, vibration and settlement	Minor adverse
	Easton Park HCA	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C18) 	Setting, vibration and settlement	Minor adverse
	Easton Park ¹	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I752) 	Setting (disturbance of tree roots), temporary visual impacts) vibration and settlement	Minor adverse
	Sewage Pumping Station No. 6 ¹	Local	<ul style="list-style-type: none"> Sydney Water S170 Register (#4571704) 	Setting, vibration and settlement	Minor adverse
	Hornsey Street HCA	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C19) 	Demolition of a non-contributory building (32 Victoria Road) within a listed HCA, potential impacts on the sandstone kerbing on the street frontage, setting, vibration and settlement	Neutral
	Whites Creek Stormwater Channel No. 95 ¹	Local	<ul style="list-style-type: none"> Sydney Water S170 Register (#4570343) 	Partial demolition, reshaping, setting, and vibration	Moderate adverse

Area	Item	Significance	Register	Impact type	Impact rating
	Street trees – row of palms on Railway Parade	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I78) 	Setting, vibration	Neutral
	Avenue of <i>Phoenix canariensis</i>	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I79) 	Setting, vibration	Neutral
	Annandale (Railway Parade) Railway Bridge ¹	Local	<ul style="list-style-type: none"> SREP 26 (7) RailCorp S170 Register (#4803231) 	Setting, vibration	Minor adverse
	Arched Bridge (at Whites Creek)	Local	<ul style="list-style-type: none"> SREP 26 (#8) 	Nil	Neutral
	Annandale (Johnston Street) Underbridge ¹	Local	<ul style="list-style-type: none"> SREP 26 (9) RailCorp S170 Register (#4803229) 	Setting, vibration	Neutral
	Stormwater Canal	Local	<ul style="list-style-type: none"> SREP 26 (6) 	Full demolition	Major adverse
	‘Cadden Le Messurier’	Local	<ul style="list-style-type: none"> SREP 26 (3) 	Full demolition	Major adverse
	Former Hotel	Local	<ul style="list-style-type: none"> SREP 26 (2) 	Full demolition	Major adverse
Area 4 – Iron Cove	Iron Cove Bridge	State	<ul style="list-style-type: none"> SREP SHC (17) RTA S170 Register (65) 	Setting, vibration	Minor adverse
	Iron Cove HCA	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID C6) 	Setting, vibration	Neutral
Area 5 – Annandale	Kerb and gutter on Chester Street ¹	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I613) 	Setting, vibration	Neutral
	Warehouse including interiors at 52–54 Pymont Bridge Road ¹	Local	<ul style="list-style-type: none"> Leichhardt LEP 2013 (ID I616) 	Setting, vibration	Minor adverse
	Former Grace Bros Repository including interiors ¹	Local	<ul style="list-style-type: none"> Sydney LEP 2012 (ID I2242) 	Setting, vibration	Minor adverse

Area	Item	Significance	Register	Impact type	Impact rating
	Bridge Road School (former Camperdown Public School), including interiors ¹	Local	<ul style="list-style-type: none"> Marrickville LEP 2011 (ID I5) 	Setting, vibration and settlement	Minor adverse
Area 6 – St Peters	Terrace group at 2–34 Campbell Road	Local	<ul style="list-style-type: none"> Sydney LEP 2012 (ID I12) 	Setting, vibration	Neutral

Notes ¹Indicates items located within safe working distances of the project that may experience vibration impacts (see **section 20.3.4**)

20.3.3 Potential heritage

Table 20-18 provides a summary of the 17 identified items of potential heritage value that could be affected by the project. These items have been assessed as having potential local significance. In summary, the following impacts on potential heritage items are expected from the project:

- Nine potential local heritage items would be subject to direct impacts through full demolition
- One potential local heritage item would be subject to direct impacts through partial demolition
- One structure assessed as being of potential state significance would be indirectly impacted through vibration
- Six potential local heritage items and one potential state item would be subject to indirect impacts through setting, vibration and/or settlement.

Items subject to full or partial demolition are shaded in **Table 20-18**. These items are shown in **Figure 20-15** to **Figure 20-17**.

Table 20-18 Summary of potential impacts on potential heritage items

Area	Item	Assessed significance	Impact type	Impact rating
Area 1 – Haberfield/Ashfield	135 Bland Street, Haberfield	Local	Setting	Neutral
	136 Bland Street, Haberfield	Local	Setting	Neutral
	138 Bland Street, Haberfield	Local	Setting	Neutral
	139 Alt Street, Ashfield	Local	Nil	Neutral
	144 Alt Street, Ashfield	Local	Nil	Neutral
Area 3 – Rozelle and Lilyfield	Victoria Road bridge, Rozelle	Local	Full demolition	Major adverse
	Sandstone cutting within the Rozelle Rail Yards, Rozelle	Local	Partial demolition	Moderate adverse
	White Bay Hotel site foundations (plinth and archaeology)	Local	Full Demolition	Major adverse
	White Bay Power Station Southern Penstock	State	Vibration	Neutral
Area 4 – Iron Cove	Property at 260 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Property at 262 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Property at 264 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Property at 266 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Properties at 248 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Terraces at 250 Victoria Road, Rozelle	Local	Full demolition	Major adverse
	Brick house at 8 Callan Street, Rozelle	Local	Vibration, setting	Neutral
Area 5 – Annandale	Former Bank of NSW at 164 Parramatta Road, Annandale	Local	Full demolition	Major adverse

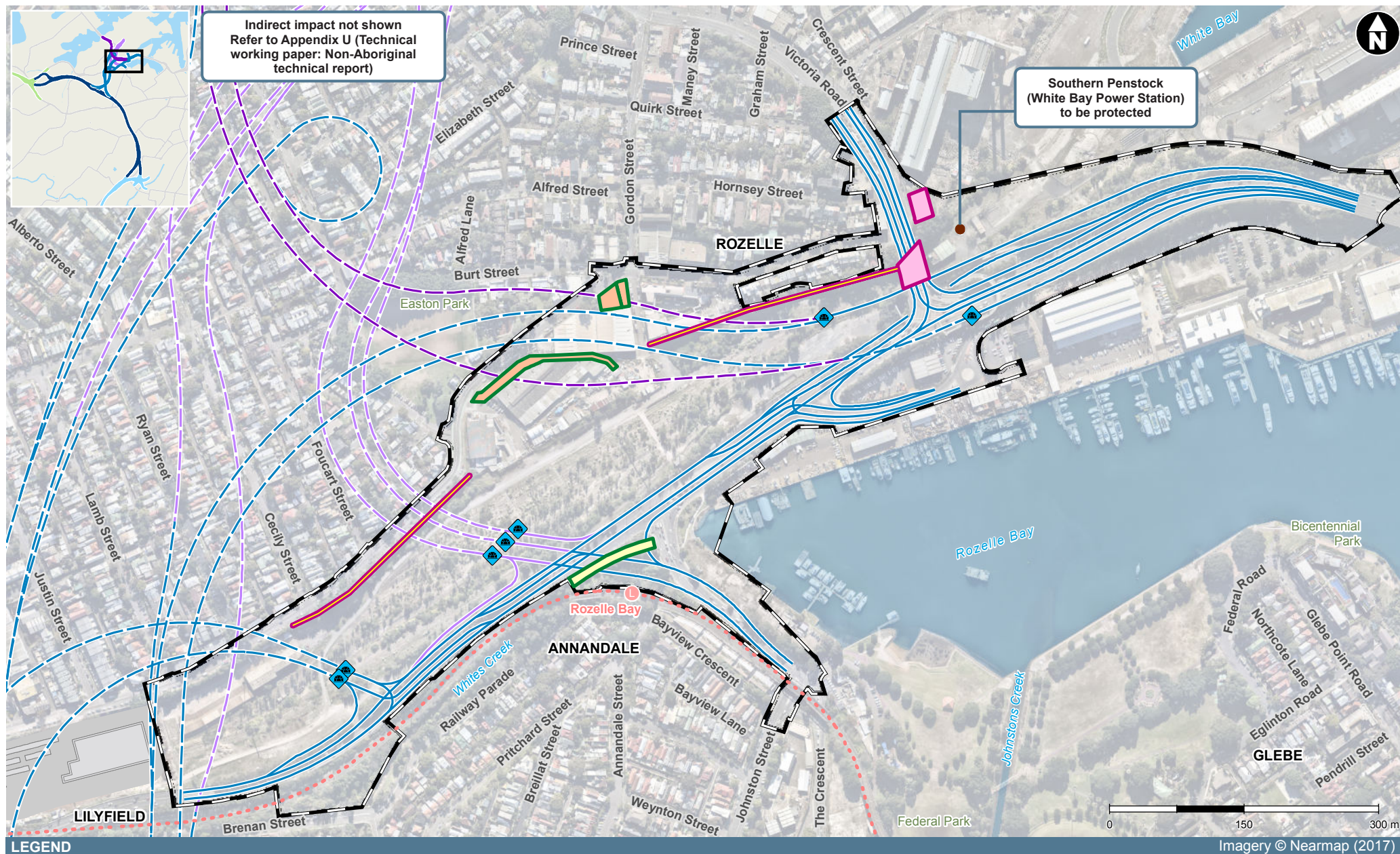
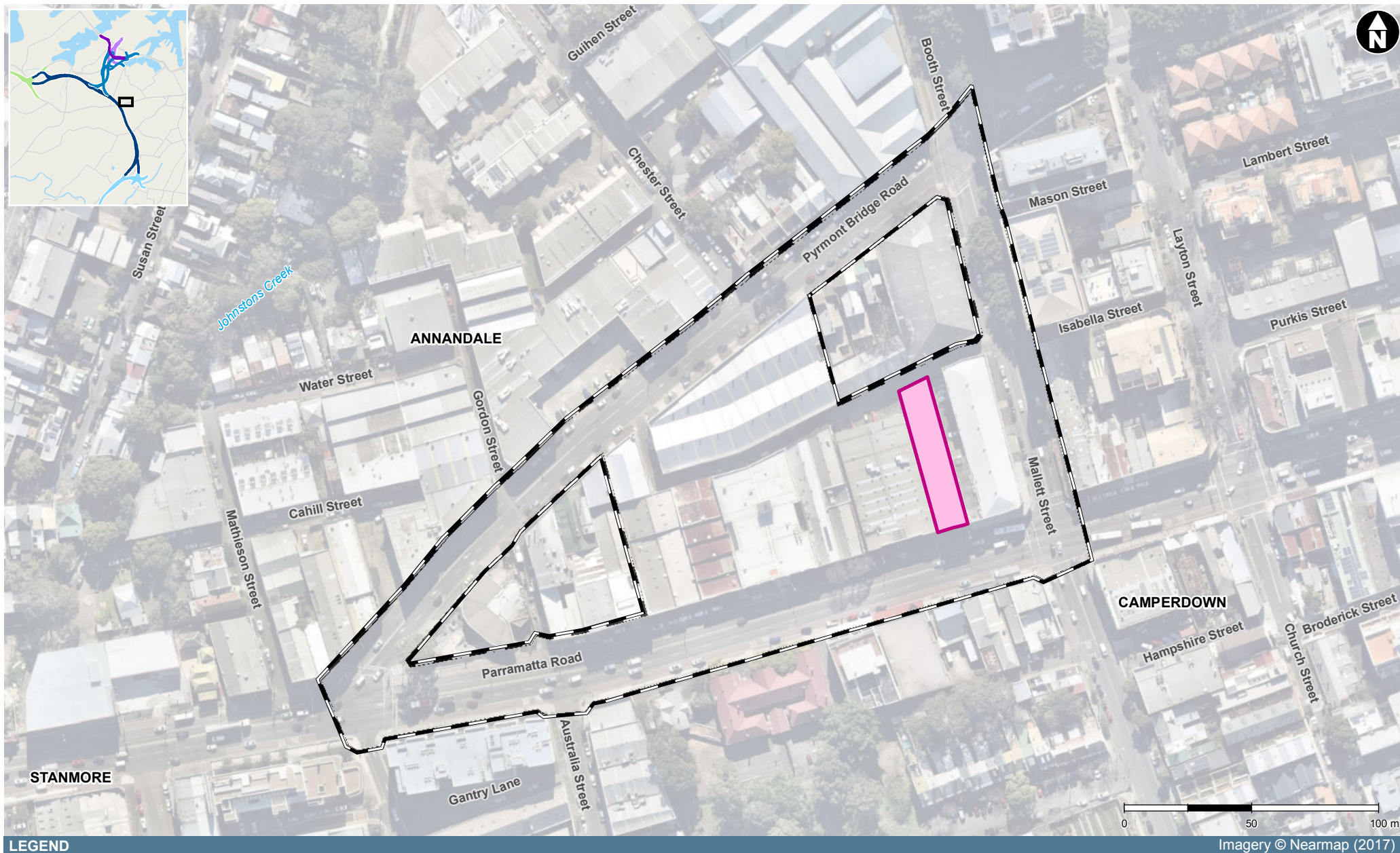


Figure 20-15 Listed and potential heritage items directly impacted at Rozelle, Lilyfield and Annandale



Indirect impact not shown
Refer to Appendix U (Technical
working paper: Non-Aboriginal
technical report)

Figure 20-16 Listed and potential heritage items directly impacted at Victoria Road (east of the Iron Cove Bridge)



Indirect impact not shown
Refer to Appendix U (Technical
working paper: Non-Aboriginal
technical report)

Figure 20-17 Listed and potential heritage items directly impacted at Annandale

20.3.4 Vibration and settlement

Heritage items, potential heritage items and HCAs along the tunnel alignment and in the vicinity of construction works may be subject to ground movement (predominantly settlement and vibration). Areas most likely to be affected by settlement are usually where tunnelling is closest to the ground surface (shallowest), around the tunnel portals and entry and exit ramps, and where soils are more likely to be compressible. This includes the estuarine and alluvial soils and fill material within the palaeovalley around the Rozelle Rail Yards.

The alignment of the tunnels and the locations of tunnel portals have given regard to maximising the use of the best possible geotechnical conditions. For much of its length, the tunnelling work for the project would be undertaken at depths of between 20 metres and greater than 65 metres below ground, which is unlikely to adversely affect structures above the tunnels.

Potential vibration impacts to heritage items have been assessed with 11 listed heritage items located within safe working distances of the project that may experience vibration impacts (see **Table 20-17**).

Other heritage items identified above the current project tunnelling alignment were considered with regard to vibration and settlement impacts. A detailed list of these items is provided in **Appendix U** (Technical working paper: Non-Aboriginal heritage). These items have been identified based on the current concept design, which may be subject to change following detailed design. Of these:

- The majority of items are assessed as having a neutral impact due to the separation distance from the tunnels. This includes:
 - The Pressure Tunnel and Shafts (Potts Hill Road to Waterloo Pumping Station Potts Hill to Waterloo, NSW) listed as a State item on the SHR (#01630) and Sydney Water S170 Register (#4570942)
 - The City Tunnel (Potts Hill Reservoir to Dowling Street Pumping Station Potts Hill to Waterloo, NSW) listed as a local item on the Sydney Water S170 Register (#4570942).
- Eight heritage items have the potential to be impacted by settlement and vibration from tunnelling activities (minor adverse impact) including:
 - Semi-detached house at 15 Burt Street, Rozelle
 - Semi-detached house at 17 Burt Street, Rozelle
 - Smith's Hall at 56 Burt Street, Rozelle
 - Corner shop and residence at 67 Denison Street, Rozelle
 - Shop and residence at 69 Denison Street, Rozelle
 - House 'Rotherhithe Cottage' at 73 Denison Street, Rozelle
 - Lilyfield (Catherine St) Overbridge at Catherine Street, Lilyfield
 - St Peters Railway Station Group King Street, St Peters.

These potential impacts are assessed in detail in **Appendix U** (Technical working paper: Non-Aboriginal heritage).

The noise and vibration assessment in **Appendix J** (Technical working paper: Noise and vibration) identifies vibration criteria and impact assessment for sensitive receivers. The report identifies that the minimum 'safe limit' of peak vibration velocity at low frequencies for structures (including heritage listed buildings), is three millimetres per second.

Vibration impacts would be managed in accordance with the recommendations of the noise and vibration assessment (**Appendix J** (Technical working paper: Noise and vibration)). Appropriate monitoring and protection of the physical fabric of heritage items to be retained would be provided during construction of the project.

Settlement is not anticipated to impact heritage items identified along the mainline tunnel alignment. A program to monitor settlement during operations would be outlined in the Operational Environmental Management Program for the project.

20.4 Environmental management measures

The detailed design and construction of the project would be managed to ensure that the identified potential heritage and archaeological impacts are minimised and/or avoided as far as practical, by implementing a range of environmental management measures.

The management measures provided in **Table 20-19** have been developed to avoid, reduce and manage identified potential impacts on non-Aboriginal heritage. These measures would be further developed on a case by case basis during detailed design. The final management measures would be documented in the Construction Environmental Management Plan (CEMP).

Table 20-19 Environmental management measures – non-Aboriginal heritage

Impact	No.	Environmental management measure	Timing
Impacts on heritage items	NAH01	<p>A Construction Heritage Management Plan (CHMP) will be prepared and implemented as part of the CEMP. The CHMP will include:</p> <ul style="list-style-type: none"> Measures that will be implemented to manage potential impacts on items of heritage significance Inclusion of heritage awareness and management training within the site induction process for relevant personnel involved in site works Details regarding the conservation and curation of any historical artefacts recovered during works. 	Construction
	NAH02	<p>An Interpretation Strategy will be developed and implemented to identify and interpret the key heritage values and stories of the heritage areas affected by the project and inform the development of the Urban Design and Landscape Plan for the project, in accordance with NSW Heritage Office <i>Interpreting Heritage Places and Items Guideline August 2005</i>. The Interpretation Strategy will:</p> <ul style="list-style-type: none"> Build on themes, stories and initiatives proposed as part of other stages of WestConnex to ensure a consistent approach to heritage interpretation for the project Include themes and stories including the Rozelle railways historic functions, trains and trams transport, industrialisation and The Rozelle-Darling Harbour Goods Line Identify how the rail related infrastructure salvaged from the Rozelle Rail Yards will be reused. 	Construction
	NAH03	<p>Photographic recording will be undertaken of:</p> <ul style="list-style-type: none"> Infrastructure associated with the White Bay Power Station site that could be affected by the project Whites Creek Stormwater Channel (in the area to be impacted) Stormwater Canal off Lilyfield Road 	Construction

Impact	No.	Environmental management measure	Timing
		<ul style="list-style-type: none"> • 'Cadden Le Messurier' at 84 Lilyfield Road • Former Hotel at 78 Lilyfield Road • Victoria Road bridge • Each house at 260–266 Victoria Road • Each house at 248–250 Victoria Road • Former Bank of NSW (164 Parramatta Road). <p>It will be undertaken in accordance with the NSW Heritage Office guidelines <i>Photographic Recording of Heritage Items Using Film or Digital Capture</i> (2006).</p> <p>The photographic recording will occur prior to any works that have the potential to impact upon the items and the report development process will include the identification of appropriate stakeholders to receive copies of the documentation.</p>	
	NAH04	<p>As part of the CHMP, a HARD will be prepared before the start of proposed works within each of the following HAMUs: HAMU 3, HAMU 6, HAMU 7, HAMU 9, HAMU 10, and HAMU 11. The HARD will be prepared by a qualified archaeologist in consultation with the NSW Heritage Council and would include:</p> <ul style="list-style-type: none"> • Descriptions of clear significance thresholds for possible archaeological items that may be uncovered during works • A methodology and scope for a program of archaeological excavation, investigation, and recording of any historical archaeological remains that will be impacted by the project • Requirement for post-excavation reporting, including artefact analysis and additional historical research, where necessary, and long term management of records • Details of what will happen with any artefacts uncovered and associated reports. 	Construction
	NAH05	<p>Before excavation of archaeological management sites, a suitably qualified Excavation Director who complies with the <i>Criteria for Assessment of Excavation Directors</i> (Heritage Council of NSW 2011) will be engaged to advise on matters associated with historic archaeology. Where archaeological excavation is required, the Excavation Director will oversee excavation and advise on archaeological matters.</p>	Construction
Heritage impacts due to vibration	NAH06	<p>Potential vibration impacts to features of heritage significance will be managed in accordance with the Construction Noise and Vibration Management Plan prepared for the project.</p>	Construction
Heritage impacts due to settlement	NAH07	<p>Potential heritage impacts due to settlement and ground movement caused by the project will be managed in accordance with the relevant measures identified in Chapter 12 (Land use and property) and</p>	Construction

Impact	No.	Environmental management measure	Timing
		monitored in accordance with the Settlement Monitoring Plan.	
Impacts to unexpected items of potential heritage conservation significance or human remains	NAH08	Any items of potential heritage conservation significance or human remains discovered during construction will be managed in accordance with an Unexpected Heritage Finds and Humans Remains Procedure developed for the project in accordance with relevant guidance provided by the Heritage Council of NSW, the NSW Heritage Division of the Office of Environment and Heritage and <i>Unexpected Archaeological Finds</i> (Roads and Maritime 2015a). The procedure will detail requirements regarding notification of relevant agencies and the NSW Police and will be implemented for the duration of construction.	Construction
Impact on potential salvageable items	NAH09	A Heritage Salvage Strategy will be prepared to identify the salvage potential of the fabric and features from heritage items and potential heritage items that will be demolished to facilitate the project. This could include timber joinery, fireplaces, stained glass, stairs, decorative tiles, bricks, steel truss structures, windows etc. The strategy will also identify options and a process for dissemination of salvaged items to owners, community groups and interested parties.	Construction
	NAH10	Sandstone kerbing in the vicinity of 32 and 34 Victoria Road, Rozelle that will be removed to facilitate the project will be salvaged and provided to Inner West Council.	Construction
Loss of heritage where items are required to be demolished	NAH11	The railway cutting on the eastern side of Victoria Road, associated with the White Bay Power Station, will be considered during the development of the detailed design for the realigned Victoria Road and associated bridge. The final design will seek to avoid impact to the railway cutting and maintain the visual relationship between the cutting and the White Bay Power Station site. Landscaping sympathetic to the relationship, developed in consultation with a heritage specialist, will be included in the Urban Design and Landscape Plan for the project.	Construction
	NAH12	A condition assessment of the southern penstock (and its associated water channels) will be carried out by a heritage specialist and a structural engineer prior to any works in the vicinity with the potential impact upon the item. If required any conservation works required to limit potential impacts on deteriorated fabric (loose bricks, corroded steel) will be identified and implemented prior to construction.	Construction
	NAH13	The southern penstock and its associated water channels (location and extent unknown) will be protected during works associated with the reconstruction of the Victoria Road Bridge.	Construction
Potential impact to Whites Creek	NAH14	The new bridge over the Whites Creek Stormwater Channel must not impact the extant significant heritage fabric of the channel and should be a solely	Construction

Impact	No.	Environmental management measure	Timing
Stormwater Channel No. 95		independent structure.	
Potential impacts on Leichhardt (Darley Road)	NAH15	Landscaping, following the construction of the substation, should consider screening the substation and water treatment plant, from the Leichhardt (Charles Street) Underbridge. The design and location of the landscaping will be informed by a heritage specialist and should seek to create a visual separation between the new structure and the heritage item.	Construction

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