21 Aboriginal heritage

This chapter outlines the potential Aboriginal heritage impacts associated with the M4-M5 Link project (the project). A detailed Aboriginal heritage assessment has been undertaken for the project and is included in **Appendix V** (Technical working paper: 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 the Secretary's Environmental Assessment Requirements (SEARs). **Table 21-1** sets outs these requirements and the associated desired performance outcomes that relate to Aboriginal heritage, and identifies where they have been addressed in this environmental impact statement (EIS).

Table 21-1 SEARs – 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 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 Aboriginal objects and places.	1. The Proponent must identify and assess any direct and or indirect impact (including cumulative impacts) to the heritage significance of listed heritage items inclusive of: (a) Aboriginal places and objects, as defined under the *National Parks and Wildlife Act 1974* and in accordance with the principles and methods of assessment identified in the current guidelines; (b) Aboriginal places of heritage significance, as defined in the Standard Instrument - Principal Local Environmental Plan.	Potential impacts of the project on Aboriginal places and objects have been assessed in **section 21.3**. Potential cumulative impacts of the project on Aboriginal places and objects are described in **Chapter 26** (Cumulative impacts). Relevant legislation considered for this assessment is outlined in **section 21.1.6**.
	3. Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitable qualified archaeologist, in accordance with section 1.6 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (Department of Environment Climate Change and Water (DECCW) 2010c).	The methodology adopted for archaeological investigations is outlined in **section 21.1**.
	4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines.	Consultation undertaken for this assessment is outlined in **section 21.1.2**. The project would not have any impacts on Aboriginal objects and/or places.

21.1 Assessment methodology

21.1.1 Overview

The Aboriginal heritage assessment was prepared to address the SEARs by identifying any potential Aboriginal cultural heritage values relevant to the project footprint and providing appropriate recommendations for any further assessment and/or identifying appropriate management and mitigation measures.

The methodology adopted for the Aboriginal heritage assessment was developed in accordance with the requirements of NSW Roads and Maritime Services (Roads and Maritime)'s *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* ((PACHCI) (Roads and Maritime 2011a). The PACHCI guides consultation and investigation of Aboriginal cultural heritage and provides a consistent guide for effective consultation with Aboriginal communities regarding activities that may impact on Aboriginal cultural heritage. By adopting the PACHCI, the assessment is consistent with the NSW Office of Environment and Heritage (OEH)'s *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (NSW Department of Environment Climate Change and Water (DECCW) 2010a).

The PACHCI involves three stages:

- Stage 1 involves an initial desktop assessment as outlined below to determine whether consultation with a heritage advisor and a site survey is required
- Stage 2 involves a site survey undertaken by a heritage archaeologist and representative from the relevant Local Aboriginal Land Council (LALC), Aboriginal archaeological assessment and preparation of an application for an Aboriginal Heritage Impact Permit (AHIP) under the *National Parks and Wildlife Act 1974* (NSW) (NPW Act) (if required)
- Stage 3 involves a full Aboriginal archaeological assessment in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010c), *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011) and *Aboriginal community consultation in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a). The requirement for a Stage 3 assessment is determined by whether the Stage 2 assessment identifies Aboriginal sites or areas of archaeological sensitivity that would be impacted by the project.

The PACHCI, followed for the purpose of this project as outlined below, is further detailed in Annexure A of **Appendix V** (Technical working paper: Aboriginal heritage).

A PACHCI Stage 1 Aboriginal heritage assessment was undertaken by AECOM in May 2016. This forms part of the Aboriginal heritage assessment. The findings of that Stage 1 assessment concluded that the project had the potential to harm Aboriginal places or objects.

As a result, a PACHCI Stage 2 Aboriginal heritage assessment was undertaken. The Stage 2 assessment identified potential Aboriginal heritage values within the Aboriginal Heritage Information Management Systems (AHIMS) search area using an approach of desktop research, field survey and consultation with Aboriginal stakeholders.

The assessment methodology generally involved:

- A desktop assessment including:
  - Review of publicly available databases including the AHIMS database
  - Review of the landscape context of the AHIMS search area including disturbance history
  - Review of relevant archaeological and ethnohistorical information for the AHIMS search area
  - Identification of areas of Aboriginal archaeological sensitivity within the AHIMS search area
- Aboriginal community consultation
- Archaeological survey of the project footprint

- Consideration of relevant legislation and policy requirements, as outlined in **Table 21-2** and in **section 21.1.6**
- Preparation of an Aboriginal heritage assessment (refer to **Appendix V** (Technical working paper: Aboriginal heritage)) which includes an assessment of potential impacts (including cumulative impacts) and identifies measures to mitigate these impacts.

The PACHCI Stage 3 assessment concluded that it is unlikely that Aboriginal objects or places would be impacted by the project; therefore a PACHCI Stage 3 is not required. The relevant guidelines listed in **section 21.1.6** are still relevant for Stages 1 and 2 and were followed for the Aboriginal heritage assessment.

21.1.2 Study area

The study area for this Aboriginal heritage assessment is consistent with the project footprint and is referred to as such throughout this chapter. This area includes all temporary (construction) and permanent (operational) project land, infrastructure and associated construction ancillary facilities. The study area is shown in **Figure 21-1**.

21.1.3 AHIMS search area

A search of the AHIMS database for previously recorded Aboriginal sites was undertaken to inform this assessment on 21 September 2016. The search area centred on the project footprint and covered an area of 11 kilometres by nine kilometres (see **Figure 21-1**). The reason for the larger search area was to provide an adequate buffer around the project footprint, understand the spread and distribution of previously recorded Aboriginal sites and to provide context to the project footprint.

21.1.4 Consultation

Consultation with the Aboriginal community was undertaken in accordance with the PACHCI Stage 2 process, where the LALC relevant to the study area is identified and contacted to organise appropriate representation for fieldwork and consultation. The relevant LALC for this project is the Metropolitan Local Aboriginal Land Council (MLALC). The MLALC Aboriginal Sites Officer for the project was present during all fieldwork and reviewed the findings of the Aboriginal heritage assessment. No registered native title claimants were identified in relation to the project footprint.

21.1.5 Archaeological survey

An archaeological survey was undertaken to identify and record existing surface and potential subsurface evidence of past Aboriginal activity. The project footprint was surveyed, comprising land required for permanent operational infrastructure and for construction, including construction ancillary facilities.

The survey was undertaken in September 2016 by an archaeologist accompanied by a MLALC Aboriginal Sites Officer. All mature remnant trees and sandstone outcrops were inspected for signs of cultural modification and surface expressions of Aboriginal artefacts.

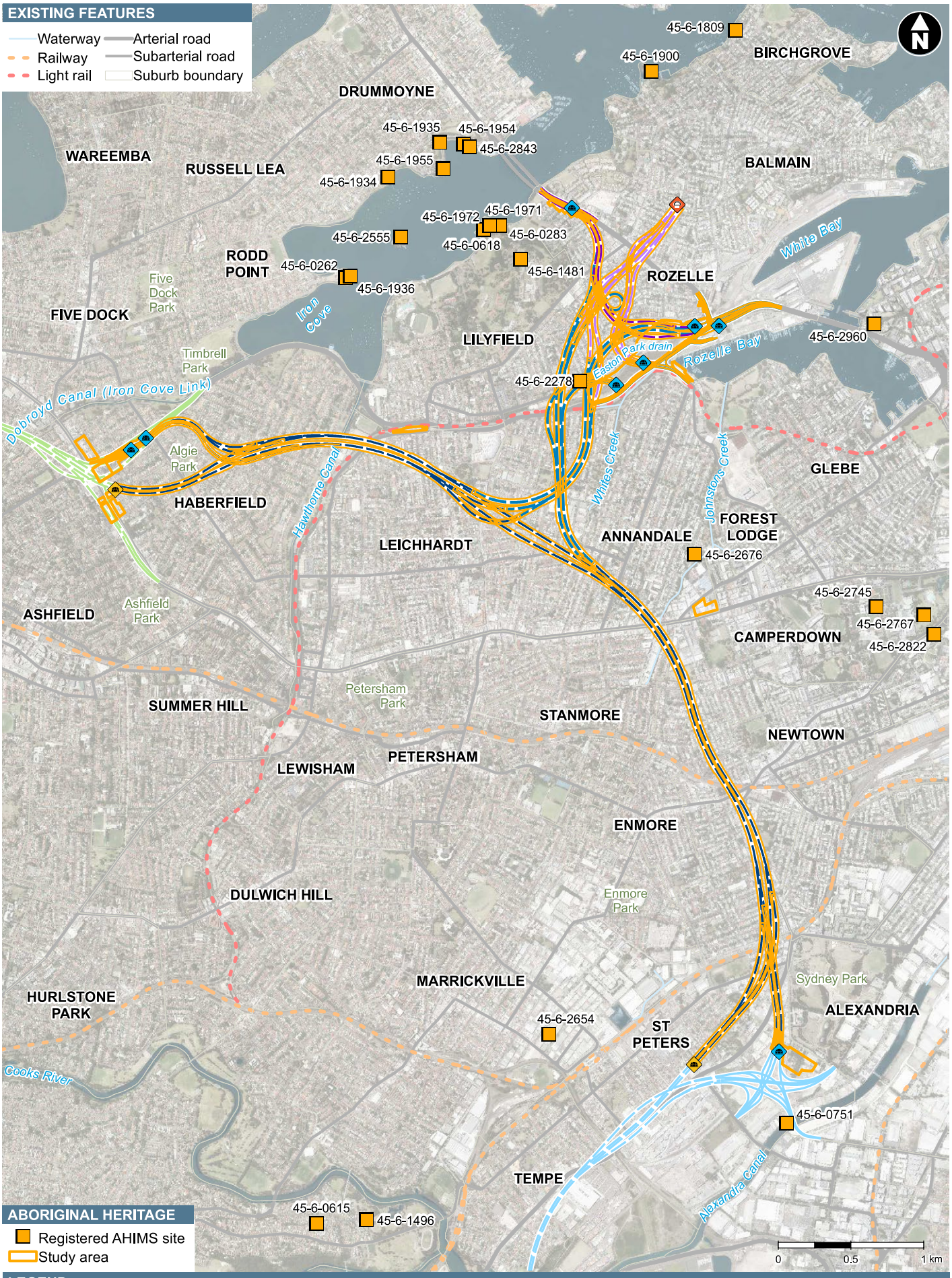

Figure 21-1 AHIMS sites within proximity of the project footprint

21.1.6 Legislation and policy framework

This Aboriginal heritage assessment has been prepared to assess the impacts of the project in accordance with relevant legislation as described in **Table 21-2**.

Table 21-2 Legislation relevant to the project – Aboriginal heritage

Legislation	Relevance to project
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth) (ATSIHP Act)	The ATSIHP Act provides for the preservation and protection of places, areas and objects of particular significance to Indigenous Australians. Under the ATSIHP Act, the Australian Government Minister for the Environment, in consultation with the relevant state/territory minister, may make a declaration to protect an Aboriginal area or object. The ATSIHP Act also protects Aboriginal burials in addition to any state legal protection.
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (EPBC Act)	The EPBC Act proposes that actions that have or are likely to have a significant impact on a Matter of National Environmental Significance (MNES) must be referred to the Australian Government Minister for the Environment. Under the EPBC Act, 'environment' is defined as including both natural and cultural environments, and therefore includes Aboriginal heritage items. The heritage registers mandated by the EPBC Act were considered in relation to this project. No registered Aboriginal heritage items are located within the project footprint.
Native Title Act 1993 (Commonwealth) (NT Act)	The NT Act provides for the recognition and protection of Native Title for Aboriginal peoples and Torres Strait Islanders. It also makes provision for Indigenous Land Use Agreements (ILUA) to be formed, as well as a framework for notification of Native Title stakeholders for certain future acts on land where Native Title has not been extinguished. Initial searches of the National Native Title Registers were undertaken in May 2016 as part of the PACHCI Stage 1 assessment. An updated search was undertaken on 10 October 2016 for the Inner West Council local government area. No Native Title claims were identified within the project footprint.
Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)	The EP&A Act provides the framework for environmental planning and assessment in NSW and provides opportunity for public involvement in the environmental impact assessment process. Approval for the project is being sought under Part 5.1 of the EP&A Act, with the environmental impact assessment being documented in this EIS.
National Parks and Wildlife Act 1974 (NSW) (NPW Act)	The NPW Act is the primary legislation for the protection of Aboriginal cultural heritage in NSW and provides for the proper care, preservation and protection of 'Aboriginal objects' and 'Aboriginal places', defined under the NPW Act. Under Part 6 of the NPW Act it is an offence to harm or desecrate Aboriginal objects or places. It is a defence to prosecution for such an offence if the harm was authorised by an AHIP issued under section 90 of the NPW Act. The project would not impact any known Aboriginal objects or places and an AHIP would therefore not be required.

Legislation	Relevance to project
Standard Instrument – Principal Local Environmental Plan (LEP)	The SEARs state that the direct and indirect impact (including cumulative impacts) to Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan, must be considered in relation to the project. In general, section 115ZF(2) of the EP&A Act excludes the application of environmental planning instruments to State significant infrastructure (SSI) projects (except as those instruments apply to the declaration of SSI or critical SSI). The following LEPs have been considered: • Ashfield Local Environmental Plan 2013 (Ashfield LEP 2013) • Leichhardt Local Environmental Plan 2013 (Leichhardt LEP 2013) • Marrickville Local Environmental Plan 2011 (Marrickville LEP 2011) • Sydney Local Environmental Plan 2012 (Sydney LEP 2012).

The King George Park Draft Plan of Management referred to two 'incomplete land claims' lodged by MLALC. These were not deemed relevant to the assessment as the land claims were not complete, and land claims under the *Aboriginal Land Rights Act 1983* (NSW) do not necessarily denote Aboriginal cultural or scientific archaeological values. Land Councils are not required to establish cultural association with lands when making land claims under the *Aboriginal Land Rights Act 1983* (NSW). One of the two land claims referred to has, since preparation of the Draft Plan of Management, been determined by way of refusal.

The assessment has also been undertaken in accordance with the following current guidelines:

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a)
- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010b)
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010c)
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011)
- PACHCI (Roads and Maritime 2011a).

21.2 Existing environment

21.2.1 Landscape context

The project footprint is partly located within the Cumberland Plain, a large topographic feature that lies at a relatively low elevation within the Sydney Basin. Historically, land use activities within the area have primarily included residential and industrial development. The majority of the ground surface of the project footprint comprises bitumen roads, buildings and concrete. A significant portion of the project footprint is also within disturbed terrain, being an area that has been impacted by past development or other human activity (Australian Soil Classification Soil Type map of NSW (OEH 2014)). Disturbed terrain is largely concentrated within the Rozelle Rail Yards and along watercourses in the project footprint.

Natural geological formations in the project footprint include the Ashfield Shale component of the Middle Triassic Wianamatta Group and the Hawkesbury Sandstone, also of Middle Triassic era. The majority of the project footprint is underlain by the Blacktown and Gymea soil landscapes, characterised by low hills and undulating to rolling rises. A small area of land adjacent to Iron Cove Bridge in Rozelle forms part of the Hawkesbury soil landscape. It is possible that outcrops of sandstone occurring within the AHIMS search area could have been utilised for the sharpening of edge-ground hatchets and spears (resulting in grinding grooves) as well as the production of engraved artwork. There are no known stone deposits with materials suitable for flaked stone artefact manufacture within or immediately surrounding the project footprint.

The project footprint also includes the highly disturbed Rozelle Rail Yards. This area has been subject to extensive disturbance from past activities including extensive quarrying of sandstone outcrops, excavation and levelling of soil and the installation of rail and supporting infrastructure. As a result of this past disturbance, the Rozelle Rail Yards have been classified as disturbed terrain.

Parts of the project footprint are located close to Rozelle Bay and Iron Cove, both of which would have provided a range of marine resources in the past. Other watercourses within proximity of the project footprint include Whites Creek, Johnstons Creek, Hawthorne Canal (formerly Long Cove Creek), Dobroyd Canal (Iron Cove Creek) and Alexandra Canal (formerly Sheas Creek). It is likely that the project footprint and local surroundings would have been well resourced in the past, in terms of both freshwater and marine resources. However, deposits associated with Aboriginal use of these aquatic features within the project footprint are unlikely to have survived due to historical land use activities such as the channelisation of natural waterways and bank stabilisation works.

Urban development for roads and residential areas has resulted in a high level of disturbance throughout the project footprint. This has included extensive vegetation clearance, landscape modification, road development and the installation of related infrastructure. The level of disturbance means that any Aboriginal deposits that were present are likely to have been destroyed.

21.2.2 Ethnographic and archaeological context

The project footprint falls within the boundaries of the Darug (also spelt Dhaŕ-rook, Dharrook, Dhaŕook, Dharruk and Dharug) linguistic group, which is known to have stretched from the Hawkesbury River in the north to Appin in the south, and west from the east coast across the Cumberland Plain into the Blue Mountains.

Available historic records indicate that the Darug-speaking peoples utilised a wide range of marine, freshwater, terrestrial and avian fauna for food. In coastal areas, marine resources (including fish and shellfish) were exploited, whereas further inland, land animals were hunted and eaten (including kangaroos, wallabies, possums, gliders and fruit bats).

The distribution of Aboriginal occupation across the Cumberland Plain has been linked to a variety of environmental factors, with proximity to water, stream order, landform and geology all key determinants. Most surface sites occur on land within 200 metres of a watercourse, with larger, more complex artefact assemblages associated with higher order streams.

Rockshelters appear to have been widely utilised by Darug-speaking peoples in coastal areas at the time of European contact. Generally, existing data suggests that dominant site types for this region include rockshelters, artefact scatters and isolated artefacts, with middens present in the coastal areas further north. Artefact distributions do not form specific ‘sites’, but rather ’landscapes’.

21.2.3 Database searches

Aboriginal Heritage Information Management System

A total of 49 AHIMS sites were identified within the search area. These sites are predominantly located in coastal fringe areas and were most commonly midden and rockshelter sites. The search results identified that there are no recorded sites within the project footprint. One AHIMS site was identified adjacent to the project footprint, around 50 metres north of the Rozelle Rail Yards. This site is Lilyfield Cave (site #45-6-2278) and is a rockshelter with midden.

A summary of the AHIMS sites identified within proximity of the project footprint is provided in **Table 21-3** and shown in **Table 21-3**.

Table 21-3 AHIMS sites within the search area

Site type	Number	Percent of total sites (%)
Midden	12	24.5
Rockshelter	12	24.5
Potential Archaeological Deposit (PAD)	8	16.3
Art site	8	16.3
Engraving	4	8.2
Artefact scatter	3	6.2
Not a site	1	2
Resource and gathering	1	2
Total	**49**	**100**

Note:

The designation 'Not a site' refers to areas that had been registered in AHIMS but later proved not to be legitimate Aboriginal sites and have therefore been renamed 'Not a site' in the AHIMS register.

Local environmental plans

A search of Schedule 5 of the relevant LEPs for environmental heritage items (see **Table 21-2**) identified the following:

- No Aboriginal sites were listed on the Ashfield LEP 2013 or the Sydney LEP 2012
- Four Aboriginal midden and rockshelter sites were identified on the Leichhardt LEP 2013 in the suburb of Birchgrove (one on Louisa Road and three on Numa Street), but are located more than 1.5 kilometres away from the project footprint, north of the Rozelle Rail Yards and would not be impacted by the project
- One listed item was identified on the Marrickville LEP 2011. Kendrick Park contains a shell midden, however this is located more than 2.5 kilometres away from the project footprint, southwest of the St Peters interchange.

It was concluded that there were no Aboriginal items listed in any relevant LEPs that would be subject to either direct or indirect impacts from the project. There is a shell midden (currently unregistered) at Timbrell Park, Five Dock, around 300 metres northeast of the Wattle Street interchange. No impacts are currently proposed in this area and no direct or indirect impacts on this midden site are expected.

21.2.4 Aboriginal site observations

Based on the landscape and archaeology context of the project footprint, the following observations regarding the potential for Aboriginal items and/or objects to be present within the project footprint have been made:

- If Aboriginal shell middens were present, they would be most likely to occur in tidal estuarine foreshore zones (within 10 metres of high water level) including areas adjacent to Rozelle Bay, Iron Cove, Whites Creek, Johnstons Creek, Hawthorne Canal (formerly Long Cove Creek) and Alexandra Canal (formerly Sheas Creek). However, it is unlikely that any shell midden sites remain in the project footprint given the high level of disturbance of those areas from activities including vegetation clearance, landscape modification, channelising of creek channels and road development
- Rockshelters are a common site type in the wider region and could occur in areas where in-situ natural overhangs have survived
- Aboriginal archaeological sites are highly unlikely to occur in areas previously subject to high levels of landscape modification and disturbance resulting from waterway channelisation, land reclamation and urban development.

21.2.5 Survey results

No surface expressions of Aboriginal objects or places were identified within the project footprint during the field surveys. In addition, the MLALC Aboriginal Sites Officer did not identify any specific areas of Aboriginal cultural attachment or intangible cultural heritage values within the project footprint.

As previously noted, most surface sites would occur on land within 200 metres of a watercourse. Within the project footprint, these areas would include Rozelle Bay, Iron Cove, Whites Creek, Johnstons Creek, Hawthorne Canal (formerly Long Cove Creek) and Alexandra Canal (formerly Sheas Creek). All inspected waterways within proximity to the project footprint were generally highly modified from their natural state, currently comprising concrete-lined, channelised open drains and subsurface piped drains.

At Whites Creek, outcropping sandstone bedrock was identified to the south of the shared path linking Railway Parade to The Crescent at Annandale, occurring on a short but relatively steep side slope below the Rozelle Bay light rail stop. This location is shown in **Figure 21-2**. No grinding grooves or pigment/engraved art were noted on exposed portions of the bedrock during the survey. The area surrounding Whites Creek has been largely modified through concrete channelisation and associated earthworks and landscaping, creek bank modification and the installation of park benches and telephone poles.

There are no Aboriginal objects/places/areas of cultural sensitivity at other areas of surface disturbance within the project footprint including Wattle Street at Haberfield; Darley Road at Leichhardt; the Rozelle Rail Yards, City West Link and The Crescent at Rozelle and Annandale; Victoria Road (near the eastern abutment of Iron Cove Bridge) at Rozelle; Pyrmont Bridge Road at Annandale; and Campbell Road at St Peters.

The potential for subsurface Aboriginal archaeology is also considered negligible given the areas of previous disturbance in the study area and the nature of the soils underlying the Rozelle Rail Yards (ie disturbed terrain).

Figure 21-2 Sandstone outcrop at Whites Creek to the south of the shared path linking Railway Parade to The Crescent at Annandale

21.3 Assessment of potential impacts

No surface expressions of Aboriginal objects or places were identified within the project footprint. Aboriginal deposits are shallow and usually occur within the top 20 centimetres of the ground surface in environments such as the project footprint. The terrain within the project footprint is highly disturbed and is unlikely to contain unidentified Aboriginal archaeological objects in either a surface or subsurface context. Waterways close to the project footprint (typically the most sensitive archaeological locations) were identified during the field survey as being highly modified from their natural state. These include Rozelle Bay, Iron Cove, Whites Creek, Johnstons Creek, Hawthorne Canal (formerly Long Cove Creek) and Alexandra Canal (formerly Sheas Creek).

Excavation associated with underground tunnelling would be required in the general area beneath registered AHIMS site #45-6-2278. Therefore, there is potential for the site to be indirectly impacted from vibration and settlement. The noise and vibration assessment carried out for the project identified vibration criteria to be applied to certain structures in accordance with the guideline DIN 4150: Part 3-1999 *Structural vibration – Effects of vibration on structures* (Deutsches Institute fur Normung 1999) (SLR 2017). The guideline identifies the minimum 'safe limit' of peak vibration levels for heritage structures is at three millimetres per second. AHIMS site #45-6-2278 is located outside the minimum safe working distance for vibration intensive plant associated with the mainline tunnel works, with vibration impacts associated with tunnelling works expected to be negligible (refer to **Appendix J** (Technical working paper: Noise and vibration)).

As the degree of movement experienced by a structure is dependent on its foundation type and how a structure responds to ground movements depends on its size, design and materials, ongoing observation and monitoring is recommended during construction. The site has not been accessed at part of this assessment due to its location within private property, and it is therefore recommended that its current condition is to be confirmed with a site survey during detailed design if possible (see **section 21.4**).

A series of exposed sandstone benches were identified adjacent to Whites Creek and to the north of Railway Parade at Annandale; however, no engravings, pigment art or any other signs of cultural use and/or modification were identified during the visual inspection (see **Figure 21-2**).

As no AHIMS registered Aboriginal sites occur within the areas of surface disturbance within the project footprint, none would be either directly or indirectly impacted by the project (see **Figure 21-2**). As no Aboriginal sites or areas of potential were identified for impacts, no recommendations for the project were provided by MLALC.

Based on the results of the Aboriginal heritage assessment, impacts on identified objects or places of Aboriginal heritage are considered unlikely. No known, potential or intangible cultural heritage values were identified within the project footprint. No known places of Aboriginal cultural heritage significance would be impacted by the project, and no known archaeological remains would be disturbed. Indirect impacts, such as those resulting from vibration during construction and settlement during operation, are also not anticipated or are considered to be negligible. Therefore, impacts on Aboriginal heritage would be avoided and no further assessment is required.

An assessment of potential cumulative impacts on Aboriginal heritage is provided in **Chapter 26** (Cumulative impacts).

21.4 Environmental management measures

The project is not anticipated to have any impact on identified Aboriginal objects or places of Aboriginal heritage significance. Mitigation and management measures would be implemented to avoid, minimise or mitigate impacts on unidentified Aboriginal heritage objects or places. These mitigation and management measures are outlined in **Table 21-4**.

Table 21-4 Environmental management measures – Aboriginal heritage

Impact	No.	Environmental management measure	Timing
Impacts on unexpected finds of Aboriginal objects	AH1	Any items of potential Aboriginal archaeological or cultural heritage conservation significance or human remains discovered during construction will be managed in accordance with the Unexpected Heritage Finds and Humans Remains Procedure developed for the project.	Construction
Vibration impacts on Aboriginal items	AH2	Subject to gaining access from the relevant landholder, a suitably qualified archaeologist would visit AHIMS site #45-6-2278 prior to the commencement of any vibration intensive construction activities in the vicinity of the site to verify the site to confirm and record its current condition.	Construction
	AH3	If the AHIMS site #45-6-2278 is verified, an assessment will be completed by a suitably qualified and experienced person prior to the commencement of any vibration intensive construction activities in the vicinity. The assessment will consider all vibration intensive activities that will occur in the vicinity, the likely vibration levels and relevant vibration criteria and identify the management measures, including monitoring, that will be implemented to prevent and reduce potential impacts. A final condition assessment will be carried out at the completion of construction detailing recommendations for remediation measures if required.	Construction