Attachment A5

Archaeological Assessment – Botany Road Precinct

URBIS

ARCHAEOLOGICAL ASSESSMENT

Botany Road Corridor:
Alexandria, Waterloo & Redfern, NSW

Prepared for
COX INALL RIDGEWAY
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Urbis acknowledges the important contribution that Aboriginal and Torres Strait Islander people make in creating a strong and vibrant Australian society.

We acknowledge, in each of our offices the Traditional Owners on whose land we stand.

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EXECUTIVE SUMMARY

Urbis has been engaged by Cox Inall Ridgeway (CIR) on behalf of the City of Sydney (the Proponent) to prepare a desktop Archaeological Assessment (AA), to investigate Aboriginal archaeological potential, and to support a more broader Indigenous cultural heritage study for the Botany Road Corridor in Redfern and Alexandria, NSW. In addition to assessing and reporting on Aboriginal archaeology, Urbis aimed to provide some aspects of historic archaeological context of the subject area as well to ensure that the objectives of the project are met. The AA will form part of a wider project known as the Botany Road Strategic Review (the Strategic Review), which will be used to guide the comprehensive review of planning controls for the subject area.

This AA had the following objectives:

- Investigate if any known Aboriginal objects and/or places exist within or in close proximity to the subject area.
- Review of all available archaeological reports and assessments and contextualise their findings in relation to the subject area and its surroundings.
- Identify any landscape features or geological formations and soils that have the potential for Aboriginal objects and archaeological resources.
- Provide a preliminary potential mapping of Aboriginal and historical archaeological resources to inform future planning controls for the subject area.
- Provide conclusion of the assessment and recommendations to manage the identified known and potential archaeological resources.

The AA has concluded that:

- There is one Aboriginal site (AHIMS ID#45-6-2597 also known as 'Wynyard St midden') recorded on the AHIMS within the subject area. No other specific archaeological sites were identified through the project. It is concluded that the GPS location of the site in AHIMS is wrong and the site was likely recorded in Gibbons Street Reserve. It is recommended that information in the AHIMS should be updated to rectify the location of AHIMS site. The Archaeological Assessment includes the recommended updated location for this site.
- The majority of the subject area is located on the Tuggerah Soil Landscape that is comprised by quaternary sand deposits and have high potential for comprising Aboriginal archaeological resources based on the results of previously carried out archaeological investigations within and in the wider surroundings of the subject area.
- The subject area has been impacted by various levels of historical land use since colonisation, especially by the growing urban development of the late nineteenth century and all through the twentieth century, that has transformed the original natural environment into a densely built urban environment. Localised impacts might have impacted to Aboriginal archaeological resources to various levels.
- The subject area has various level of potential for Aboriginal archaeological resources ranging from extremely low to moderate.
- The additional high-level historical archaeological assessment identified, especially in light of the results of the large scale archaeological excavation carried out by AMBS in 2017-2018 at the proposed Metro Quarter, that the subject area has various level of potential for historical archaeological resources ranging from extremely low to high.
- In general, the AA concluded that the majority of the subject area has at least moderate potential for both Aboriginal and historical archaeological resources and consequently moderate to high potential for contact archaeology and archaeological record that might shed light on how Aboriginal people kept using the land even after colonial impact disrupted their pre-1788 way of life.

Based on the above conclusions and especially in light of the Aboriginal and Historical Potential Map, Urbis provides the following recommendations for the proposed review of the planning controls in relation to Aboriginal and historical archaeology:

1. Additional archaeological research and investigation should be carried out to further detail the archaeological potential and significance of the subject area. This research should consider archaeological resources in a holistic way to understand the nature and extent of human occupation (both pre- and post -colonial) within the subject area.
2. CoS should update information in the AHIMS to rectify the location of AHIMs Site ID#45-6-2597 also known as 'Wynyard Street Midden' to ensure the appropriate protection of the site.
3. Areas that have been identified as having Extremely Low Potential for Aboriginal archaeological resources, as a minimum, should be the subject to an Aboriginal Objects Due Diligence Assessment for any development and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. As a minimum, consultation with the Metropolitan Local Aboriginal Land Council should also be carried out.
4. Areas that have been identified as having Low Potential for Aboriginal archaeological resources, as a minimum requirement should be the subject to an Aboriginal Objects Due Diligence Assessment and consultation with the Metropolitan Local Aboriginal Land Council for any development and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. Should the due diligence assessment identify the presence of potential Aboriginal archaeological resources, an Aboriginal Cultural Heritage Assessment and consultation with the relevant Aboriginal people should be carried out to further investigate the identified archaeological resource. Should the presence of Aboriginal objects be confirmed, and impact could not be avoided, an application for an Aboriginal Heritage Impact Permit under s90 of the *National Parks and Wildlife Act 1974* might be necessary.
5. Areas that have been identified as having Moderate Potential for Aboriginal archaeological resources, as a minimum requirement should be the subject to an Aboriginal Cultural Heritage Assessment and consultation with the relevant Aboriginal people for any development and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. Should the presence of Aboriginal objects be confirmed, and impact could not be avoided, an application for an Aboriginal Heritage Impact Permit under s90 of the *National Parks and Wildlife Act 1974* might be necessary.
6. Areas that have been identified as having Extremely Low Potential for historical archaeological resources should be the subject to a Baseline Historical Archaeological Assessment for any development and before any physical impact is approved to ensure that no relics are harmed. Should the potential for relics is confirmed, a Historical Archaeological Assessment should be carried out to assess the significance of those relics in accordance to the relevant guidelines under the *Heritage Act 1977*. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation or exemption permit might be necessary under the *Heritage Act 1977*.
7. Areas that have been identified as having Low to Moderate Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment in accordance to the relevant guidelines under the *Heritage Act 1977* to assess the potential and significance of any archaeological resources for any development and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation or exemption permit might be necessary under the *Heritage Act 1977*.
8. Areas that have been identified as having Moderate to High Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment in accordance to the relevant guidelines under the *Heritage Act 1977* to assess the potential and significance of any archaeological resources for any development and before any physical impact is approved to ensure that no relics are harmed. for any development proposal and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation permit might be necessary under the *Heritage Act 1977*.
9. Areas that have been identified as having High Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment for any development proposal and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation permit might be necessary under the *Heritage Act 1977*.
10. All areas covered by roads, laneways, plazas and footpaths and other open spaces, in general, and whether identified in this study or not, should be considered as having moderate archaeological potential and should be the subject of further archaeological assessment before any impacts below the existing disturbance footprint.

1. INTRODUCTION

Urbis has been engaged by Cox Inall Ridgeway (CIR) on behalf of the City of Sydney (the Proponent) to prepare a desktop Archaeological Assessment (AA) to investigate Aboriginal archaeological potential, and to support a more broader Indigenous cultural heritage study for the Botany Road Corridor in Redfern and Alexandria, NSW (hereafter referred as the 'subject area') (Figure 1 and Figure 2). In addition to assessing and reporting on Aboriginal archaeology, Urbis aimed to provide some aspects of historic archaeological context of the subject area as well to ensure that the objectives of the project are met. The AA will form part of a wider project known as the Botany Road Strategic Review (the Strategic Review), which will be used to guide the comprehensive review of planning controls for the subject area.

The subject area covers approximately 22 hectares (ha) along a 1.2km section of the Botany Road Corridor. The subject area covers land within the suburbs of Alexandria, Waterloo and Redfern, within the City of Sydney Local Government Area.

This AA was prepared to investigate, assess and report on known and potential Aboriginal objects and archaeological resources within the subject area. The AA was desktop based and followed certain steps of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010) ('Due Diligence Code').

1.1. PROPOSAL AND OBJECTIVES

1.1.1. Proposal

The Strategic Review seeks to facilitate understanding of past and current connections Indigenous communities have with the subject area and identify opportunities to embed Indigenous heritage and culture into the area's future.

It is further understood that the analysis and advice will be used to position the area so that its Indigenous history, community and Indigenous organisations contribute to a unique sense of place that shapes what opportunities are created and how those opportunities are realised.

The AA will facilitate this by providing an outline of the Aboriginal archaeological potential within the study area by incorporating the following:

- Reviewing previous archaeological reports and data to map areas that are graded by likelihood to contain archaeological potential
- Mapping and research showing environmental context including topography, geology, vegetation and current potential land use disturbance
- Investigation and mapping of the natural and built up urban environment identifying areas with landscape conditions likely to preserve Indigenous objects and deposits even with building development on top of the ground surface. Note: the subject area is likely to have geological conditions (e.g. a Live Sand Body) able to preserve deposits, objects or places of significance.
- Investigation of any relevant Aboriginal Heritage Information Management System (AHIMS) data include for Daniel Dawson Reserve.

1.1.2. Objectives

This AA assess only the tangible aspect of Aboriginal cultural heritage and statements on potential only apply for archaeological resources and objects and not in any way on cultural heritage values or significance.

The AA have the following objectives:

- Investigate if any known Aboriginal objects and/or places exist within or in close proximity to the subject area.
- Review of all available archaeological reports and assessments and contextualise their findings in relation to the subject area and its surroundings.
- Identify any landscape features or geological formations and soils that have the potential for Aboriginal objects and archaeological resources.

- Provide a preliminary potential mapping of Aboriginal and historical archaeological resources to inform future planning controls for the subject area.
- Provide conclusion of the assessment and recommendations to manage the identified known and potential archaeological resources.

1.2. LOCATION

The subject area covers approximately 22 hectares (ha) along a 1.2km section of the Botany Road Corridor in the city of Sydney Local Government Area (LGA).

The subject area encompasses the alignment of Botany Road and Regent Street. The subject area is bordered by Wyndham Street, Garden Street and Cornwallis Street in Alexandria in the west to Cope street in Waterloo in the east; and extends from the junction of Regent Street and Gibbons Street in Redfern in the north to McEvoy Street in Alexandria in the south. The subject area also encompasses the area from Gibbons Street to Redfern Station in the north from Henderson Road. Figure 2 identifies the subject area.

The current environment of the subject area is diverse and includes the following:

- Parklands.
- Construction sites (Waterloo Metro Precinct).
- Low, medium and high-density residential dwellings.
- Industrial properties.
- Commercial properties.
- Road and pedestrian path surfaces.

1.3. STATUTORY CONTEXT

1.3.1. The National Parks and Wildlife Act 1974 (NPW Act)

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

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

Aboriginal place means any place declared to be an Aboriginal place under section 84 of the NPW Act.

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

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

- The harm was authorised by an Aboriginal Heritage Impact Permit (AHIP) (s.87(1)); and
- Due diligence was exercised to establish Aboriginal objects will not be harmed (s.87(2)).

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

This AA used some aspect of the due diligence process to assess the potential for archaeological resources.

1.4. AUTHORSHIP

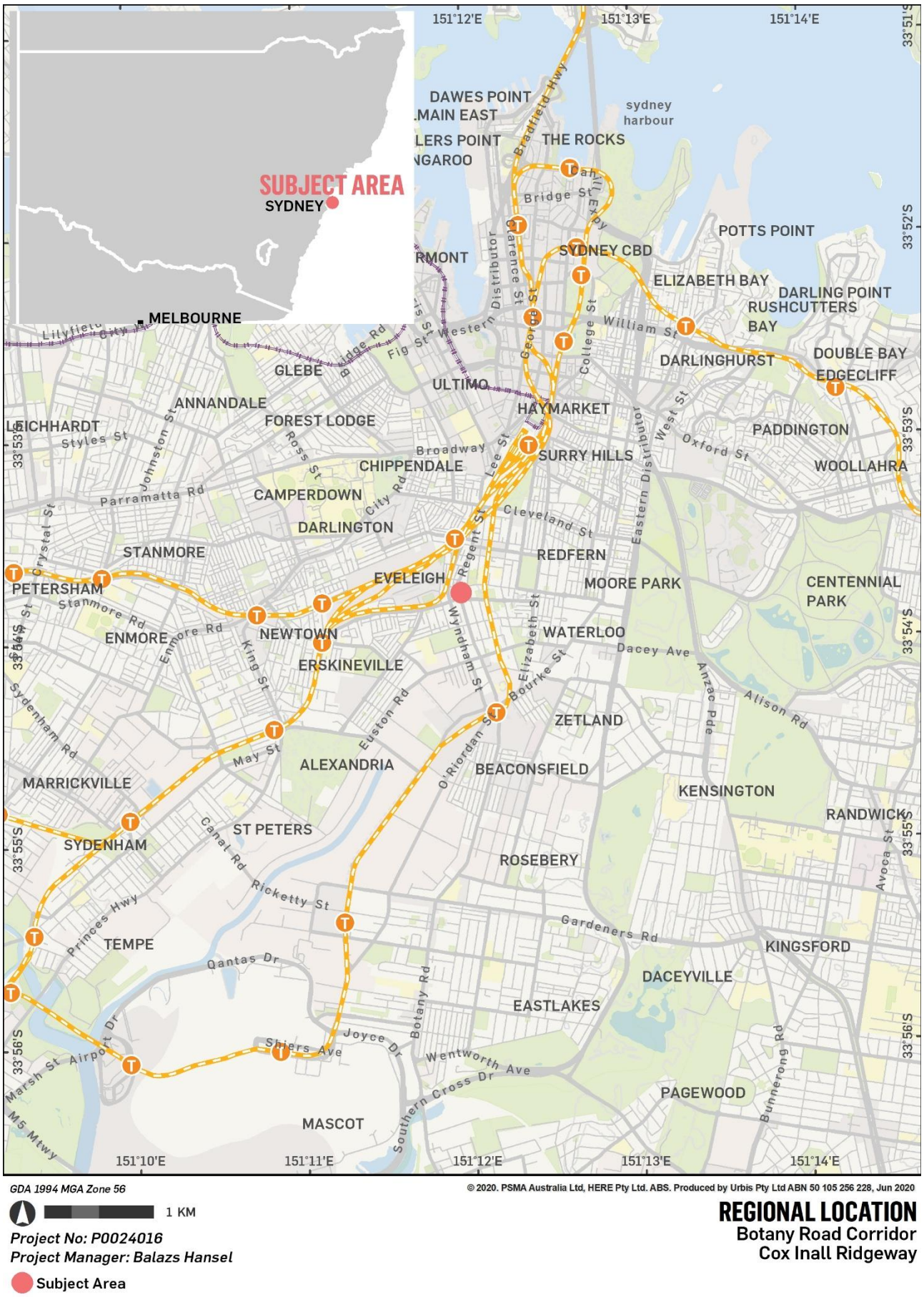
This report has been prepared by Meggan Walker (Urbis Consultant Archaeologist) and Alexandra Ribeny (Urbis Consultant Archaeologist), with review and quality control undertaken by Balazs Hansel (Urbis Associate Director Archaeology) and Sylvie Ellsmore (CIR Senior Consultant – Head of Research).

1.5. LIMITATIONS

This AA assesses only the tangible aspect of Aboriginal cultural heritage and statements on potential only apply for archaeological resources and objects and not in any way on cultural heritage values or significance.

This assessment has been limited to a desktop analysis of potential archaeological resources. No investigation of potential intangible Aboriginal cultural heritage values has been undertaken as part of this assessment. Initially, and in accordance to the brief the aim of the AA was to only address Indigenous archaeological resources. At the beginning of the project it became clear that no historical archaeological component was considered by the Proponent and without that context the archaeological assessment would not have been adequate as per the proposal and objectives of the project. Moreover, we believe that the separation of Aboriginal and historical archaeology is against the objective of understanding the archaeological potential of one of the most important locations in the Sydney area that might provide one of the earliest records of contact between Aboriginal people and colonists.

Consequently, Urbis have decided in consultation with the Proponent to include a high level historical archaeological overview and potential mapping. The historical component has been limited to high level literature review and assessment of the impact of the existing built environment on the potential for historical archaeological resources. Urbis used data provided by the CoS to assess the existing built environment and its possible impact on the soil deposits within the subject area. No detailed research of potential or significance has been carried out for the subject area. No detailed field survey was undertaken as part of this assessment apart from one site walkover with the project team.



GDA 1994 MGA Zone 56

1 KM

Project No: P0024016
Project Manager: Balazs Hansel

Subject Area

REGIONAL LOCATION
Botany Road Corridor
Cox Inall Ridgeway

Figure 1 – Regional Location

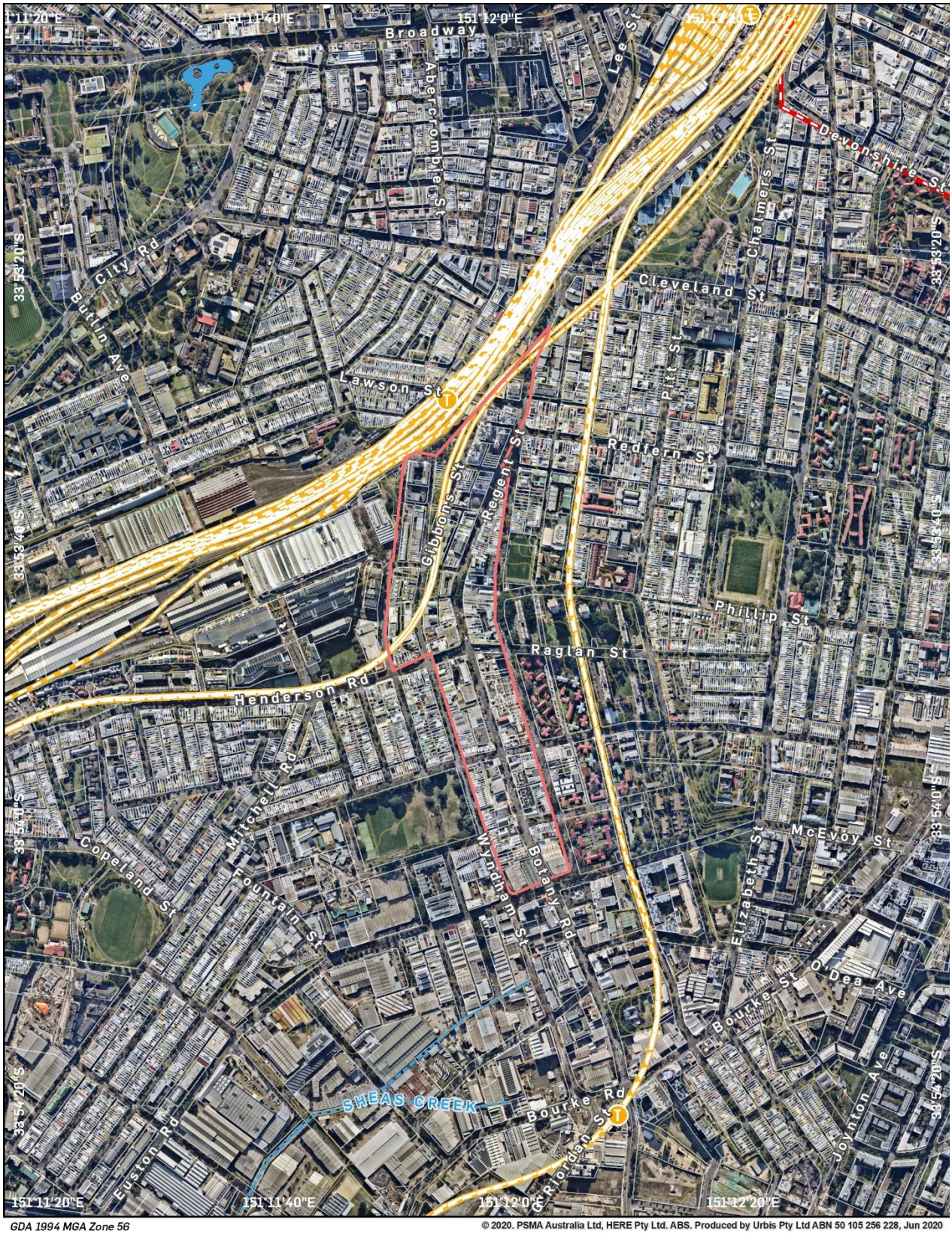


Figure 2 – Location of the Subject Area

2. ABORIGINAL ARCHAEOLOGICAL CONTEXT

This section comprises the summary of the archaeological background research for Aboriginal archaeological resources. This includes the search of the Aboriginal Heritage Information Management System (AHIMS), summary of results of previous archaeological investigations pertinent to the subject area, high level landscape analysis, soil landscape analysis and assessment of historical land use.

2.1. ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM

The AHIMS database comprises previously registered Aboriginal archaeological objects and cultural heritage places in NSW and it is managed by the Department of Premier and Cabinet (DPC) under Section 90Q of the *National Parks and Wildlife Act 1974* (NPW Act).

Aboriginal objects are the official terminology in AHIMS for Aboriginal archaeological sites and features. From this point in the assessment forward the terms of 'Aboriginal sites', 'AHIMS sites' or 'archaeological sites' will be used to describe locations physical signs of past Aboriginal activity, such as stone tools, shell middens or other artefacts or features exist or have the potential to occur in relation to the subject area.

The search of the Aboriginal Heritage Information Management System (AHIMS) was carried out on the 10th June 2020 (AHIMS Client Service ID: 511256) for an area of approximately 4 km^2 (Eastings: 329464 - 337464, Northings: 6243950 – 6251950)

The AHIMS search identified one Aboriginal site known as the 'Wynyard Street Midden' which is located on the eastern boundary of the subject area (AHIMS ID#45-6-2597). It is highly likely that the registered GPS coordinates are wrong, and the site is located within Gibbons Street Reserve (Figure 5). Details are provided in Section 2.1.1.

The AHIMS search identified 69 Aboriginal objects in total within the extensive search area. Of these, 6 were identified as not a site and a further 2 were duplicates, making the total 61 (see Table 1).

It should be noted that the AHIMS register does not represent a comprehensive list of all Aboriginal objects or sites in a specified area as it lists recorded sites only identified during previous archaeological survey effort. The wider surroundings of the subject area and in general the Sydney area have been the subject of various levels and intensity of archaeological investigations during the last few decades. Most of the registered sites have been identified through targeted, pre-development surveys for infrastructure and maintenance works, with the restrictions on extent and scope of those developments.

A summary of all previously registered Aboriginal sites within the extensive search area is provided in Table 1, Table 2 and Figure 4 and the basic and extensive AHIMS search results are included in Appendix A.

The types of sites identified within the search area reflect the landscape and environment of the search area, as well as the location of previous archaeological assessments. The most frequent sites include Potential Archaeological Deposits (PADs) encompassing 43.3% of the assemblage (n=26) and artefact scatters 15% (n=9). The large number of PADs reflect on the approach by the increasing number of archaeological investigations for intensifying development of the area in the last decade. PADs are generally designated by archaeologists within areas where there is no surface visibility to assess archaeological potential, but the results of background research, including spatial distribution of archaeological resources within the region, presence of landscape features and soils with potential for archaeological resources, and certain level of historical land use and disturbance still left potential for archaeological resources to survive in sub-surface context. A number of archaeological investigations within heavily disturbed contexts previously considered as PADs (GML 1998, Dominic Steele Consulting 2008) have yielded in situ evidence of Aboriginal occupation and knapping activities. A number of PADs that have been further investigated and confirmed to include Aboriginal artefacts were later designated as artefact scatters confirming the specific archaeological resource found on site.

A further 16.7% (n=10) of identified sites contain shell and other archaeological material such as animal bones and stone artefacts. These are typically described as midden or shell midden sites, and generally occur spatially in proximity to coastlines or waterways where aquatic resources including shellfish were extracted and processed. Within the search area, midden sites occur in proximity to waterways but also in areas at a distance from permanent water. This potentially reflects the locations of ephemeral streams and waterways which have since disappeared or impacted by historical land use and built environment, or misidentification of natural shell deposits. Natural streams have also been incorporated into the stormwater

system of the growing Sydney metropolitan area. Misidentification of middens within metropolitan Sydney is not uncommon (Attenbrow 1984, McIntyre 2003).

The majority of the subject area is located within the archaeologically sensitive Tuggerah Soil Landscape (Figure 12). This is significant for the interpretation of the registered sites which are located within the vicinity of the subject area. Excavations undertaken at Alexandra Canal (previously Sheas Creek) in the 1990s revealed the presence of shell horizons containing stone tools and butchered bones (Attenbrow 1984). Excavations at the Sydney Royal Golf Club in 2010 recovered 5,700 artefacts as well as human remains belonging to at least 3 individuals (JMCHM 2010). Excavations at the Randwick Stabling Yard recovered 32,000 stone 'items' (Sydney Morning Herald, 30 March 2016; Transport for NSW 2017). These finds have all raised the high potential of the Tuggerah Soil landscape to retain Aboriginal archaeological resources within deep, stratified deposits of sands that is part of the Botany Lowlands Sand dune system. As a consequence of urban expansion and land reclamation in the late 19th century, this landscape is frequently overlayed by imported fill and capped by the existing built environment.

The impact of the expanding urban development in the Eastern and Inner West Suburbs of Sydney had a major impact on the survival of Aboriginal archaeological resources. It is safe to assume that a large number of Aboriginal archaeological sites have been destroyed before the legislative protection of Aboriginal objects and places was introduced in 1974 and the registration of Aboriginal archaeological resources was made statutory.

Table 1 - Summary of extensive AHIMS search (AHIMS Client Service ID: 511256)

Site Type	Context	Number	Percentage
PAD	Open	22	36.1%
Artefact Scatter	Open	9	14.8%
Shelter with Midden	Closed	5	8.2%
Isolated Find	Open	4	6.6%
Artefact Scatter with PAD	Open	3	4.9%
Midden	Open	3	4.9%
Modified Tree	Open	2	3.3%
Aboriginal Gathering	Open	1	1.6%
Artefact Scatter with non-human organic material	Open	1	1.6%
Burial and Historic place	Open	1	1.6%
Grinding Grooves	Open	1	1.6%
Hearth	Open	1	1.6%
Midden with Artefact	Open	1	1.6%
Rock Engraving	Open	1	1.6%
Shell Midden	Open	1	1.6%
Shelter with Art	Closed	1	1.6%
Shelter with Art and Artefact	Closed	1	1.6%
Shelter with PAD	Closed	1	1.6%
Water Hole	Open	1	1.6%
Midden – Destroyed	Open	1	1.6%
TOTAL		61	100

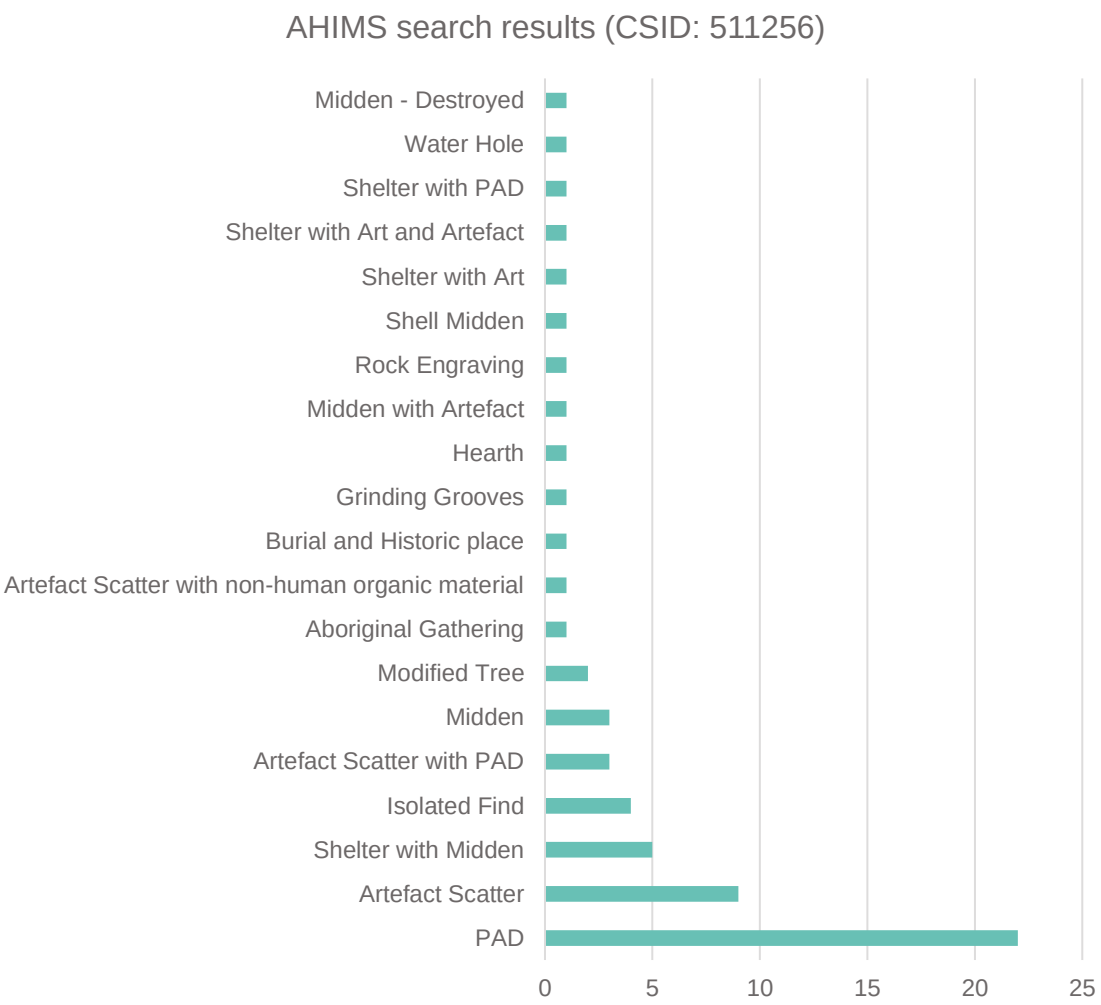


Figure 3 – graph demonstrating the number of each site type represented within the search results

Table 2 - AHIMS search results – Site characteristics (Client Service ID: 511256)

Site Characteristic	Number	Percentage
Open	52	86.7%
Closed	8	13.3%
Sandstone	11	18.3%
Artefact	27	45%
PAD	26	43.3%
Shell	10	16.7%

2.1.1. Aboriginal site AHIMS ID#45-6-2597 – 'Wynyard St Midden'

The registered Aboriginal site located within the subject area (AHIMS ID #45-6-2597) is identified as a shell midden, however, the site card does not provide any additional detail. Original site card is provided in Appendix A. While the site is registered within the subject area, it is incorrectly named 'Wynyard St Midden' and it is highly likely that the provided coordinates are wrong as the description contradicts the location of the site. A previously carried out archaeological investigation by AECOM tried to ground truth the site and the results are explained in the below excerpt from AECOM (2020).

> *A single Aboriginal site was reported within the Project area. Review of the AHIMS site card for existing Aboriginal site 'Wynyard St Midden' (AHIMS ID #45-6-2597), recorded in 1997, describes the site as a midden observed within a park '100m south of Redfern Station...on west side of street'. Initial review of AHIMS spatial data indicates that the site is located on Cope Street, Redfern, approximately 140 metres east of the Project area. AECOM's review however, noted that the site is erroneously described as lying on 'Wynyard Street', interpreted as Wyndham Street (Gibbons Street). While the mapping included in the site card provides insufficient detail to accurately ascertain the site's location, reference to contemporary mapping and interpolation of data suggests that the park in which shell material was observed, is likely to be the Gibbons Street Reserve. AECOM's review of historical aerial photography and mapping for the area noted that the footprint of the contemporary Gibbons Street Reserve was bulk excavated in the 1960s during the construction of an access portal associated with the Eastern Suburbs Railway (refer Figure 4). Excavation associated with construction of the Eastern Suburbs Railway is also shown in Figure 5. It follows that no natural ground surfaces would have remained after the construction activities in this area. Noting the small quantities of shell material reported, it is likely that any shell material observed was included within fill material that had been used to reinstate the Gibbons Street Reserve and is therefore not of cultural origin. Typically, shell material that is cultural (i.e. derived from a midden) would be bleached and/or burnt, contain charcoal and other secondary evidence (i.e. artefacts or bone fragments), none of which were described in the site card.*

Figure 4 from the AECOM report is provided in Figure 6 below. The current site inspection of the specific area in Gibbons Street reserve confirmed the findings of the AECOM review. No archaeological material or indication of shell midden was observed.

Urbis have carried out additional background research and we agree of the findings of the AECOM report. The most possible location of the site is within the Gibbons Street Reserve, within the northern part of the area (Figure 5). In relation to the validity of the site, additional investigation needs to be carried out in the form of subsurface test excavation to confirm the presence/absence of any midden material and clarify the source, nature, extent and integrity of the registered site.

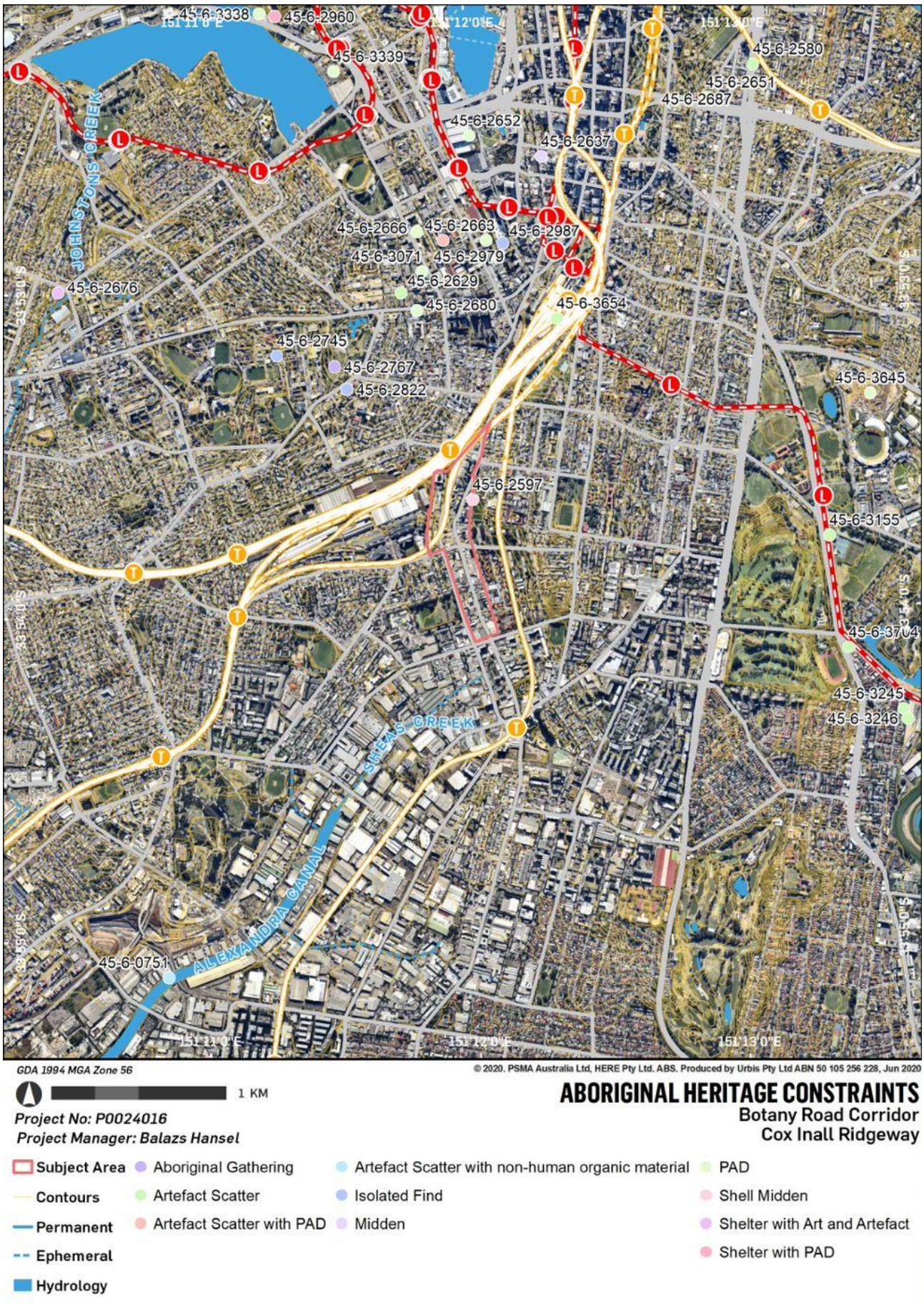


Figure 4 – Location of AHIMS Sites

Figure 5 AHIMS Site ID#45-6-2597 original and rectified location. Note that rectified location is approximate.

Source: PSMA Australia, AHIMS, Urbis.

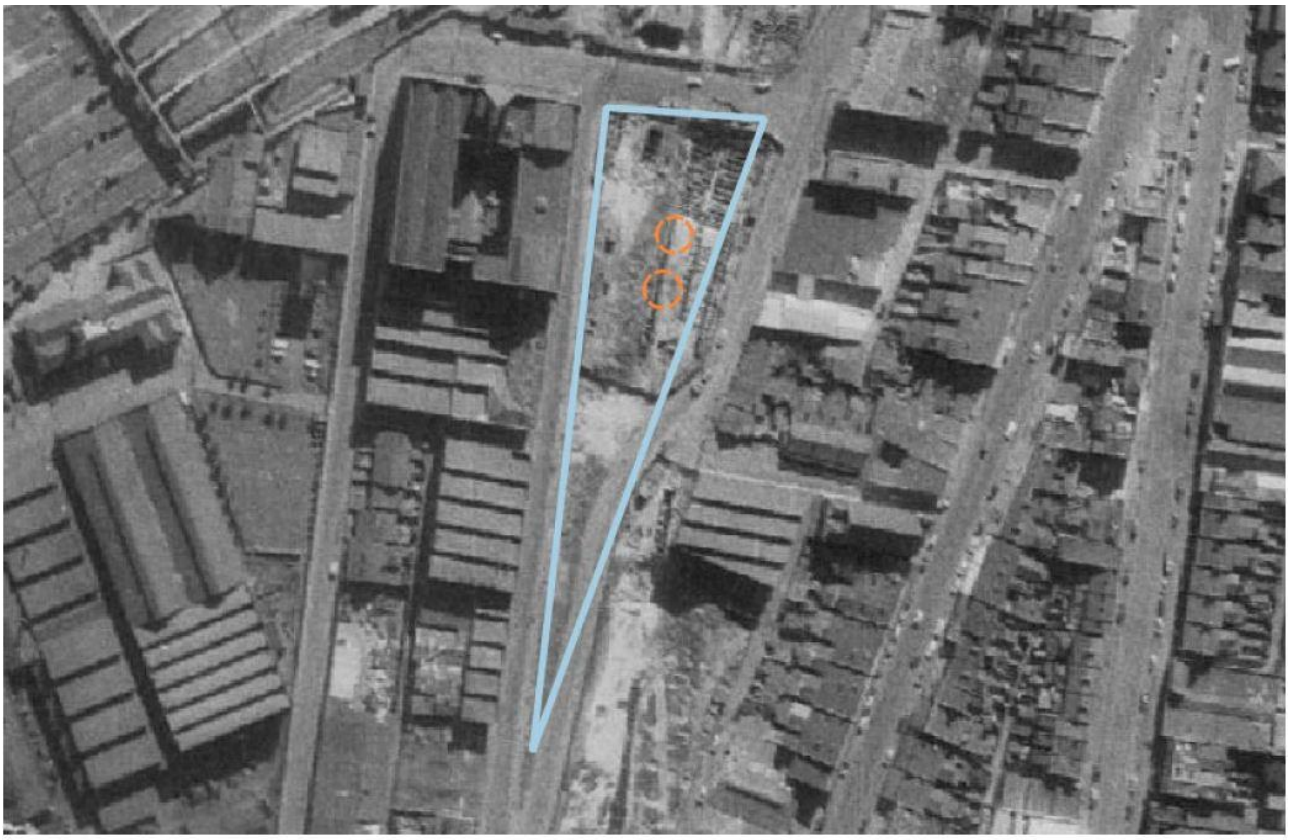


Figure 4 Location of the Gibbons Street Reserve during construction of the Eastern Suburbs Railway. Approximate mapped boundary of midden extent indicated in orange. Blue line denotes approximate outline of Gibbons Street Reserve. Image source: Land and Property Information 2019

Figure 6 Figure showing the location of Gibbons Street Reserve from the 1960's during earthworks for the Eastern Suburbs Railway. Note the extensive ground disturbance.

Source: AECOM, 2020: Figure 4, Page 14.

2.2. REGIONAL ABORIGINAL ARCHAEOLOGICAL CONTEXT

According to the current archaeological record, Aboriginal people have lived in the Sydney area for more than 20,000 years. The oldest archaeologically accepted date for a site in the greater Sydney region is 17,800 years before present (BP), which was recorded in a rock shelter at Shaw's Creek (Nanson et al 1987), near Castlereagh. Evidence of Aboriginal occupation has been found dated to 50-60,000 years before present (BP) at Lake Mungo in western NSW, so given the various disperse models of human occupation, it is likely that Aboriginal people have lived in the Sydney region for even longer than indicated by the oldest recorded dates we have at present. The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000 BP in the Sydney region (Attenbrow 2010:102). It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

Archaeologists made various efforts provide sequences of a variety of stone tools and technological industries in order to understand changing human behaviour and adaptation to various environmental changes. The Eastern Regional Sequence (ERS) was developed by McCarthy in 1948 to explain the

typological differences he identified in stone tool technology in different stratigraphic levels during excavations such as Lapstone Creek near the foot of the Blue Mountains (McCarthy et al 1948). The sequence had three phases that corresponded to different technologies and tool types (the Capertian, Bondaian and Eloueran). The categories have been refined through the interpretation of further excavation data and radiocarbon dates (Hiscock & Attenbrow 2005, JMcDCHM 2005). It is now thought that prior to 8,500 BP tool technology remained fairly static with a preference for silicified tuff, quartz and some unheated silcrete. Bipolar flaking was rare with unifacial flaking predominant. No backed artefacts have been found of this antiquity.

After 8,500 BP silcrete was more dominant as a raw material and bifacial flaking became the most common technique for tool manufacture. From about 4,000 BP to 1,000 BP backed artefacts appear more frequently, tool manufacture techniques become more varied and bipolar flaking increases (JMcD CHM 2006). It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types of tools were preferred (Attenbrow 2010). The reduction in evidence coincides with the reduction in frequency of backed blades as a percentage of the assemblage.

After European colonisation, Aboriginal people of the Cumberland Plain often continued to manufacture tools, sometimes with new materials such as bottle glass or ceramics. There are several sites in Western Sydney where flaked glass has been recorded, for example at Prospect (Ngara Consulting 2003) and Oran Park (JMCHM 2007). The incorporation of new, foreign materials into their tool making regimes shows that Aboriginal people were adapting fast and had the technological flexibility to work with new materials.

2.3. PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

Previous archaeological investigations provide invaluable information on the nature, spatial distribution, extent and integrity of archaeological resources in a given area. There have been numerous archaeological investigations carried out within and wider vicinity of the subject area during the last 30 years. A number of these reports have been sourced from the AHIMS register, online sources and provided by the Proponent. A summary of findings of the most pertinent to the subject area is provided below and additional summary of reports from the wider area are provided in Table 3.

2.3.1. Previous archaeological investigations within the subject area

Figure 7 shows the location of previously carried out Aboriginal archaeological or cultural heritage assessments. The assessments vary in the application of legislative requirements as well as detail and quality, and range from due diligence investigation to detailed ACHA.

AECOM Australia, 2020, *Redfern Station Upgrade - New Southern Concourse, Technical report 6 - Aboriginal Heritage*

In 2020 AECOM prepared an Aboriginal heritage impact assessment for the proposed Redfern Station upgrade.

This report identified that the site card of Aboriginal site ‘Wynyard St Midden’ (AHIMS ID#45-6-2597) includes the wrong coordinates and it is highly likely that the site was recorded in the Gibbons Street Reserve. The report also indicated that it is highly unlikely that the site is of Aboriginal origin as the area has been completely excavated in the 1960s for works associated with the Eastern Suburbs Railway works, and consequently the original soil could entirely have been removed. No new Aboriginal sites were identified, and archaeological sensitivity was identified as low the subject area.

The findings of the report are important in relation to the only registered site (AHIMS ID#45-6-2597). This AA agrees with the findings of the AECOM report in relation to the location of the site. The Urbis site walkover did not find any archaeological or shell material in the park.

Urbis, 2018, *Stage 1 Aboriginal Cultural Heritage Study, Waterloo State Significant Precinct (SSP) Study Area*

In 2018 Urbis prepared an Aboriginal Cultural Heritage Study for the Waterloo SSP that included the proposed Waterloo Station.

This report concluded that that there is a low degree of potential for shell midden of stone artefact deposits to be present within the ‘estate’ study area. If present, such archaeological material is predicted to occur in the

less disturbed areas of the site, and in proximity to known resource areas, such as the Waterloo Swamp and Shea's Creek to the south/southwest of the study area. This is in accordance with the findings of the 2015 AHMS study. This assessment of potential was based on the assessed area being located across the Tuggerah soil landscape. This soil landscape is characterised as an aeolian landscape and consists of a variety of deep (greater than two metres) loamy sands and peats commonly found in dune fields. It is noted that the geotechnical assessment prepared for the study area (refer below) identifies that the site is also underlain by quaternary alluvium sands; the interaction between the Aeolian and alluvium sand deposits in this area is not clear, and has been heavily impacted by environmental processes over time, as well as by more contemporary development and associated disturbances.

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

Artefact 2018, *11 Gibbons Street, Redfern, Aboriginal Archaeological Survey Report*

In 2018 Artefact Heritage was engaged by St George Community Housing to prepare an Aboriginal Archaeological Survey Report (AASR) for an SSD (7749) at 11 Gibbons Street, Redfern.

The AASR determined that despite the location of the project area within the Tuggerah Soil Landscape, the landscape context was not indicative of Aboriginal occupation. This determination was made on the basis of the site's location on a slope which was not connected to the former ridgeline which had been identified in the AHMS 2015 report. On the basis of predictive modelling (AHMS 2015:50) it was also determined that the location of the site, which was not within the immediate vicinity of any water sources, was not predictive of the presence of Aboriginal artefacts.

Further to these considerations, the site had undergone moderate level of disturbance and no registered Aboriginal sites were located. The overall potential of the project area was therefore identified as low.

The overall findings of this report are sound but discounting the potential for deeper archaeological deposits within the Tuggerah Soil Landscape are problematic.

Artefact 2016, *Sydney Metro City & Southwest, Chatswood to Sydenham: Aboriginal Cultural Heritage Assessment*

In 2016 Artefact Heritage was engaged by Transport for NSW (TfNSW) to assess the Aboriginal cultural heritage of the stations between Chatswood and Sydenham, including Waterloo.

Artefact identified that that the entire area has been the subject to various levels of historical land use. They also concluded that there are no registered Aboriginal objects and/or places within the subject area and the area has generally moderate to high potential for subsurface archaeological deposits where there are surviving soil profiles (deep sand sheets). The survival of Aboriginal objects within the Waterloo Station area dependent on the various levels of historical land use and construction activities. There are likely have been major impacts on some parts of the area, but other section might have been less disturbed by previous activities. The modification of the original environment by the introduction of fill might have also capped and protected the original ground surface of the area.

Should intact Aboriginal archaeological deposits survived, those would be very rare and have high research significance in local as well as regional level.

AHMS for Urban Growth NSW, 2015, Central to Eveleigh Corridor: Aboriginal and Historical Heritage Review

In 2015 Archaeological and Heritage Management Services (AHMS) was commissioned by UrbanGrowth NSW to prepare a desktop Aboriginal and Historical Heritage Review for the Central to Eveleigh Corridor. The study area incorporated the suburbs of Redfern, Darlington, Chippendale, Surry Hills, Waterloo, Ultimo, Pyrmont Alexandria and Erskineville.

This study determined that the pre-contact Aboriginal occupation of the study area was likely to have been concentrated on the resource-rich areas associated with water. In the south-eastern component of the study area, which encompasses the subject area, this refers to the lagoons, dune swales and swamps.

The extent of identified vegetation clearance and disturbance from the early 19th century was such that it was concluded that it had resulted in the removal of any culturally marked trees, engravings and grinding grooves which may have existed within the study area. Given the depth of the Tuggerah soil landscape, however, the potential for the presence of Aboriginal archaeological evidence in the form of stone artefacts was identified as high, particularly within the vicinity of water courses. It was noted that some test excavations, such as those carried out at the NCIE site, had revealed that Aboriginal archaeological evidence is not ubiquitous across the Tuggerah soil landscape.

Redfern was identified as having included a ridge which ran north - south and which represented the crest of a large sand dune of the Tuggerah soil landscape. It was located within proximity of Boxley's lagoon (now Redfern park). This site was excavated and the western and central sections were identified as having low to nil archaeological potential, whereas the remainder was thought to have high archaeological potential.

Urbis, 2016, *Proposed Redevelopment 80-88 Regent Street, Redfern, Aboriginal Archaeological Due Diligence Desktop Assessment Letter Report*

In 2016 Urbis was engaged to prepare an Aboriginal Archaeological Due Diligence (AADD) desktop assessment for a proposed redevelopment at 80-88 Regent Street, Redfern.

This brief letter considered the outcomes of an Aboriginal Heritage Assessment which had been undertaken by Artefact for the adjacent site at 60-78 Regent Street in 2014, which had identified the site as having low potential for the presence of Aboriginal artefacts. This determination was also reached on the basis of a geotechnical investigation which had been undertaken by SMEC in 2014 for the site, which identified stratigraphy consisting of 20cm of concrete overlaying up to 60cm of disturbed fill, overlaying archaeologically sterile clay subsoils. Archaeological potential and sensitivity of the subject area was therefore assessed as very low to nil.

The findings of this report are important in relation to the soil landscape of the area. The results of the geotechnical investigation confirm that the northern tip of the current subject area is situated on the Blacktown Soil Landscape (Figure 12).

CRM, 2009, *157-159 Redfern Street, Redfern, Archaeological Assessment, Aboriginal Archaeology*

CRM was engaged to prepare an AAA to accompany an Environmental Impact Statement (EIS) for the proposed redevelopment of the Redfern RSL site at 157-159 Redfern Street, Redfern. This site is located within the northernmost component of the subject area.

Geo-physical evidence was obtained from three bores within the north-eastern corner of the carpark. Profiles were constituted of pavement overlaying 0.6-0.8 metres of fill, silty clays of 2.7 to 5.5 metres and shale and sandstone bedrock. No registered AHIMS sites were located within the site.

The AAA found that the proposal would comprehensively remove an archaeological profile which, depending on the extent of previous disturbance, had the potential to contain Aboriginal objects and / or sites. Site types which were identified as having the greatest potential included campsites, middens, artefact scatters and isolated finds. A program of test excavations was therefore recommended as a means of identifying the degree of historical disturbance and intactness of the archaeological profile.

The findings of this report are important in relation to the soil landscape of the area. The results of the geotechnical investigation confirm that the northern tip of the current subject area is situated on the Blacktown Soil Landscape, adjacent to 80-88 Regent Street assessed by Urbis in 2016.

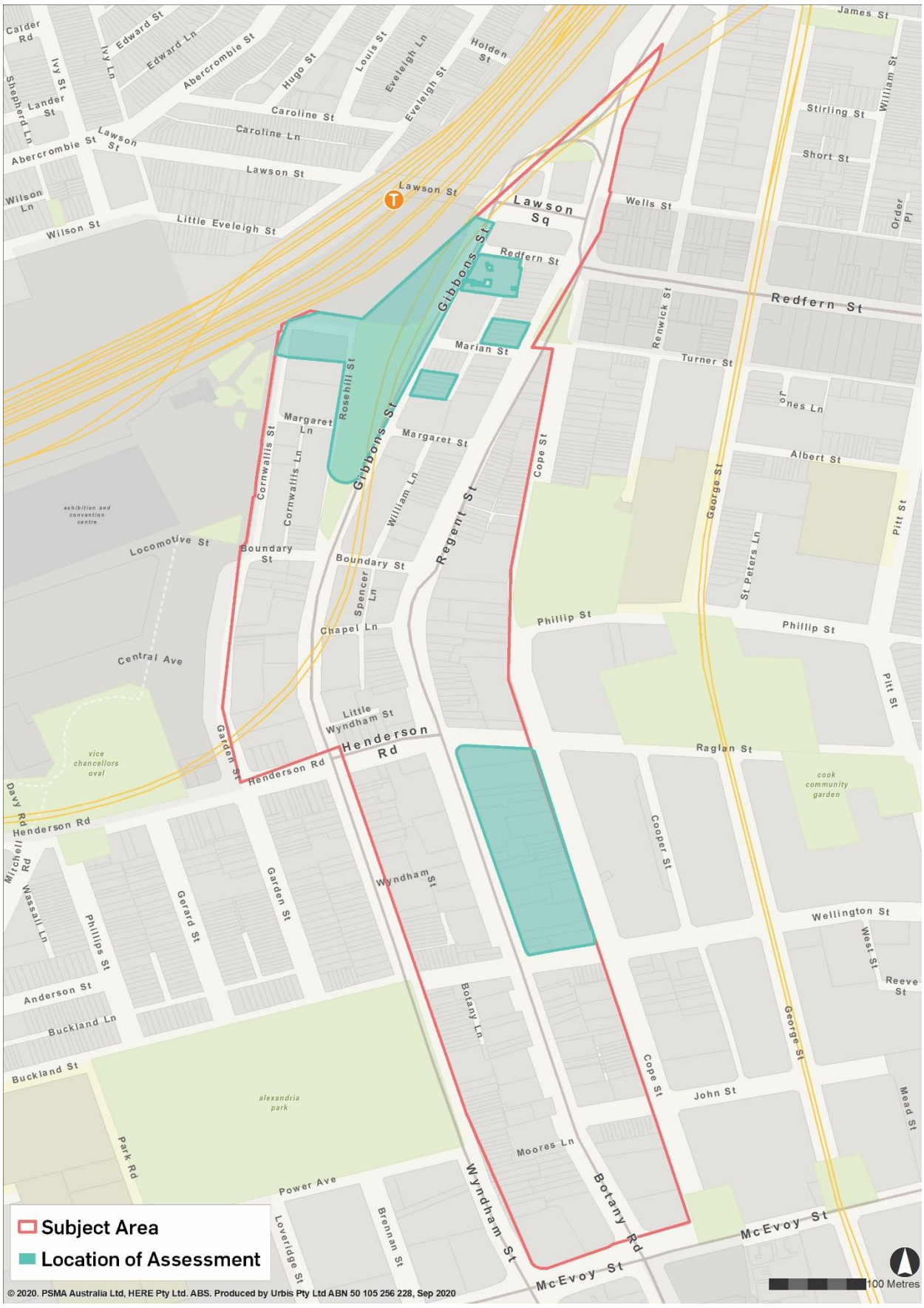


Figure 7 Location of previous Aboriginal archaeological or cultural heritage assessments within the subject area.

Source: PSMA Australia, Urbis.

2.3.2. Previous archaeological investigations in the vicinity of the subject area

The following reports have been selected opportunistically to provide some information on archaeological investigations within the wider area that were applied in similar circumstances in relation to historical land use, soil landscapes and level of investigation.

The selected reports will provide further insight of how archaeological potential is assessed in light of a variety of context that have impact on the survival and integrity of the archaeological resource.

Table 3 – Previous assessments in proximity to the subject area

Author and Title	**Summary**	**Relevance to Subject Area**
Artefact, 2019, Sydney Gateway Project, Technical Working Paper 10 - Aboriginal Cultural Heritage Assessment Report	In 2019 Artefact was engaged by RMS to prepare an ACHA for the Sydney Gateway Road Project. This project was aimed at establishing new road connections between the Sydney motorway network at St Peters interchange with Sydney Airport's terminals and beyond, including the construction of new roads, 4 new bridges and other operational infrastructure. The ACHA found that Aboriginal occupation of the study area related to the exploitation of estuarine and marine resources. It was determined that evidence of Aboriginal occupation may be present within undisturbed sections of the study area. Areas 1 and 2 were identified as areas of archaeological potential, which were likely to contain buried former estuarine tidal flats, a similar landscape to that in which butchered Dugong bones and Aboriginal artefacts were located in a site 110 metres from the project site during the construction of the canal.	▪ Areas in urban environments and the subject of long term, intensive historical land use have still potential for Aboriginal objects to survive.
Extent, 2017, Alexandria Park Community School, 7-11 Park Road Alexandria, Preliminary Aboriginal Archaeological Assessment	In 2017 Extent Heritage was engaged by Tanner Kibble Denton Architects Pty Ltd to prepare an AAA for the proposed redevelopment of Alexandria Park Community School, Park Road, Alexandria. The site was identified as archaeologically sensitive on the basis that it is located within the Tuggerah soil landscape and within 200m of water (on the margins of the former Sheas Creek swamp). It was determined that historical development had caused some disturbance to the site, however, had mostly resulted in the introduction, rather than removal, of material. No surface Aboriginal sites, objects or culturally modified trees were identified within the site.	▪ In close proximity to the subject area. ▪ Located on the Tuggerah Soil Landscape. ▪ Similar built environment and historical land use. ▪ Identified as archaeologically sensitive.
Extent, 2017, Alexandria Park Community School, 7-11 Park Road Alexandria: Aboriginal Heritage Due Diligence Assessment	In 2017 Extent Heritage was engaged by Tanner Kibble Denton Architects Pty Ltd to undertake an Aboriginal heritage due diligence assessment for a proposed redevelopment at the Alexandria Park Community School, 7-11 Park Road, Alexandria.	▪ In close proximity to the subject area. ▪ Located on the Tuggerah Soil Landscape.

Author and Title	**Summary**	**Relevance to Subject Area**
	The DD assessment found that the site was located within proximity of two landscape features which are predictive of the presence of Aboriginal artefacts; the Botany Lowlands dune system and the former Sheas Creek Swamp. It was found that, while the majority of the study area had been low-lying and therefore unsuitable for Aboriginal occupation, the north-western section had been elevated. The DD assessment determined that the proposal had potential to result in harm to Aboriginal objects across the whole study area, with a higher risk in the north-western component. It was therefore recommended that further assessment of Aboriginal cultural heritage be undertaken in accordance with the SEARS.	▪ Similar built environment and historical land use. ▪ Identified as archaeologically sensitive.
GML, 2014, 200 George Street, Sydney, Aboriginal Archaeological Excavation	This Excavation report prepared by GML details the outcomes from Aboriginal archaeological investigations which were undertaken within areas 4 and 8 of 200 George Street, Sydney in 2013. An Aboriginal DD assessment was prepared by GML in 2012 which concluded that the project area had some potential for Aboriginal archaeological deposits. A PAD was registered as AHIMS ID#45-6-3081. An AHIP was subsequently sought to allow further investigation of the PAD. Investigation of the PAD revealed that it was not a site. Natural soil profiles were identified in Areas 4 and 8 during historical archaeological excavations, however, Aboriginal objects were not identified in either.	▪ Archaeological potential was flagged by the assessment and later tested by excavation with no Aboriginal objects found.
Biosis, 2012, 445-473 Wattle Street, Ultimo: Proposed Student Accommodation Development, Aboriginal Cultural Heritage Assessment Report	In 2012 Biosis was engaged by CRM to prepare an ACHA for a proposed redevelopment at 445-473 Wattle Street, Ultimo. The ACHA determined that, despite significant disturbance during the period of European occupation, substantial and deep portions of alluvial soils, situated beneath a 2.5m layer of fill, were likely to be present within the study area. It could not be determined whether the alluvial deposits were shore remnants, which would have a high degree of archaeological sensitivity, or the result of	▪ Identified that high level of disturbance has still left some potential for Aboriginal objects within the subject area.

Author and Title	**Summary**	**Relevance to Subject Area**
	land reclamation at Blackwattle Bay, which would have low archaeological sensitivity. The ACHA identified the project area as having moderate-high potential for Aboriginal objects and it was therefore registered with AHIMS as a PAD (#45-6-3064).	
Biosis, 2012, The Quay Project, Haymarket: Archaeological Report	In 2011 Biosis Research was engaged by CRM to conduct an Aboriginal DD assessment for the proposed redevelopment of a site at the corner of Quay Street and Ultimo Road, Haymarket. The DD concluded that work could proceed on the site with no further assessment or approval on the basis that the site had undergone significant disturbance and no registered sites were identified. Test excavations were undertaken by Biosis in 2011, which confirmed the findings of the DD, with the exception of a lithic artefact (AHIMS ID#45-6-2987) which was identified in the fill of a European post hole. It was recommended that an AHIP be obtained for the entire site which would cover any other objects which were discovered during the course of works. Upon commencement of works, potential remnant deposits of topsoil were identified beneath historical archaeological deposits during salvage excavations as part of the HAA.	▪ Originally no potential was identified for aboriginal objects. ▪ Test excavation for historical archaeological resources identified an Aboriginal stone artefact. ▪ Furthermore, original soil profile has been found under historical archaeological deposits.
Biosis, 2012, The Quay Project, Haymarket, Aboriginal Cultural Heritage Assessment	In 2012 Biosis Research was engaged by CRM to prepare an ACHA for the proposed redevelopment of a site at the corner of Quay Street and Ultimo Road, Haymarket. Subsequent to the completion of the DD, in which it was concluded that work could proceed without further assessment, potential remnant deposits of natural topsoil were discovered beneath historical archaeological deposits. CRM therefore commissioned Biosis to prepare an ACHA in order to determine whether Aboriginal objects were present.	▪ The ACHA was prepared for the AHIP mentioned above for managing of any further Aboriginal archaeological finds.

Author and Title	**Summary**	**Relevance to Subject Area**
	It was determined that the lithic artefact (AHIMS ID#45-6-2987) had derived from a highly disturbed context and was therefore assessed as being of low significance. No additional Aboriginal objects were recovered. At the adjacent site at 31 Ultimo Rd, natural soil profiles had been removed to a depth below those where Aboriginal objects occurred. Is was therefore inferred that the same would be true of the study area.	
Dominic Steele Consulting, 2006, Aboriginal Archaeological Excavation Report, The KENS Site	In 2006 Dominic Steel Consulting was engaged by Leighton Properties Pty Ltd to undertake a test and salvage excavation program for the redevelopment of a block of land situated in the Sydney CBD which is bounded by Kent, Erskine, Napoleon and Sussex Streets, Sydney (a.k.a. the 'KENS' Site). The KENS Site was divided into 4 zones, reflecting the staging of the Development Proposal. Excavations were initially confined to a buried soil at the north-eastern corner of the site where Napoleon and Kent Streets intersect. Excavations revealed natural soil profiles which were truncated and rapidly buried with an absence of historical artefacts. Aboriginal artefacts recovered from these soils were fragmented and damaged by heat, which was interpreted as the effect of bushfires or a hearth. Overlying colluvial deposits contained both historical and Aboriginal artefacts. Some historical construction activities, including foundations, service trenches and gardening activities, acted to seal and preserve natural soil profiles. It was observed that coastal processes had removed sediment and transported it downslope. The KENS site produced rare evidence of Aboriginal settlement from Late Bondaian to early post-Contact. These included remains of knapping and evidence of pre- and post-contact activities (e.g. flaked glass).	▪ Areas in urban environments and the subject of long term, intensive historical land use have still potential for Aboriginal objects to survive.
McIntyre-Tamwoy, S. 2003, Metrogrid Project Test Excavation of Buried Shell Bed at Fraser Park, Marrickville, NSW	This report details the preliminary findings from the test excavation of a subsurface shell bed at Fraser Park, Marrickville, NSW. Test excavations were carried out as part of the archaeological monitoring for the MetroGrid project which was undertaken by TransGrid as part of an upgrade to electricity supply and distribution in Sydney.	▪ Identified a shell midden as a natural accumulation of shell associated with a historical waterway.

Author and Title	**Summary**	**Relevance to Subject Area**
	Test excavations revealed that the shell deposit was not an Aboriginal Midden, but instead a natural shell bed. This determination was reached on the basis of its location beneath the water table, which suggested that it had formed underwater.	▪ Shell accumulation can show either human activity or natural processes.
GML, 1998, Angel Place Project 1997, Volume 3 - Prehistory Report, Salvage Excavation of Site #45-6-2581	In 1998 GML was engaged by AMP Asset Management Australia Ltd to undertake salvage excavations of an Aboriginal site (AHIMS ID#45-6-2581) which had been located during redevelopment of the Angel Place site, Sydney. Site AHIMS ID#45-6-2581 was the first Aboriginal site to be located adjacent to the central Sydney Tank Stream watercourse. Salvage excavations revealed the site contained 54 flaked-stone artefacts within approximately 10 square metres. The site yielded evidence of on-site reduction of a variety of raw materials including silicified tuff, indurated mudstone, silcrete and quartz.	▪ Aboriginal archaeological resources can survive even in areas subject to intensive historical land use and provide valuable information on past Aboriginal activities and land use.
Attenbrow, V. 1984, St Peters Brick Pit, Sydney NSW, Investigation of Shell Midden	In 1983 shell material eroding from the eastern rim of the St Peters brick pit was identified as an Aboriginal shell midden and was reported to the NSW NPWS. Further investigation of the shell material determined that it did not constitute an Aboriginal shell midden due to the presence of shellfish species which were not known to be eaten by Aborigines, unusually small size of commonly consumed species and a lack of charcoal. Based on these findings, it was suggested that the shell material could have been part of an in situ shell bed on a former shoreline of Botany Bay or that it was natural shell bed material which was deposited during modern times.	▪ Accumulation of shell not always constitute for Aboriginal use of the resource. ▪ Detailed investigation of shell accumulation should concentrate on the presence of charcoal, other marine animal bones, stone artefacts and identifying species.

2.3.3. Summary of Archaeological Background

The above publications have highlighted the variable archaeological potential of sites within the Tuggerah Soil Landscape and Botany Lowlands dune system, which constitutes the majority of the subject area. It should be also noted that the northern part of the subject area is located on the boundary of the Tuggerah and Blacktown residual (REbt) soil landscapes that further complicates the assessment of potential based on the soils present.

Whereas intact soil profiles have the potential to contain Aboriginal artefacts, historical landscape features, including dune crests and proximity to waterways, are a significant factor which determines archaeological sensitivity. Where these are present, there is moderate to high potential for Aboriginal archaeological resources.

The most typical Aboriginal objects and sites within and in the vicinity of the subject area, are PADs, artefact scatters and isolated finds. A number of potential middens have been identified, however, further investigation of these has confirmed that they are either natural or of post-contact date. Historical land clearance, disturbance and earthworks likely account for the absence of extant Aboriginal objects and sites including culturally modified trees and sandstone surfaces where grinding grooves and art might be found.

Overall the approach from previous archaeological investigations have been conservative that reflects on the findings of some archaeological excavations that found Aboriginal archaeological resources even in highly developed, urban areas that have been the subject to intensive land use since early colonisation.

3. ENVIRONMENTAL CONTEXT

3.1. TOPOGRAPHY

The subject area is located within the Botany Lowlands dune system which was characterised by gently undulating dune fields which assumed a north-south trend with increased distance from the coast. Within this landscape dunes rise to an elevation of <20m and <40m in the north, with gently to moderately inclined slopes.

The subject area slopes gradually to the south toward a low-lying landscape which, prior to European occupation, had been comprised of swampland. Figure 8 provides some information on the topography of the area from the 1840s. It shows the contour lines for some major sand dunes located in the area and also depicts the original track that follows a crest 'From Botany Bay to Sydney' that is almost the same alignment of today's Botany Road.

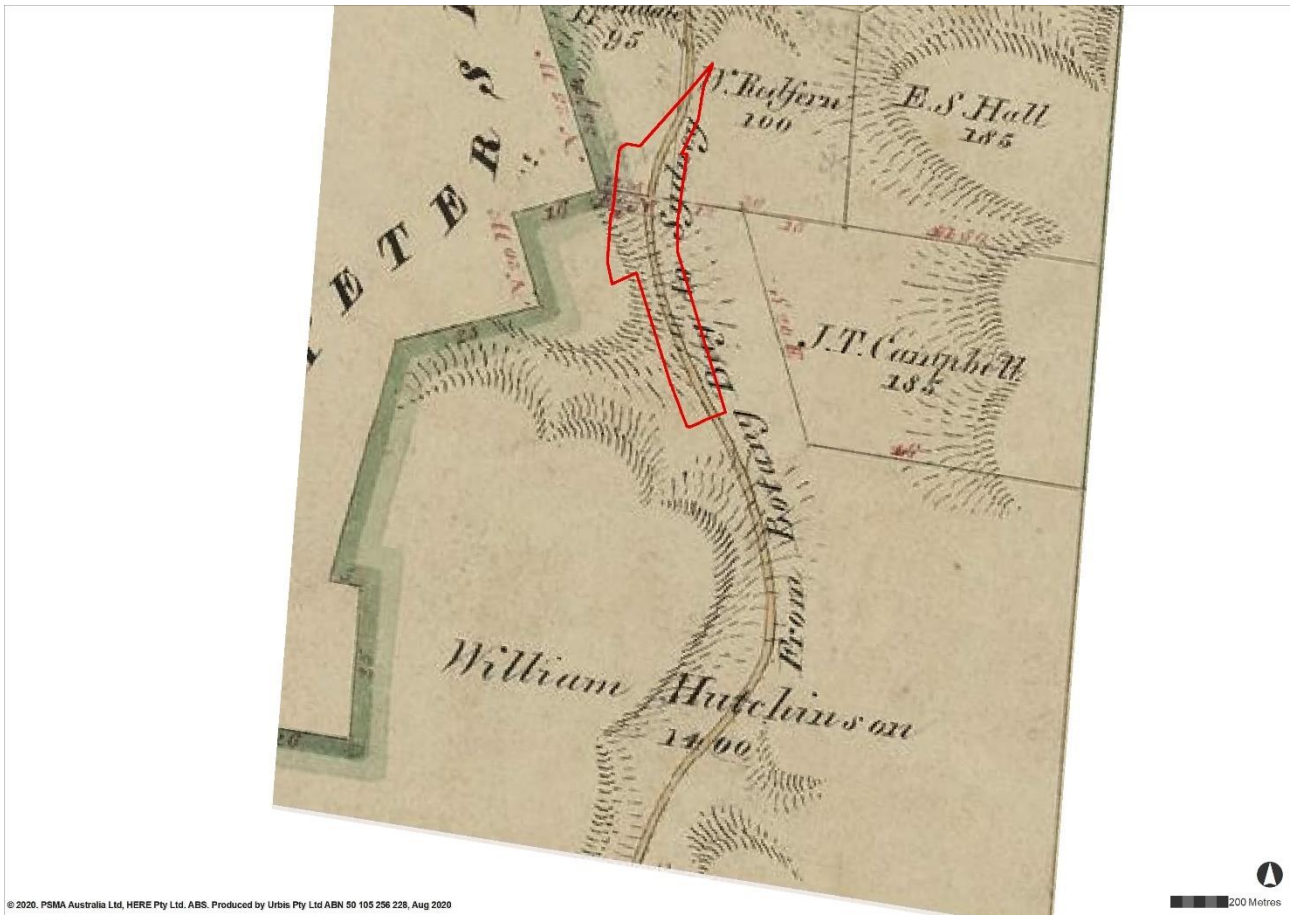


Figure 8 - Early historic map from 1841 showing the topography of the subject area. Note the track alignment along the crest and lower slopes connecting sand dunes. Botany Road follows the same alignment today. Red polygon shows the approximate location of the subject area

Source: HLRV, Parish of Alexandria, County of Cumberland

Figure 9 provides further information on the original topography and hydrology of the subject area and its surroundings. It shows that Botany Road diverted to the east to bypass the swamps and waterways of Sheas Creek and also that three bridges had been already constructed on the some ephemeral waterways.

The size of the Waterloo and Lachlan swamps (to the east) and that the waterways are extending across and near the current subject area suggest the potential for shell middens or sites with the remains of freshwater animals that might have been used by Aboriginal people locally. Coupled with the Tuggerah Soil Landscape, the potential for archaeological resources within the southern part of the subject are is moderate.

Figure 9 Historical map from 1820-1840 showing creeks feeding into the swamps and waterways around Waterloo. Note the three bridges shown on Botany Road within the subject area. Red polygon shows the approximate location of the subject area

Source: HLRV, Parish of Alexandria, County of Cumberland

Figure 10 Historical map from 1843 shows a similar environment with the red polygon shows the approximate location of the subject area. Note that waterways are extending into the subject area.

Source: HLRV, Parish of Alexandria, County of Cumberland

Figure 11 Map from 1886-88 showing the expanding settlement with roads matching the current alignments. Note the remaining waterways crossing Botany Rd marked with blue arrows. Red polygon marks the subject area.

Source: Supplied by TZG, 2020

In summary, the original topography of the subject area was a mix of sand dunes running along a north-south direction bordered by the swamps and waterways of the Waterloo swamps in the south and west. The very early records of the track connecting the settlement with botany Bay shows that the area have been frequented by people living in the area, and moving between these location.

The topography of the subject area has been significantly modified and levelled through earthworks and land reclamation throughout the 19th century associated with residential and industrial development. Installation of the trainline to the north-west of the subject area in 1884 also necessitated significant levelling and excavation works.

3.2. PAST VEGETATION

Native vegetation communities have been almost completely removed from the subject area due to the intense urbanisation and industrialisation of this area from the 19th century onwards.

Prior to European occupation of the subject area, it is likely to have been positioned in a transitional landscape between the sclerophyll eucalypt and apple woodland of the Tuggerah soil landscape and tall open-forest and open-woodland of the Blacktown soil landscape. This supposition is based on the underlying geology and soil landscapes (Sydney Metro 2018:45)

The majority of the subject area therefore falls within former sclerophyll eucalypt and apple woodland. Dominant tree species included smooth-barked apple *Angophora costata*, Sydney peppermint *Eucalyptus piperita*, and old man banksia *Banksia aemula*. The shrubby sclerophyllous understorey contained many species including bracken *Pteridium esculentum*, Christmas bush *Ceratopetalum gummiferum*, woody pear *Xylomelum pyriforme*, and prickly moses *Acacia ulicifolia*.

The open-forest and open-woodland to the west contained Sydney blue gum *Eucalyptus saligna* and blackbutt *E. pilularis* within wetter areas and forest red gum *E. tereticornis*, narrowleaved ironbark *E. crebra* and grey box *E. moluccana* in drier areas.

3.3. SOILS AND GEOLOGY

The subject area extends over 1.2km and as such, there are multiple soil landscapes present. These include the Tuggerah Landscape, which covers the majority of the subject area from Alexandria and Waterloo to Redfern, and the Blacktown soil Landscape that is prevalent in the northern part of the subject area.

The study area is situated within the Botany Lowlands dune system, an undulating Aeolian dunefield system which was deposited during the Quarternary period (Herbert 1983). The Botany Lowlands dune system overlays Triassic Age Ashfield Shale and Hawkesbury Sandstone and encompasses the suburbs of Botany, Randwick and South Sydney. Sand dune systems are sensitive to the presence of Aboriginal objects and sites.

The Tuggerah Soil Landscape (tg) covers the majority of the subject site, extending from the southernmost portion of the site from the McEvoy Street and Botany Road junction in Alexandria and Waterloo, to the northern portion of the subject area, where Botany Road intersect with Redfern Street. The Tuggerah Soil Landscape is a dune system that exists upon the Botany Lowlands and the coastline of the north eastern suburbs of Sydney. Soils are described as deep (>200 cm) podzols (Uc2.31, Uc2.32, Uc2.34) on dunes and podzols/humus podzol intergrades (Uc2.23, Uc2.21, Uc2.3, Uc4.33) on swales. Dominant soil materials include loose speckled grey-brown loamy sand; bleached loose sand, grey-brown mottled sand; black soft sandy organic pan; brown soft sandy iron pan and yellow massive sand.

North of Redfern Street and the northernmost portion of Cornwallis Street, the soil landscape present is the the Blacktown Soil Landscape (bt). In this, soils are described as shallow to moderately deep (<100cm) *Red and Brown Podzolic Soils* (Dr3.21, Dr3.11, Db2.1) on crests, upper slopes and well-drained areas; deep (150-300cm) *Yellow Podzolic Soils* and *Soloths* (Dy2.11, Dy3.11) on lower slopes and in areas of poor drainage. Dominant soil materials include friable brownish-black loam; hardsetting brown clay loam; strongly pedal, mottled brown light clay; and light grey plastic mottled clay. It is of note, however, that the boundaries as indicated in Figure 12 are somewhat arbitrary and may not accurately reflect the location of this transition.

Historical research has indicated that the 19th century saw the most significant urbanisation and disturbance of the subject area, which had previously consisted of a combination of agricultural and swampland. Land reclamation was undertaken for the purpose of converting swampland, resulting in the deposition of fill and the burial of natural soil profiles. The subsequent establishment of Redfern train station (then Eveleigh train station) and mixed industrial, residential and commercial development within the subject area resulted in

significant disturbance and changes to the formerly undulating topography. The 20th century saw the subject area transition from a predominantly industrial and commercial area to a residential one. Disturbance during this period relates primarily to the introduction of new infrastructure, removal of industrial structures and their replacement with mixed residential developments, some of which include basement levels.

The depth of natural soils is relevant to assessing potential for sub-surface archaeological resources. In general, as disturbance level increases, the integrity of any potential archaeological resource decreases. However, disturbance might not remove the archaeological potential even if it decreases integrity of the resources substantially. As a consequence of urbanisation and land reclamation throughout the 19th century, the majority of natural soil profiles within the subject area have been removed or are today located beneath imported fill. Despite this historical pattern of intense disturbance, a number of archaeological investigations within and adjacent to the subject area have yielded evidence of intact soil profiles and evidence of Aboriginal occupation. The Tuggerah Soil Landscape is generally deep, and therefore archaeological potential is retained even where disturbance activities including basements are known to occur, unless this disturbance surpasses the typical depth of soils (>2m). However, as the Blacktown Soil Landscape is generally shallow, disturbance activities including basements will likely remove all natural soils so long as the exceed the typical depth (<1m).

It is therefore anticipated that, where intact soil profiles survive beneath overlying fill deposits, there is potential for Aboriginal objects and sites.

3.4. HYDROLOGY

The hydrology of the subject area and surrounds is important given the correlation between Aboriginal archaeological sites and high order waterways. Predictive models for the Cumberland Plain suggest that Aboriginal archaeological sites are more likely to be present within 200-250m of a reliable watercourse (Smith, 1989; JMCHM, 1992).

While the Botany Lowlands dune system did not contain formal drainage lines, it contained a number of lagoons in the south-east and swamps in the north-west. A large swamp, known as ‘Boxley’s Lagoon’, was located at the same location as Redfern Park (Thorp 1994). Blackwattle Creek and Blackwattle Swamp were also located to the north-west of the study area. A tributary of Black Wattle Swamp Creek originated beyond Erskineville Railway Station and followed the northern boundary of the Eveleigh Railway Workshops.

The subject site area does not contain any remnant waterways due to highly developed environment. It was a common practice that natural waterways were incorporated into the stormwater systems. The subject area is, however, in close proximity to Sheas Creek, a large majority of which has been converted to the Alexandria Canal. Many of the former swamps would have fed into the creek (Figure 9, Figure 10, Figure 11). The north-easternmost first order tributary of Sheas Creek runs approximately 178m south of the current subject area. This section has been formalised into a drainage channel following European settlement, but likely would have extended further north east prior to this formalisation and surrounding development.

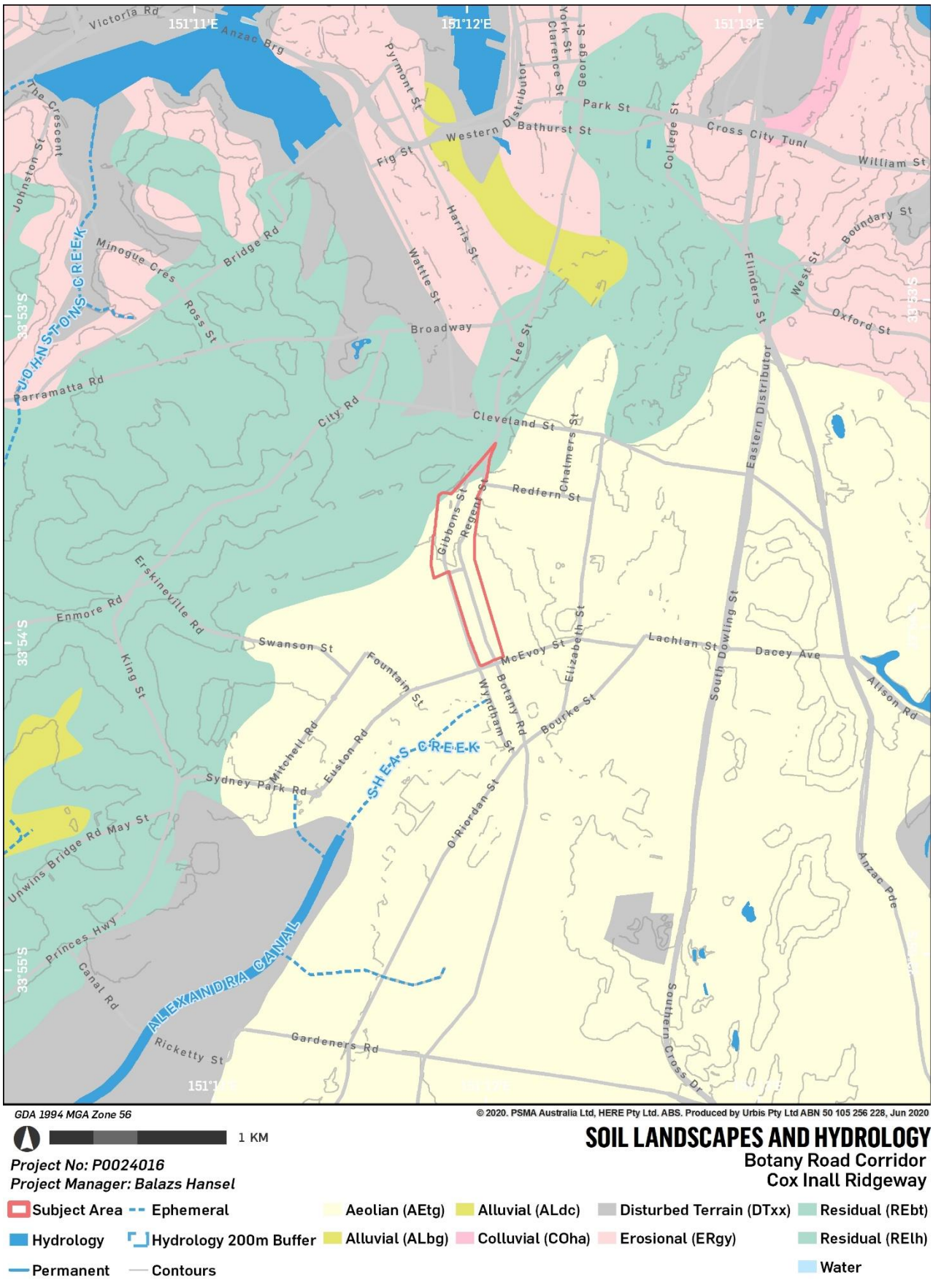


Figure 12 – Soil Landscapes and Hydrology

4. HISTORICAL LAND USE AND DISTURBANCE

4.1. ABORIGINAL HISTORY AND LAND USE

The following history has been partially extracted from *Central to Eveleigh Corridor: Aboriginal and Historical Heritage Review* (AHMS 2015:12-13).

4.1.1. The Eora People

Prior to European settlement, the area surrounding Sydney Harbour belonged to the clans of the Eora nation. The meaning of 'Eora' is unknown, but their land is documented to extend from the Hawkesbury River plateau margins in the north to Botany Bay and the Georges River in the south. There is some controversy regarding the linguistic origins of the Eora People. Some argue that the Eora People were a part of the Darug language group (Kohen, 1993). Others suggest the Eora People formed a distinct and separate language group (Hughes, 1987). The various clans of the Eora people include the Kameraigal, Wanegal, Borogegal and Gadigal. The Gadigal, also known as Cadigal are the Traditional Owners of the land covered by the subject area and were believed to use the land at the time of the European colonisation on the south side of Port Jackson, from South Head to Long Cove (now Darling Harbour) (Tindale, 1974; Turbett, 1989). This area incorporates the Eastern Suburbs, Central Business District and some of the Inner West, including the subject area.

Prior to European colonisation and development, the lands of the Gadigal people were abundant in resources. The Kangaroo Grounds (around present-day Summer Hill) were on the western border of their land, a border shared with the Wanegal. This was a hunting ground abundant with macropods, which could be used not only for food but also for their hides (Ashfield & District Historical Society, 1996). To the east, north and south of the Gadigal lands is the coastline. Not only were the rivers and streams which provided freshwater critical to Aboriginal groups, but the edible resources of these watercourses, including the sea, were of high importance. The diet of the Gadigal people comprised primarily of fish, shellfish and other aquatic animals. They also sourced roots and foraged for food within the Lachlan Swamplands, now Centennial Park (Tench, 1789). The importance of aquatic resources is attested to in the archaeological record, with middens providing evidence of dietary practices located along the coast and streams.

The archaeological record also provides evidence for the exploitation of stone materials to create tools and weapons, with high density artefact scatters located across the region. Based on excavations at Lapstone Creek and Capertee, McCarthy was able to identify a clear temporal sequence on the basis of stylistic traits, which encompasses the Capertian, Bondaian phase and Eloueran phases. Subsequent excavations within the Sydney Basin confirmed the sequence but also identified regional variations. These variations were condensed to include the Capertian and then Early, Middle and Late Bondaian, with Late Bondaian equivalent to Eloueran (Attenbrow, 2002).

4.1.2. Early Contacts with European Settlers

The Cadigal people, were displaced by European settlement and their population ravaged by the diseases the settlers brought with them. Despite this the site of today's Belmore Park and Central Train Station, to the north of the subject area, continued to be an important meeting point for Aboriginal people throughout the 1790s. Aboriginal performances, ceremonies and trials in this spot were often witnessed by hundreds of spectators from the township. David Collins records one such event in December 1793:

> *The natives who lived about Sydney appeared to place the utmost confidence in us, choosing a clear spot between the town and the brickfield for the performance of any of their rites and ceremonies; and for three evenings the town had been amused with one of their spectacles… (Collins 1798: Dec 1793)*

This ground continued to be used as a ceremonial site until the turn of the century and as '*a place whence they [Aboriginal people] derived so many comforts and so much shelter in bad weather'* (Collins 1802: Oct 1796).

At the time of first contact, an Aboriginal track existed between today's Paddy's Markets all the way to Botany Bay (Bradley 1969: 31 May 1788). This track, referred to often in the primary sources, roughly followed the route of today's Botany Bay Road and was an important corridor for trade and movement for Aboriginal people in early Sydney (eg Tench 1789: Jan-Feb 1788; Hunter 1793: Sept 1789).

There is abundant evidence throughout the Sydney area of contact between the local Gadigal people and European settlers. This evidence exists in the form of contact sites, with material remains including knapped ceramic and glass, European materials in middens, and rock engravings depicting European arrival. A contact period Aboriginal archaeological deposit was recently located during the Central Business District (CBD) and Eastern Suburbs Light Rail (CSELR) works, within the Randwick Racecourse Stabling Yards. This deposit included stone tools made from flint, with scientific analysis demonstrating that this flint was sourced from the banks of the River Thames in London and transported to Sydney as ships ballast. Ceramic artefacts have also been recovered from Aboriginal middens, including those investigated at Millers Point where four sherds of blue and white transfer ware were located within a midden (Lampert, 1985).

Aboriginal communities continuing to be part of the area consistently, including large migrations from across NSW and from other parts of Sydney coming to the area and surrounds to work on the railways and in local factories from the early 20th century. From the 1950s new government policies of assimilation and economic recession in New South Wales caused increasing number of Aboriginal migrants from segregated reserves in the countryside to resettle in the Sydney suburbs of Redfern and Waterloo. As such, these suburbs became a meeting point for Aboriginal communities throughout NSW. Considered ‘slum’ communities at this time, they contained cheap housing, proximity to transport and opportunities for unskilled labour (Anderson, K. 1993:6). Redfern and Waterloo were the birthplace of many Aboriginal community controlled organisations. It was the key site from which many civil rights and self-determination movements grew. They were also places of protest and community gatherings from the 1960s in response to landlords who campaigned to evict Aboriginal tenants (NITV 10 March 2016).

Today Redfern and Waterloo retain a strong Aboriginal community presence, however, this has been impacted somewhat by development pressures and the removal of public housing.

4.2. EUROPEAN HISTORY

The following abbreviated history has been extracted from the *Botany Road Corridor Urban Design Study* (TZG Architects 2020). For a more comprehensive version and associated maps and images, reference should be made to this document.

Historical Phase	Summary	Archaeological Resources	Potential
Sydney Borderland (grants and land use)	The line of Regent Street/Botany Road transects the Crown grants made to William Hutchinson and William Chippendale: Hutchinson's grant is located south of Boundary Street, while Chippendale's grant is to north, and the west of Botany Street. The earliest of these grants was the one made to William Chippendale in January 1816 (confirmed in 1819), and it comprised an area of 95 acres. The Chippendale grant comprises Wianamatta Shale derived soils, which are suitable for some agricultural uses. In 1822 Chippendale sold the grant to Solomon Levey for 380 pounds. Levey sold most of the land (62&1/2 acres) to merchant William Torkington in 1833 for 312 pounds 10 shillings. In 1834 Torkington sold the same land to William Hutchinson for exactly the same amount. Hutchinson was the grantee of the Waterloo estate. The largest of the grants comprised an area of 1400 acres and was made to William Hutchinson in May 1823. Hutchinson probably had acquired the 1400 acres prior to 1823, and certainly had possession by 1819 it seems when he was building a water powered flour mill, which had commenced production by early 1820. Hutchinson's Waterloo in its natural state comprised sand hills with banksia scrub, water courses and swamps. Without significant soil improvement the grant was ill-suited to agriculture, but the water resource was good for stock grazing and agistment and represented liquid gold for the industrialist of the colonial era. In 1820 Hutchinson went into partnership with Samuel Terry, Daniel Cooper, George Williams, William Leverton, and Tom White Melville Winder as part owner of the mill now called the Lachlan and Waterloo Flour Mill. In 1823 the mill was expanded to distil sugar for the production of rum. The water used in these processes was pooled within a system of reservoirs known as the Big Waterloo Dam, the Little Waterloo Dam, Upper Dam, etc. In 1825 Hutchinson sold his share in the company, and with it the Waterloo estate, to Daniel Cooper (1785-1853) and Solomon Levey (1794-1833) in 1825. The pair founded the firm Cooper and Levey and opened the large Waterloo Warehouse at the corner of Market and George-streets, Sydney.	▪ Traces of the original environment. ▪ Remnant fencing, tracks and paths ▪ Remnant roads ▪ Earthworks associated with agricultural use of land ▪ Foundations and surfaces of houses, sheds and outbuildings ▪ Foundations of warehouses and industrial buildings ▪ Foundations of the 1844 and 1863 toll bars ▪ Machinery parts ▪ Casual finds	Low – archaeological resources likely to have been removed through subsequent industrial and residential development
Botany Road	Road access between Sydney and the northern shore of Botany Bay was important in the early colonial era, and a road, the Old Botany Road (Anzac Parade), between the two bays was formed in 1813. This new road commenced at South Head Road (Oxford Street).	▪ Original road alignment ▪ Original road surface beneath concrete surfaces ▪ Original kerbing	Moderate – original road fabric and alignment may survive beneath later resurfacing and landscaping, However,

Historical Phase	Summary	Archaeological Resources	Potential
	Botany Road was built probably in the late 1810s as a private venture to connect the mill on the Waterloo estate to the government stores at Sydney. The original northern alignment of Botany Road merged into George Street leading to the Waterloo Warehouse, and onto the government stores at Sydney Cove (Circular Quay). The mill and dam were located just south of Bourke Street in Waterloo. The road quite possibly followed an existing Aboriginal track leading through the sand hills to the food source of the swamp lands. The toll bar between 1844 and 1863 was located at the entry to Botany Road opposite the intersection with Redfern Street. The toll bar was relocated south in 1863 to a new location near Boundary Street, and another toll bar was erected in the vicinity of present day Green Square railway station. In 1886 the toll was abolished entirely. Between 1922 and 1926 a re-constituted Botany Road Trust (under the Botany Road Trust Constitution Act) was responsible for the management of the road, and it reconstructed part of the road within Waterloo/Alexandria with a concrete road surface. Traffic along Botany Road probably increased incrementally from the mid-1880s; initially owing to the emerging housing estates within Alexandria and Waterloo, and the railway works at Eveleigh; then the beginning of light industry and warehousing in the southern part of Sydney from the 1910s and opening of the Alexandria Goods Yard in 1917.		additional works, including below-road utilities and associated excavations would have impacted the integrity of those finds.
Emerging Villages (1842 – 1860s)	*Redfern* The first subdivision at Redfern in freehold for closer settlement of the early colonial era grants occurred in 1842 with the sale of Dr William Redfern's grant of 100 acres issued in 1817. Redfern's grant is located east of Botany (Cope) Street and outside the study area. Another portion of Chippendale's grant, comprising an area of about four acres, was sold in October 1833 to James Foster and James Norton by Levey for 40 pounds,22 who in turn sold the property to William Charles Wentworth in June 1835 for 145 pounds. This land comprises the triangle shaped block between Botany (Cope) and Regent-streets, bounded on the south by the Waterloo Estate. Subdivision in freehold of this area commenced in 1842 at the time of the Redfern sale,24 but most sales seem to have occurred in the early 1850s. The early subdivision plan has survived.	▪ Foundations of early buildings. ▪ Cess pits and rubbish pits capped by the consequent development. ▪ General discard in backyards. ▪ Physical signs of subdivision, including fence posts. ▪ Physical signs of altering the original environment	Moderate to High, especially in areas with limited subsequent land use and disturbance.

Historical Phase	Summary	Archaeological Resources	Potential
	In 1844, and shortly before his death, William Hutchinson subdivided his substantial portion of the Chippendale grant into six allotments of between six and ten acres. This subdivision became the partition of his estate on his death in 1846. Within the study area were Blocks D, E and F, and, to the north across Lawson Street, part of the Eveleigh Estate. Eveleigh was owned by Hutchinson's third daughter Mary (1809-1849) who had married John Rose Holden (died 18860) in Sydney in 1834. Under Hutchinson's Will the blocks were bequeathed to his nominated children and were then to pass to nominated grandchildren. The land could not be sold, but leases were permitted with a maximum term of 21 years. The arrangement was similar to the way the Ultimo Estate was entailed under Dr John Harris's Will. In the instance of Hutchinson's land at Chippendale/Redfern each Block was disposed of by sale in freehold following the death of the nominated beneficiary, which occurred in 1870 (sold in 1871), in 1901 (sold in 1902/03), and 1932 (sold in 1937). The streets between Regent Street and the railway to the southern boundary (Boundary Street) were formed either in the partition (Rose Hill) or later in the subdivision of the Blocks (inclusive of Marian, and Gibbons (originally Pleasant)). The subdivision of the Hutchinson family land commenced in the mid-1850s and continued into the early 1860s. The timing of these land sales in leasehold resulted from the opening of the railway in 1855 with the terminus then being located across Cleveland Street and the opportunities that provided. This contrasts with the 1842 sale of the Redfern Estate that was a consequence of economic downturn. *Waterloo and Alexandria* The area south of Boundary Street is part of Cooper's Waterloo Estate. That Daniel Cooper in his lifetime let parts of the Waterloo is apparent by historical newspaper advertisements, but no plan of these seems to have survived. In 1853 Cooper died and his Point Piper Estate (Woollahra) was inherited by the first born son of his nephew, (later Sir) Daniel Cooper (1821-1902), who also bore their name, Daniel Cooper (1848-1909). His nephew's second son, William Charles Cooper (1852-1925), inherited the Waterloo Estate, and another nephew, John Cooper (1830- 1915), inherited the Thrupp Estate (Neutral Bay) on the north shore.	including levelling, backfilling of voids. ▪ Physical signs of land reclamation, especially in the southern section of the subject area.	

Historical Phase	Summary	Archaeological Resources	Potential
	The Cooper family after 1853 in general managed their lands in leasehold where it was disposed of at a low ground rental to lessees on terms of 99 years with the lessee in-turn entering into sub-leases. Changes in the taxation system introduced from the mid 1890s placed a heavy financial burden on the Cooper family as owners, and from about 1912 the Waterloo Estate was broken up through subdivision in freehold title. William Charles Cooper was an infant when he inherited Waterloo, and his affairs were administered by his trustee Daniel Cooper (1821-1902) who entered into a number of leases of portions of the Waterloo Estate from 1855. The leases were made piecemeal with the site area reflecting the requirements of the lessee. Resulting from this was a subdivision pattern that was irregular in comparison with the orderly subdivisions in Redfern.		
Local Government	When the early colonial era land grants were cut up for suburban development in the 1840s and 1850s there was no municipal government to provide basic services inclusive of health and sanitation. The City Council was established in 1842 with its southern boundary being Cleveland Street. The area beyond Cleveland Street therefore was open to the carrying of unregulated noxious trades and the like. Prior to 1949 the length of Regent Street/Botany Road under review was administered by three local councils. The first area incorporated was Redfern in 1859, followed after by Waterloo in 1860, and then Alexandria in 1868. Prior to incorporation in 1859 the area west of Botany (Cope) Street was considered part of Chippendale. The boundary between Redfern and Waterloo/Alexandria was Boundary Street, and the boundary between Waterloo and Alexandria was Botany Road. None of these councils erected their chambers on Botany Road. These councils were absorbed by the City Council in 1949.	▪ No associated archaeological resources identified	N/A
Railway Termini and their Impact	The historical development of Redfern as a suburb on the city's inner-fringe commenced in the 1850s following the building of the railway linking the two principal population centres in the colony – Sydney and Parramatta. This terminus was opened in 1855 and continued in service until the opening of Central Station in 1906, where it is today. The suburban station at Redfern opened in 1878 (then named Eveleigh). Also in 1878 land at Redfern was resumed for the building of the centralised railway workshops called Eveleigh. By 1883 a number of timber sheds had been completed. The first locomotive runnings sheds were completed in 1887, and many other	▪ Earthworks and levelling in preparation for railway and associated infrastructure ▪ Foundations of timber sheds, workshops and ancillary buildings associated with Eveleigh workshops	Moderate

Historical Phase	Summary	Archaeological Resources	Potential
	workshops, offices and stores were built after. By the late 1880s Eveleigh was one of the largest employers in the colony. There was further expansion in the late 1890s for facilities to maintain railway carriages. In the late 1900s Eveleigh commenced construction of locomotives necessitating use of specialised machinery and additional employment of trained engineers and tradesmen. The building of Eveleigh encouraged development of surrounding areas such as Redfern and Darlington as places of residence for the workers employed there. It also encouraged commencement of private industrial enterprise supplying the needs of the railway. The Eveleigh complex comprised facilities north (Darlington) and south (Redfern) of the railway line. As the southern half developed around 1900 further properties were resumed. A little recognised aspect of Eveleigh was the expansion in 1917 of the goods yard at Alexandria. This large covered complex replaced the goods yard near Devonshire Street that had opened in the 1860s and, although expanded as recently as 1890, had limited capacity. Intended as the central yard for all incoming and outgoing goods for the Sydney market, carters accessed the large covered shed from Henderson Road. The importance of Eveleigh declined from the 1960s and with it the demand for housing and other traditional services for the workers in suburbs nearby inclusive of Botany Road. Railway development also impacted on areas west of Gibbons Street and its southern end owing to the protracted, on/off progress of the building of the Eastern Suburbs Railway. This area was resumed, and the sites were being cleared by the late 1940s. The Eastern Suburbs Railway opened in 1979.	▪ Foundations of machinery and equipment associated with Eveleigh workshops ▪ Casual finds	
Tram Services (1860s – 1959)	From the early 1860s private horse drawn omnibuses ran along Botany Road into Redfern, although a service to areas further south seem not to have operated. In 1871 the newly formed Sydney Omnibus Company commenced a service to Waterloo via Redfern with a frequency of six per hour. Commencement of government owned transport services came in 1882 with the opening of a steam tramway from the then railway terminus in the vicinity of Devonshire Street to Redfern Street and then along Botany Road to the terminus at Botany via Waterloo.	▪ Post holes, footings and track lines ▪ Surfaces, foundations and footings of former tram stops	Moderate – archaeological resources associated with the former tramway may be located beneath Botany Road and adjacent lots.

Historical Phase	Summary	Archaeological Resources	Potential
	This service was upgraded to electric operation in 1903 when a more direct route to the city along Regent Street within Chippendale was introduced. The trams were replaced by buses in 1959. The coming of the tramway evidently influenced the staging of development fronting Botany Road where the initial residential and light industrial developments were replaced by commercial shops over the 1880s and 1900s.		
Housing	The historical development of the areas fringing Regent Street/Botany Road as a place of residence commenced in 1842 with the subdivision of William Redfern's grant. This area is outside the study area. However, a portion of the Chippendale grant, between Nos. 131-199 Regent Street and Botany (Cope) Street, was subdivided also in 1842 by the then owner William Charles Wentworth. Dwellings within this subdivision were recorded in surveys prepared from 1854. The area north of Boundary Street west of Regent Street to the railway property was subdivided in stages between 1854 and 1861. The earliest of these is the area between Lawson Square and No. 68 Regent Street. When subdivided the title was leasehold for a term of between 18 and 21 years. By 1864 nearly all of these subdivisions had been developed, with the majority of the development being residences. Owing to the short-term of the leases, the dwellings are likely to have been insubstantial, and of weatherboard construction mostly. The opportunity to redevelop these properties occurred in 1870 (between Lawson Square and No. 68 Regent Street), in 1902/03 (between Nos. 70-106 Regent Street), and 1937 (between No. 108 Regent Street and Boundary Street). When developed, the new development was of a commercial use. The areas fronting Botany Road within Waterloo and Alexandria were within the Waterloo Estate leaseholds where the making of the leases commenced in 1855. Subdivision was undertaken piecemeal with land sold sufficient for either cottage, terrace, shop, or factory. The term of the lease was 99 years and this would have encouraged buildings of substance. By the 1890s most of these areas had been developed with dwellings, and a good number of these were still standing by the early 1950s.	▪ Sandstone and brick footings and foundations associated with more substantial dwellings within Alexandria and Waterloo ▪ Rubbish pits and cesspits ▪ Gardens and landscaping ▪ Casual finds	Moderate / High – archaeological resources associated with mid-19th – early-20th century residential development may survive beneath later development where significant excavation has not taken place.
Shops	Within Redfern, Regent Street developed as the main shopping precinct for the western part of the municipality. The reasons for this being inclusive of the route of the tram		

Historical Phase	Summary	Archaeological Resources	Potential
	service from 1882, and proximity to Redfern railway station opened in 1878. Within the study area, the west side of the street became predominantly retail in use, probably owing to the number of sites coming on the market with the staged (1870, 1902/03 and 1937) freehold sales of the Hutchinson estate. Unlike comparable suburbs such as Newtown, the retail building stock in Redfern comprised buildings no higher than two storeys, in rows of two or more single retail premises. Unlike the central part of Redfern there appears to have been no historical (pre 1950) ethnic association with these shops. The prevalence of historical Protestant churches in the precinct suggests likewise. The western and northern parts of Cooper's Waterloo Estate developed from the 1850s into an industrial zone with soap works, wool washes, breweries, a rope works, a pottery, and brickyard. Elsewhere the southern and eastern parts remained largely undeveloped, but presumably there were pockets of small market gardens and dairies. The suburb of Waterloo by about 1890 was still very much confined to the north-west corner of the municipality. Within Waterloo/Alexandria a grouping of shops occurred in the area north of Raglan Street along Botany Road.		
Hotels	A high concentration of hotels were encountered on Botany Road built in the nineteenth century and first decades of the twentieth century. Traditionally these hotels catered to working men either employed or residing in the area. The earliest of the surviving hotels such as the Star (No. 70 Botany Road) and Cauliflower (No. 123 Botany Road) are modest premises designed originally to provide beverages. The later hotels such as the demolished Bellevue (No. 54 Regent Street), Cricketers Arms, (Nos. 56-58 Botany Road) and Lord Raglan (No. 54 Wyndham Street) were designed with a residential component for short-term stays by travelling salesmen and the like. The earliest of the surviving hotels within the study area is the Cauliflower in Waterloo, which commenced trade by late 1862 when the local council agreed to erect a horse trough in front of the premises. The unusual name of the hotel reflects historical associations of the area with the market gardens that once characterised this southern fringe of Sydney. The name also has associations with the first owner, George Rolfe, who was a market gardener.	▪ Foundations and footings of the former Bellevue, Cricketers Arms and Lord Raglan hotels	Moderate / High – archaeological resources associated with historical hotels may survive beneath later development where significant excavation has not taken place.

4.3. ANALYSIS OF HISTORICAL AERIALS

The gradual development and historical land use of the Inner West and the subject area has caused substantial levels of ground disturbance and changed the original environment into a highly modified urban landscape. This is demonstrated through the analysis of historic aerials. Historic aerial images from 1943, 1986, 1994 and 2020 were analysed to develop an understanding of disturbance (see Figure 13) and is included in Table 4.

Table 4 – Analysis of historical aerials

Year	Observation
1943	The entire subject area is covered by built environment and roads. Commercial development can be observed within the area north of Boundary Street and west of Regent Street. Dwellings within the southern Waterloo and Alexandria component of the subject area which were constructed in the mid-19th century remain extant. Locomotive workshops and sheds are present to the west of the subject area.
1986	The land between Rosehill Street and Wyndham Street had been resumed for parkland. Commercial and residential buildings to the east of Wyndham and Gibbons Street had been demolished and the land made vacant. Residential apartment buildings have replaced terrace dwellings on either side of Regent Street. The 19th century dwellings within the southern component of the subject area appear to have been demolished and a number of properties amalgamated for the purpose of constructing commercial and industrial facilities. The Locomotive Runnings workshops and sheds to the west of the subject area had been demolished by this time. Other parts of the subject area display less changes in compared to the 1943 aerial.
1994	There have been only a few major changes occurred compared to 1986. Residential apartment buildings had been constructed to the east of Wyndham Street and new buildings were built west of Gibbons Street Reserve.
2020	A number of warehouses and industrial structures had been removed throughout the subject area, particularly to the south of Henderson Road and Raglan street. The Metro Quarter construction is already ongoing.

Disturbance across the subject area has the potential to impact the survival and integrity of archaeological deposits. Where disturbance has resulted in the complete removal of natural soils, it is unlikely that Aboriginal archaeological materials will be retained. Similarly, where extensive disturbance has occurred following the depositing of historical archaeological materials, this disturbance will reduce the likelihood that historical archaeological materials will be retained, or be retained *in situ,* thus impacting their significance and research potential. However, as already have been demonstrated in the review of previous archaeological investigations, historical land use and disturbance do not remove all potential for archaeological resources.

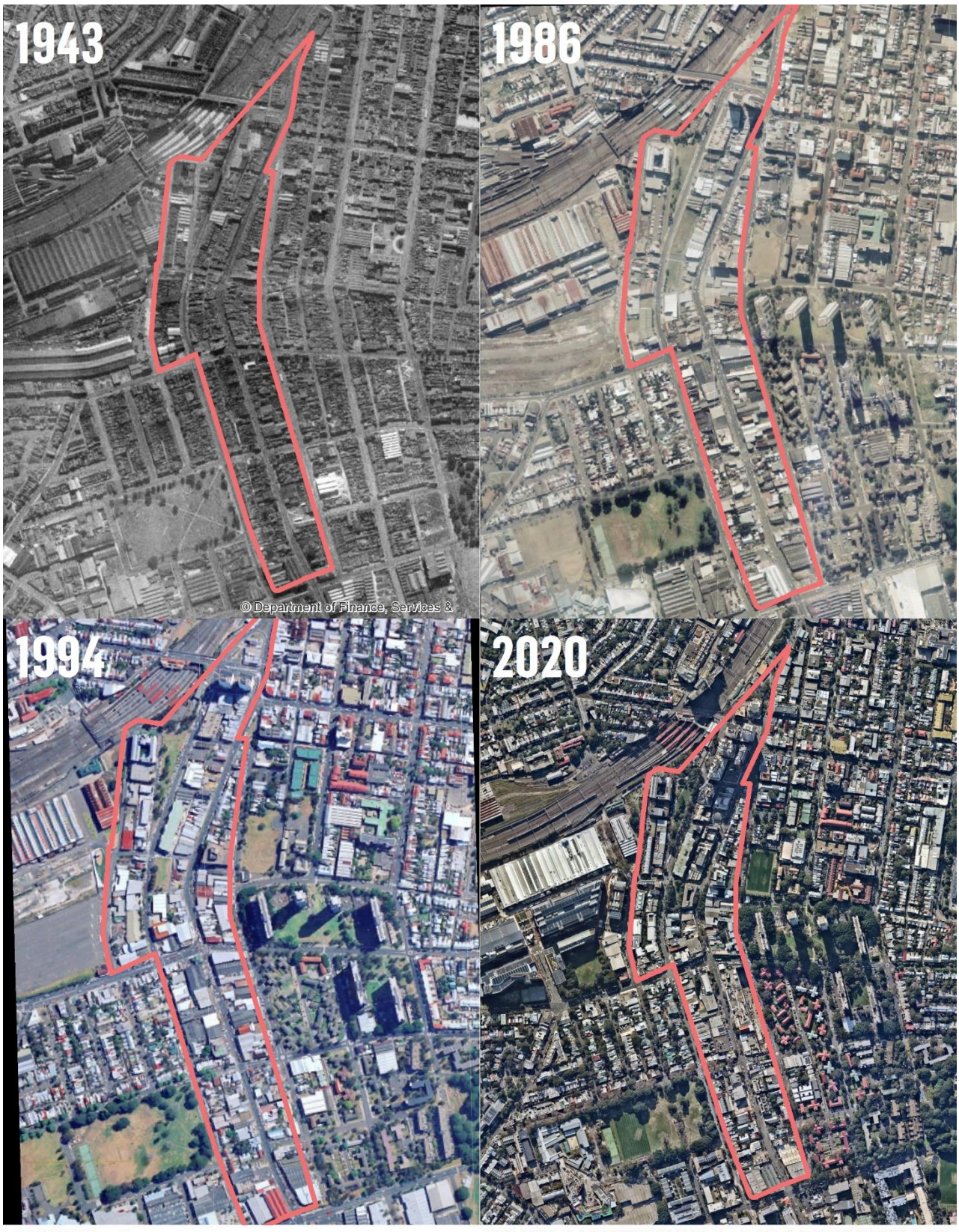


Figure 13 – historic aerials

5. HISTORICAL ARCHAEOLGICAL CONTEXT

5.1. PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

Artefact Heritage, 2016, *Sydney Metro City & Southwest Chatswood to Sydenham, Historical Archaeological Assessment & Research Design*

The report established that the study area has nil-low potential for archaeological resources which date from 1788-1880 and low-moderate potential for residential and commercial resources which date from 1880-1930.

The report established that archaeological resources associated with residential housing dating from the 1880s to the early 20th century had little potential to provide unique or important information which could not obtained through other sources, however, whereas resources associated with commercial activity could provide important evidence of light industry and commercial activity which relate to this period.

AMBS, 2017, *Sydney Metro, City & Southwest Archaeological Method Statement for Waterloo Station*

In 2017 AMBS was engaged by John Holland CPB Ghella Joint Venture (JHCPBG) to prepare an Archaeological Method Statement for the proposed Waterloo Station site bounded by Botany Road, Raglan, Cope and Buckland Streets, Waterloo.

In contrast with the findings of the HAA prepared by Artefact Heritage in 2016, historical research revealed that the study area had been occupied from at least the 1860s. A number of properties which were test-pitted for contamination indicated construction prior to the provision of sewerage and reticulated water, suggesting an earlier date, but also reflecting the characterisation of this area as a 'slum' during the mid-19th century. Based on this revised date, it was determined that: '*there is potential for archaeological remains dating to the 1860s and 1870s, and perhaps earlier, to be present with good integrity.' (*AMBS 2017:36).

It was determined that archaeological relics associated with the earliest residential development of the area might include sandstone and brick wall foundations, timber-lined, brick or sandstone block cesspits, rubbish pits and a range of casual finds. The potential for evidence of landscape modifications prior to the construction of housing was also noted.

The report established that the site had potential to provide information regarding the mid-19th century development of housing and industry of a local 'slum' community. It also found that physical evidence associated with houses and outbuildings could address research questions relating to urbanisation, material culture, consumerism, identity, and everyday life in a mid-nineteenth century slum. Finally, it found that evidence of modifications to the landscape to create a more habitable environment could further contribute to an understanding of early land management practices, hygiene conditions and site preparation processes across the city block.

Artefact Heritage, 2017, *60-78 Regent Street, Redfern: Results of non-Aboriginal Archaeological Test Excavation*

In 2017 Artefact Heritage was engaged by Iglu Pty Ltd to prepare an Archaeological Test Excavation Report for a proposed redevelopment at 60-78 Regent Street, Redfern.

The historical archaeological test excavations primarily identified archaeological resources associated with the most recent building phases of the site, including the northern terrace (c.1871-1887) and southern terrace (c.1902-1938). These were assessed as having low archaeological significance.

Archaeological testing confirmed that the site had been levelled prior to the latest phase of construction. It was therefore determined that there was low potential for survival of archaeological resources associated with the pre-1871 occupation of the site. Archaeological resources associated with pre-1871 phases of development were limited to the remains of three timber post holes which were also assessed as having low archaeological significance.

Extent Heritage, 2020, *600-660 Elizabeth Street, Redfern, NSW – Planning Proposal*

In 2020 Extent Heritage was engaged by NSW Land and Housing Corporation to prepare a Historical Archaeological Assessment (HAA) to accompany a Planning Proposal (PP) for land at 600-660 Elizabeth Street, Redfern. The PP was seeking to rezone the site to B4 Mixed Use.

Historical research found that the site is located within a former swamp. The surrounding area had been reclaimed, subdivided and a street grid established by the mid-1860s, at which time it became a private cricket ground. The land was converted to terrace housing by 1887 from which time it housed an impoverished immigrant community. These dwellings were demolished in the mid-20th century by the Department of Housing and replaced with a community centre.

A geophysical survey of the site revealed a profile which included modern fill of gravelly sand, sand and clayey sand with brick inclusions (0-2m depth) overlying Botany sands (4–6m depth) over 1.1–2.2 m of residual soil and shale or sandstone bedrock (8m to 12m depth) across the site (AECOM 2018). Additional geotechnical monitoring was undertaken by Douglas Partners and EMM in 2019. These geotechnical investigations confirmed the presence of structural elements and subsurface features associated with the subdivision and development of the dense late nineteenth century residential area.

The assessment of archaeological potential found that the construction and demolition activities would have likely removed evidence of the early 19th century land grants and cricket ground. Based on the results of the archaeological monitoring it was determined that the potential for evidence of the late 19th century slums is high and would consist of services, garden pits, sanitary infrastructure, wall foundations, yard surfaces and artefacts.

Potential archaeological resources associated with a slum community which had occupied the site between 1879-1949 were assessed to have research potential that could contribute to a better understanding of the development of multiculturalism in Sydney.

Extent Heritage, 2017, *Alexandria Park Community School, Historical Archaeological Assessment*

In 2017 Extent Heritage was engaged by TKD Architects to prepare a HAA for a proposed redevelopment at Alexandria Park Community School, 7-11 Park Street, Alexandria.

Historical research revealed that the site was low-lying and potentially extended into the swampy ground around the headwaters of Sheas Creek. The site was used for market gardening throughout the 19th century and was drained in the late 19th century in association with the construction of Alexandra Canal. The site was subsequently developed for industrial purposes, which involved the introduction of fill, and a school constructed in 1977.

The HAA found that evidence of the early agricultural and market garden uses of the site would likely have been removed when it was converted for industrial purposes. It found that there is some potential for the presence of historical archaeological relics associated with the 20th century industrial occupation of the site, however, these were unlikely to provide information that could not be obtained from other sources. A stormwater drain which transects the site was not assessed as an archaeological feature on the grounds that it is an active subsurface service.

6. ARCHAEOLOGICAL POTENTIAL

One of the objectives of this assessment was to produce a preliminary archaeological potential map for the Botany Road Corridor, for both Aboriginal and historic archaeology. It should be noted that this AA has limited resources to undertake this task and consequently the results of the AA and the potential mapping should be treated as preliminary. However, the identification of archaeological potential even at a basic, preliminary level enables the management of archaeological resources through the recommendations of further research and intrusive archaeological investigation such as test excavation.

The details of the developed potential maps is discussed below.

6.1. ABORIGINAL ARCHAEOLOGICAL POTENTIAL MAP

The Aboriginal Archaeological Potential Map (AAPM) has been formulated on the basis of the preliminary desktop analysis of both environmental and archaeological contexts, as well as previous research in the area. It should be noted that this AA has limited resources to undertake this task and consequently the results of the AA and the AAPM should be treated as preliminary. Due to the presence of the Tuggerah Soil Landscape that has the potential for Aboriginal objects located in various depths, the entire subject area has a general level of low potential for Aboriginal objects. The level of potential has been influenced by the intensity of historical land use including the presence or absence of basement of buildings, results of previous archaeological investigations and consideration of landscape features listed in the Due Diligence Code. The AAPM for the Botany Road Corridor is located at Figure 14.

This AAPM defines the archaeological potential of each lot within the subject area by the following criteria:

Extremely Low Potential.

Lots were defined as having nil potential where:

- The archaeological excavation for the Metro Quarter by AMBS have been carried out and the subsequent earthworks associated with the construction will have disturbed the remaining soil profiles within the subject area. Please note that the construction is being carried out in line with a Chance Find Procedure.

Low Potential.

Lots were defined as having low Aboriginal archaeological potential where:

- An area has been highly disturbed by an existing basement or subsurface construction that likely removed archaeological potential or Aboriginal objects to a considerable degree.
- Previous detailed Aboriginal archaeological investigation identified low potential.

Moderate Potential.

Lots were defined as having moderate Aboriginal archaeological potential where:

- The building on the subject lot does not have a basement and no major development occurred in the last century that could have impacted the soils underneath the existing built form.
- Previous detailed Aboriginal archaeological investigation identified moderate potential.

6.2. HISTORICAL ARCHAEOLOGICAL POTENTIAL MAP

The Historical Archaeological Potential Map (HAPM) has been formulated on the basis of the analysis of both historical and archaeological contexts, as well as previous research in the area.

The HAPM for the Botany Road Corridor is located at Figure 15.

Please note the HAPM is preliminary and, apart from the Metro Quarter, further assessment into the nature, extent and significance of potential archaeological deposits will be required.

This HAPM defines the archaeological potential of each lot within the subject area by the following parameters:

Extremely Low Potential.

Lots were defined as having extremely low potential where:

- A previous archaeological assessment and subsequent development have been carried out that will have removed archaeological resources to an extreme extent. Example for this is the excavation for the Metro Quarter by AMBS that has completely removed the identified archaeological materials, and subsequent development is under way.
- The existing building has a basement that might have disturbed the site to an extent where any potential accumulated deposits are likely to be destroyed.

Low to Moderate Potential.

Lots were defined as having low to moderate potential where:

- Some parts of the existing building have basement that likely have removed archaeological deposits to a considerable degree from the area.
- Previous archaeological assessments identified low potential for archaeological resources.

Moderate to High Potential.

Lots were defined as having moderate to high potential where:

- The existing building does not have a basement that indicates that archaeological materials may have survived.
- Previous archaeological assessments identified low potential for archaeological resources.

High Potential.

Lots were defined as having high potential where:

- Where the buildings and/or structures are listed on a statutory or non-statutory list such as the State Heritage Register and Local Environmental Plan.
- Previous archaeological assessments identified high potential for archaeological resources.

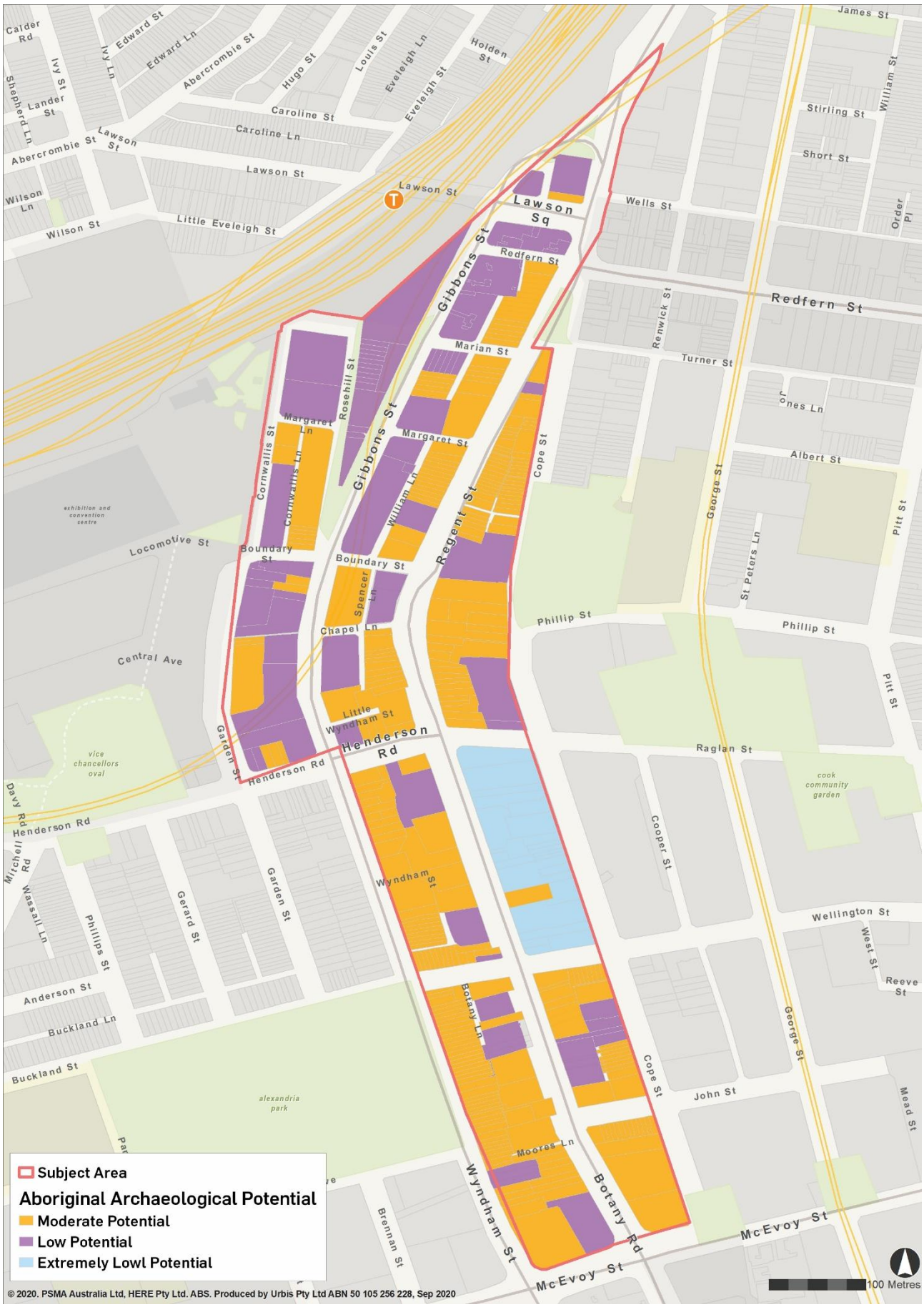


Figure 14 – Aboriginal Archaeological Potential Map

Figure 15 – Historical Archaeological Potential Map

7. CONCLUSIONS AND RECOMMENDATIONS

Urbis has been engaged by Cox Inall Ridgeway on behalf of the City of Sydney (the Proponent) to prepare a desktop Archaeological Assessment (AA), to investigate Aboriginal archaeological potential, and to support a more broader Indigenous cultural heritage study for the Botany Road Corridor in Redfern and Alexandria, NSW. In addition to assessing and reporting on Aboriginal archaeology, Urbis aimed to provide some aspects of historic archaeological context of the subject area as well to ensure that the objectives of the project are met. The AA will form part of a wider project known as the Botany Road Strategic Review (the Strategic Review), which will be used to guide the comprehensive review of planning controls for the subject area.

This AA had the following objectives:

- Investigate if any known Aboriginal objects and/or places exist within or in close proximity to the subject area.
- Review of all available archaeological reports and assessments and contextualise their findings in relation to the subject area and its surroundings.
- Identify any landscape features or geological formations and soils that have the potential for Aboriginal objects and archaeological resources.
- Provide a preliminary potential mapping of Aboriginal and historical archaeological resources to inform future planning controls for the subject area.
- Provide conclusion of the assessment and recommendations to manage the identified known and potential archaeological resources.

The AA has concluded that:

- There is one Aboriginal site (AHIMS ID#45-6-2597 also known as ‘Wynyard St midden’) recorded on the AHIMS within the subject area. No other specific archaeological sites were identified through the project. It is concluded that the GPS location of the site in AHIMS is wrong and the site was likely recorded in Gibbons Street Reserve. It is recommended that information in the AHIMS should be updated to rectify the location of AHIMS site. The Archaeological Assessment includes the recommended updated location for this site.
- The majority of the subject area is located on the Tuggerah Soil Landscape that is comprised by quaternary sand deposits and have high potential for comprising Aboriginal archaeological resources based on the results of previously carried out archaeological investigations within and in the wider surroundings of the subject area.
- The subject area has been impacted by various levels of historical land use since colonisation, especially by the growing urban development of the late nineteenth century and all through the twentieth century, that has transformed the original natural environment into a densely built urban environment. Localised impacts might have impacted to Aboriginal archaeological resources to various levels.
- The subject area has various level of potential for Aboriginal archaeological resources ranging from extremely low to moderate.
- The additional high-level historical archaeological assessment identified, especially in light of the results of the large scale archaeological excavation carried out by AMBS in 2017-2018 at the proposed Metro Quarter, that the subject area has various level of potential for historical archaeological resources ranging from extremely low to high.
- In general, the AA concluded that the majority of the subject area has at least moderate potential for both Aboriginal and historical archaeological resources and consequently moderate to high potential for contact archaeology and archaeological record that might shed light on how Aboriginal people kept using the land even after colonial impact disrupted their pre-1788 way of life.

Based on the above conclusions and especially in light of the Aboriginal and Historical Potential Map, Urbis provides the following recommendations for the proposed review of the planning controls in relation to Aboriginal and historical archaeology:

1. Additional archaeological research and investigation should be carried out to further detail the archaeological potential and significance of the subject area. This research should consider archaeological resources in a holistic way to understand the nature and extent of human occupation (both pre- and post -colonial) within the subject area.
2. CoS should update information in the AHIMS to rectify the location of AHIMs Site ID#45-6-2597 to ensure the appropriate protection to the site.
3. Areas that have been identified as having Extremely Low Potential for Aboriginal archaeological resources, as a minimum, should be the subject to an Aboriginal Objects Due Diligence Assessment for any development l and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. As a minimum, consultation with the Metropolitan Local Aboriginal Land Council should also be carried out.
4. Areas that have been identified as having Low Potential for Aboriginal archaeological resources, as a minimum requirement should be the subject to an Aboriginal Objects Due Diligence Assessment and consultation with the Metropolitan Local Aboriginal Land Council for any development and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. Should the due diligence assessment identify the presence of potential Aboriginal archaeological resources, an Aboriginal Cultural Heritage Assessment and consultation with the relevant Aboriginal people should be carried out to further investigate the identified archaeological resource. Should the presence of Aboriginal objects be confirmed, and impact could not be avoided, an application for an Aboriginal Heritage Impact Permit under s90 of the *National Parks and Wildlife Act 1974* might be necessary.
5. Areas that have been identified as having Moderate Potential for Aboriginal archaeological resources, as a minimum requirement should be the subject to an Aboriginal Cultural Heritage Assessment and consultation with the relevant Aboriginal people for any development and before any physical impact is approved, to ensure that no Aboriginal objects are harmed. Should the presence of Aboriginal objects be confirmed, and impact could not be avoided, an application for an Aboriginal Heritage Impact Permit under s90 of the *National Parks and Wildlife Act 1974* might be necessary.
6. Areas that have been identified as having Extremely Low Potential for historical archaeological resources should be the subject to a Baseline Historical Archaeological Assessment for any development and before any physical impact is approved to ensure that no relics are harmed. Should the potential for relics is confirmed, a Historical Archaeological Assessment should be carried out to assess the significance of those relics in accordance to the relevant guidelines under the *Heritage Act 1977*. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation or exemption permit might be necessary under the *Heritage Act 1977*.
7. Areas that have been identified as having Low to Moderate Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment in accordance to the relevant guidelines under the *Heritage Act 1977* to assess the potential and significance of any archaeological resources for any development and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation or exemption permit might be necessary under the *Heritage Act 1977*.
8. Areas that have been identified as having Moderate to High Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment in accordance to the relevant guidelines under the *Heritage Act 1977* to assess the potential and significance of any archaeological resources for any development and before any physical impact is approved to ensure that no relics are harmed. for any development proposal and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation permit might be necessary under the *Heritage Act 1977*.
9. Areas that have been identified as having High Potential for historical archaeological resources should be the subject to a Historical Archaeological Assessment for any development proposal and before any physical impact is approved to ensure that no relics are harmed. Should the presence of significant (locally or state) relics is confirmed, an application for an excavation permit might be necessary under the *Heritage Act 1977*.
10. All areas covered by roads, laneways, plazas and footpaths and other open spaces, in general, and whether identified in this study or not, should be considered as having moderate archaeological potential and should be the subject of further archaeological assessment before any impacts below the existing disturbance footprint.

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DISCLAIMER

This report is dated 18 June 2020 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Cox Inall Ridgeway **(Instructing Party)** for the purpose of an assessment of archaeological potential **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A AHIMS EXTENSIVE AND BASIC RESULTS

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : BotanyRdCorridor_4km

Client Service ID : 511256

Urbis Pty Ltd - Angel Place L8 123 Pitt Street

Date: 10 June 2020

Level 8 123 Angel Street
Sydney New South Wales 2000

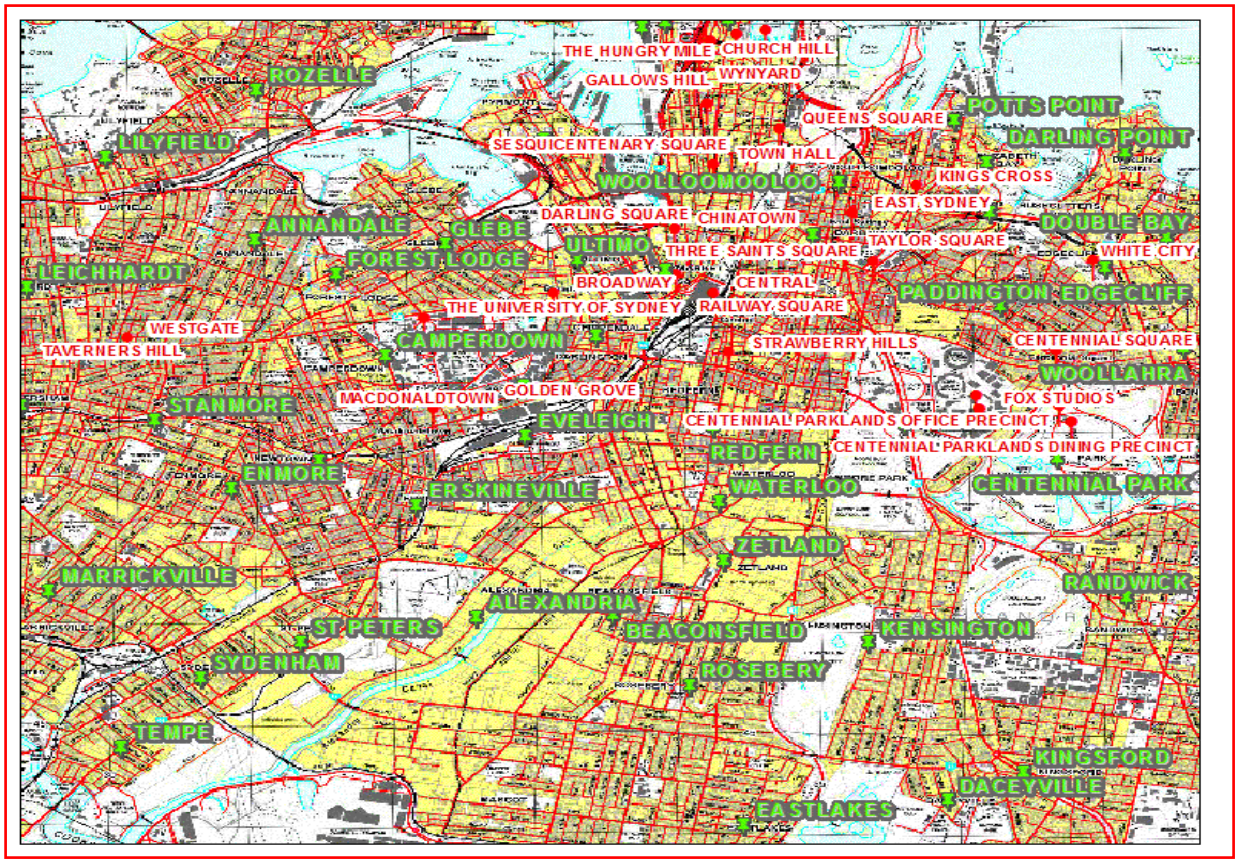
Attention: Meggan Walker

Email: mwalker@urbis.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 329464 - 337464, Northings : 6243950 - 6251950 with a Buffer of 0 meters, conducted by Meggan Walker on 10 June 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

69	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BotanyRdCorridor_4km

Client Service ID : 511256

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-2597	Wynyard St Midden	AGD	56	333469	6247920	Open site	Valid	Shell : -, Artefact : -	Midden	102494,102763,102765
Contact		Recorders	Mr.D Coe					Permits		
45-6-2358	K1(same as site 45-6-2198)	AGD	56	329510	6244350	Open site	Deleted	Shell : -, Artefact : -	Midden	
Contact		Recorders	Ms.Jillian Comber					Permits	1330,1331	
45-6-2278	Lilyfield Cave	GDA	56	330433	6250467	Closed site	Valid	Shell : -, Artefact : -, Potential Archaeological Deposit (PAD) : -	Shelter with Midden	102201
Contact		Recorders	Michael Guider,Extent Heritage Pty Ltd - Pyrmont - Individual users,Mrs.Laressa Ba					Permits		
45-6-2299	First Government House	GDA	56	334612	6251612	Open site	Valid	Burial : -, Aboriginal Ceremony and Dreaming : -, Artefact : -	Burial/s,Historic Place	102494,102763,102765
Contact		Recorders	Michael Guider,Watkin Tench,Artefact - Cultural Heritage Management - Rose Bay,I					Permits	4552	
45-6-2651	William St PAD	AGD	56	334800	6250220	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Mr.Neville Baker					Permits	1589,1670	
45-6-2647	KENS Site 1	AGD	56	333750	6250785	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		99857,100494,102494,102763,102765
Contact		Recorders	Dominic Steele Archaeological Consulting					Permits	1428,1700	
45-6-2676	Johnstons Creek	AGD	56	331100	6249100	Closed site	Valid	Art (Pigment or Engraved) : 2, Artefact : 5		102142,102763
Contact		Recorders	Michael Guider					Permits		
45-6-2666	Wattle Street PAD 1	AGD	56	333150	6249450	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Dominic Steele Archaeological Consulting					Permits	1738	
45-6-2663	Mountain Street Ultimo	AGD	56	333300	6249400	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Mary Dallas Consulting Archaeologists (MDCA)					Permits	1719	
45-6-2680	Broadway Picture Theatre PAD 1	AGD	56	333150	6249000	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102142,102494,102763,102765
Contact		Recorders	Jim Wheeler					Permits	1854	

Report generated by AHIMS Web Service on 10/06/2020 for Meggan Walker for the following area at Datum :GDA, Zone : 56, Eastings : 329464 - 337464, Northings : 6243950 - 6251950 with a Buffer of 0 meters. Additional Info : due diligence assessment. Number of Aboriginal sites and Aboriginal objects found is 69

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-2838	420 George Street PAD	AGD	56	334080	6250670	Open site	Not a Site	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Doctor.Tim Owen					Permits	2654	
45-6-2960	Jackson Landing Shelter	GDA	56	332442	6250870	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Mary Dallas Consulting Archaeologists (MDCA),Mr.Paul Irish					Permits		
45-6-2979	UTS PAD 1 14-28 Ultimo Rd Syd	GDA	56	333650	6249590	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
Contact		Recorders	Dominic Steele Archaeological Consulting,Mr.Dominic Steele					Permits	3458	
45-6-3727	POWH-ASB-HTH	GDA	56	337029	6245641	Open site	Valid	Hearth : -		
Contact		Recorders	Mary Dallas Consulting Archaeologists (MDCA),Ms.Lucinda O'Connor					Permits		
45-6-3728	UNSW B22 Area of Sensitivity	GDA	56	336715	6245720	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
Contact		Recorders	Ms.Fenella Atkinson,Coast History & Heritage					Permits		
45-6-3729	UNSW Sand Body Area of Sensitivity	GDA	56	336190	6245480	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
Contact		Recorders	Ms.Fenella Atkinson,Coast History & Heritage					Permits	4568	
45-6-3704	Tay Reserve Artefact	GDA	56	335723	6247268	Open site	Valid	Artefact : -		
Contact		Recorders	Artefact - Cultural Heritage Management - Rose Bay,Mr.Michael Lever					Permits		
45-6-3705	Kent and Erskine St PAD	GDA	56	333876	6251145	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
Contact		Recorders	GML Heritage Pty Ltd + Context - Surry Hills,Ms.Jodi Cameron					Permits		
45-6-3693	Callan Park Scared Tree	GDA	56	330004	6251406	Open site	Valid	Modified Tree (Carved or Scarred) : -		
Contact		Recorders	GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen					Permits		
45-6-3694	Callan Park Waterhole	GDA	56	330060	6251377	Open site	Valid	Water Hole : -		
Contact		Recorders	GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen					Permits		
45-6-3695	Callan Park Grinding Groove (possible)	GDA	56	330080	6251407	Open site	Valid	Grinding Groove : -		
Contact		Recorders	GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen					Permits		
45-6-3696	Callan Park Cultural Tree	GDA	56	330061	6251398	Open site	Valid	Aboriginal Resource and Gathering : -		
Contact		Recorders	GML Heritage Pty Ltd + Context - Surry Hills,Doctor.Tim Owen					Permits		

Report generated by AHIMS Web Service on 10/06/2020 for Meggan Walker for the following area at Datum :GDA, Zone : 56, Eastings : 329464 - 337464, Northings : 6243950 - 6251950 with a Buffer of 0 meters. Additional Info : due diligence assessment. Number of Aboriginal sites and Aboriginal objects found is 69

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BotanyRdCorridor_4km

Client Service ID : 511256

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-3762	Harrington IFS01	GDA	56	334178	6251888	Open site	Valid	Artefact : 1		
Contact	Recorders	AMAC Group P/L,Mr.Benjamin Streat						Permits		
45-6-0283	Rozelle Hospital 1;Rozelle Ho5555;	AGD	56	329760	6251360	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
Contact	Recorders	Val Attenbrow						Permits		
45-6-1481	Rozelle Hospital 3	AGD	56	329902	6251129	Open site	Valid	Shell : -, Artefact : -	Midden	
Contact	Recorders	Val Attenbrow,Michael Guider						Permits		
45-6-0618	Rozelle Hospital 2, Rozelle Hospital 1	AGD	56	329650	6251330	Open site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Midden,Rock Engraving	
Contact	Recorders	Val Attenbrow,Michael Guider						Permits		
45-6-0647	Centennial Park	AGD	56	336273	6247961	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
Contact	Recorders	ASRSYS						Permits		
45-6-2495	Prince of Wales Hospital Aboriginal;Hearth;	AGD	56	337040	6245140	Open site	Valid	Artefact : -	Open Camp Site	
Contact	Recorders	Mary Dallas Consulting Archaeologists (MDCA)						Permits	1055,4386	
45-6-2580	Junction Lane	AGD	56	335070	6250410	Open site	Valid	Artefact : -	Open Camp Site	102494,102763,102765
Contact	Recorders	Helen Brayshaw						Permits	894,902,903	
45-6-2581	Angel Place	GDA	56	334223	6251138	Open site	Valid	Artefact : -	Open Camp Site	97963,102494,102763,102765
Contact	Recorders	Dominic Steele Archaeological Consulting						Permits	918	
45-6-2198	View Street	AGD	56	329500	6244350	Open site	Valid	Shell : -, Artefact : -	Midden	
Contact	Recorders	Michael Guider,Michael Guider						Permits	1330,1331	
45-6-0751	Shea's Creek Dugong	GDA	56	331839	6245378	Open site	Destroyed	Artefact : -, Aboriginal Resource and Gathering : -, Non-Human Bone and Organic Material : -	Open Camp Site	
Contact	Recorders	ASRSYS,AECOM Australia Pty Ltd - Sydney,Mr.Luke Kirkwood						Permits		
45-6-1496	Shea's Creek	AGD	56	331697	6245597	Open site	Not a Site	Shell : -, Artefact : -	Midden	30,591,940
Contact	Recorders	ASRSYS						Permits		
45-6-1955	Sisters Bay 3;	AGD	56	329370	6251750	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
Contact	Recorders	Michael Guider						Permits	3653,3690	
45-6-1971	Rozelle Hospital 5, Rozelle Hospital 3	AGD	56	329740	6251360	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Val Attenbrow,Michael Guider					Permits		
45-6-1972	Rozelle Hospital 4	AGD	56	329690	6251360	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	Val Attenbrow,Michael Guider					Permits		
45-6-1853	Lilyvale	AGD	56	333950	6251600	Open site	Valid	Shell : -, Artefact : -	Midden	102763
	Contact	Recorders	Val Attenbrow,Andrew Ross					Permits		
45-6-2652	Ultimo PAD 1	AGD	56	333450	6250000	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
	Contact	Recorders	Jim Wheeler					Permits	1598	
45-6-2654	Fraser Park PAD	AGD	56	330100	6245800	Open site	Valid	Potential Archaeological Deposit (PAD) : -		98669,104256,104257
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd					Permits	1639	
45-6-2687	Crown Street PAD 1	AGD	56	334950	6250300	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
	Contact	Recorders	Dominic Steele Archaeological Consulting					Permits	2017	
45-6-2742	171-193 Gloucester Street PAD	AGD	56	333926	6251461	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102763
	Contact	Recorders	Jim Wheeler					Permits	2143,2342,2766	
45-6-2745	University of Sydney Law Building PAD	AGD	56	332350	6248740	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102201,102494,102763,102765
	Contact	Recorders	Doctor.Jo McDonald					Permits	2153,2320,2443	
45-6-2934	Yurong Cave	GDA	56	335595	6251900	Closed site	Valid	Art (Pigment or Engraved) : -		102763
	Contact	Recorders	Michael Guider,Mr.Paul Irish					Permits		
45-6-3071	445-473 Wattle Street PAD	GDA	56	333285	6249412	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	Recorders	Biosis Pty Ltd - Sydney					Permits		
45-6-3081	200 George Street	GDA	56	334237	6251637	Open site	Not a Site	Potential Archaeological Deposit (PAD) : 1		103114
	Contact	Recorders	Ms.Sally MacLennan					Permits	3577,3934,4239	
45-6-2987	Poultry Market 1	GDA	56	333746	6249575	Open site	Valid	Artefact : 1		102494,102763
	Contact	Recorders	Ms.Samantha Higgs,Biosis Pty Ltd - Canberra					Permits	3506	

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-3064	445-473 WATTLE ST PAD	GDA	56	333285	6249412	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		102763
	Contact	**Recorders**	Biosis Pty Ltd - Sydney					**Permits**		
45-6-3155	Moore Park AS1	GDA	56	335613	6247909	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Rose Bay,Artefact - Cultural Heritage Ma					**Permits**	4019	
45-6-3502	Loftus PAD 01	GDA	56	334551	6251635	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Rose Bay,Artefact - Cultural Heritage Ma					**Permits**	4292	
45-6-3645	SFS-PAD	GDA	56	335846	6248721	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Miss.Sam Cooling,Curio Projects Pty Ltd					**Permits**		
45-6-3552	Smith Hogan and Spindlers Park Midden	GDA	56	331309	6249791	Open site	Not a Site	Shell : -, Burial : -		104371
	Contact	**Recorders**	Mr.Mark Simon					**Permits**		
45-6-3654	CRS AS 01 (Central Railway Station Artefact scatter 01)	GDA	56	334055	6249146	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Rose Bay,Ms.Jennifer Norfolk					**Permits**		
45-6-3446	71 Macquarie Street PAD	GDA	56	334663	6251783	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	GML Heritage Pty Ltd + Context - Surry Hills,Ms.Jodi Cameron					**Permits**	4285	
45-6-2629	Broadway 1	AGD	56	333060	6249100	Open site	Valid	Artefact : -		102494,102763,102765
	Contact	**Recorders**	Dominic Steele Archaeological Consulting					**Permits**	1299	
45-6-2637	George street 1	AGD	56	333860	6249880	Open site	Valid	Artefact : -		98238,102494,102763,102765
	Contact	**Recorders**	Dominic Steele Archaeological Consulting					**Permits**	1369	
45-6-2783	PAD Central Royal Botanic Gardens	AGD	56	334900	6251030	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765
	Contact T Russell	**Recorders**	Haglund and Associates					**Permits**	2364	
45-6-2767	Tent Embassy	AGD	56	332680	6248680	Open site	Valid	Aboriginal Resource and Gathering : 1		102494,102763,102765
	Contact T Russell	**Recorders**	Bill Lord					**Permits**		
45-6-2796	320-328 George St PAD	AGD	56	334100	6251050	Open site	Valid	Potential Archaeological Deposit (PAD) : -		102494,102763,102765

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact T Russell	**Recorders**	Mr.Dominic Steele					**Permits**	2415	
45-6-2822	USYD: Central	AGD	56	332750	6248550	Open site	Valid	Artefact : -		100302,102494,102763,102765
	Contact	**Recorders**	Jo McDonald Cultural Heritage Management see GML					**Permits**	2554	
45-6-3152	168-190 Day Street, Sydney PAD	GDA	56	333877	6250257	Open site	Not a Site	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Josh Symons,Mr.Alex Timms					**Permits**	3789	
45-6-3116	Wynyard Walk PAD	GDA	56	333931	6251252	Open site	Destroyed	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	GML Heritage Pty Ltd + Context - Surry Hills,GML Heritage Pty Ltd + Context - Surry					**Permits**	3670	
45-6-3217	Darling Central Midden	GDA	56	333530	6250101	Open site	Valid	Aboriginal Ceremony and Dreaming : 1, Artefact : 1, Shell : 1		
	Contact	**Recorders**	Comber Consultants Pty Limited,Ms.Tory Stening					**Permits**		
45-6-3342	Not a site	GDA	56	337014	6244960	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mary Dallas Consulting Archaeologists (MDCA),Ms.Tamika Goward					**Permits**	4183	
45-6-3324	RBG PAD 1	GDA	56	334802	6251224	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	AMAC Group P/L,Mr.Benjamin Streat					**Permits**		
45-6-3325	RBG PAD 2	GDA	56	335212	6251494	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	AMAC Group P/L,Mr.Benjamin Streat					**Permits**		
45-6-3327	RBG PAD 3	GDA	56	334957	6251832	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	AMAC Group P/L,Mr.Benjamin Streat					**Permits**		
45-6-3245	DoncasterAve PAD	GDA	56	336037	6246916	Open site	Destroyed	Hearth : -, Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	GML Heritage Pty Ltd + Context - Surry Hills,GML Heritage Pty Ltd + Context - Surry					**Permits**	4188	
45-6-3338	The Bays Precinct PAD02	GDA	56	332354	6250885	Open site	Valid	Potential Archaeological Deposit (PAD) : -		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BotanyRdCorridor_4km

Client Service ID : 511256

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Rose Bay,Mr.Michael Lever					**Permits**		
45-6-3339	The Bays Precinct PAD01	GDA	56	332779	6250555	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Rose Bay,Artefact - Cultural Heritage Ma					**Permits**		

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