



Jordan Springs Public School, Jordan Springs:  
Aboriginal cultural heritage assessment report

FINAL REPORT

Prepared for School Infrastructure NSW

25 January 2019

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## Glossary

|                                  |                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>ACHA</b>                      | Aboriginal cultural heritage assessment                                                             |
| <b>AHIMS</b>                     | Aboriginal Heritage Information Management System                                                   |
| <b>Consultation requirements</b> | <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> (DECCW 2010b)     |
| <b>DA</b>                        | Determining Authority                                                                               |
| <b>DECCW</b>                     | Department of Environment, Climate Change and Water (now OEH)                                       |
| <b>DP</b>                        | Deposited Plan                                                                                      |
| <b>EP&amp;A Act</b>              | <i>Environmental Planning and Assessment Act 1979</i>                                               |
| <b>GPS</b>                       | Global Positioning System                                                                           |
| <b>GSV</b>                       | Ground Surface Visibility                                                                           |
| <b>ICOMOS</b>                    | International Council on Monuments and Sites                                                        |
| <b>LALC</b>                      | Local Aboriginal Land Council                                                                       |
| <b>LEP</b>                       | Local Environmental Plan                                                                            |
| <b>LGA</b>                       | Local Government Area                                                                               |
| <b>NNTT</b>                      | National Native Title Tribunal                                                                      |
| <b>NPW Act</b>                   | <i>National Parks and Wildlife Act 1974</i>                                                         |
| <b>NPWS</b>                      | National Parks and Wildlife Service                                                                 |
| <b>NSW</b>                       | New South Wales                                                                                     |
| <b>NTSCORP</b>                   | Native Title Services Corporation                                                                   |
| <b>OEH</b>                       | NSW Office of Environment and Heritage                                                              |
| <b>PAD</b>                       | Potential Archaeological Deposit                                                                    |
| <b>RAPs</b>                      | Registered Aboriginal Parties                                                                       |
| <b>SEPP</b>                      | State Environmental Planning Policy                                                                 |
| <b>the Code</b>                  | <i>Code of practice for archaeological investigation of Aboriginal objects in NSW</i> (DECCW 2010a) |

## Summary

Biosis Pty Ltd (Biosis) was commissioned to undertake an Aboriginal cultural heritage assessment (ACHA) for the proposed development of the Jordan Springs Public School at 14-28 Cullen Avenue, Jordan Springs, New South Wales (NSW) (Figure 1 and Figure 2) (study area). The study area is located approximately 4.2 kilometres north-east of Penrith and approximately 47 kilometres north-west of the Sydney Central Business District (CBD).

The proposed works are being assessed as a State Significant Development (SSD), with the Department of Planning and the Environment (DPE) acting as the determining authority. This ACHA has been formulated in support of the Environmental Impact Statement (EIS) for the project.

There are 103 Aboriginal cultural heritage sites registered with the Aboriginal Heritage Information Management System (AHIMS) located in the vicinity of the study area, with no sites located within the study area. The study area has been subject to previous assessment and was included within an Aboriginal Heritage Impact Permit (AHIP) 10996059 issued to LendLease Development in 2009. The AHIP is for a period of 10 years and is due to expire on 12 February 2019. There are no sites listed on the AHIP or in AHIMS which are located within the study area.

### Consultation

The Aboriginal community was consulted regarding the heritage management of the project throughout its lifespan. Consultation has been undertaken as per the process outlined in the DECCW document, *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010a) (consultation requirements). The appropriate government bodies were notified and advertisements placed in the Penrith Press (11 October 2018), which resulted in the following Aboriginal organisations registering their interest (Table 1):

**Table 1 List of registered Aboriginal parties**

| Organisation                                       | Contact person                 |
|----------------------------------------------------|--------------------------------|
| A1 Indigenous Services                             | Carolyn Hickey                 |
| Aboriginal Archaeology Service                     | Andrew Williams                |
| Amanda Hickey Cultural Services                    | Amanda Hickey                  |
| Barking Owl Aboriginal Corporation                 | Jody Kulakowski                |
| Barraby Cultural Services                          | Lee Field                      |
| Butucarbin Aboriginal Corporation                  | Jennifer Beale                 |
| Darug Aboriginal Land Care                         | Des Dyer                       |
| Darug Boorooberongal Elders Aboriginal Corporation | Gordon Workman                 |
| Darug Land Observations                            | Jamie Workman and Anna Workman |
| Darug Tribal Aboriginal Corporation                | -                              |
| Deerubbin Local Aboriginal Land Council            | Steven Randall                 |
| Didge Ngunawal Clan                                | Lillie Carrol and Paul Boyd    |

| Organisation                     | Contact person |
|----------------------------------|----------------|
| Wailwan Aboriginal Digging Group | Philip Boney   |
| Widescope Indigenous Group       | Steven Hickey  |
| Yulay Cultural Services          | Arika Jalomaki |
| Yurrandaali Cultural Services    | Bo Field       |
| -                                | Phil Khan      |

A search conducted by the Office of the Registrar, *Aboriginal Land Rights Act 1983* listed no Aboriginal Owners with land within the study area. A search conducted by the National Native Title Tribunal (NNTT) listed no Registered Native Title Claims, Unregistered Claimant Applications or Registered Indigenous Land Use Agreements within the study area.

Upon registration, the Aboriginal parties were invited to provide their knowledge on the study area and on the proposal provided in the Stage 3 consultation documentation. The responses did not provide any information on the cultural significance of the study area. Responses from the Registered Aboriginal Parties (RAPs) are included in Appendix 3.

Site officers from elected RAPs participated in the field survey but did not provide comment on the study area with regard to the proposal.

The outcome of the consultation process was that the RAPs considered the study area to have a low level of cultural significance, although that significance was not clearly defined and specific examples were not provided. The results of the consultation process are included in this document.

The recommendations that resulted from the consultation process are provided below.

## Results

The ACHA assessment undertook background research for the proposed study area. Key considerations arising from the background research include:

- The registered AHIMS sites in the vicinity of the study area are either isolated artefacts or artefact scatters.
- Sites have been primarily focused adjacent to higher order creeks and lower slopes with sporadic sites occurring on elevated areas.

Biosis undertook a field survey with Steven Randall of the Deerubbin Local Aboriginal Land Council which did not identify any areas of PAD within the study area.

## Management recommendations

Prior to any development impacts occurring within the study area, the following is recommended:

### Recommendation 1: Conditions of AHIP 10996059

Although SSD projects are not required to comply with Part 6 of the NPW Act, OEH advises that conditions of valid AHIPs are followed by SSDs in order to reduce the risk of impacting Aboriginal heritage values.

OEH also advises that the holder of the AHIP should be contacted to confirm the works that are intended on the area covered by the AHIP.

### **Recommendation 2: Works may proceed with caution**

No Aboriginal objects, sites, or areas of sensitivity were identified within the study area. No further archaeological works are required. The proposed works may proceed with caution.

### **Recommendation 3: Discovery of unanticipated Aboriginal objects and/or Aboriginal ancestral remains**

All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the OEH. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the OEH and Aboriginal stakeholders.

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and OEH's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by OEH.

### **Recommendation 4: Continued consultation with the registered Aboriginal stakeholders**

As per the consultation requirements it is recommended that the proponent provides a copy of this draft report to the Aboriginal stakeholders and considers all comments received. The proponent should continue to inform these groups about the management of Aboriginal cultural heritage sites within the study area throughout the life of the project.

# 1 Introduction

---

## 1.1 Project background

This ACHA has been prepared by Biosis on behalf of the Schools Infrastructure NSW (the Applicant). It accompanies an EIS in support of State Significant Development Application (SSD 18\_9354) for the new Jordan Springs Public School at 14-28 Cullen Avenue, Jordan Springs (the study area) (Figure 1 and Figure 2).

The new school will cater for approximately 1,000 primary school students and 70 full-time staff upon completion. The proposal seeks consent for:

- Construction of a 2-storey library, administration and staff building (Block A) comprising:
  - school administrative spaces including reception
  - library with reading nooks, makers space and research pods
  - staff rooms and offices
  - special programs rooms
  - amenities
  - canteen
  - interview rooms
  - presentation spaces.
- Construction of three 2-storey learning hubs containing 42 homebases comprising:
  - collaborative learning spaces
  - learning studios
  - covered outdoor learning spaces
  - practical activity areas
  - amenities.
- Construction of a single storey assembly hall (Block C) with a performance stage and integrated covered outdoor learning area. The assembly hall will have OOSH facilities and store room areas.
- Associated site landscaping and open space including associated fences throughout and sporting facilities.
- Pick-up and drop-off zone from Cullen Avenue.
- Pedestrian access points along both Cullen Avenue and Lakeside Parade.
- Construction of an at-grade carpark containing 62 spaces accessible from Lakeside Parade and 2 spaces accessible from Cullen Avenue.
- School signage to the front entrance.
- New substation fronting Cullen Avenue.

All proposed school buildings will be connected by a double storey covered walkway providing integrated covered outdoor learning areas.

Details of the proposed works are available in Appendix 1.

The proposed development will be assessed as a State Significant Development under Section 89(c) of the *Environmental Planning and Assessment Act 1979* and Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 (SSD 9354). In accordance with requirement 10 of the Secretary's Environmental Assessment Requirements (SEARs) issued for this development (13 June 2018); an assessment of Aboriginal cultural heritage is required in order to assess any potential impacts to Aboriginal Cultural Heritage the project may have.

## 1.2 Study area

The study area is located approximately 4.2 kilometres north-east of Penrith and approximately 47 kilometres north-west of the Sydney CBD (Figure 1). It encompasses 2.99 hectares of private land.

The study area is within the:

- Penrith Local Government Area (LGA)
- Parish of Londonerry
- County of Cumberland.

The study area consists of Lot 22, DP 1194338, and is bounded as follows:

- Lots 12 and 42-53, DP 1217814 on its northern side
- Lot 23, DP 1194338 on its eastern side
- 14-28 Cullen Avenue and Lots 6 and 7, DP 1176874 on its southern side
- Lakeside Parade on its western side.

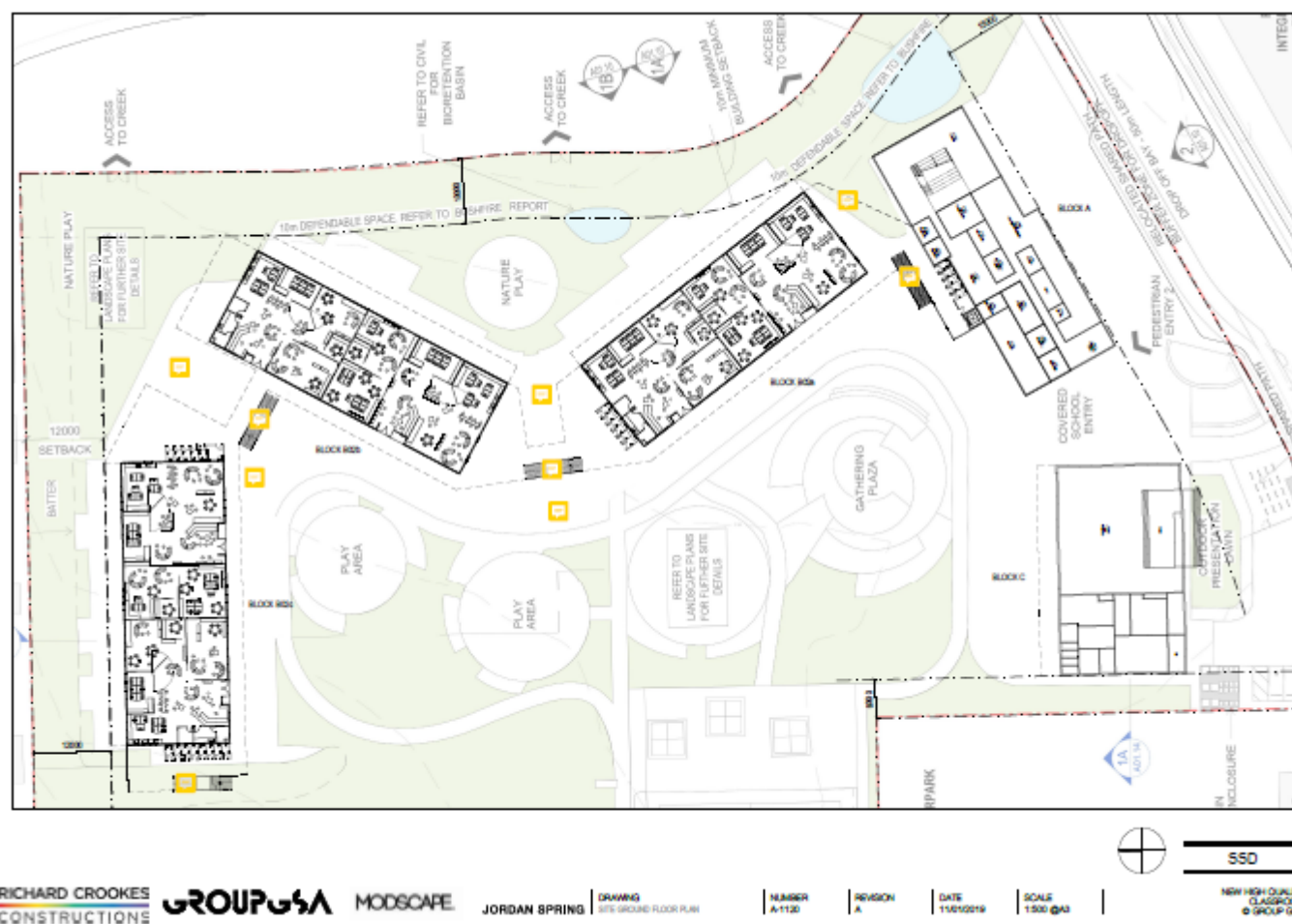
## 1.3 Proposed development

The proposed development consists of the Jordan Springs Public School at 14-28 Cullen Avenue, Jordan Springs NSW (Figure 1 and Figure 2), will be referred to as the study area herein. The new school will have capacity for 1,000 students and 70 staff members (Plate 1, Plate 2, Plate 3). The project involves the following elements:

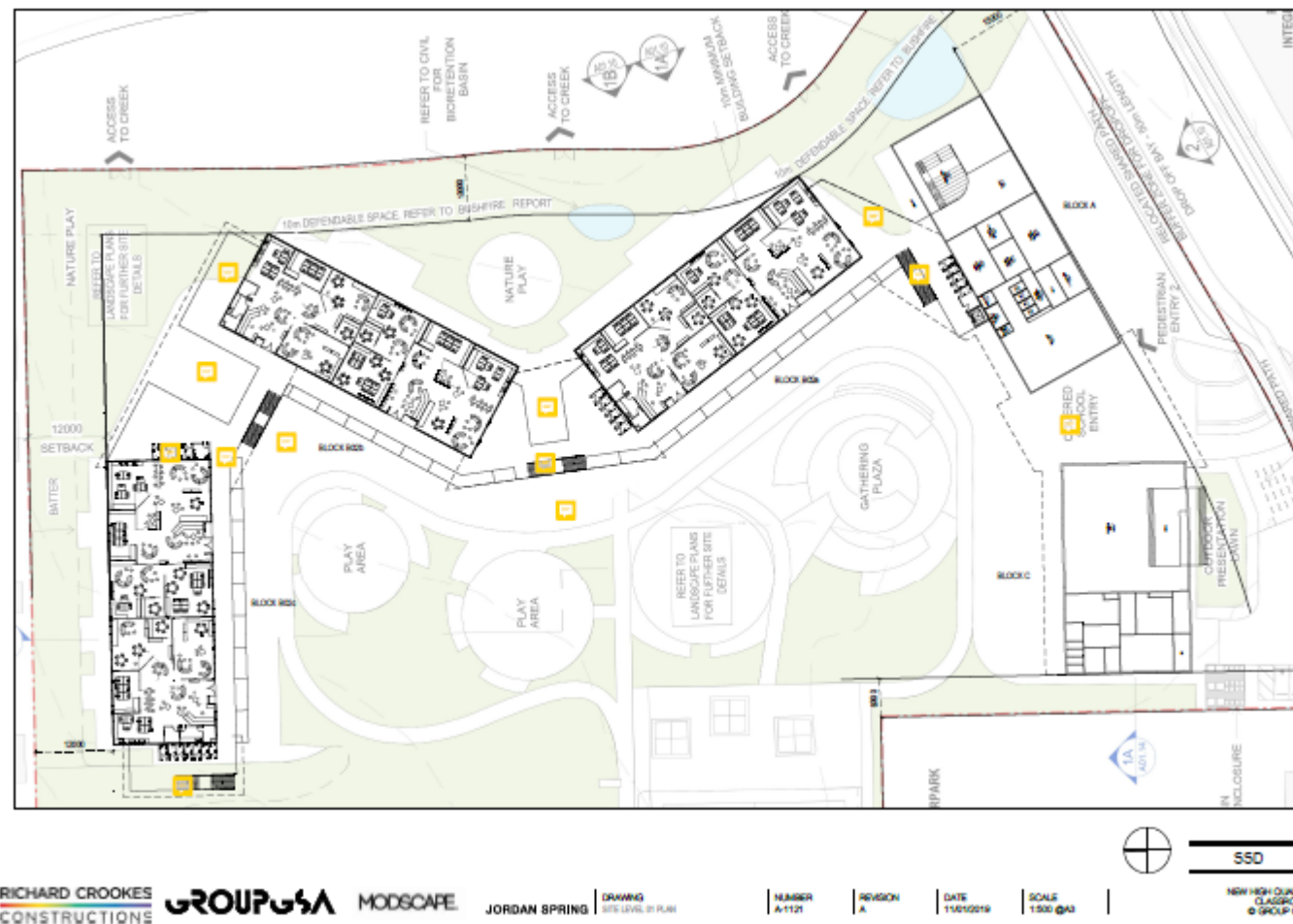
- a total of 42 collaborative teaching spaces located in a series of two storey buildings
- a two storey library and special programs building
- a two storey administration / staff hub and canteen building
- a single storey school hall and out of school hours centre
- covered outdoor learning area
- sports courts, covered walkways and interconnected outdoor spaces
- parking facilities.

The proposed development will be assessed as a SSD under Section 89(c) of the EP&A Act and Schedule 1 of the State and Regional Development SEPP (SSD 9354). The Secretary's Environmental Assessment

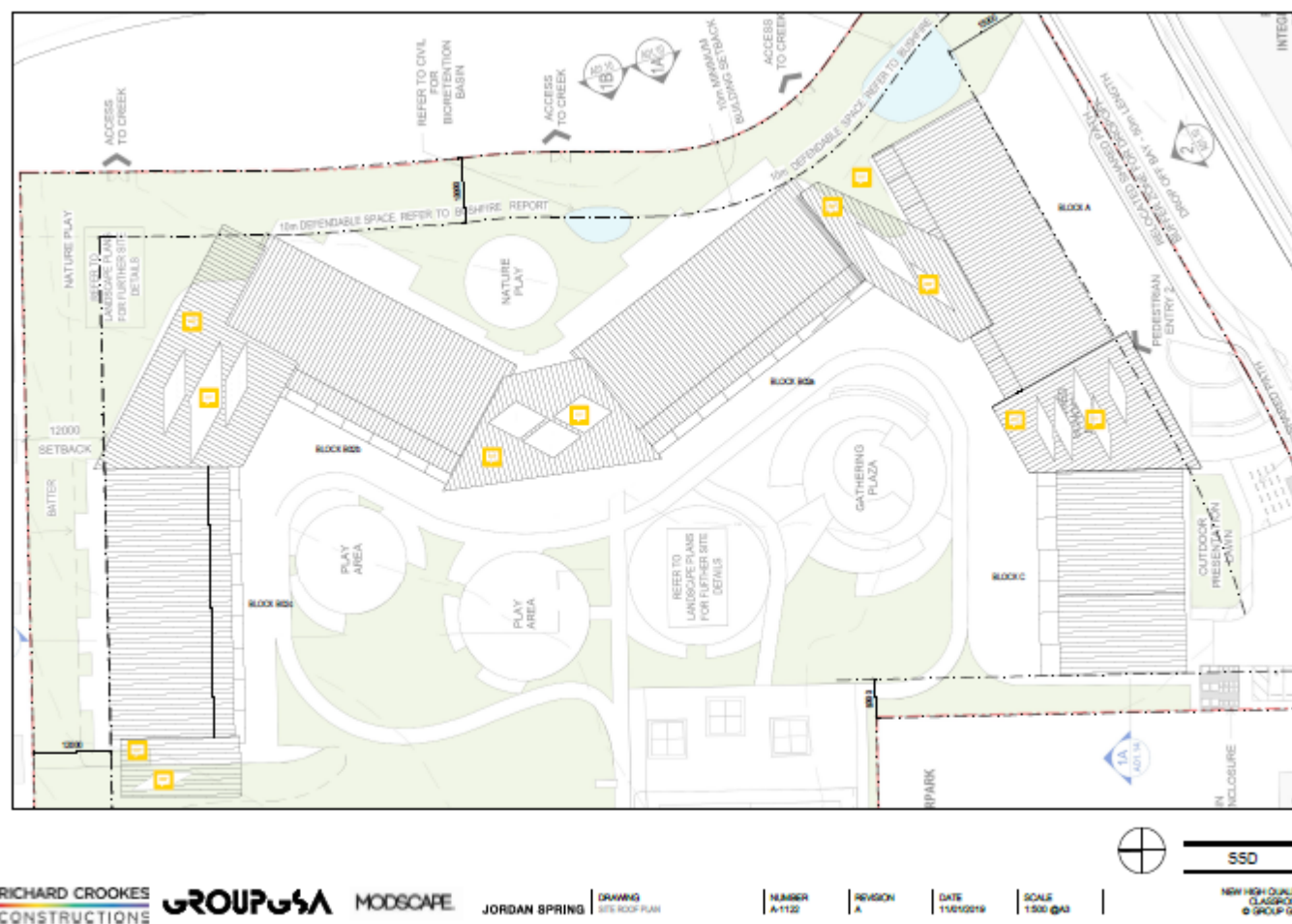
Requirements (SEARs) issued for this development (13 June 2018) specify that an ACHA must be undertaken to identify, describe and document the Aboriginal heritage values that exist across the whole area that would be affected by the development in accordance with the *Code of practice for archaeological investigation of Aboriginal objects in New South Wales* (DECCW 2010a) (the Code). Impacts on Aboriginal cultural heritage values are also to be assessed and documented in the ACHA, and demonstrate attempts to avoid impact upon those heritage values, and outline any measures proposed to mitigate impacts. Consultation with the Aboriginal community is also required in accordance with the consultation requirements.



**Plate 1** Proposed development – ground floor



**Plate 2** Proposed development - level one



**Plate 3** Proposed development - roof

## 1.4 Planning approvals

The proposed development will be assessed as a SSD under Section 89(c) of the EP&A Act and Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011. Other relevant legislative documents may include:

- NPW Act
- NSW *National Parks and Wildlife Amendment Act 2010*
- Infrastructure State Environmental Planning Policy 2007 (SEPP)
- Penrith Local Environmental Plan 2010 (LEP)
- Penrith Development Control Plan 2014.

## 1.5 Restricted and confidential information

Appendix 1 in the Archaeological Report (Appendix 5) contains AHIMS information which is confidential and not to be made public. This is clearly marked on the title page for the Attachment.

## 1.6 Aboriginal cultural heritage

### 1.6.1 General description

According to Allen and O'Connell (2003), Aboriginal people have inhabited the Australian continent for the last 50,000 years. In NSW, according to Bowler et al. (2003), Aboriginal people have occupied the land for over 42,000 years. However, preliminary evidence presented by Biosis (2016) from a subsurface testing program in south-western NSW suggests Aboriginal people may have occupied the semi-arid zone of the region for 50,000 years.

Without being part of the Aboriginal culture and the productions of this culture, it is not possible for non-Aboriginal people to fully understand the meaning of site, objects and places to Aboriginal people – only to move closer towards understanding this meaning with the help of the Aboriginal community. Similarly, definitions of Aboriginal culture and cultural heritage without this involvement constitute outsider interpretations.

With this preface Aboriginal cultural heritage broadly refers to things that relate to Aboriginal culture and hold cultural meaning and significance to Aboriginal people (DECCW 2010a, p.3). There is an understanding in Aboriginal culture that everything is interconnected. In essence Aboriginal cultural heritage can be viewed as potentially encompassing any part of the physical and/or mental landscape, that is, 'Country' (DECCW 2010a, p.iii).

Aboriginal people's interpretation of cultural value is based on their 'traditions, observance, lore, customs, beliefs and history' (DECCW 2010a, p.3). The things associated with Aboriginal cultural heritage are continually and actively being defined by Aboriginal people (DECCW 2010a, p.3). These things can be associated with traditional, historical or contemporary Aboriginal culture (DECCW 2010a, p.3).

### 1.6.2 Tangible Aboriginal cultural heritage

Three categories of tangible Aboriginal cultural heritage may be defined:

- Things that have been observably modified by Aboriginal people.

- Things that may have been modified by Aboriginal people but no discernible traces of that activity remain.
- Things never physically modified by Aboriginal people (but associated with Dreamtime Ancestors who shaped those things).

### **1.6.3 Intangible Aboriginal cultural heritage**

Examples of intangible Aboriginal cultural heritage would include memories of stories and 'ways of doing', which would include language and ceremonies (DECCW 2010a, p.3).

### **1.6.4 Statutory**

Currently Aboriginal cultural heritage, as statutorily defined by the NPW Act, consists of objects and places which are protected under Part 6 of the Act.

Aboriginal objects are defined as:

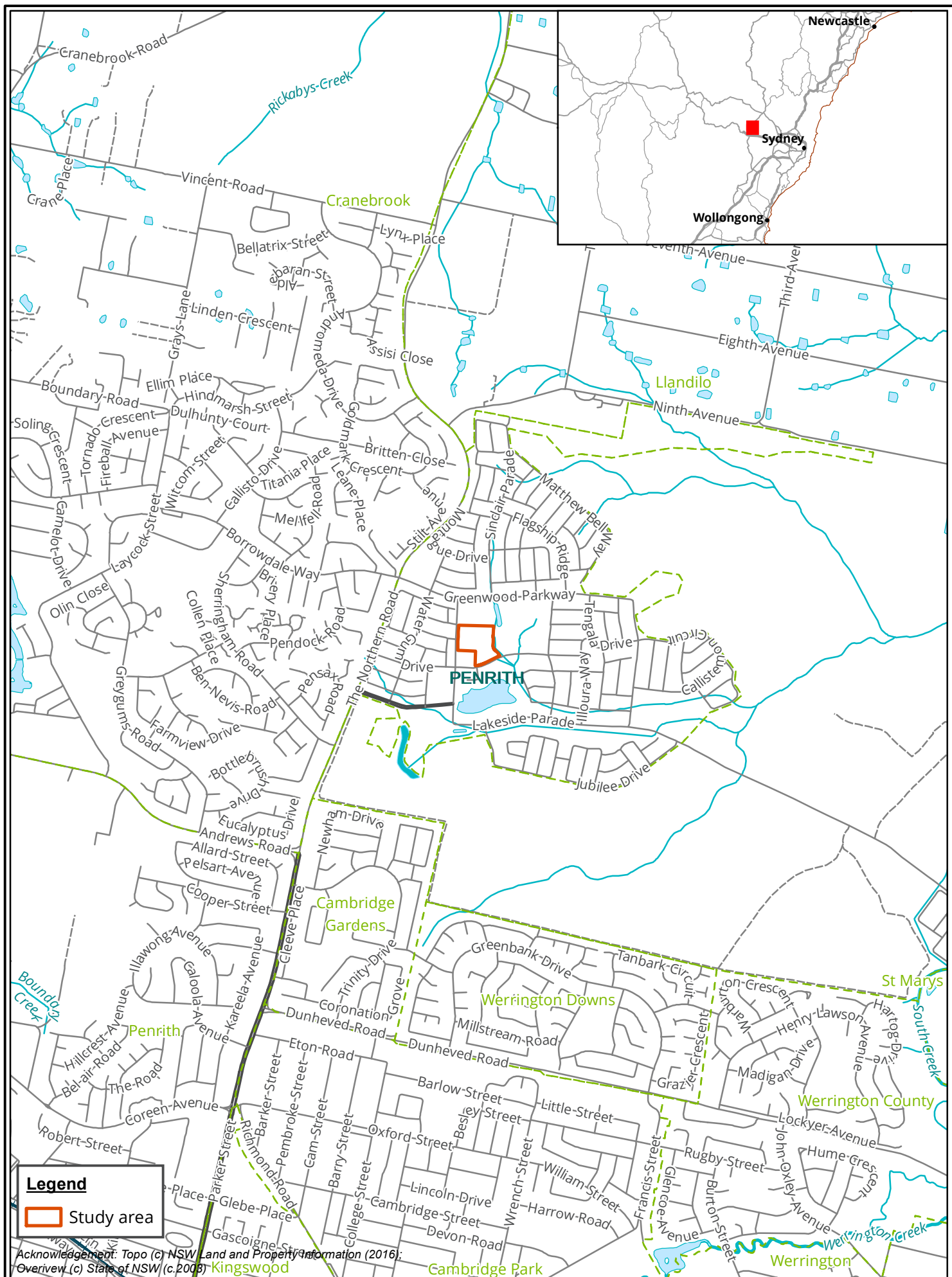
*any deposit, object or material evidence...relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains*

Aboriginal places are defined as a place that is or was of special Aboriginal cultural significance. Places are declared under section 84 of the NPW Act.

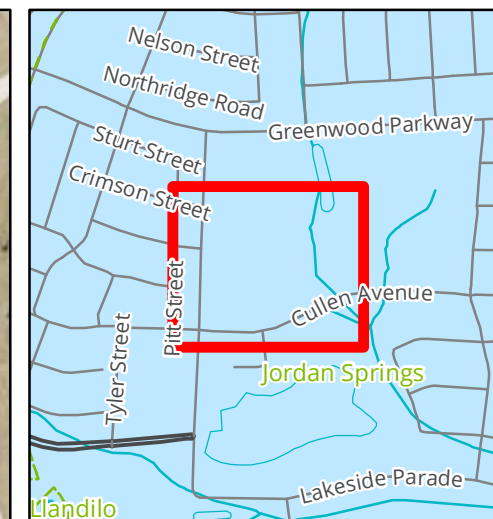
### **1.6.5 Values**

Aboriginal cultural heritage is valued by Aboriginal people as it is used to define their identity as both individuals and as part of a group (DECCW 2010a, p.iii). More specifically it is used:

- to provide a:
  - 'connection and sense of belonging to Country' (DECCW 2010a, p.iii)
  - link between the present and the past (DECCW 2010a, p.iii)
- as a learning tool to teach Aboriginal culture to younger Aboriginal generations and the general public (DECCW 2010a, p.3)
- as further evidence of Aboriginal occupation prior to European settlement for people who do not understand the magnitude to which Aboriginal people occupied the continent (DECCW 2010a, p.3).



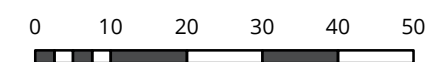
**Figure 1: Location of the study area**



#### Legend

Study area

**Figure 2: Study area detail**



Metres  
Scale: 1:1,000 @ A3  
Coordinate System: GDA 1994 NSW Lambert



Albury, Ballarat, Melbourne,  
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 28419  
Date: 12 September 2018,  
Checked by: CIA, Drawn by: LW, Last edited by: lwilson  
Location: \\bio-data-01\matters\28400s\28419\Mapping\28419\_F2\_StudyArea

## 2 Study area context

---

This section discusses the study area in regards to its landscape, environmental and Aboriginal cultural heritage context. This section should be read in conjunction with the archaeological report attached in Appendix 5. The background research has been undertaken in accordance with the Code.

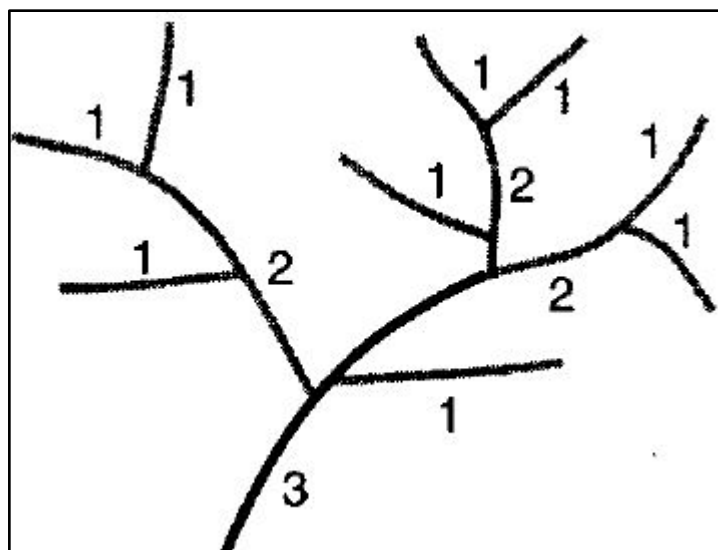
The study area lies within the Cumberland Plain, which is a broad and shallow basin that stretches westwards from Parramatta to the Hawkesbury-Nepean River and southwards from Windsor to Thirlmere. The underlying geology of the study areas is dominated by the Bringelly Shale formation, which is part of the Middle Triassic Wianamatta Group. The Bringelly Shale formation consists of shale (claystone and siltstone), carbonaceous claystone, laminite and fine- to medium-grained lithic sandstone, with infrequent instances of coal (Bannerman & Hazelton 1990, pp.2–3, 28).

### 2.1 Topography and hydrology

Topographically, the study area is situated on a gently inclined waning lower slope running north-west to south-east, as part of an open depression containing a creekline. More widely, the study area is located between a series of crests and ridgelines to the west, north and east in a landscape of undulating low hills.

Stream order is recognised as a factor which assists the development of predictive modelling in Sydney Basin Aboriginal archaeology, and has seen extensive use in the Sydney region, most notably by Jo McDonald Cultural Heritage Management (Jo McDonald Cultural Heritage Management 2000a, Jo McDonald Cultural Heritage Management Pty Ltd 2005a, Jo McDonald Cultural Heritage Management Pty Ltd 2005b, Jo McDonald Cultural Heritage Management 2006a, Jo McDonald Cultural Heritage Management 2008). Predictive models which have been developed for the region have a tendency to favour higher order streams as the locations of campsites as they would have been more likely to provide a stable source of water and by extension other resources which would have been used by Aboriginal groups.

The stream order system used for this assessment was originally developed by Strahler (1952). It functions by adding two streams of equal order at their confluence to form a higher order stream, as shown in Plate 4. As stream order increases, so does the likelihood that the stream would be a perennial source of water.



**Plate 4** Diagram showing Strahler stream order (Ritter et al. 1995, p.151)

The nearest water course to the study area is a first order non-perennial stream or drainage channel which is generally between 7-11 metres east, but at one point abuts the boundary of the study area. Approximately 134 metres east is another first order drainage channel; both of these converge to a second order stream approximately 92 metres south-east of the study area. A further second order stream is located approximately 346 metres south of the study area. These link with a third order stream approximately 2.06 kilometres east, which in turn flows from South Creek, a fourth order creek line, which would have provided a more stable source of water.

## 2.2 Soil landscapes

### Soil landscapes within the study area

Soil landscapes have distinct morphological and topological characteristics that result in specific archaeological potential. They are defined by a combination of soils, topography, vegetation and weathering conditions. Soil landscapes are essentially terrain units that provide a useful way to summarise archaeological potential and exposure.

The study area is contained within the Luddenham soil landscape. This soil landscape is associated with undulating to rolling low hills and characterised by a local relief of 50-80 metres with slopes at 5-20%. It has been extensively cleared of tall open-forest. On lower slopes and drainage lines, soils are moderately deep (<150 centimetres). It has a high erosion hazard, localised impermeable highly plastic subsoil and is moderately reactive, with low to moderate levels of fertility (Bannerman & Hazelton 1990, pp.63-66). Details of the different soil profiles within the Luddenham soil landscape are summarised in Table 2.

**Table 2** Luddenham soil landscape characteristics (Bannerman & Hazelton 1990, pp.64-65)

| Soil Material | Description                                                                                                                                                                                                                                                                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lu1           | A dark brown friable loam, silt or silty clay loam with a moderately strong structure and porous rough-faced ped fabric, which occurs as a topsoil (A horizon). Peds are generally subangular blocky to polyhedral, 2-10mm in size and break down readily to very small crumbs in uncompacted soils. Surface condition is friable but can become hardsetting |

| Soil Material | Description                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | when compacted and dry, and is occasionally water repellent. Colour is commonly dark brown (10YR 3/3, 7.5YR 3/3) but can range from brownish black (5YR 3/1) to brown (10YR 4/4). Roots are common to 10cm and decrease with increasing depth, while charcoal fragments and some small subrounded to rounded weakly weathered shale fragments occasionally occur.                                                                                  |
| <b>lu2</b>    | A hardsetting brown fine sandy clay loam with an apedal massive or weakly pedal structure and earthy or porous rough-faced ped fabric 10-50mm in size, which occurs as an A2 horizon. Colour is generally brown (7.5YR4/4) but can range from a dull yellowish brown (10YR 5/4) to reddish brown (5YR 4/6). It can occasionally be hardsetting when exposed at the surface, contains shale rock fragments, charcoal fragments and roots.           |
| <b>lu3</b>    | A whole coloured medium clay, which can also range from a silty clay to heavy clay, with a strong structure and smooth-faced, dense subangular blocky or polyhedral ped fabric 5-20mm in size. Cutans are also present. Colour is generally reddish brown (5YR 4/6-8) but can range from a bright reddish brown (2.5YR 4/8) to bright yellowish brown (10YR 6/6). Charcoal is absent, roots are rare and shale rock fragments are common.          |
| <b>lu4</b>    | A mottled, medium to heavy grey clay with a strongly pedal structure and dense, smooth-faced subangular blocky ped fabric 10-20 mm in size. Colour is commonly light grey (10YR 7/1) but ranges to light reddish grey (2.5YR 7/1), with yellow and red mottles a common occurrence. Usually moist and very plastic, roots are rare but shale rock fragments and gravels are common.                                                                |
| <b>lu5</b>    | An apedal massive brown sandy clay to light clay with a dense earthy fabric which usually occurs as a subsoil (B horizon), and occasionally features a weak subangular blocky or polyhedral structure. Colour is usually brown (7.5 YR 4/4-6) but ranges from dull reddish brown (5YR 4/4) to dull yellowish brown (10YR 5/4). Roots are common, while small (2-6 mm) angular well-weathered shale fragments may comprise up to 10% of the volume. |

Lower slopes and drainage lines may feature a shallow (<50 centimetres) surface material of greyish brown loamy or clayey sand which frequently contains charcoal fragments and small amounts of gravels 2-20 millimetres in size. Regarding soil occurrences and relationships on lower slopes and drainage lines, up to 50 centimetres of loamy sand overlies >100 centimetres of sandy clay (lu5). However, other locations may contain up to 40 centimetres of clay loam (lu2) overlying <50 centimetres of sandy clay (lu5) and >100 centimetres of whole-coloured medium clay (lu3). This is occasionally underlain by >150 centimetres of mottled grey plastic clay (lu4). Soil horizons are generally clear, and sometimes gradual, with a total soil depth of >200 centimetres (Bannerman & Hazelton 1990, p.65).

Geotechnical investigations were undertaken in 2017 and 2018. Over 2 metres of fill material was identified in the southern portion of the study area during geotechnical testing in 2017, while further testing in 2018 identified silty clay fill materials containing anthropogenic inclusions, such as brick, glass, plastic and ceramic fragments, in each borehole sunk within the study area at depths of up to 3 metres in some locations. Fill material was also likely used to fill in the former dam in the north-eastern portion of the study area visible in the 1978 aerial photograph (Plate 6). Below areas of fill, soils encountered consisted of a residual silty clay overlying weathered shale bedrock at depths of 4.6 and 6 metres, extending up to 6.5 metres, while

weathered sandstone was also identified in the 2018 investigations. The north-western corner of the study area contained shallower levels of fill material (JK Geotechnics 2017, WSP Consulting 2018).

## 2.3 Landscape resources

While the diverse natural environment would have provided vast and plentiful floral and faunal resources and the temperate climate would have made the area suitable for year-round occupation, the distance of the study area from permanent water sources would have detracted from its appeal as a long term occupation site. Although extensively cleared today, the Luddenham soil landscape typically supports a range of vegetation. Dominant tree species include Spotted Gum and Grey Box, with Broad- and Narrow-leaved Ironbark, Forest Red Gum and Woollybutt occur less frequently (Bannerman & Hazelton 1990, p.64).

Within the Cumberland subregion of the Sydney Basin Bioregion there is a variety of vegetation types present. Grey Box, Forest Red Gum, Narrow-leaved Ironbark woodland, and Spotted Gum are present on shale hills, while Hard-leaved Scribbly Gum, Rough-barked Apple, and Old Man Banksia are identified on alluvial sands and gravels. Broad-leaved Apple, Cabbage Gum, Forest Red Gum, and Swamp Oak are present on river flats. Tall Spike Rush, and Juncus with Parramatta Red Gum is noted around lagoons and swamps (NSW National Parks and Wildlife Service 2003, p.193).

Many flora species would have been accessible as resources for the Indigenous inhabitants of the area. Vegetation communities of the greater Sydney area have over 200 species with edible parts (Attenbrow 2002, p.76). A variety of plant species were also useful for manufacturing tools. Wood from trees was used to manufacture canoe poles, weapons, woomeras, boomerangs and for use in fire. Resins from trees and grasses were used as a fixative in tool making. Bark and fibres were used for carrying vessels, canoes and decorations. Fibres were used to make ropes and nets for trapping fish and birds. In addition, many plants provided sources of both food and medicine. Food, tools, shelter and ceremonial items were derived from floral resources, with the locations of many campsites predicated on the seasonal availability of resources.

Native fauna which may have been present in the vicinity of the study area includes, but is not exclusive to, the Feathertail Glider, Eastern Quoll, Eastern Grey Kangaroo, Common Ringtail Possum, Australian Owlet-nightjar, Wedge-tailed Eagle, Australian King Parrot, Eastern Water Skink, Eastern Blue-tongue Lizard, Eastern Brown Snake and Brown-striped Frog (Atlas of Living Australia n.d.). As well as being important food sources, animal products were also used for tool making and fashioning a myriad of utilitarian and ceremonial items. For example, tail sinews are known to have been used to make fastening cord, while 'bone points', which would have functioned as awls or piercers, are often an abundant part of the archaeological record. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks worn fastened over one shoulder and under the other (Attenbrow 2002).

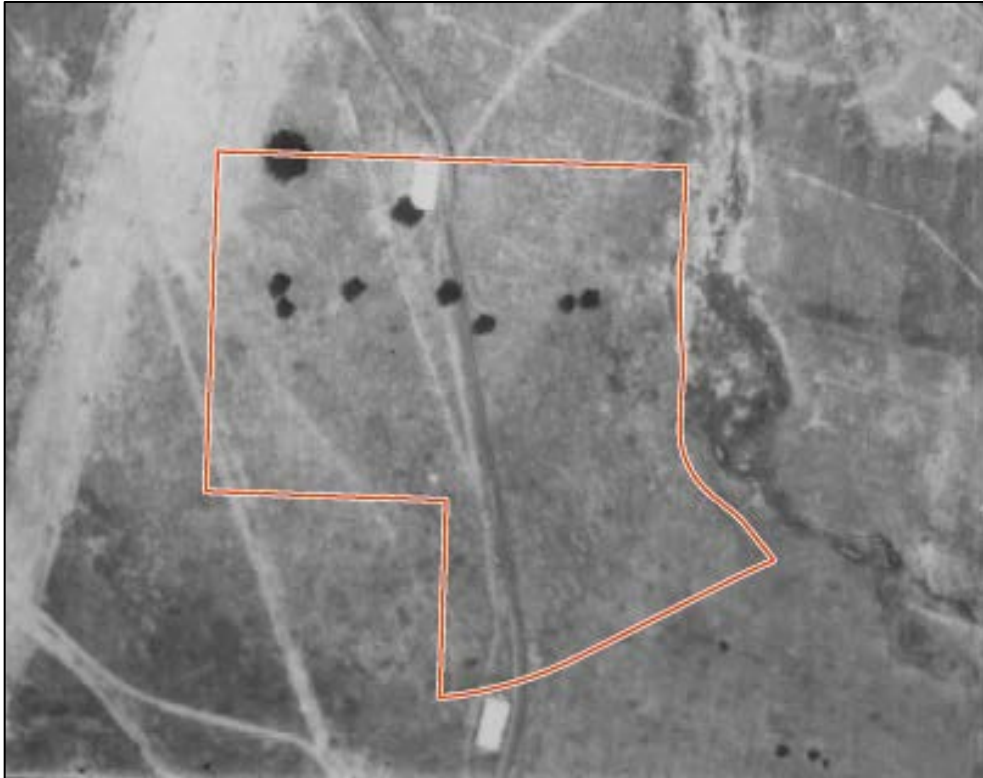
## 2.4 European land use history

Land containing the study area was granted to James Kernahan (Portion 121) and James Tobias Ryan (Portion 110) in 1857, who were given 75 acres (30 hectares) and 60 acres (24 hectares) respectively. Prior to this the study area was contained within Castlereagh Common, which was a large portion of unallocated, timbered Crown land used primarily for grazing, but also for agriculture and farming, by the public. This land was set aside by Governor Macquarie sometime during his time in office, between 1810 and 1821 (GML 2011). The land remained under the ownership of a series of farming families until it was acquired by the Commonwealth government in 1941 from the Dumble family for the use of the St Marys munitions factory site (Casey & Lowe Pty Ltd 2008).

The study area is located on the western border of the munitions site. The Dumble property is described in 1941 as:

*... very gentle slopes of grey to brown loam shallow soil over clayed gravel subsoil. Originally timbered with box, gum, apple, ironbark and ti-tree, all timber has been killed and burnt off for grazing, except for shade trees. About 70 acres carries a growth of thorn bush and some seedling growth. About 35 acres had been grubbed for plough at the date of purchased ...1939, and the holding was watered by two dams. It is grassed with blue couch, umbrella and spear grasses (AA Series SP857/8, PM/1941/204, 15/5/1941, cited by Casey & Lowe Pty Ltd 2008)*

An aerial photograph dating to 1947 shows several trees, tracks and a structure within the study area; the homestead area occupied by the Dumble family is located west of the study area. It also appears that the creek line currently east of the study area may have previously entered into the study area boundaries (Plate 5). Several dams in the eastern portion of the study area and possible earthworks in the western and southern areas appear to have been constructed by 1978, with the structure and most of the trees still remaining at this time. Furthermore, the creekline appears to have been considerably modified over time (Plate 6).



**Plate 5** Extract from an aerial photograph dating to 1947 with the study area highlighted (Source: NSW Spatial Services 2018)



**Plate 6** Extract from a 1978 aerial photograph, with the study area highlighted (Source: NSW Spatial Services 2018)

Since the decommissioning of the ADI site, the land surrounding the study area has been gradually developed as part of the new suburb of Jordan Springs. It is possible the study area underwent remediation works in 1994 due to soil contamination, similar to the area west containing the former Dumble homestead buildings (Casey & Lowe Pty Ltd 2008). GoogleMaps imagery from 2014 shows the construction of the adjacent childcare centre, with a large soil mound along the boundary of the study area on the south-western boundary; the remainder of the study area appears to be largely cleared, but with some trees present in the northern portion, possibly in the area where they appeared on the 1978 aerial or surrounding the former dam (Plate 7). Terracing or modification of the ground surface also appears to be in progress, through the use of spoil material. A site inspection carried out for an initial environmental site assessment in 2017 reported site staff comments regarding the presence of a brick kiln and unexploded ordnance prior to the land being remediated; the stockpiled soil was still present at this time (Environmental Investigation Services 2007).



**Plate 7** 2014 GoogleMaps imagery of the study area, facing north-west (Source: Google 2018)

## 3 Aboriginal cultural heritage context

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### 3.1 Ethnohistory

Our knowledge of Aboriginal people and their land-use patterns and lifestyles prior to European contact is mainly reliant on documents written by non-Aboriginal people. These documents are affected by the inherent bias of the class and cultures of their authors, who were also often describing a culture that they did not fully understand - a culture that was in a heightened state of disruption given the arrival of settlers and disease. Early written records can however be used in conjunction with archaeological information and surviving oral histories from members of the Aboriginal community in order to gain a picture of Aboriginal life in the region.

Despite a proliferation of Aboriginal heritage sites there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups in the greater Sydney region. These debates have arisen largely because, by the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late 19th century, pre-European Aboriginal groups had been broken up and reconfigured by European settlement activity. The following information relating to Aboriginal people on the Cumberland Plains is based on such early records.

There is some confusion relating to group names, which can be explained by the use of differing terminologies in early historical references. Language groups were not the main political or social units in Aboriginal life. Instead, land custodianship and ownership centred on the smaller named groups that comprised the broader language grouping. There is some variation in the terminology used to categorise these smaller groups; the terms used by Attenbrow (2002) will be used here. Attenbrow (2002, p.34) suggests that a total of four dialects were spoken in the Sydney region:

- *Darug coastal dialect/s - the Sydney Peninsula (north of Botany Bay, south of Port Jackson, west to Parramatta), as well as the country to the north of Port Jackson, possibly as far as Broken Bay*
- *Darug hinterland dialect - on the Cumberland Plain from Appin in the south to the Hawkesbury River in the north; west of the Georges River, Parramatta, the Lane Cove River and Berowra Creek*
- *Dharawal - from south side of Botany Bay, extending south as far as the Shoalhaven River; from the coast to the Georges River and Appin, and possibly as far west as Camden,*
- *Gundungurra - southern rim of the Cumberland Plain west of the Georges River, as well as the southern Blue Mountains.*

Early interactions between local Aboriginal groups in the Sydney region and European settlers varied in nature between peaceful and hostile. It was not long before the effects of colonisation proved detrimental to local groups, with farming practices employed by the settlers removing land that had until that point been used for subsistence (Attenbrow 2002).

Early observers made no note of the language of the local groups, and it was not until the latter part of the 19th century that the name Darug was used. Matthews (1901, p. 155, cited by Attenbrow 2002, p.32) stated that "The Dharuk speaking people adjoined the Thurawal on the north, extending along the coast to the Hawkesbury River, and inland to what are now Windsor, Penrith, Campbelltown, and intervening towns". Subsistence activities varied based on the local landscapes, with Darug groups closer to the coast employing different food sources and means of hunting in order to survive, compared to those further inland (Kelleher Nightingale Consulting 2010, p.10).

After the arrival of European settlers the movement of Aboriginal hunter-gatherers became increasingly restricted. European expansion along the Cumberland Plain was swift and soon there had been considerable

loss of land to agriculture. This led to violence and conflict between Europeans and Aboriginal people as both groups sought to compete for the same resources (Brookes & Associates et al. 2003, p.16). At the same time diseases such as small pox were having a devastating effect on the Aboriginal population. Death, starvation and disease were some of the disrupting factors that led to a reorganisation of the social practices of Aboriginal communities after European contact. The formation of new social groups and alliances were made as Aboriginal people sought to retain some semblance of their previous lifestyle.

### **3.2 Aboriginal heritage located in the study area**

The archaeological assessment of the study area did not identify any Aboriginal sites or areas of archaeological potential within the study area.

### **3.3 Interpretation of past Aboriginal land use**

Previous archaeological surveys indicate that proximity to a permanent water supply is a primary factor in the determination of the location for past Aboriginal occupation (*ENSR Australia Pty Ltd 2008, p.16*). There appears to be a high correlation between the permanence of a water source and the complexity of sites. Lithic assemblages identified near permanent water sources suggest a greater range of activity (for example tool use, manufacture and maintenance, food processing and quarrying) while sites located near more ephemeral water sources indicate only transitory occupation (isolated knapping and discarded tools) (Kelleher Nightingale Consulting Pty Ltd 2008, p.7).

No archaeological material was identified within the study area during the survey. The entire study area was deemed to have been highly disturbed through a number of agents including the ongoing modification of the adjacent creek line since the 1940s, as well as more recent remediation works and subsequent application of levelling fill. In the absence of any archaeological evidence of Aboriginal occupation, it is difficult to provide further discussion of Aboriginal land use within the study area. However, the results of regional assessments suggests the wider area was used for occupation prior to European occupation.



## 4 Aboriginal community consultation

Consultation with the Aboriginal community has been undertaken in compliance with the consultation requirements as detailed below. A consultation log of all communications with RAPs is provided in Appendix 1.

### 4.1 Stage 1: Notification of project proposal and registration of interest

#### 4.1.1 Identification of relevant Aboriginal stakeholders

In accordance with the consultation guidelines, Biosis Pty Ltd notified the following bodies regarding the proposal:

- Penrith City Council
- OEH
- NSW Native Title Services Corporation Limited (NTSCORP Limited)
- Office of the Registrar, Aboriginal Land Rights Act 1983 of Aboriginal Owners
- National Native Title Tribunal (NNTT)
- Greater Sydney Local Land Services
- Deerubbin Local Aboriginal Land Council (LALC).

A list of known Aboriginal stakeholders in the Greater Sydney area was provided by OEH (a copy of this response is provided in Appendix 2) and include:

- |                                                       |                                                      |
|-------------------------------------------------------|------------------------------------------------------|
| • Amanda Hickey Cultural Services                     | • Anthony Williams                                   |
| • Badu                                                | • Barking Owl Aboriginal Corporation                 |
| • Biamanga                                            | • Bidjawang Aboriginal Corporation                   |
| • Bilinga Cultural Heritage Technical Services        | • Billinga                                           |
| • Butucarbin Aboriginal Corporation                   | • Cullendulla                                        |
| • Darug Aboriginal Cultural Heritage Assessments      | • Darug Boorooberongal Elders Aboriginal Corporation |
| • Darug Custodian Aboriginal Corporation              | • Darug Land Observations                            |
| • Darug Tribal Aboriginal Corporation                 | • Deerubbin Local Aboriginal Land Council            |
| • Des Dyer                                            | • Dharug                                             |
| • Dhinawan-Dhigaraa Culture & Heritage Pty Ltd        | • Didge Ngunawal Clan                                |
| • DJMD Consultancy                                    | • Ginninderra Aboriginal Corporation                 |
| • Goobah Developments                                 | • Gulaga                                             |
| • Gunjeewong Cultural Heritage Aboriginal Corporation | • Gunyuu                                             |

- Gunyuu Cultural Heritage Technical Services
- Jerringong
- Merrigarn Indigenous Corporation
- Mununga
- Muragadi Heritage Indigenous Corporation
- Murramarang
- Murrumbul Cultural Heritage Technical Services
- Nundagurri
- Phil Khan
- Thauaira
- Tocomwall
- Walbunja
- Warragil Cultural Services
- Wingikara
- Wullung
- Yerramurra
- HSB Consultants
- Kawul Cultural Services
- Minnamunnung
- Munyunga Cultural Heritage Technical Services
- Murra Bidgee Mullangari Aboriginal Corporation
- Murrumbul
- Nerrigundah
- Pemulwuy CHTS
- Rane Consulting
- Thoorga Nura
- Wailwan Aboriginal Digging Group
- Walgalu
- Widescope Indigenous Group
- Wingikara Cultural Heritage Technical Services
- Wurrymay Consultancy
- Yulay Cultural Services

A search conducted by the Office of the Registrar, *Aboriginal Land Rights Act 1983* (NSW) listed no Aboriginal Owners with land within the study area. A search conducted by the NNTT listed no Registered Native Title Claims, Unregistered Claimant Applications or Registered Indigenous Land Use Agreements within the study area.

#### 4.1.2 Public notice

In accordance with the consultation guidelines, a public notification was placed in the following newspaper:

- Penrith Press (11 October 2018)

The advertisement invited Aboriginal people who hold cultural knowledge to register their interest in a process of community consultation to provide assistance in determining the significance of Aboriginal object(s) and/or places in the vicinity of the study area. A copy of the public notice is provided in Appendix 2.

#### 4.1.3 Registration of Aboriginal parties

Aboriginal groups identified in Section 4.1.1 were sent a letter inviting them to register their interest in a process of community consultation to provide assistance in determining the significance of Aboriginal object(s) and/or places in the vicinity of the study area. In response to the letters and public notice, a total of 18 groups registered their interest in the project, one of whom did not wish to have their details provided to OEH or the LALC. Responses to registration from Aboriginal parties are provided in Appendix 3. A full list of Aboriginal parties who registered for consultation is provided below:

- A1 Indigenous Services
- Amanda Hickey Cultural Services
- Barraby Cultural Services
- Aboriginal Archaeology Service
- Barking Owl Aboriginal Corporation
- Butucarbin Aboriginal Corporation

- Darug Aboriginal Land Care, Des Dyer
- Darug Land Observations
- Deerubbin Local Aboriginal Land Council
- Phil Khan
- Widescope Indigenous Group
- Yurrandaali Cultural Services
- Darug Boorooberongal Elders Aboriginal Corporation
- Darug Tribal Aboriginal Corporation
- Didge Ngunawal Clan
- Wailwan Aboriginal Digging Group
- Yulay Cultural Services

## **4.2 Stage 2: Presentation of information about the proposed project**

On 5 November 2018, Biosis provided RAPs with details about the proposed development works (project information pack). A copy of the project information pack is provided in Appendix 3.

## **4.3 Stage 3: Gathering information about cultural significance**

### **4.3.1 Archaeological assessment methodology information pack**

On 5 November 2018, Biosis provided each RAP with a copy of the project methodology pack outlining the proposed Aboriginal cultural heritage assessment process and methodology for this project. RAPs were given 28 days to review and prepare feedback on the proposed methodology. A copy of the project methodology pack is provided in Appendix 3.

A number of responses to the methodology were received from RAPs. No comments from RAPs were received at this stage of consultation. Barraby Cultural Services, Yurrandaali Cultural Services, Yulay Cultural Services, A1 Indigenous Services, Aboriginal Archaeology Service and Butucarbin Aboriginal Corporation all supported the methodology.

The Darug Aboriginal Land Care / Uncle Des Dyer, did not object to the planned development, and agreed with the recommendations and methodology. This group also requested that native plants be used in the landscape, and that if any artefacts are uncovered during the development that work stops until the artefacts can be salvaged and moved, asking that all artefacts be reburied on site out of harm's way, put in the local museum, or displayed in the foyer of new building with signage on where they came from, and that any rock caverns and scared tree be preserved, were possible, and be recorded.

Darug Land Observations supported the methodology and requested that recovered artefacts should be reburied on Country (within the study area).

Aboriginal Archaeology Services agreed with the recommendations and like to see any artefacts collected displayed for all to see in the museum, local library or local government building or reburied in close proximity of the area.

### **4.3.2 Information gathered during fieldwork**

During the survey, Steven Randall of the Deerubbin LALC commented that the study area had been built up, with a lack of natural soil present, and also that sources of silcrete were located west of the study area at Ropes Crossing. No other new or relevant information was supplied either on-site or through correspondence during the fieldwork period.

#### **4.4 Stage 4: Review of draft Aboriginal cultural heritage assessment report**

Following completion of the DRAFT Aboriginal cultural heritage assessment report (ACHAR), it was provided to RAPs on 5/11/2018 for review and comment. RAPs were given 28 days to provide comments and two responses were received as detailed below. Comments on the draft report are provided in Appendix 4.

Comments were received from Amanda Hickey Cultural serves by email on 1 January 2019 who stated that they were happy with the ACHA. A response was also received from the Darug Aboriginal Land Care who supported the proposed recommendations and salvage methodology. They asked that native plants be used in the landscape if possible and the any artefacts uncovered have stop works until they can be salvaged or moved. Also requested that artefacts be in the local museum or displayed in the foyer of a new building. Darug Land Observations confirmed they had reviewed the draft ACHA, and support the methodology for the proposed development (Appendix 3).

## 5 Aboriginal cultural significance assessment

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The two main values addressed when assessing the significance of Aboriginal sites are cultural values to the Aboriginal community and archaeological (scientific) values. This report will assess the cultural values of Aboriginal sites in the study area. Details of the scientific significance assessment of Aboriginal sites in the study area are provided in Appendix 5.

### 5.1 Introduction to the assessment process

Heritage assessment criteria in NSW fall broadly within the significance values outlined in the Australia International Council on Monuments and Sites (ICOMOS) *Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013) (the Burra Charter). This approach to heritage has been adopted by cultural heritage managers and government agencies as the set of guidelines for best practice heritage management in Australia. These values are provided as background and include:

- **Historical significance** (evolution and association) refers to historic values and encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, a historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives *in situ*, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.
- **Aesthetic significance** (Scenic/architectural qualities, creative accomplishment) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, and the smell and sounds associated with the place and its use.
- **Social significance** (contemporary community esteem) refers to the spiritual, traditional, historical or contemporary associations and attachment that the place or area has for the present-day community. Places of social significance have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods or events. Communities can experience a sense of loss should a place of social significance be damaged or destroyed. These aspects of heritage significance can only be determined through consultative processes with local communities.
- **Scientific significance** (Archaeological, industrial, educational, research potential and scientific significance values) refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information.

The cultural and archaeological significance of Aboriginal and historic sites and places is assessed on the basis of the significance values outlined above. As well as the Burra Charter significance values guidelines, various government agencies have developed formal criteria and guidelines that have application when assessing the significance of heritage places within NSW. Of primary interest are guidelines prepared by the Australian

Government, the NSW OEH and the Heritage Branch, and the NSW Department of Planning and Environment. The relevant sections of these guidelines are presented below.

These guidelines state that an area may contain evidence and associations which demonstrate one or any combination of the Burra Charter significance values outlined above in reference to Aboriginal heritage. Reference to each of the values should be made when evaluating archaeological and cultural significance for Aboriginal sites and places.

In addition to the previously outlined heritage values, the OEH *Guidelines to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011) also specify the importance of considering cultural landscapes when determining and assessing Aboriginal heritage values. The principle behind a cultural landscape is that 'the significance of individual features is derived from their inter-relatedness within the cultural landscape'. This means that sites or places cannot be 'assessed in isolation' but must be considered as parts of the wider cultural landscape. Hence the site or place will possibly have values derived from its association with other sites and places. By investigating the associations between sites, places, and (for example) natural resources in the cultural landscape the stories behind the features can be told. The context of the cultural landscape can unlock 'better understanding of the cultural meaning and importance' of sites and places.

Although other values may be considered – such as educational or tourism values – the two principal values that are likely to be addressed in consideration of Aboriginal sites and places are the cultural/social significance to Aboriginal people and their archaeological or scientific significance to archaeologists and the Aboriginal community. The determinations of archaeological and cultural significance for sites and places should then be expressed as statements of significance that preface a concise discussion of the contributing factors to Aboriginal cultural heritage significance.

## 5.2 Cultural (social significance) values

Cultural or social significance refers to the spiritual, traditional, historical and/or contemporary associations and values attached to a place or objects by Aboriginal people. Aboriginal cultural heritage is broadly valued by Aboriginal people as it is used to define their identity as both individuals and as part of a group (DECCW 2010a, p.iii). More specifically it provides:

- a 'connection and sense of belonging to Country' (DECCW 2010a, p.iii)
- a link between the present and the past (DECCW 2010a, p.3)
- a learning tool to teach Aboriginal culture to younger Aboriginal generations and the general public (DECCW 2010 p.3)
- further evidence of Aboriginal occupation prior to European settlement for people who do not understand the magnitude to which Aboriginal people occupied the continent (DECCW 2010a, p.3).

It is broadly acknowledged that Aboriginal people are the primary determiners of the cultural significance of Aboriginal cultural heritage. Comment on the cultural significance of Aboriginal cultural heritage relevant to the project was sought from the RAPs with the provision of the proposed methodology for the cultural heritage assessment. Deerubbin LALC were given further opportunity to provide cultural information during the survey. No specific information on cultural values within the study area has been received.

### **5.3 Historic values**

Historic significance refers to associations a place or object may have with a historically important person, event, phase or activity to the Aboriginal and other communities. The study area is not known to have any historic associations.

### **5.4 Archaeological (scientific significance) values**

An archaeological scientific assessment was undertaken for the study area and is presented in detail as part of the attached Archaeological Report (Appendix 5). No Aboriginal sites or areas of PAD were identified within the study area and no previously recorded sites are located within, or in close proximity to the study area. There is a low likelihood of Aboriginal cultural heritage with archaeological (scientific) value occurring within the study area. The scientific significance of the entire study area is therefore assessed as low.

### **5.5 Aesthetic values**

The study area has undergone significant landscape modification since the 1940s, including water course realignment and surface levelling, therefore the natural land formations are no longer present. The landscape of the study area is closely linked with Aboriginal cultural values and provides a context for Aboriginal sites that gives a strong sense of place. The Aboriginal community has not provided comment on the aesthetic value of the study area.

### **5.6 Statement of significance**

The study area has been assessed as having low archaeological significance as no Aboriginal sites or areas of archaeological potential were identified during the field investigation. The study area does not contain any known historic, or aesthetic values. No specific information on the cultural significance of the study area has been provided by RAPs.

## 6 Development limitations and mitigation measures

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Within the study area, there are no recorded Aboriginal sites that may be subject to harm. It is expected that the potential of harm to Aboriginal archaeological sites from development in the study area ranges from negligible to low. Strategies to avoid or minimise harm to Aboriginal heritage in the study area are discussed below.

### 6.1 Potential Risks to Aboriginal Cultural Heritage

As previously outlined, the project proposes to construct the Jordan Springs Public School. The new school will have capacity for 1,000 students and 70 staff members. The project involves the following elements:

- a total of 42 collaborative teaching spaces located in a series of two storey buildings
- a two storey library and special programs building
- a two storey administration / staff hub and canteen building
- a single storey school hall and out of school hours centre
- covered outdoor learning area
- sports courts, covered walkways and interconnected outdoor spaces
- parking facilities.

The entire study area will be subject to impact through the proposed works.

### 6.2 Predicted physical impacts

The study area does not contain any recorded Aboriginal sites and was assessed with low archaeological potential due to disturbances observed in the study area following a survey.

### 6.3 Management and Mitigation Measures

Ideally, heritage management involves conservation of sites through the preservation and conservation of fabric and context within a framework of 'doing as much as necessary, as little as possible' (Australia ICOMOS 2013). In cases where conservation is not practical, several options for management are available. For sites, management often involves the salvage of features or artefacts, retrieval of information through excavation or collection (especially where impact cannot be avoided) and interpretation.

Avoidance of impact to archaeological and cultural heritage sites through design of the development is the primary mitigation and management strategy, and should be implemented where practicable. As part of the management and mitigation measures for the proposed works, an Aboriginal cultural heritage assessment including archaeological survey and consultation with the Aboriginal community was undertaken. This was done to determine the presence and nature of any potential Aboriginal sites so that appropriate management could be undertaken. The survey did not identify the presence of any Aboriginal sites and the study area was assessed with low potential as a result; therefore no further management or mitigation is warranted.

## 7 Recommendations

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The recommendations below respond specifically to the wishes of the RAPs. Recommendations regarding the archaeological value of the site, and the subsequent management of Aboriginal cultural heritage is provided in the archaeological report (Appendix 5).

### **Recommendation 1: Conditions of AHIP 10996059**

Although SSD projects are not required to comply with Part 6 of the NPW Act, OEH advises that conditions of valid AHIPs are followed by SSDs in order to reduce the risk of impacting Aboriginal heritage values.

OEH also advises that the holder of the AHIP should be contacted to confirm the works that are intended on the area covered by the AHIP.

### **Recommendation 2: Works may proceed with caution**

No Aboriginal objects, sites, or areas of sensitivity were identified within the study area. No further archaeological works are required. The proposed works may proceed with caution.

### **Recommendation 3: Discovery of unanticipated Aboriginal objects and/or Aboriginal ancestral remains**

All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the OEH. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the OEH and Aboriginal stakeholders.

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and OEH's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by OEH.

### **Recommendation 4: Continued consultation with the registered Aboriginal stakeholders**

As per the consultation requirements it is recommended that the proponent provides a copy of this draft report to the Aboriginal stakeholders and considers all comments received. The proponent should continue to inform these groups about the management of Aboriginal cultural heritage sites within the study area throughout the life of the project.

## References

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