



Jordan Springs Public School: Historical Archaeological Impact Assessment

FINAL REPORT

Prepared for School Infrastructure NSW

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Glossary

ADI	Australian Defence Industries
BP	Before present
c.	Circa
CBD	Central Business District
CHL	Commonwealth Heritage List
DEE	Department of Environment and Energy
DP	Deposited Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
LEP	Local Environmental Plan
NHL	National Heritage List
NSW	New South Wales
OEH	Office of Environment and Heritage
REF	Review of Environmental Factors
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SHI	State Heritage Inventory
SSD	State Significant Development
Study area	The area of impact for the proposed works , Lot 22 DP1194338

Summary

Biosis Pty Ltd (Biosis) was commissioned to undertake an historical archaeological impact assessment for the proposed development of 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 development will be assessed as a State Significant Development (SSD) under Section 89(c) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP) (SSD 9354). The Secretary's Environmental Assessment Requirements (SEARs) issued for this development (13 June 2018) do not specify the requirement of an historical archaeological impact assessment. However, the study area is in the vicinity of two heritage sites listed under the Sydney Regional Environmental Plan No. 30 – St Marys, and as such an investigation of any potential items of heritage within the study area has been undertaken.

The historical research undertaken for this report indicates that the study area has been largely used for farming purposes and industrial activities. The study area formed part of a series of large rural properties from 1857, with the final private use being the Dumble dairy farm up to 1941. At this time the Commonwealth government acquired the study area and a large amount of surrounding land in the Penrith and St Marys districts for the establishment of a munitions factory; the Commonwealth government retained ownership until 1995. Two structures were identified on historical aerial photographs dating to 1947 and 1978; a munitions storage building [1] and brick kiln [2].

This assessment has identified that there may be archaeological material present within the study area below recent levelling fill related to these buildings, and also potential landscape features such as historical fence lines. These possible archaeological materials may consist of postholes, remnant posts and associated cuts, wall foundations or footings, kiln chamber foundations, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters. These materials may have been disturbed or removed by possible remediation works during the 1990s, or equally protected by recent levelling fills. However, these possible archaeological materials have been assessed as not holding heritage significance. Any potential remains associated with the munitions storage building [1] and potential historical fencelines, are considered not to hold historical, cultural, social, aesthetic or associative significance, nor would these remains likely be considered rare, representative or hold research potential. It has not been possible in this assessment to securely date the brick kiln [2] prior to c.1920-c.1941, nor to identify any further evidence as to its size, appearance or contextual relevance. As a result, this item is also not considered to possess the above qualities.

The proposed development is considered acceptable, provided that an unexpected finds policy is implemented to identify and record any archaeological material that may be encountered during the proposed works.

The following recommendations have been formulated to respond to client requirements and the significance of the site. They are guided by the ICOMOS *Burra Charter* with the aim of doing as much as necessary to care for the place and make it useable and as little as possible to retain its cultural significance.¹

Recommendation 1 No further assessment required

This assessment has identified no items of heritage significance or archaeological potential within the study area, and no negative heritage impacts to surrounding heritage items. As such, no further assessment is required prior to the approval of the SSD application. Prior to any ground disturbance occurring within the study area, an unexpected finds procedure should be implemented as outlined in Recommendation 2.

Recommendation 2 Development of Construction Heritage Management Sub-Plan

A Construction Heritage Management Sub-Plan must be prepared following approval of the SSD submission in order to establish an unexpected finds policy in the event that works encounter unexpected historical structural or depositional remains, or any Aboriginal objects or places.

In both these instances all works should cease. A determination should then be made by an appropriately qualified archaeologist of whether the remains identified are likely to be "relics" under the *NSW Heritage Act 1977* or an Aboriginal object or place.

Where the remains are identified as being 'relics', the Heritage Council of NSW must be notified in accordance with section 146 of the *NSW Heritage Act 1977*. Failure to notify the Heritage Council is considered an offence under the act, with penalties including fines and imprisonment. After contacting the Heritage Council, a permit or exemption should be sought under the relevant section of the act to allow works to recommence.

All Aboriginal objects and places are protected under the *NSW National Parks and Wildlife Act 1974* (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Office of Environment and Heritage (OEH). 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.

¹ Australia ICOMOS 2013

1 Introduction

1.1 Project background

This Historical Archaeological Impact Assessment has been prepared by Biosis on behalf of the Schools Infrastructure NSW (the Applicant). It accompanies an Environmental Impact Statement (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 SSD under Section 89(c) of the EP&A Act and Schedule 1 of the State and Regional Development SEPP (SSD 9354). The SEARs for the proposed development do not specify the requirement of an historical archaeological impact assessment. However, the study area is in the vicinity of two heritage sites listed under the Sydney Regional Environmental Plan No. 30 – St Marys, and as such an investigation of any potential items of heritage within the study area has been undertaken.

1.2 Location of the study area

The study area is located within the suburb of Jordan Springs, Penrith Local Government Area (LGA) (Figure 1). It is approximately 4.2 kilometres north-east of Penrith and approximately 47 kilometres north-west of the Sydney CBD. The study area incorporates Lot 22 DP1194338 and encompasses 2.99 hectares of private land, which is bounded by Lakeside Parade to the west, Cullen Avenue to the South, residential buildings to the North and residential buildings and public land to the East. The study area is currently zoned as Urban under the Sydney Regional Environmental Plan No. 30 – St Marys.

1.3 Scope of assessment

This report was prepared in accordance with current heritage guidelines including *Assessing heritage significance*, *Assessing Significance for Historical Archaeological Sites and 'Relics'* and the *Burra Charter*.²³ This report provides a heritage assessment to identify if any heritage items or relics exist within or in the vicinity of the study area. The heritage significance of these heritage items has been investigated and assessed in order to determine the most appropriate management strategy.

The following is a summary of the major objectives of the assessment:

- Identify and assess the heritage values associated with the study area. The assessment aims to achieve this objective through providing a brief summary of the principle historical influences that have contributed to creating the present – day built environment of the study area using resources already available and some limited new research.
- Assess the impact of the proposed works on the cultural heritage significance of the study area.
- Identify sites and features within the study area which are already recognised for their heritage value through statutory and non – statutory heritage listings.
- Recommend measures to avoid or mitigate any negative impacts on the heritage significance of the study area.

² Heritage Office 2001

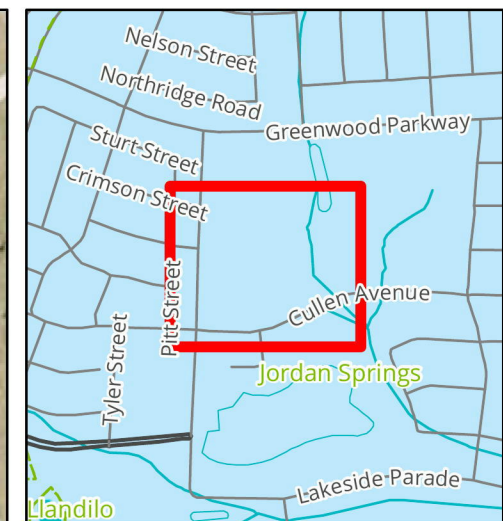
³ Australia ICOMOS 2013

1.4 Limitations

This report is based on historical research and field inspections. It is possible that further historical research or the emergence of new historical sources may support different interpretations of the evidence in this report.

The historical research undertaken for this report is based on primary documents including Crown and deposited plans, Certificates of Title and historical parish maps. This information was supplemented by existing studies and sources in order to present a history of the study area. The archaeological survey was constrained by the presence of built fabric and modified ground surface throughout the study area, limiting the observations of ground surface and identification of potential archaeological resources.





Legend

Study area

Figure 2: Study area detail

0 10 20 30 40 50
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 Statutory framework

In NSW cultural heritage is managed in a three-tiered system: national, state and local. Certain sites and items may require management under all three systems or only under one or two. The following discussion aims to outline the various levels of protection and approvals required to make changes to cultural heritage in the state.

2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Act 1999* (EPBC Act) is the national Act protecting the natural and cultural environment. The EPBC Act is administered by the Department of Environment and Energy (DEE). The EPBC Act establishes two heritage lists for the management of the natural and cultural environment:

- The National Heritage List (NHL) contains items listed on the NHL have been assessed to be of outstanding significance and define 'critical moments in our development as a nation'.⁴
- The Commonwealth Heritage List (CHL) contains items listed on the CHL are natural and cultural heritage places that are on Commonwealth land, in Commonwealth waters or are owned or managed by the Commonwealth. A place or item on the CHL has been assessed as possessing 'significant' heritage value.⁵

A search of the NHL and CHL did not yield any results associated with the study area.

2.2 NSW Heritage Act 1977

Heritage in NSW is principally protected by the *Heritage Act 1977* (as amended) which was passed for the purpose of conserving items of environmental heritage of NSW. Environmental heritage is broadly defined under Section 4 of the *Heritage Act 1977* as consisting of the following items: 'those places, buildings, works, relics, moveable objects, and precincts, of State or Local heritage significance'. The Act is administered by the Heritage Council, under delegation by the Heritage Division, Office of Environment and Heritage (OEH). The *Heritage Act 1977* is designed to protect both known heritage items (such as standing structures) and items that may not be immediately obvious (such as potential archaeological remains or 'relics'). Different parts of the *Heritage Act 1977* deal with different situations and types of heritage and the Act provides a number of mechanisms by which items and places of heritage significance may be protected.

2.2.1 State Heritage Register

Protection of items of State significance is by nomination and listing on the State Heritage Register (SHR) created under Part 3A of the *Heritage Act 1977*. The Register came into effect on 2 April 1999. The Register was

⁴ 'About National Heritage' <http://www.environment.gov.au/heritage/about/national/index.html>

⁵ 'Commonwealth Heritage List Criteria' <http://www.environment.gov.au/heritage/about/commonwealth/criteria.html>

established under the *Heritage Amendment Act* 1998. It replaces the earlier system of Permanent Conservation Orders as a means for protecting items with State significance.

A permit under Section 60 of the *Heritage Act 1977* is required for works on a site listed on the SHR, except for that work which complies with the conditions for exemptions to the requirement for obtaining a permit. Details of which minor works are exempted from the requirements to submit a Section 60 Application can be found in the Guideline 'Standard Exemptions for Works requiring Heritage Council Approval'. These exemptions came into force on 5 September 2008 and replace all previous exemptions.

There are no items/conservation areas listed on the SHR within the study area.

2.2.2 Archaeological relics

Section 139 of the *Heritage Act 1977* protects archaeological 'relics' from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological remains may be affected by the disturbance or excavation of the land. This section applies to all land in NSW that is not included on the SHR.

Amendments to the *Heritage Act 1977* made in 2009 changed the definition of an archaeological 'relic' under the Act. A 'relic' is defined by the Heritage Act as:

'Any deposit, object or material evidence:

- (a) which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) which is of State or Local significance'.*

It should be noted that not all remains that would be considered archaeological are relics under the NSW *Heritage Act 1977*. Advice given in the Archaeological Significance Assessment Guidelines is that a 'relic' would be viewed as a chattel and it is stated that,

*'In practice, an important historical archaeological site will be likely to contain a range of different elements as vestiges and remnants of the past. Such sites will include 'relics' of significance in the form of deposits, artefacts, objects and usually also other material evidence from demolished buildings, works or former structures which provide evidence of prior occupations but may not be "relics".'*⁶

If a relic, including shipwrecks in NSW waters (that is rivers, harbours, lakes and enclosed bays) is located, the discoverer is required to notify the NSW Heritage Council.

Section 139 of the *Heritage Act 1977* requires any person who knows or has reasonable cause to suspect that their proposed works will expose or disturb a 'relic' to first obtain an Excavation Permit from the Heritage Council of NSW (pursuant to Section 140 of the Act), unless there is an applicable exception (pursuant to Section 139(4)). Excavation permits are issued by the Heritage Council of NSW in accordance with sections 60 or 140 of the *Heritage Act 1977*. It is an offence to disturb or excavate land to discover, expose or move a relic without obtaining a permit. Excavation permits are usually issued subject to a range of conditions. These

⁶ NSW Heritage Branch, Department of Planning 2009, p.7

conditions will relate to matters such as reporting requirements and artefact cataloguing, storage and curation.

However, SSD projects are not required to obtain an excavation permit under Section 139 of the Heritage Act, as per Section 5.23 (1) (c) of the EP&A Act. Despite this, section 146 of the *Heritage Act 1977* is still applicable to SSD projects. If during the course of the development, substantial intact archaeological relics of state or local significance not identified in the archaeological assessment are unexpectedly discovered during excavation, work must cease in the affected area and the Heritage Office must be notified in writing in accordance with section 146 of the *Heritage Act 1977*. Depending on the nature of the discovery, additional assessment may be required prior to the recommencement of excavation in the affected area.

2.2.3 Section 170 Heritage and Conservation Registers

Section 170 of the *Heritage Act 1977* requires that culturally significant items or places managed or owned by Government agencies are listed on departmental Heritage and Conservation Register. Information on these registers has been prepared in accordance with Heritage Division guidelines.

Statutory obligations for archaeological sites that are listed on a Section 170 Register include notification to the Heritage Council in addition to relic's provision obligations. There are no items within or adjacent to the study area that are entered on a State government instrumentality Section 170 Register.

2.3 Environmental Planning and Assessment Act 1979

2.3.1 Local Environmental Plan (LEP)

The Penrith LEP contains schedules of heritage items that are managed by the controls in the instrument. As the project is being undertaken under Part 4 of the EP&A Act, Council is responsible for approving controlled work via the development application system. There are no heritage items listed within the study area and no heritage items or conservation areas within close proximity to the study area.

2.3.2 Penrith Development Control Plan 2014

The Penrith Development Control Plan 2014 (PDCP) outlines built form controls to guide development. The PDCP supplements the provisions of the Penrith LEP.

The heritage objectives of the DCP are to ensure that areas identified as European cultural heritage sites or archaeological sites are managed appropriately. This is done through the requirement to provide a Heritage Management Document, which details the heritage significance of any heritage items, impacts from proposed developments and mitigation or management measures to be implemented, and a report which confirms whether any archaeological material relating to relevant heritage items are likely to be present. Where archaeological material is identified, development proposals are to address the requirements of the Heritage Act 1977 and liaison with the Office of Environment and Heritage (OEH) to ensure all statutory requirements are complied with. If relics are discovered during development, works are required to cease immediately and the Heritage Division be contacted. The DCP also stipulates that any features which contribute to the significance or historical understanding of the heritage item or conservation area, are to be preserved, as are any significant landscape elements and/or views associated with the item, any property boundaries and significant uses (where possible). Alterations and additions made to built heritage items are to be located away from significant and/or primary elevations, and behind and below the main ridge line of the item, while existing fabric, use, association and meanings of heritage items are to be recorded prior to any changes being made. If preservation cannot be achieved, the DCP states that all avenues for retention must be met and documented prior to submitting a demolition application, and if a permit is awarded the item must be adequately documented and made available for salvage where appropriate.

2.3.3 Sydney Regional Environmental Plan No. 30 – St Marys

The Sydney Regional Environmental Plan No. 30 – St Marys contains schedules of heritage conservation areas, heritage items and potential historical archaeological sites that are managed by controls in the instrument. This Plan was deemed a SEPP on 1 July 2009. There are several items of heritage significance located in the vicinity of the study area (see Plate 1):

- Site 14 – Dumble’s new house and outbuildings, 1208 The Northern Road, Llandilo NSW (Lot 2, DP 1216994), located approximately 532 metres south-west of the study area adjacent to the Northern Road.
- Site 15 – Dumble’s old house, 1-2 Discovery Way, Jordan Springs NSW (Lot 3000, DP 1168994), located approximately 257 metres north-west of the study area, adjacent to the Northern Road.

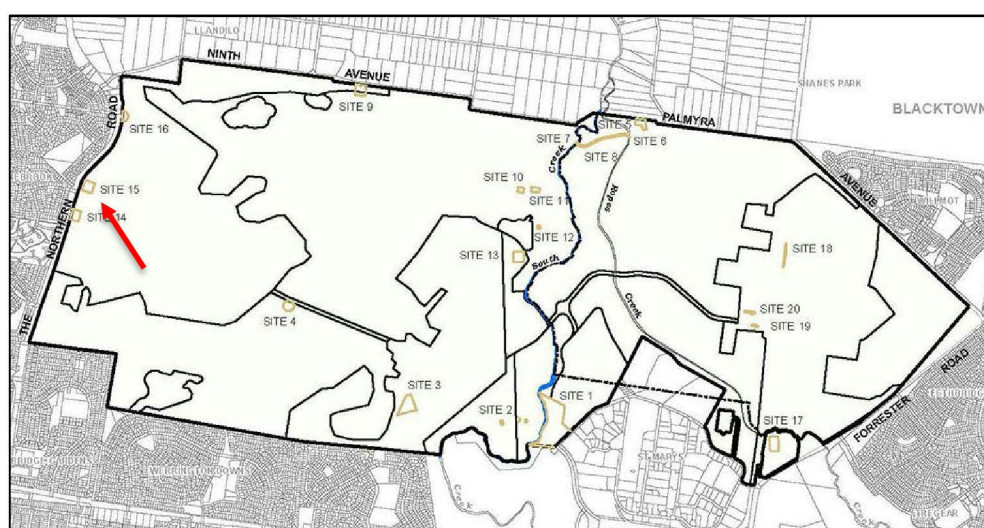


Plate 1 Heritage items within the Sydney Regional Environmental Plan No. 30 - St Marys, with the location of the study area indicated by the red arrow (Source: NSW Department of Planning)

2.4 Summary of heritage listings

A summary of heritage listings within and in the vicinity of the study area is presented in Table 1.

Table 1 Summary of heritage listings within and adjacent to the study area

Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
Site 14	Dumble’s new house and outbuildings	1208 The Northern Road, Llandilo NSW (Lot 2, DP 1216994)	Sydney Regional Environmental Plan No. 30 – St Marys		Not specified
Site 15	Dumble’s old house	1-2 Discovery Way, Jordan Springs NSW (Lot 3000, DP 1168994)	Sydney Regional Environmental Plan No. 30 – St Marys		Not specified

3 Historical context

Historical research has been undertaken to identify the land use history of the study area, to isolate key phases in its history and to identify the location of any built heritage or archaeological resources which may be associated with the study area. The historical research places the history of the study area into the broader context of the Penrith region.

3.1 Topography and resources

The study area is situated approximately 4.2 kilometres north-east of Penrith Central Business District (CBD) and is 3.4 kilometres from South Creek and 4.2 kilometres from the Nepean River, both high order, perennial water courses. The study area is also directly adjacent to two first order streams on the Eastern and Southern sides.

The study area lies within the Cumberland Plain landscape, which is a broad and shallow basin that stretches westwards from Parramatta to the Hawkesbury-Nepean River and southwards from Windsor to Thirlmere.⁷ The general elevation is between 30 to 120 meters, with a local relief of 50 meters. The region also features red to brown clays present on volcanic hills and red and brown texture-contrast soils on the crests, which change to yellow texture-contrast soils in the valleys.⁸

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.⁹

3.2 Aboriginal past

It is generally accepted that people have inhabited the Australian landmass for at least 50,000 years.¹⁰ Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The timing for the human occupation of the Sydney Basin is still uncertain. While there is some possible evidence for occupation of the region around 40,000 years ago, the earliest known radiocarbon date for the Aboriginal occupation of the Sydney Basin is associated with a cultural / archaeological deposit is at Parramatta, which was dated to 30,735 ± 407 before present (BP).¹¹

⁷ Mitchell 2002

⁸ Mitchell 2002

⁹ Bannerman & Hazelton 1990, pp.63–66

¹⁰ Allen and O'Connell 2003

¹¹ Jo McDonald Cultural Heritage Management Pty Ltd 2005a, Jo McDonald Cultural Heritage Management Pty Ltd 2005b

Archaeological evidence of Aboriginal occupation of the Cumberland Plains indicates that the area was intensively occupied from approximately 4000 years BP.¹² These relatively recent dates are probably more a reflection of the conditions associated with the preservation of this evidence and the areas that have been subject to surface and subsurface archaeological investigations, rather than actual evidence of the Aboriginal people prior to this time.

There is some confusion relating to Aboriginal 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. The project area is in the vicinity of three language groups, Dharawal, Gundungurra and the hinterland Darug. Attenbrow suggests:¹³

- the Gundungurra covered “the southern rim of the Cumberland Plain west of the Georges River, as well as the southern Blue Mountains”
- the Dharawal covered “the south side of Botany Bay, extending as far as the Shoalhaven River; from the coast to the Georges River and Appin, possibly as far west as Camden”
- the hinterland Darug covered the area “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.”

These areas are considered to be indicative only and would have changed through time. 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.¹⁴ 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.

3.3 Historical development

3.3.1 Exploration (1789 to 1803)

The earliest settlements in the Colony were generally located in areas such as rivers and coastal areas which could be easily accessed by boat. Transport by water was vital for the development of the colony as passengers and goods could be moved with little requirement for capital works. In 1789, eighteen months after the First Fleet landed in Botany Bay and settled in Sydney Cove, an exploration led by Captain Watkin Tench, accompanied by Thomas Arndell assistant surgeon, two marines, and a convict, was conducted extending west of Parramatta to the foothills of the Blue Mountains.¹⁵ This was spurred on by the need to

¹² Dallas 1982

¹³ Attenbrow 2002, 32

¹⁴ Brookes & Associates et al. 2003, 16

¹⁵ Paul Davies Pty Ltd 2007a

discover more agriculturally viable land, as the Sydney Cove did not contain rich alluvial deposits for farming or cultivation¹⁶. This resulted in the discovery of the Nepean River and subsequent settlement of Evan, aptly named after the Under Secretary of the Home Office in Britain, Evan Nepean.¹⁷ It was not until 1803 that Governor King sanctioned settlements on the eastern banks of the Nepean River, with the first land grants being surveyed and marked by Surveyor Grimes and James Meehan. These grants varied from 40 – 200 acres (16 – 80 hectares), however records show grants up to 1000 acres (405 hectares) or more were also granted. This area contained rich alluvial deposits, supporting strong agricultural ventures, hence establishing the foundations for the colony to flourish.¹⁸

3.3.2 Early development (1803 to 1857)

The first recorded land grants in the Penrith area can be traced back to 1805, with portions of land granted in the parish of Londonderry and nearby parishes of Rooty Hill and South Creek to Captain John Houston (Portion 104), Charlotte Bishop (Portion 106) and Philip Parker King (Portion 107) between 1805 and 1806.¹⁹ These land grants were made to free settlers, military personnel and government officials, on the eastern side of the river, with settlement restricted on the western side until the 1820s.²⁰ In 1817, Richard Brooks received a grant of 700 acres (283.28 hectares), directly adjacent to the study area, on the eastern side. Parish maps dating to 1835 illustrate that large portions of the parish of Londonderry, including the study area, remained unallocated until 1857 as part of Castlereagh Common (Plate 2).

¹⁶ Thorp 1986

¹⁷ Penrith Australia n.d.

¹⁸ Thorp 1986

¹⁹ Casey & Lowe 1994

²⁰ Thorp 1986

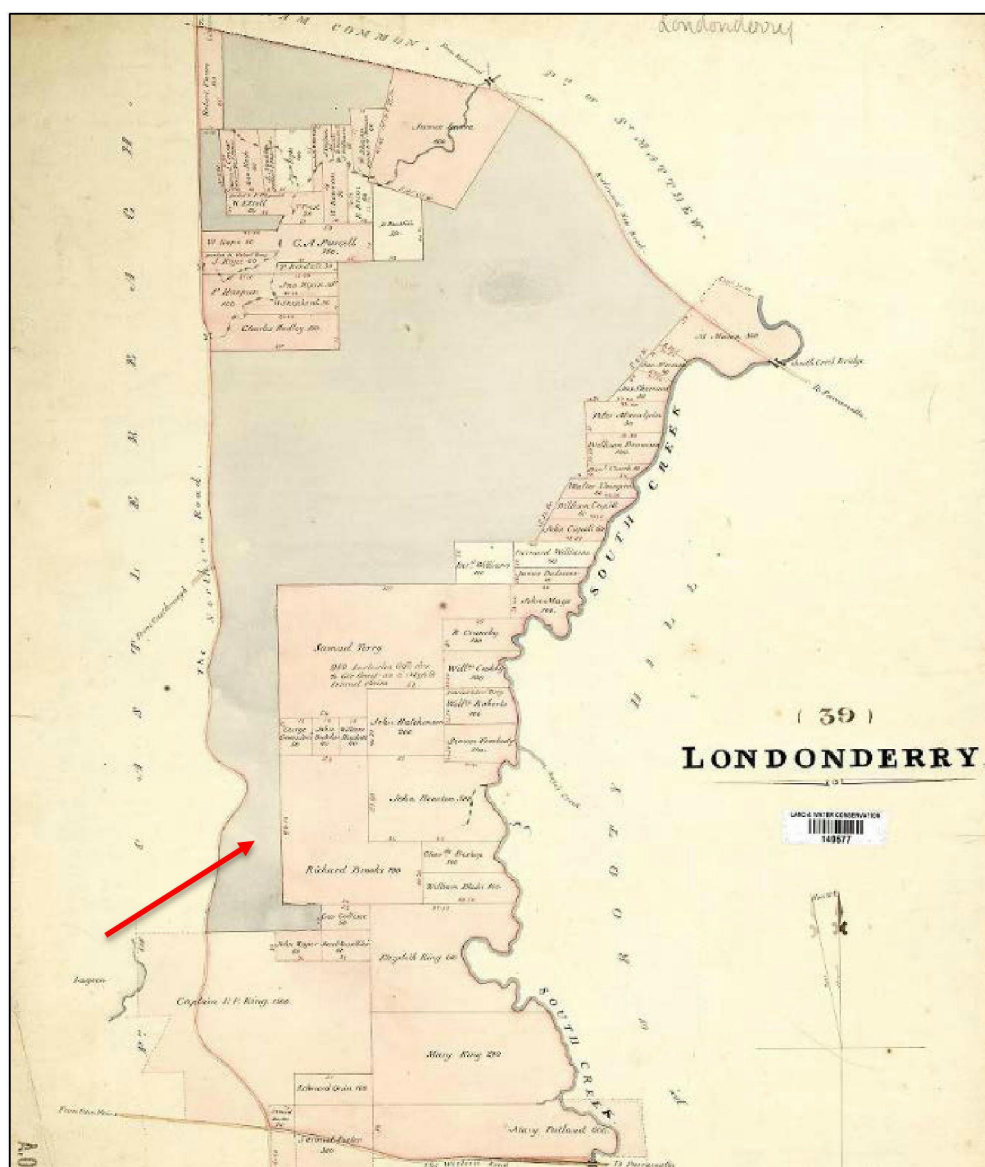


Plate 2 1835 parish map of Londonderry and portion of Castlereagh Common (shaded in grey)

The town of Penrith was first mentioned in 1821, in reference to a Mr. John Proctor being appointed keeper of the new gaol and courthouse; Penrith featured in the *Sydney Gazette and New South Wales Advertiser* as a rest stop for individuals travelling west.²¹ Throughout the Penrith district, major land grants were given in the parish of Mulgoa Valley, St Marys and Castlereagh, and as a result large estates were established such as Dunheved and Mamre. During the 1820s, farming practices shifted from wheat growing to grazing, with the

²¹ 1821 "GOVERNMENT AND GENERAL ORDERS." *The Sydney Gazette and New South Wales Advertiser* (NSW : 1803 - 1842), 8 December, p. 1 , viewed 5 Oct 2018, <http://nla.gov.au/nla.news-article2180655>

government providing incentives favouring beef production.²² By 1828, the Penrith district, along with the Castlereagh district, possessed almost 8% of the colony's population, with a strong focus on agriculture.²³ Between 1828 and 1839, Penrith constructed a post office and Anglican Church.²⁴

It was not until the early 1850s that development in the wider Penrith area started to occur. Prior to 1850, settlement within the study area and much of Londonderry and the surrounding parishes (ie. St. Mary's), was minimal.²⁵ Large portions of available land throughout the parishes of Londonderry, Rooty Hill and St. Mary's were yet to be cleared or farmed, with the study area still held in reserve as part of the Castlereagh Common. The Castlereagh Common was a large portion of unallocated, timbered crown land used for 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 1821.²⁶ In the early 1820s, Captain Philip Parker King bought a significant area of the common, removing it from public use, causing outrage from the farmer's in the vicinity. The remaining available land on the northern side of King's holdings was too sterile to graze, with King's land being further away from the Nepean River than the northern land, providing better conditions for grazing. The remaining unallocated land north of King's property was used as a common until 1856, with the size of the common reducing over the years. In 1856, and again in 1857, the land occupied by the common was surveyed by Fredrick William Birmingham, for subdivision. In 1857, twelve lots were put up for auction along the Northern Road. Auctions and elections regarding the trustees of the common were still occurring into the 1890s.²⁷

3.3.3 Land Grants (1857 to 1941)

Records show that in 1857 the study area was granted to James Kernahan (Portion 121) and James Tobias Ryan (Portion 110), who were given 75 acres (30 hectares) and 60 acres (24 hectares) respectively (Plate 3). Ryan was the son of John Michael Tobin Ryan, a printer and convict who arrived in 1815 on the *Indefatigable*.²⁸ His grandparents were also convicts, brought over on the First Fleet and among the first people to be married in the colony. Ryan relocated to the Nepean district in 1838 and in 1857 purchased two portions of land adjacent to each other (Portions 110 and 111). Ryan did not live on his land, nor was he interested in cultivating the land during his ownership, and the following year sold his portions to his neighbour, James Kernahan.²⁹

²² Thorp 1986

²³ Thorp 1986

²⁴ Penrith City Library n.d.

²⁵ GML 2011

²⁶ GML 2011

²⁷ Casey & Lowe Pty Ltd 2008

²⁸ Andrews 1976

²⁹ Andrews 1976; Casey & Lowe Pty Ltd 2008

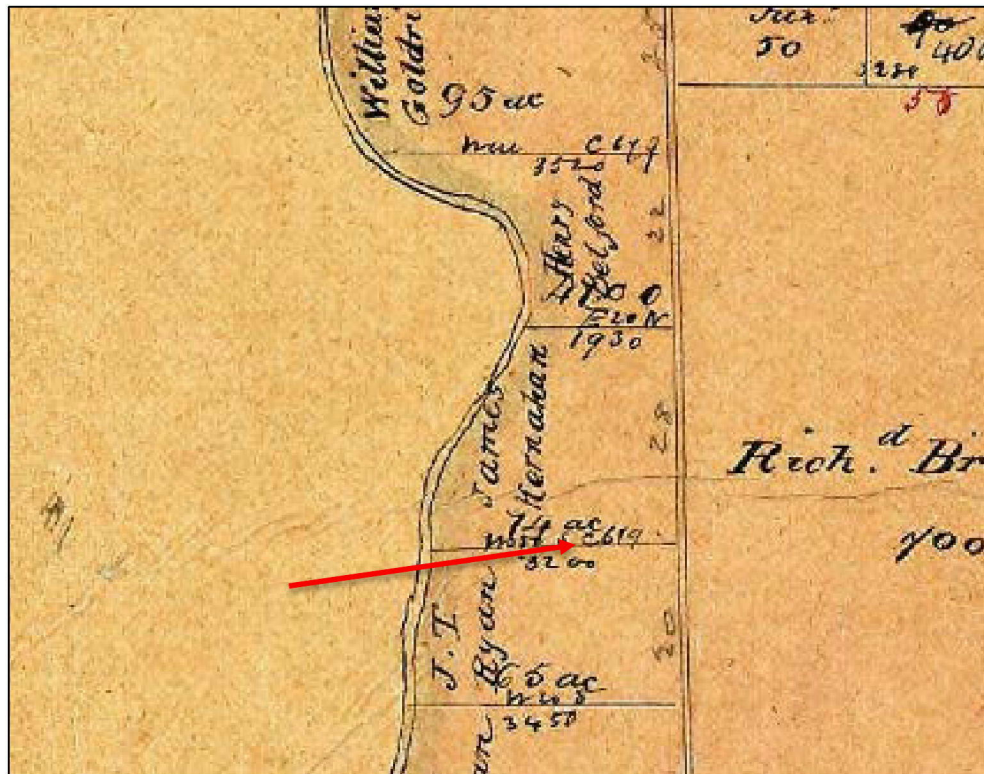


Plate 3 Extract from an undated Londonderry parish map, with the red arrow indicating the location of the study area (Source: NSW Land Registry Services)

Kernahan, a farmer and labourer from Parramatta, originally purchased Portions 112 and 121 in the 1857 auctions along the Northern Road and mortgaged his land out over the course of his ownership. In 1858, he purchased the remaining land between his portions (110 and 111) from Ryan, consolidating his assets into one large area, totalling 313 acres (126.67 hectares). Due to the mortgages on his land, it is unlikely that he lived on his land in Londonderry parish, rather he resided at his other property in Ryde. In 1865, George Wigram Allen, William Archibald Douglas and Anne Homer mortgaged the land and in 1881 he gifted the land (Portion 121 and 110) to his son James Joseph Kernahan, a baker, butcher and wholesaler in Penrith.³⁰ The following year James Joseph Kernahan sold the land to John Brown, never having lived on it. Brown was a successful pastoralist who may have retired to the Penrith district. Portions 110 and 121 changed ownership frequently over the next 60 years (Table 2).³¹

Frederick Dumble, a farmer, acquired the land in 1939 and started a dairy and commercial flower growing on the property. Structures and equipment on the property included galvanised piping for irrigation purposes and a 4-horse power diesel engine and pump; two residential structures are known within the property and

³⁰ NSW Land Registry Services, Book 93 No.372; NSW Land Registry Services, Book 221 No. 712; Casey & Lowe Pty Ltd 2008

³¹ Casey & Lowe Pty Ltd 2008

are listed archaeological sites, but these are outside of the study area closer to the Northern Road. It is possible that other structures related to the dairy may have been located within the study area, but this could not be confirmed. A previous assessment for the study area determined that any potential remains associated with historical occupation of land containing the study area are unlikely to meet the requirements for local heritage significance. The land was resumed by the Commonwealth of Australia for a munitions site in 1941.³²

Table 2 Changes in Ownership of Portions 110 and 121 (Source: Casey & Lowe Pty Ltd 2008, 23)

Date	Ownership
pre 1857	Castlereagh Common
1857	Grant (by purchase) to James Tobias Ryan (Portion 110) and James Kernahan (Portion 121)
1858	Ryan sold grants (Portions 110 and 111) to Kernahan
1865	Kernahan mortgages land to George Wigram Allen, William Archibald Douglas and Anne Homer
1881	Kernahan gifted land to his son James Joseph Kernahan
1882	James Joseph Kernahan sold land to John Brown
1891	T.B. Brown, W.S. Deane and W. Clarke sold to William Fleming
1896	William Fleming sold land to Francis Greer
1901	Australian Joint Stock Bank takes possession and then sells to James Clayton
1903	James Clayton sold land to W.G. Ashford and J.W. Barwick
1903	W.G. Ashford and J.W. Barwick sell to P.S. Luscombe in same year as purchase
1918	P.S. Luscombe sold land to Catherine Slack
1922	Catherine Slack sold land to J.A. Hamilton
1923	J.A. Hamilton sold land to Mrs Ellen Mary Smith
1939	Mrs E.M. Smith sold land to Frederick Dumble
1941	Commonwealth of Australia resumes land for St. Mary's munition factory

3.3.4 Commonwealth industrial military use and residential development (1941 to present)

During the Second World War (1939 – 1945) the Commonwealth government resumed large portions of land for a munitions site in St. Mary's, with the munitions site falling within the study area. From the mid-1930s, the Australian government had been reinvesting in military weapons and other ordnances, due to the escalating tensions in Europe and Asia.³³ Sites such as St. Mary's, were developed on the notion that Australia needed to

³² Casey & Lowe Pty Ltd 2008

³³ GML 2011

be able to provide a centralised arsenal, to protect and serve in the case of another war.³⁴ Leading figures in defence at the time, such as Arthur Edgar Leighton and J.K. Jensen, saw the need for the establishment of a long term plan, which would solidify Australia's standing in global affairs. By 1939, Australia had constructed six munition factories throughout Victoria, and with the commencement of the Second World War, the government decided to increase production and establish further sites interstate, including New South Wales.³⁵

By 1941, St. Mary's munitions factory was one of 50 facilities throughout Australia built for military production, and was primarily used as an explosives and filling factory (Plate 4).³⁶ The location was chosen due to its close proximity to the railway and water on the western and eastern sides of the site. Additionally, the site was large enough to store large amounts of armaments. The factory started production in late 1942 and continued to produce arsenal until the culmination of the war in 1945. The primary use of the site was to take military weapons, such as shells, propellant, fuses and projectiles from other factories throughout Australia, and reconstitute the materials to create bullets, bombs or other military ammunition.³⁷ After the culmination of the war the site was closed down, with sections of the site converted and redeveloped for private industrial usage. However, in early 1950s, with the commencement of the Korean War, the government wanted to increase the level of production and stockpile of weapons, as the previous inventory had been depleted.³⁸

³⁴ GML 2011

³⁵ GML 2011

³⁶ Allom Lovell and Associates 1994

³⁷ GML 2011

³⁸ GML 2011

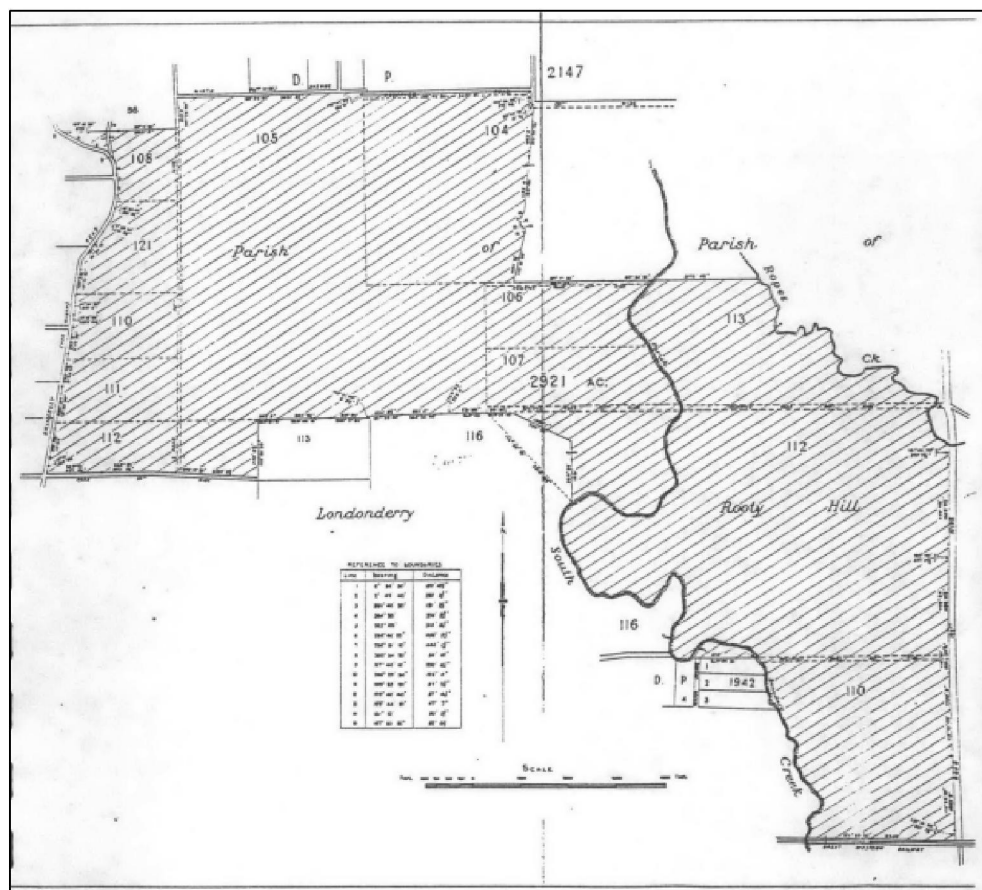


Plate 4 Land resumed for the munitions factory by the Commonwealth government in 1941
(Source: Casey & Lowe 1994)

From 1955 to 1958, a new factory was built on top of the previous 1942 site, with some of the original buildings used in the redevelopment.³⁹ Although the new factory did not open until after the Korean War, the government continued operation, and with the commencement of the Vietnam War in 1962, production was increased to support the Australian troops overseas.⁴⁰ There were additions to the factory over the years, with the site taken over by the Australian Defence Industries (ADI), with further development occurring under the ADI until 1991.⁴¹ The site was operational until 1994 and in 1995 production ceased and destruction of the live ammunition commenced.⁴² The factory was relocated to a new 'state-of-the-art' facility in Benalla, Victoria, in 1996.⁴³

³⁹ GML 2011

⁴⁰ GML 2011

⁴¹ GML 2011

⁴² GML 2011

⁴³ GML 2011

The study area is located on the western border of the previous munitions site. Defence records from 1941 describe the Dumble property 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.⁴⁴

An aerial photograph dating to 1947 shows several trees, tracks and a structure [1] 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 [1] and most of the trees still remaining at this time (Plate 6).

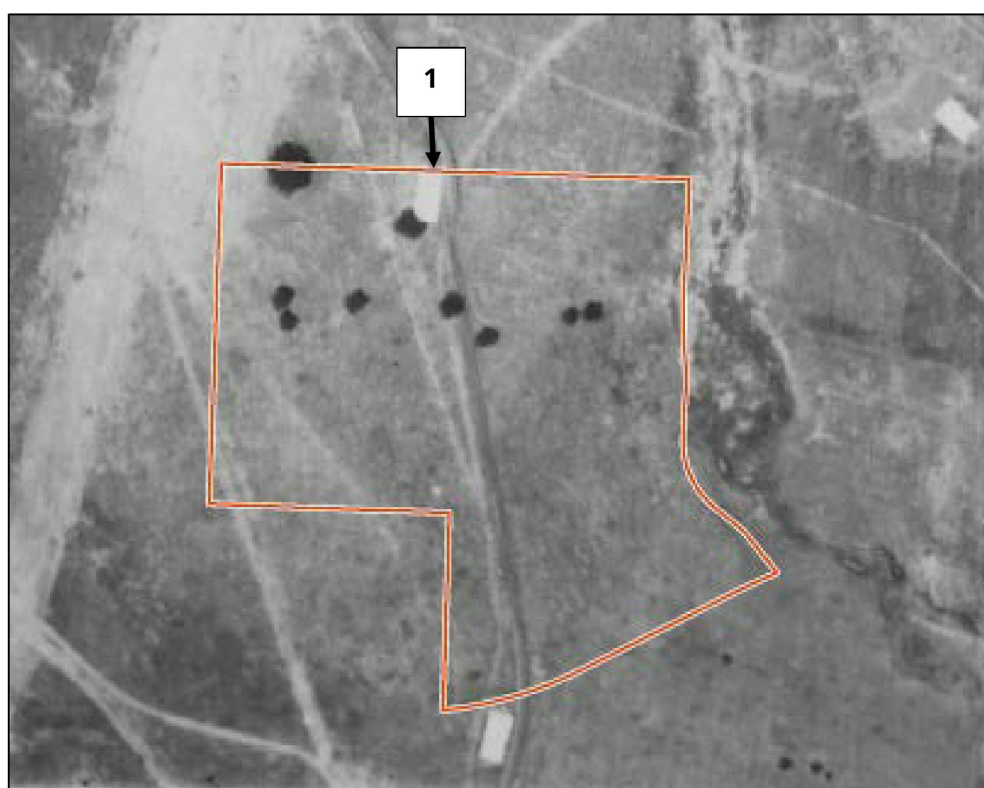


Plate 5 Extract from an aerial photograph dating to 1947 with the study area highlighted (Source: NSW Spatial Services 2018)

⁴⁴ AA Series SP857/8, PM/1941/204, 15/5/1941, cited by Casey & Lowe Pty Ltd 2008

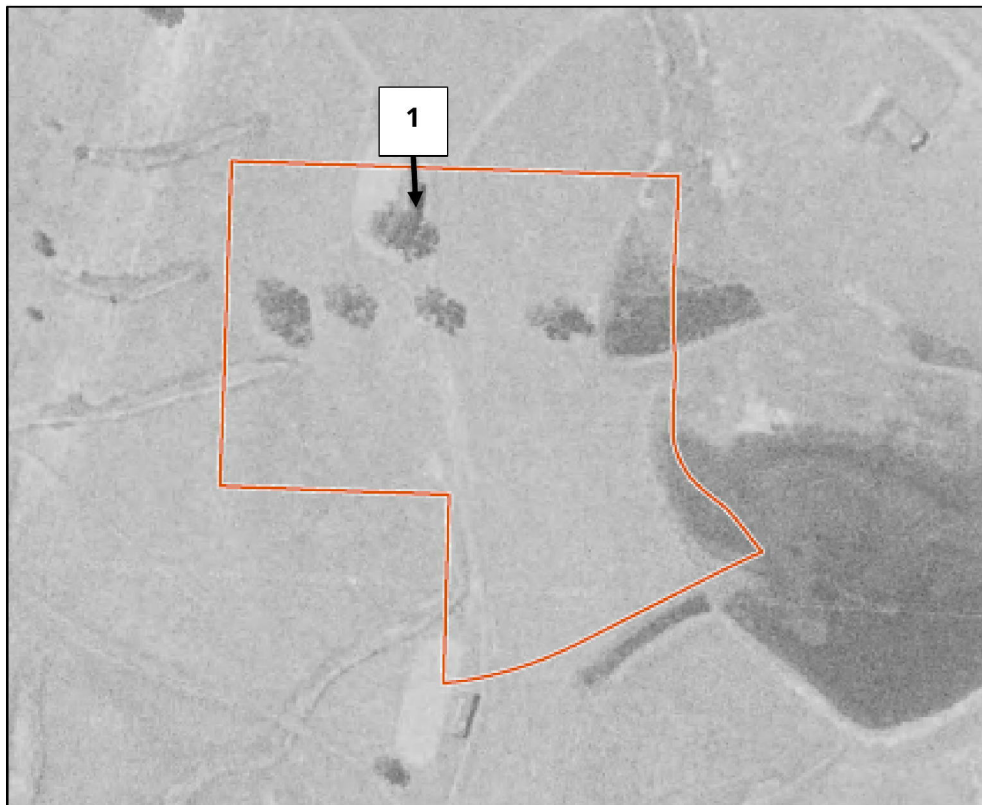


Plate 6 Extract from a 1978 aerial photograph, with the study area highlighted (Source: NSW Spatial Services 2018)

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.⁴⁵ GoogleMaps imagery from 2014 (Plate 7) 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 (Plate 6). A site inspection carried out for an initial environmental site assessment in 2017 by Environmental Investigation Services reported site staff comments regarding the presence of a brick kiln [2] and unexploded ordnance prior to the land being remediated; the stockpiled soil was still present at this time.⁴⁶

⁴⁵ Casey & Lowe Pty Ltd 2008

⁴⁶ Environmental Investigation Services 2007

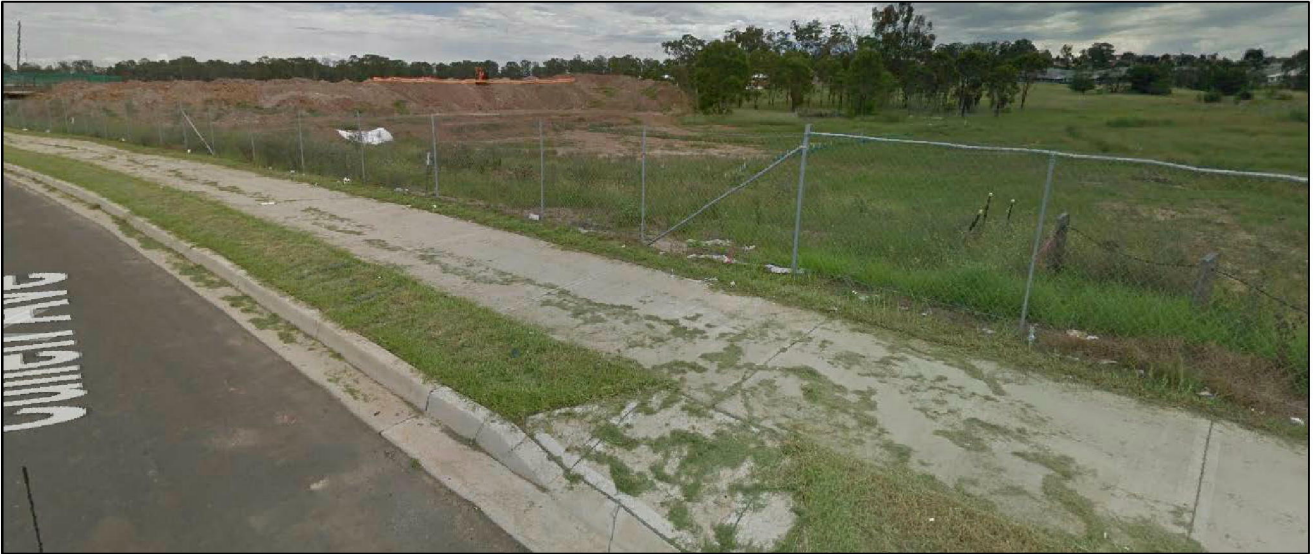


Plate 7 2014 GoogleMaps imagery of the study area, facing north-west (Source: Google 2018)

The brick kiln [2] may have been a local small-scale brick making facility, but its date is uncertain. A feature in the 1947 aerial (Plate 5) and 1978 aerial (Plate 6) near the central track in the south-western part of the study area could potentially be this item. There is little information available relating to the background of this brick kiln. It could possibly have been part of the Dumble family's occupation of the study area, or perhaps a remnant of small-scale local brickmaking activities which were prompted by urban and rural settlement growth from the 1880s onwards, but this could not be confirmed. It could equally have been part of the wider operations of the Commonwealth on the site from 1941.⁴⁷

⁴⁷ (Casey & Lowe 1994, Paul Davies Pty Ltd 2007b)

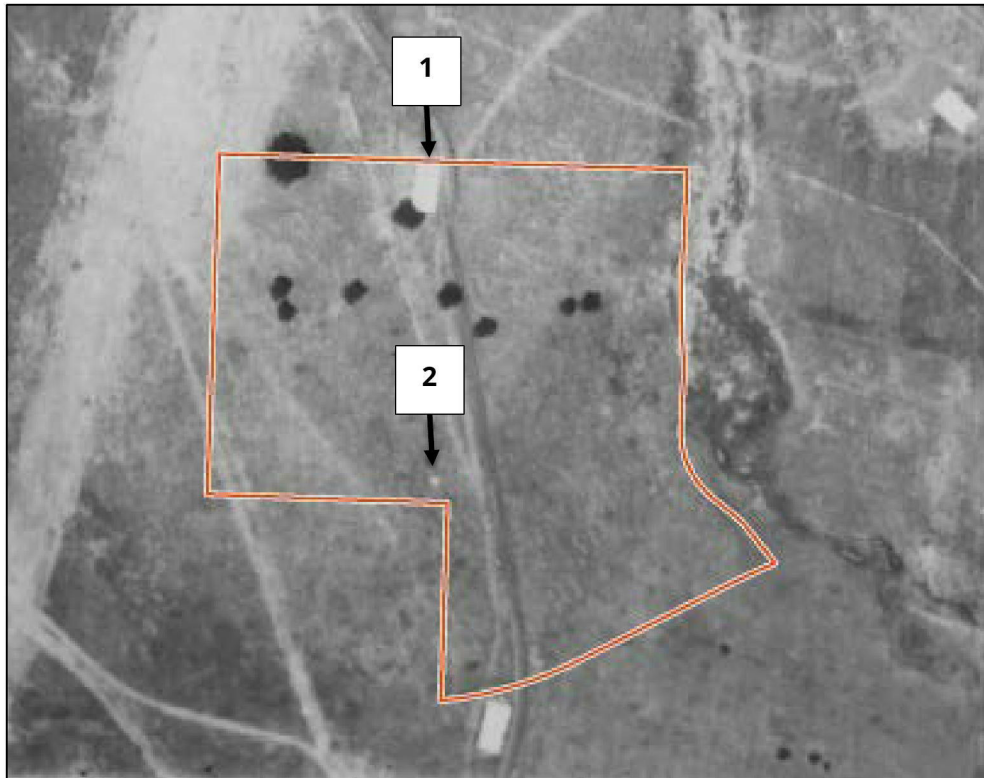


Plate 8 Extract from an aerial photograph dating to 1947 with the study area highlighted, showing the location of the military structure [1] and brick kiln [2] (Source: NSW Spatial Services 2018)

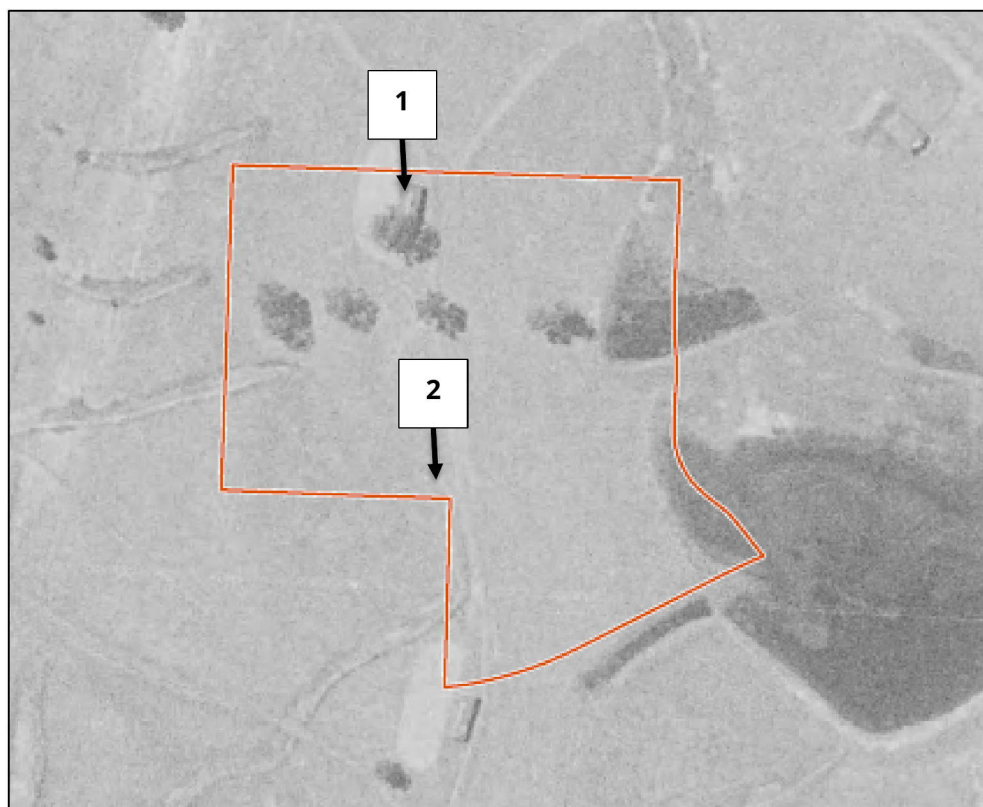


Plate 9 Extract from a 1978 aerial photograph, with the study area highlighted, showing the location of the military structure [1] and brick kiln [2] (Source: NSW Spatial Services 2018)

3.4 Chronology of the study area

Based upon the historical research presented it is possible to summarise the chronology of the study area, this is presented in Table 3.

Table 3 Chronological development of the study area

No.	Building	Date
1	Munitions factory-related structure	c.1941
2	Brick kiln	c.1920-c.1941

3.5 Research themes

Contextual analysis is undertaken to place the history of a particular site within relevant historical contexts in order to gauge how typical or unique the history of a particular site actually is. This is usually ascertained by gaining an understanding of the history of a site in relation to the broad historical themes characterising

Australia at the time. Such themes have been established by the Australian Heritage Commission (AHC) and the Heritage Office and are outlined in synoptic form in Historical Themes.⁴⁸

There are 38 State historical themes, which have been developed for NSW, as well as nine National historical themes. These broader themes are usually referred to when developing sub-themes for a local area to ensure they complement the overall thematic framework for the broader region.

A review of the contextual history in conjunction with the local historical thematic history has identified one historical theme which relates to the occupational history of the study area.⁴⁹ This is summarised in Table 4.

Table 4 Identified historical themes for the study area

Australian Theme	NSW Theme	Local Theme
Developing local, regional and national economies	Pastoralism	Country estates
	Agriculture	Rural settlement
	Industry	Industrial development
Governing	Defence	Industrial development

⁴⁸ NSW Heritage Council 2001

⁴⁹ Paul Davies Pty Ltd 2007b

4 Physical inspection

A physical inspection of the study area was undertaken on 5 October 2018, attended by Charlotte Allen (Field Archaeologist, Biosis) and Steven Randall (Deerubbin Local Aboriginal Land Council). The principal aims of the survey were to identify heritage values associated with the study area; this included any heritage items (Heritage items can be buildings, structures, places, relics or other works of historical, aesthetic, social, technical/research or natural heritage significance. 'Places' include conservation areas, sites, precincts, gardens, landscapes and areas of archaeological potential).

4.1 Site setting

The study area consists of one lot and is bordered on its northern side by Lots 12 and 42-53, DP 1217814, on its eastern side by Lot 23, DP 1194338, Cullen Avenue and Lots 6 and 7, DP 1176874 on its southern side and Lakeside Parade on its western side. 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. The study area is surrounded by parkland and new suburban development as part of the growing suburb of Jordan Springs.

The study area consists of a cleared grassed site largely devoid of vegetation or structures (Plate 10, Plate 11, Plate 12, Plate 13, Plate 14, Plate 15). The study area is bounded by metal fencing on the northern side and south-western corner, and by wire fencing along the eastern, southern and western boundaries. Some young plantings including casuarina trees are present along the boundaries of the study area (Plate 13, Plate 15). A sewer pit cover was identified in the south-eastern corner of the study area and several boreholes from prior geotechnical testing were also noted (Plate 16, Plate 17).



Plate 10 North-west facing view of the study area, with the childcare centre and residential development visible along the boundary fences



Plate 11 East-facing view of the study area, looking towards the modified creek and residential development



Plate 12 South-west facing view from the study area to mid-rise residential development on Cullen Avenue



Plate 13 East-facing view from the north-western portion of the study area, looking towards the modified creek



Plate 14 South-west facing view of the study area, looking towards residential and commercial development



Plate 15 South-facing view towards Cullen Avenue from the central-eastern portion of the study area



Plate 16 Sewer cap location in the south-eastern corner of the study area



Plate 17 Example of geotesting borehole present in the southern portion of the study area

4.2 Built fabric assessment

No built fabric, modern nor historical, was identified during the inspection.

4.3 Archaeological assessment

The potential archaeological resource relates to the predicted level of preservation of archaeological resources within the study area. Archaeological potential is influenced by the geographical and topographical location, the level of development, subsequent impacts, levels of onsite fill and the factors influencing preservation such as soil type. An assessment of archaeological potential has been derived from the historical analysis undertaken during the preparation of this report.

4.3.1 Archaeological resource

This section discusses the archaeological resource within the study area. The purpose of the analysis is to outline what archaeological deposits or structures are likely to be present within the study area and how these relate to the history of land use associated with the study area.

The historical context presented in this report indicates that the study area was used largely for farming purposes, mostly likely pastoral or dairying activities prior to the resumption of the site by the Commonwealth government for the establishment of a munitions factory in 1941. Other than the military building [1] present in the 1947 aerial and the brick kiln [2] noted by site staff in 2017, there is no evidence to suggest that any historical structures were contained within the study area. Any archaeological evidence associated with the military building [1] and brick kiln [2] would likely present as wall or kiln chamber foundations or footings, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters possibly containing tools, unexploded ordnance or munitions, bricks and waste material from the building or brick kiln.

As the study area was once part of a farming property, it is possible that landscape elements such as fences may have been used to divide the land into paddocks. Evidence of these would present as postholes, remnant posts and associated cuts.

4.3.2 Integrity of sub-surface deposits

Environmental and geotechnical assessments undertaken within the study area indicate that the study area has undergone some recent modifications related to the suburban development of the wider landscape. It is possible that the study area may have been part of remediation works undertaken on land west of the study area as noted by Casey & Lowe during the 1990s.⁵⁰ More recently, the study area has undergone some disturbance and levelling. 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 likely used to fill in the dam in the north-eastern portion of the study area visible in the 1978 aerial photograph. The borehole

⁵⁰ Casey & Lowe 1994

taken within the vicinity of the possible location of the brick kiln features 0.5 metres of clayey silty fill, suggesting that this area was part of the site levelling.⁵¹

Should remediation have taken place, this is likely to have disturbed or removed archaeological material within those areas treated. However, the site levelling activities may well have preserved any archaeology present, depending on whether there was any clearing or minor remediation prior to the laying of fill materials.

4.3.3 Research potential

Archaeological research potential refers to the ability of archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site. Archaeological research potential differs from archaeological potential in that the presence of an archaeological resource (i.e. archaeological potential) does not mean that it can provide any additional information that increases our understanding of a site or the past (i.e. archaeological research potential).

The research potential of a site is also affected by the integrity of the archaeological resource within a study area. If a site is disturbed, then vital contextual information that links material evidence to a stratigraphic sequence may be missing and it may be impossible to relate material evidence to activities on a site. This is generally held to reduce the ability of an archaeological site to answer research questions.

Assessment of the research potential of a site also relates to the level of existing documentation of a site and of the nature of the research done so far (the research framework), to produce a 'knowledge' pool to which research into archaeological remains can add.

Developing local, regional and national economies – Pastoralism and Agriculture - Country estates and rural settlement

The possible archaeological material associated with the historical use of the study area as a farming property is likely to be the remnants of landscape features such as fence lines. However, these are unlikely to increase our knowledge of or respond to research questions relating to the pastoral or agricultural activities of rural settlement and country estates within the Penrith district or NSW, more than what existing documentary sources can reveal.

Developing local, regional and national economies – Industry – Industrial development

The presence of a small brick kiln [2] within the study area suggests that the land containing the study area was possibly used for industrial purposes prior to the establishment of the Commonwealth munitions factory site, potentially by the Dumble dairy farm from 1920-1940 or earlier landholders. However, it is difficult to determine whether the brick kiln dates earlier than c.1920-c.1941. Furthermore, any remains associated with the brick kiln are unlikely to increase our knowledge of the industrial development of the Penrith district or NSW more than existing documentary sources.

⁵¹ (JK Geotechnics 2017, EIS Consulting 2017, WSP Consulting 2018)

Governing – Defence - Industrial development

The study area was part of a Commonwealth munitions factory and ADI site from 1941 until the mid-1990s, and was likely used for training exercises and storage of munitions within the northern structure [1] present in the 1947 aerial photograph (Plate 5). It is also possible that the brick kiln [2] present within the centre of the study area was established as part of the munitions factory. Should any archaeological remains relating to the storage building [1], brick kiln [2] or other associated occupational material be present within the study area, it is unlikely that they will provide additional information on the munitions factory or ADI site that cannot be gained from documentary sources.

4.3.4 Summary of archaeological potential

Through an analysis of the above factors a number of assumptions have been made relating to the archaeological potential of the study area, these are presented in Table 5 and Figure 3.

The assessment of archaeological potential has been divided into three categories:

- **High archaeological potential** – based upon the historical context and documentary evidence presented within this report there is a high degree of certainty that archaeologically significant remains relating to this period, theme or event will occur within the study area.
- **Moderate archaeological potential** – based upon the historical context and documentary evidence presented within this assessment it is probable that archaeologically significant remains relating to this period, theme or event could be present within the study area.
- **Low archaeological potential** – based upon the historical context and documentary evidence presented within this assessment it is unlikely that archaeologically significant remains relating to this period, theme or event will occur within the study area.

Table 5 Assessment of archaeological potential

Designation	Description	Probable feature(s)	Possible construction date	Archaeological potential
1	Munitions factory-related structure	Wall foundations or footings, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters.	c.1941	Low
2	Brick kiln	Wall or kiln chamber foundations, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters.	c.1920-c.1941	Low
3	Historical fencing	Postholes, remnant posts and associated cuts	Post-1857	Low



Legend

Study area

Archaeological potential

Low

Figure 3: Assessment of archaeological potential

0 10 20 30 40 50
Metres

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



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

Matter: 28419
Date: 25 October 2018,
Checked by: CIA, Drawn by: LW, Last edited by: lwilson
Location: P:\28400s\28419\Mapping\28419_E3_ArchPotential

5 Significance assessment

An assessment of heritage significance encompasses a range of heritage criteria and values. The heritage values of a site or place are broadly defined as the 'aesthetic, historic, scientific or social values for past, present or future generations'⁵². This means a place can have different levels of heritage value and significance to different groups of people.

The archaeological significance of a site is commonly assessed in terms of historical and scientific values, particularly by what a site can tell us about past lifestyles and people. There is an accepted procedure for determining the level of significance of an archaeological site.

A detailed set of criteria for assessing the State's cultural heritage was published by the (then) NSW Heritage Office. These criteria are divided into two categories: nature of significance, and comparative significance.

Heritage assessment criteria in NSW fall broadly within the four significance values outlined in the Burra Charter. The Burra Charter has been adopted by state and Commonwealth heritage agencies as the recognised document for guiding best practice for heritage practitioners in Australia. The four significance values are:

- historical significance (evolution and association)
- aesthetic significance (scenic/architectural qualities and creative accomplishment)
- scientific significance (archaeological, industrial, educational, research potential and scientific significance values)
- social significance (contemporary community esteem).

The NSW Heritage Office issued a more detailed set of assessment criteria to provide consistency with heritage agencies in other States and to avoid ambiguity and misinterpretation. These criteria are based on the Burra Charter. The following SHR criteria were gazetted following amendments to the *Heritage Act 1977* (Heritage Act) that came into effect in April 1999:

- Criterion (a) - an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (b) - an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (c) - an item is important in demonstrating the aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).

⁵² Heritage Office 2001

- Criterion (d) - an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
- Criterion (e) - an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (f) - an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (g) - an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments; or a class of the local area's cultural or natural places; or cultural or natural environments.

5.1 Levels of heritage significance

Items, places, buildings, works, relics, movable objects or precincts can be of either local or state heritage significance, or have both local and state heritage significance. Places can have different values to different people or groups.

Local heritage items

Local heritage items are those of significance to the local government area. In other words, they contribute to the individuality and streetscape, townscape, landscape or natural character of an area and are irreplaceable parts of its environmental heritage. They may have greater value to members of the local community, who regularly engage with these places and/or consider them to be an important part of their day-to-day life and their identity. Collectively, such items reflect the socio-economic and natural history of a local area. Items of local heritage significance form an integral part of the State's environmental heritage.

State heritage items

State heritage items, places, buildings, works, relics, movable objects or precincts of state heritage significance include those items of special interest in the state context. They form an irreplaceable part of the environmental heritage of NSW and must have some connection or association with the state in its widest sense.

The following evaluation attempts to identify the cultural significance of the study area. This significance is based on the assumption that the site contains intact or partially intact archaeological deposits.

5.2 Statement of significance

Table 6 presents an evaluation and subsequent statements of significance for the possible archaeological material within the study area.

Table 6 Evaluation and statement of significance for possible archaeological material within the study area

Item	Significance assessment criteria							Level of significance	Statement of significance
	A	B	C	D	E	F	G		
Munitions factory-related structure								Nil	<p>Any remaining archaeological material associated with the munitions factory-related structure within the study area, such as wall foundations or footings, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters, are not considered an important component of the cultural history of NSW or the Penrith district, and they are not associated with the life or works of a person(s) of importance in local or state cultural history. These possible materials will not yield information that will contribute to a greater understanding of the cultural history of NSW or the Penrith district, and they unlikely to demonstrate aesthetic characteristics or a high degree of creative or technical achievement in the state or local area, They do not hold a strong or special association with a community or cultural group for social, cultural or spiritual reasons in NSW or the Penrith district. The possible archaeological materials are not considered to possess uncommon, rare or endangered aspects of the cultural history of NSW or the Penrith district, nor do they demonstrate the principal characteristics of a class of cultural places or environments within the state or local area.</p> <p>Any remaining archaeological materials associated with the munitions factory-related structure within the study area do not hold heritage significance.</p>

Item	Significance assessment criteria							Level of significance	Statement of significance
	A	B	C	D	E	F	G		
Brick kiln								Nil	<p>Any remaining archaeological material associated with the brick kiln within the study area, such as wall or kiln chamber foundations, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters, are not considered an important component of the cultural history of NSW or the Penrith district, and they are not associated with the life or works of a person(s) of importance in local or state cultural history. These possible materials will not yield information that will contribute to a greater understanding of the cultural history of NSW or the Penrith district, and they unlikely to demonstrate aesthetic characteristics or a high degree of creative or technical achievement in the state or local area, They do not hold a strong or special association with a community or cultural group for social, cultural or spiritual reasons in NSW or the Penrith district. The possible archaeological materials are not considered to possess uncommon, rare or endangered aspects of the cultural history of NSW or the Penrith district, nor do they demonstrate the principal characteristics of a class of cultural places or environments within the state or local area.</p> <p>Any remaining archaeological materials associated with the brick kiln within the study area do not hold heritage significance.</p>

Item	Significance assessment criteria							Level of significance	Statement of significance
	A	B	C	D	E	F	G		
Historical fencing								Nil	<p>The possible archaeological material associated with the historical farming activities within the study area, such as remnant posts, postholes and associated cuts, are not considered an important component of the cultural history of NSW or the Penrith district, and they are not associated with the life or works of a person(s) of importance in local or state cultural history. These possible materials will not yield information that will contribute to a greater understanding of the cultural history of NSW or the Penrith district, and they unlikely to demonstrate aesthetic characteristics or a high degree of creative or technical achievement in the state or local area, They do not hold a strong or special association with a community or cultural group for social, cultural or spiritual reasons in NSW or the Penrith district. The possible archaeological materials are not considered to possess uncommon, rare or endangered aspects of the cultural history of NSW or the Penrith district, nor do they demonstrate the principal characteristics of a class of cultural places or environments within the state or local area.</p> <p>The possible archaeological materials associated with the historical fence lines within the study area do not hold heritage significance.</p>

6 Historical archaeological impact statement

This historical archaeological impact assessment has been prepared to address impacts resulting from the proposed redevelopment of the study area. The impact assessment identifies the level of impact arising from the proposed development and discusses mitigation measures which must be taken to avoid or reduce those impacts. The proposed development will consist of Jordan Springs Public School with capacity for 780 students. The project involves the following elements:

- a total of 26 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.

This assessment has identified that there may be archaeological material present beneath levelling fills within the study area related to the historical use of the land for farming and associated industrial activities, such as fencelines and a brick kiln [2], and the use of the study area by the Commonwealth government for munitions manufacture and storage [1], and defence-related industrial production. Archaeological material may present as postholes, remnant posts and associated cuts, wall foundations or footings, kiln chamber foundations, wall cuts and fill deposits, compacted floor surfaces, yard surfaces, post holes and surface artefact scatters. These materials may have been disturbed or removed by possible remediation works during the 1990s, or equally protected by recent levelling fills.

However, these possible archaeological materials have been assessed as not holding heritage significance. Any potential remains associated with the munitions storage building [1] and potential historical fencelines, are considered not to hold historical, cultural, social, aesthetic or associative significance, nor would these remains likely be considered rare, representative or hold research potential. It has not been possible in this assessment to securely date the brick kiln [2] prior to c.1920-1941, nor to identify any further evidence as to its size, appearance or contextual relevance. As a result, this item is also not considered to possess the above qualities.

As there are no items of heritage significance within the study area, the impacts resulting from the proposed works are considered acceptable, provided that an unexpected finds policy is implemented to identify and record any archaeological material that may be encountered during the proposed works.

7 Recommendations

7.1 Recommendations

These recommendations have been formulated to respond to client requirements and the significance of the site. They are guided by the ICOMOS *Burra Charter* with the aim of doing as much as necessary to care for the place and make it useable and as little as possible to retain its cultural significance.⁵³

Recommendation 1 No further assessment required

This assessment has identified no items of heritage significance or archaeological potential within the study area, and no negative heritage impacts to surrounding heritage items. As such, no further assessment is required prior to the approval of the SSD application. Prior to any ground disturbance occurring within the study area, an unexpected finds procedure should be implemented as outlined in Recommendation 2.

Recommendation 2 Development of Construction Heritage Management Sub-Plan

A Construction Heritage Management Sub-Plan must be prepared following approval of the SSD submission in order to establish an unexpected finds policy in the event that works encounter unexpected historical structural or depositional remains, or any Aboriginal objects or places.

In both these instances all works should cease. A determination should then be made by an appropriately qualified archaeologist of whether the remains identified are likely to be "relics" under the *NSW Heritage Act 1977* or an Aboriginal object or place.

Where the remains are identified as being 'relics', the Heritage Council of NSW must be notified in accordance with section 146 of the *NSW Heritage Act 1977*. Failure to notify the Heritage Council is considered an offence under the act, with penalties including fines and imprisonment. After contacting the Heritage Council, a permit or exemption should be sought under the relevant section of the act to allow works to recommence.

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. 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.

⁵³ Australia ICOMOS 2013

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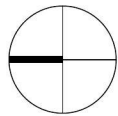
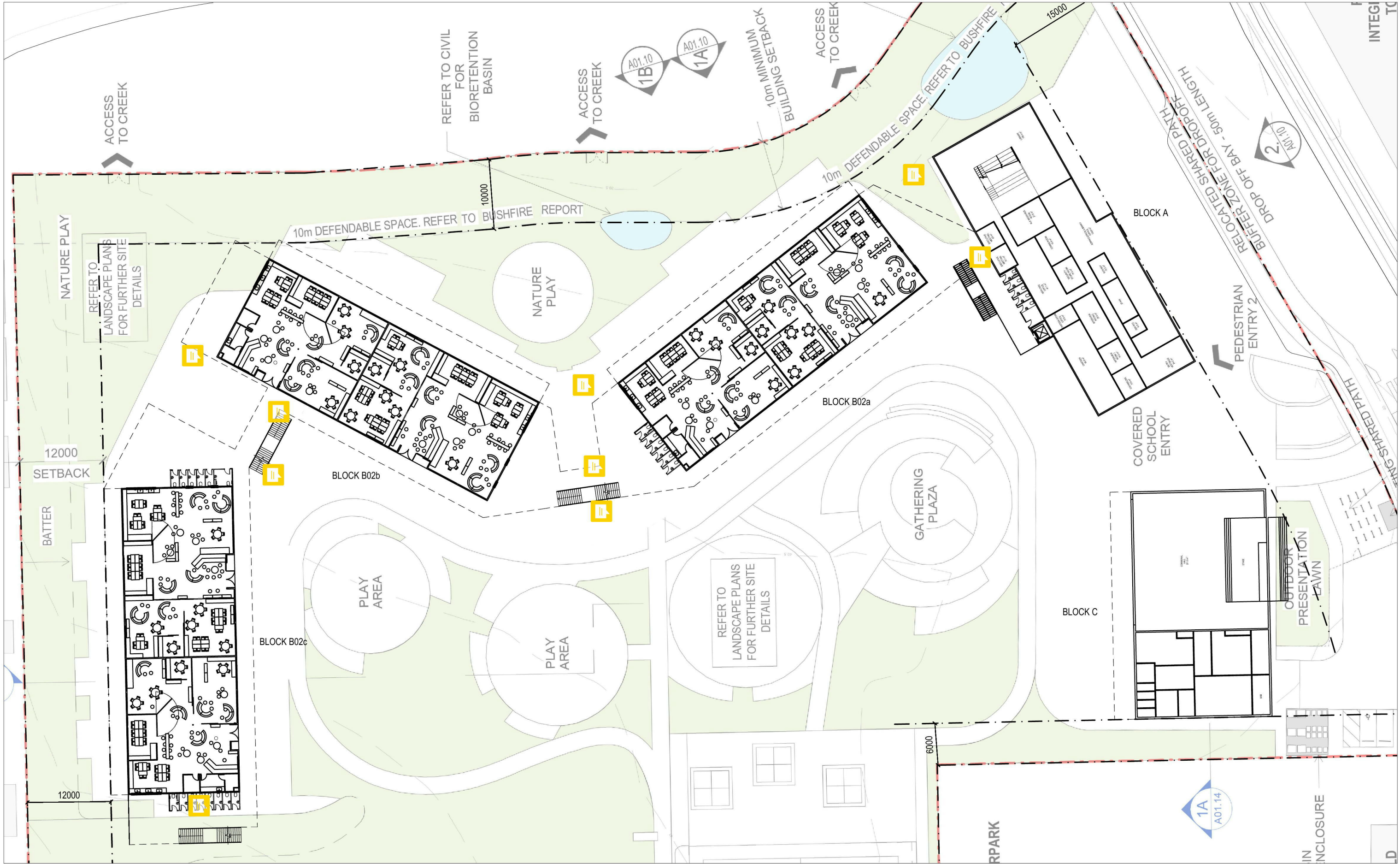
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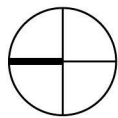
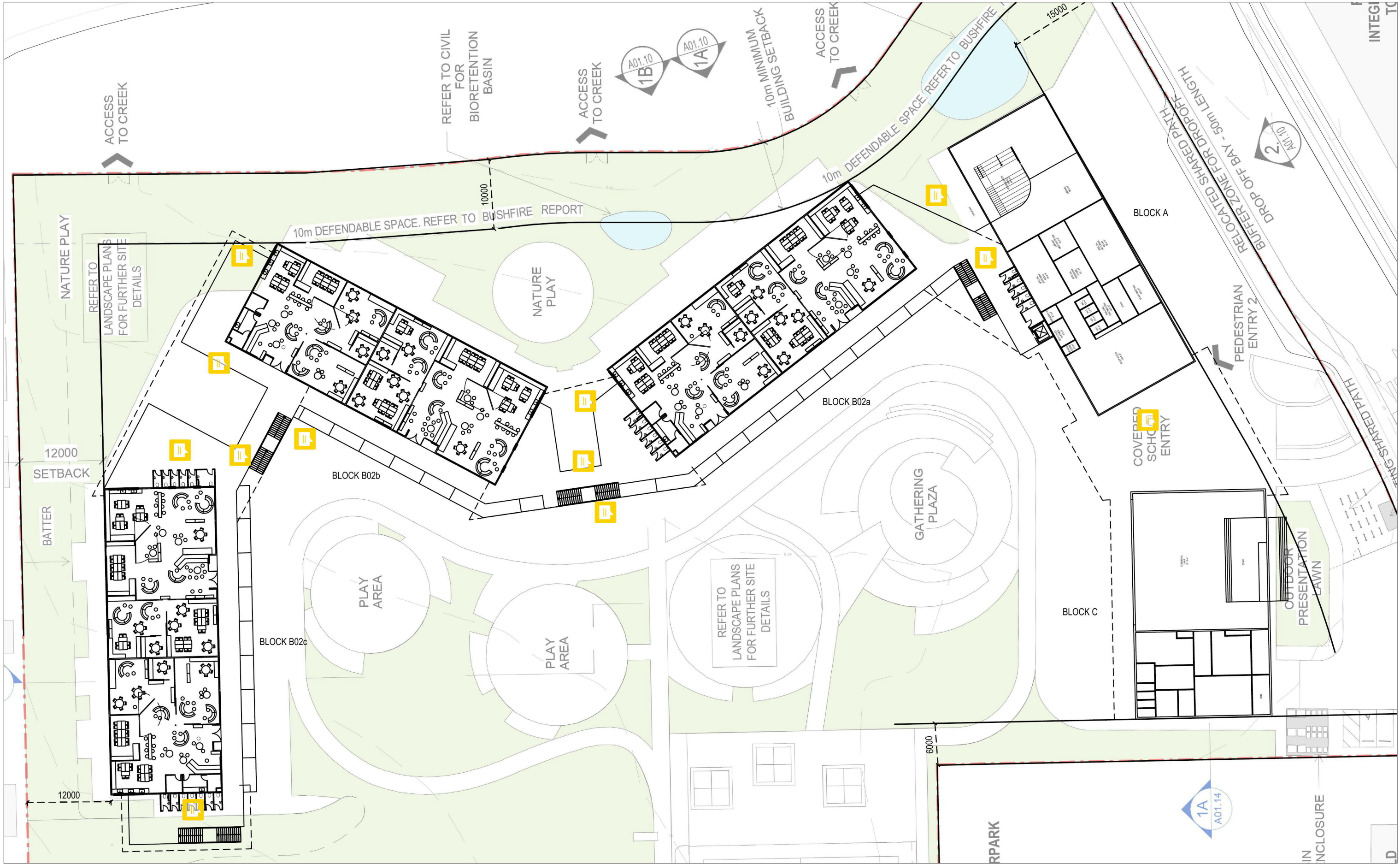
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Appendices

Appendix 1 Proposed development



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