AUSTRAL
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Wallacia Golf Course

13 Park Road, Wallacia, New South Wales

Aboriginal Due Diligence and Historical Archaeological Assessment

FINAL REPORT

Prepared by

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for

Nettcorp on behalf of the Catholic Metropolitan Cemeteries Trust

Penrith City Council Local Government Area

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EXECUTIVE SUMMARY

Austral Archaeology Pty Ltd (Austral Archaeology) has been commissioned by Nettcorp on behalf of the Catholic Metropolitan Cemeteries Trust (the Proponent) to undertake an Aboriginal due diligence and historical archaeological assessment for a proposed development at the site of 13 Park Road, Wallacia, New South Wales (the study area). The study area consists of Lot 2, DP1108408, and is bound by both Park Road and various residential lots on the south, various rural properties on the north, and a combination of various rural and residential properties on the east and west.

The study area is within the boundaries of the Penrith City Council Local Government Area (LGA), and the location is shown in Figure 1.1, Figure 1.2 and Figure 1.3.

The purpose of this historical archaeological assessment is to determine the archaeological potential and significance of the study area, and provide suitable management recommendations. If required, this assessment can be updated to a full historical assessment to accompany any necessary applications to the Heritage Branch for a permit to be issued under the *NSW Heritage Act 1974*.

With regards to Aboriginal cultural heritage, this assessment has been undertaken according to the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) [the Due Diligence CoP] which provides a suitable framework for undertaking an appropriate investigation to determine the potential for Aboriginal cultural heritage to be present within the study area.

Aboriginal Background

The present study area is thought to lie near the boundary of two major Aboriginal language groups, with Darug speakers occupying the region to the north and east of the Mulgoa valley, while the Gundungarra speakers were located to the south and west.

The moderate climate of the Cumberland Plain and its location within the wider Nepean River catchment is likely to have been conducive to Aboriginal occupation in the past. The study area lies within a resource base associated primarily with the Jerry's Creek watercourse, itself a tributary of the Nepean River. Habitats associated with the river would have supported a wide range of animals, fish, birds and mammals.

Due to the environmental setting, the Nepean River landscape would have been subject to a variety of human activities. This primarily would have been due to the presence of permanent water sources, followed by the sheltered camping locations and good resources availability in the immediate area. Activities would have included camping, hunting, gathering, cooking, ceremonies, and other cultural activities associated with semi-permanent settlement sites in the region. Some of these activities, mainly stone tool knapping, are seen in the archaeological record.

Historical Background

The study area was originally part of a grant of 6,710 acres (2,715.4 hectares) given to John Blaxland on 30 November 1813 which he named 'Luddenham' and he used primarily for the grazing of livestock while preferring to reside at his Newington estate, on the banks of the Parramatta River.

The main farm complex is shown on an early but undated parish map as lying at the end of a looping cart track which connected the homestead to the Northern Road, with the complex consisting of three buildings to the north of the track and a fourth building to the south.

The Luddenham estate was sold and subdivided in 1859, with the study area forming part of the central division. A contemporary plan of the subdivision shows either a U-shape house or driveway, with a detached stable block and two other buildings also present along with a detached kitchen and garden on the southern side of Park Road.

The Wallace family moved into the cottage after Henrietta Wallace took over the lease in the early 1870s, several years after the death of her husband, Robert. The Wallace's house started to become an unofficial receiving depot for any mail needing collection in the district from around the mid-1880s, on account of their property being the only residence to the south of Mulgoa, before being recognised as a formal post depot in the 1880s. A fledgling township began to grow around the post office, now being run by Henrietta's son, Robert George Wallace.

By the start of the 19th century, the Wallace family were acknowledged as being the oldest continuous residents of the district, and the role of the Wallace's house as a post office and meeting place had meant that locals came to refer to the surrounding district simply as "Wallace". The town was briefly gazetted under the name 'Boondah' for a few years, until complaints from the residents led to the General Post Office adopting the name Wallacia, in memory of the Wallace family.

By the early 20th century, the simple cottage which served as both residence and post office was no longer fit for purpose and in 1907 the post office was enlarged, although there is no confirmation as to whether this represented a repurposing of space or construction of a new building. However, eventually the only recourse was to demolish the old post office building and to build a modern, purpose-built structure which also incorporated a small store and milk bar. In 1938, a hotel was built on the northern part of the property, possibly on the location of the original farm buildings.

The Wallacia golf club was founded in 1932, with the original club house being nothing more than a tin shed. The Women's Associates, founded in 1933, purchased the wooden building to function as a new club house until a brick club house was constructed in 1936.

The golf club was disbanded during the war years as both the course and the neighbouring Wallacia Hotel were requisitioned with the hotel being used as a Radio Physics school and the golf course being used for exercises, and an air raid shelter was reportedly constructed below the green of the 10th hole.

While a replacement club house was constructed in 1967 which incorporated elements of the 1936 building, the club house currently in use appears to have been constructed between 1983 and 2011 which incorporates elements of the 1967 build.

Conclusions

A search of the Aboriginal Heritage Information Management System (AHIMS) Database returned no sites the study area. This is likely due to a lack of any development within the study area rather than due to an absence of Aboriginal cultural material. However, several streams and creeks pass through the study area which suggests that parts of the study area may contain Aboriginal cultural material (Figure 6.1), although the level of archaeological potential is dependent on low levels of modern disturbance in the vicinity of these creeks. These areas may warrant further investigation through the preparation of a full Aboriginal cultural heritage assessment dependant on the nature of any proposed development which is to occur in these locations.

It is also concluded that there are zones of varying degrees of historical archaeological potential located within the study area which may contain archaeological deposits (Figure 6.2 and Figure 6.3). The archaeological remains may relate to Blaxland's Luddenham Farm and outbuildings, a Second World War air raid shelter, or the original alignment of the Wallacia to Luddenham track. Any such archaeological deposits, should they be intact, are considered to range from local to State significance. These areas may warrant further archaeological investigations dependant on the nature of any proposed development which is to occur in these locations.

Recommendations

It is recommended that:

1) A pedestrian survey should be undertaken to groundtruth the results of this archaeological assessment in terms of potential for Aboriginal and historic archaeological material to be present in the study area, and to identify areas of modern disturbance which can be discounted from further consideration. The results of the survey should be appended to this report as an addendum, and the mapping of areas of archaeological potential and sensitivity should be updated accordingly.

2) In the absence of having undertaken a pedestrian survey and the lack of a proposed concept design, in the event of any development being proposed in an area marked as being archaeologically sensitive on Figure 6.1, it will be necessary to prepare a full Aboriginal cultural heritage assessment prior to works commencing. This will require the identification of and consultation with Aboriginal stakeholders and may require undertaking a period of archaeological test excavations to confirm the nature of subsoil deposits within archaeological sensitive landforms.

3) In the absence of having undertaken a pedestrian survey and the lack of a proposed concept design, in the event of any development being proposed in an area marked as being areas of archaeological potential on Figure 6.2 and Figure 6.3, it will be necessary to prepare a full historical archaeological assessment, statement of heritage impact and research design prior to works commencing. A permit application will be required under Section 140 of the *NSW Heritage Act 1977* and further mitigation strategies may include undertaking archaeological test or salvage excavations, dependant on the nature and depth of the proposed impacts.

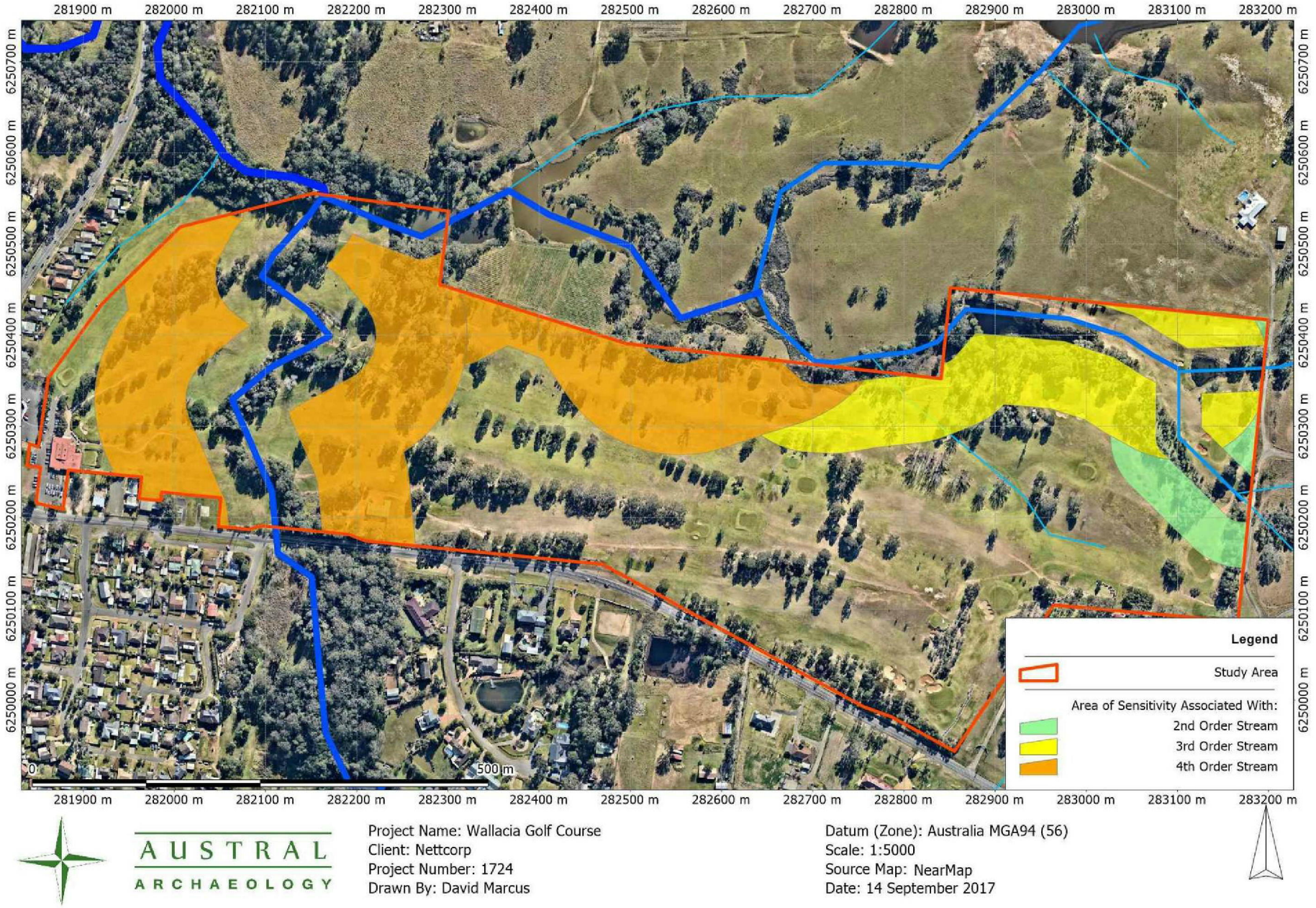

Figure 6.1 (copy) Map showing areas of potential Aboriginal artefact distribution in relation to stream order.

Figure 6.2 (copy) Historical archaeological potential of the western portion of the study area associated with Luddenham Farm and the air raid shelter.

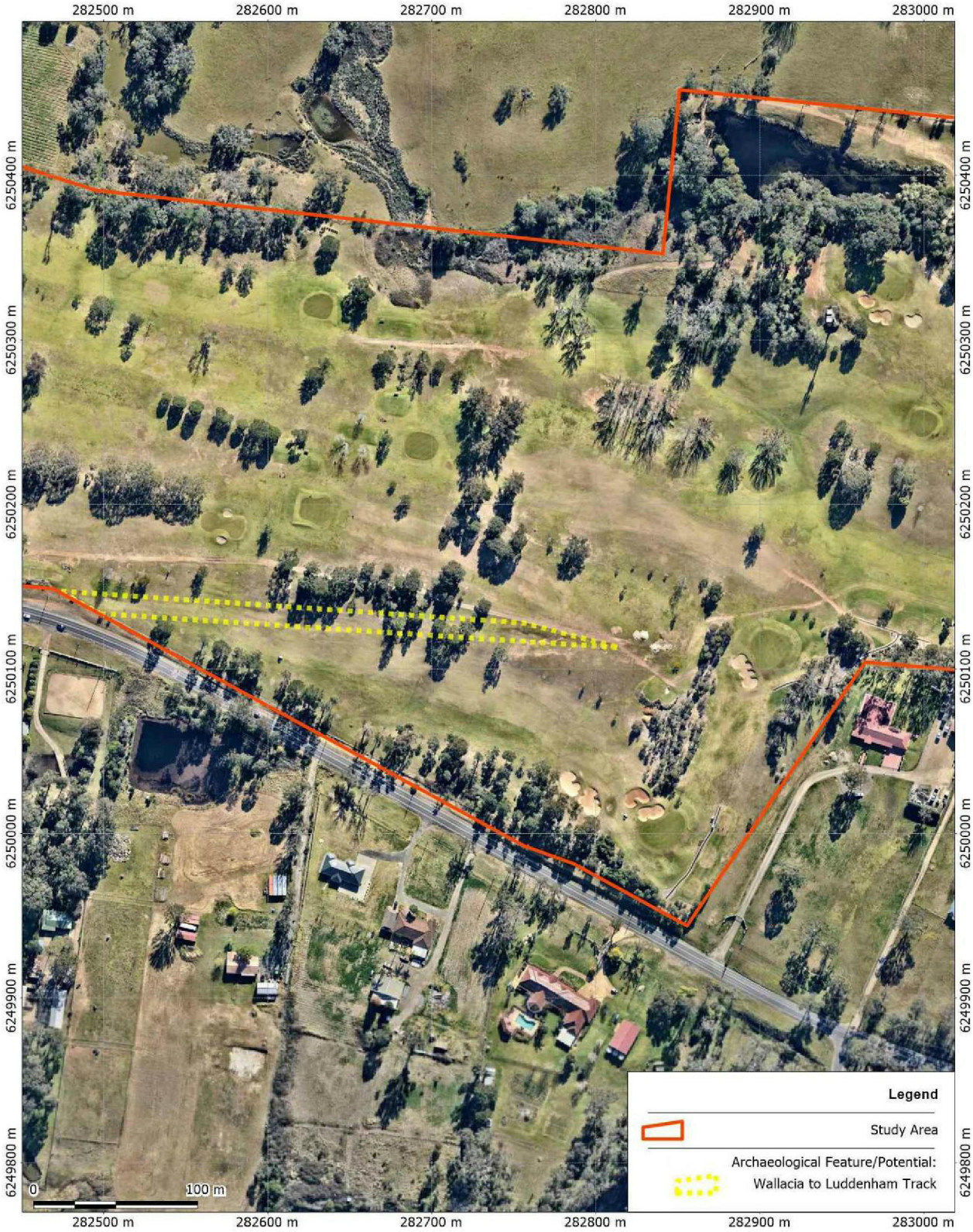

Figure 6.3 (copy) Historical archaeological potential of the eastern portion of the study area.

CONTENTS

FIGURES

TABLES

1 INTRODUCTION

1.1 Introduction

Austral Archaeology Pty Ltd (Austral Archaeology) has been commissioned by Nettcorp on behalf of the Catholic Metropolitan Cemeteries Trust (the Proponent) to undertake an Aboriginal due diligence and historical archaeological assessment for a proposed development at the site of 13 Park Road, Wallacia, New South Wales (the study area). The study area consists of Lot 2, DP1108408, and is bound by both Park Road and various residential lots on the south, various rural properties on the north, and a combination of various rural and residential properties on the east and west.

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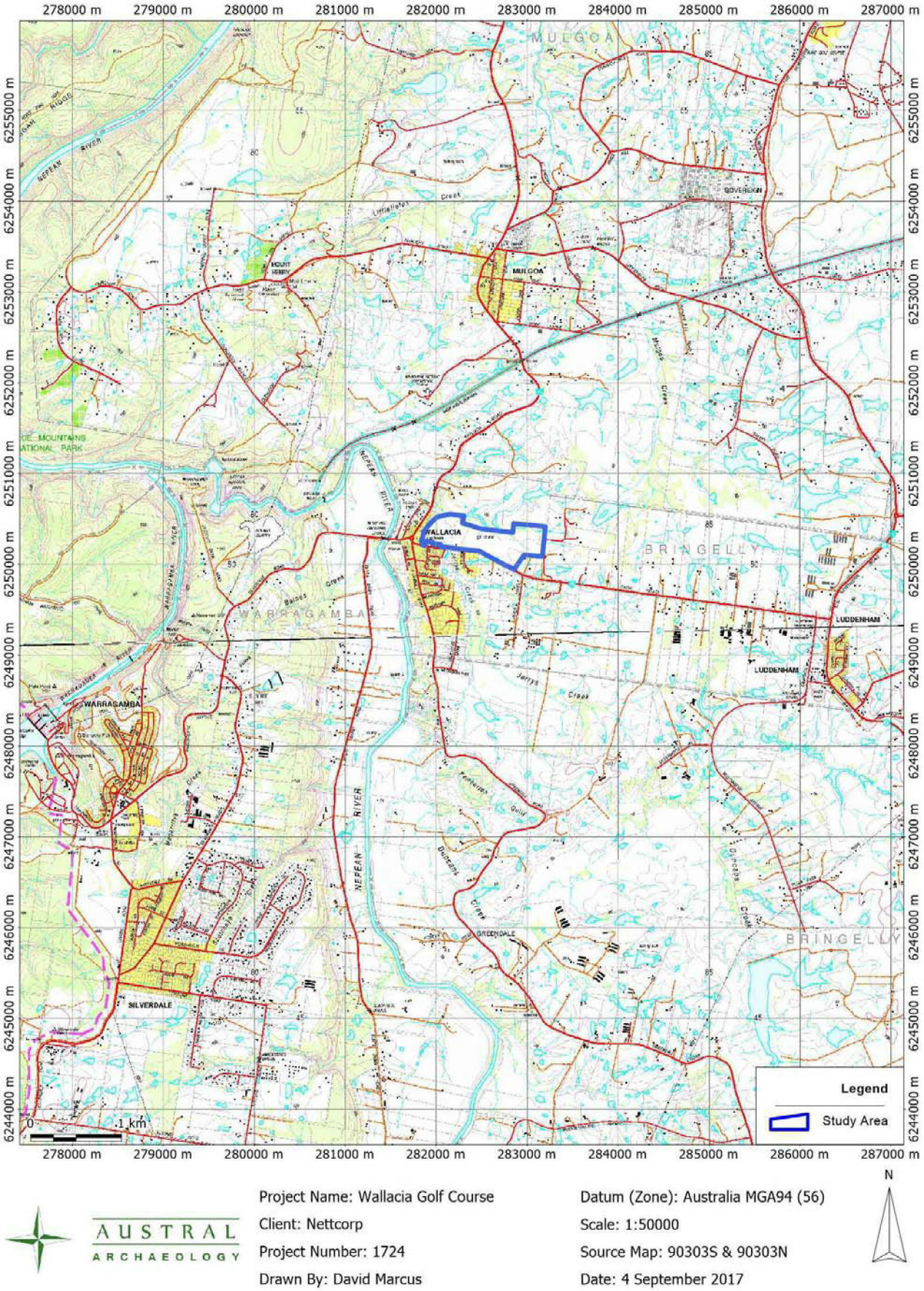

Figure 1.1 Topographic map showing study area in relation to surrounding towns.

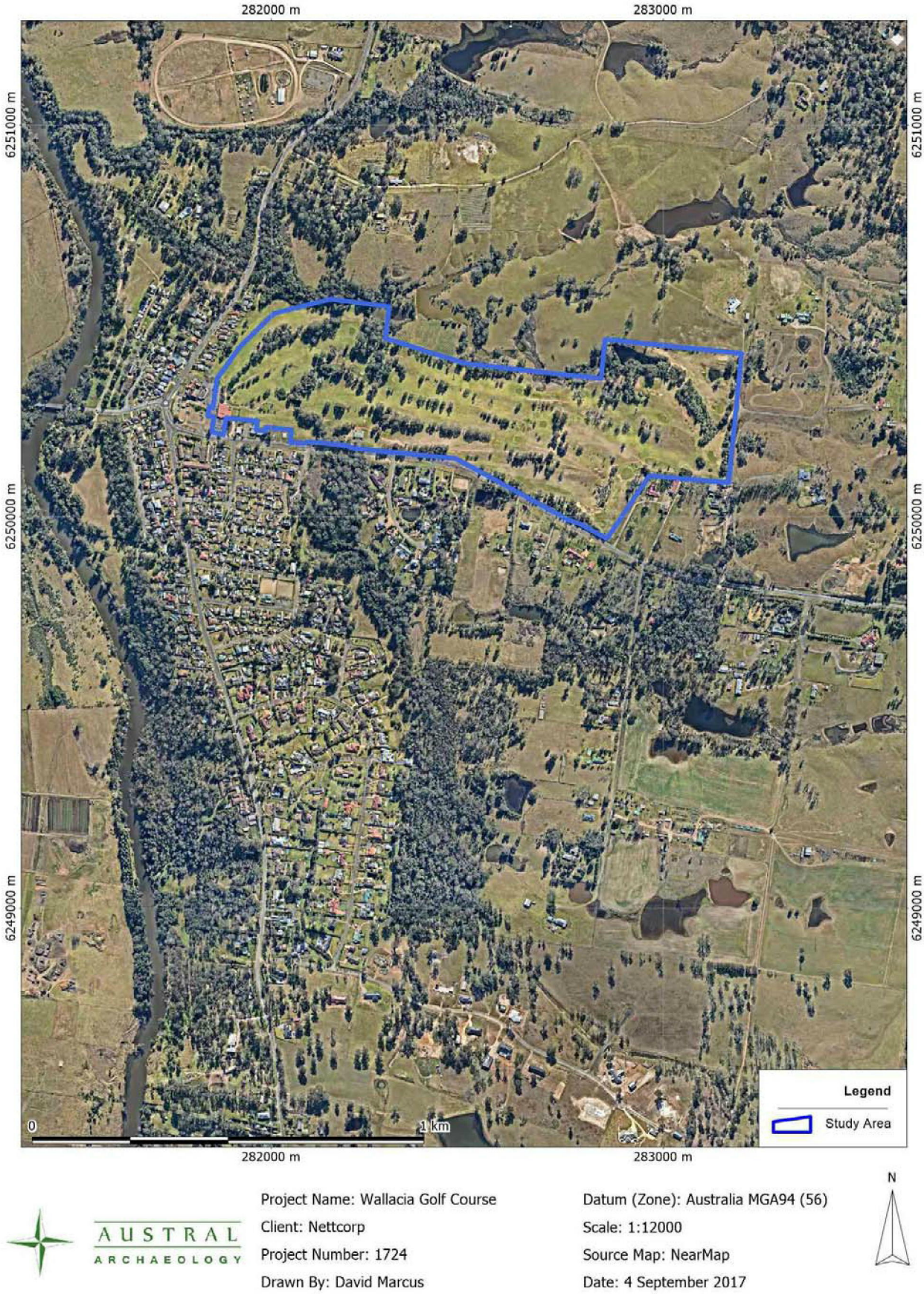

Figure 1.2 Aerial photograph showing the location of the study area in relation to the Wallacia township.

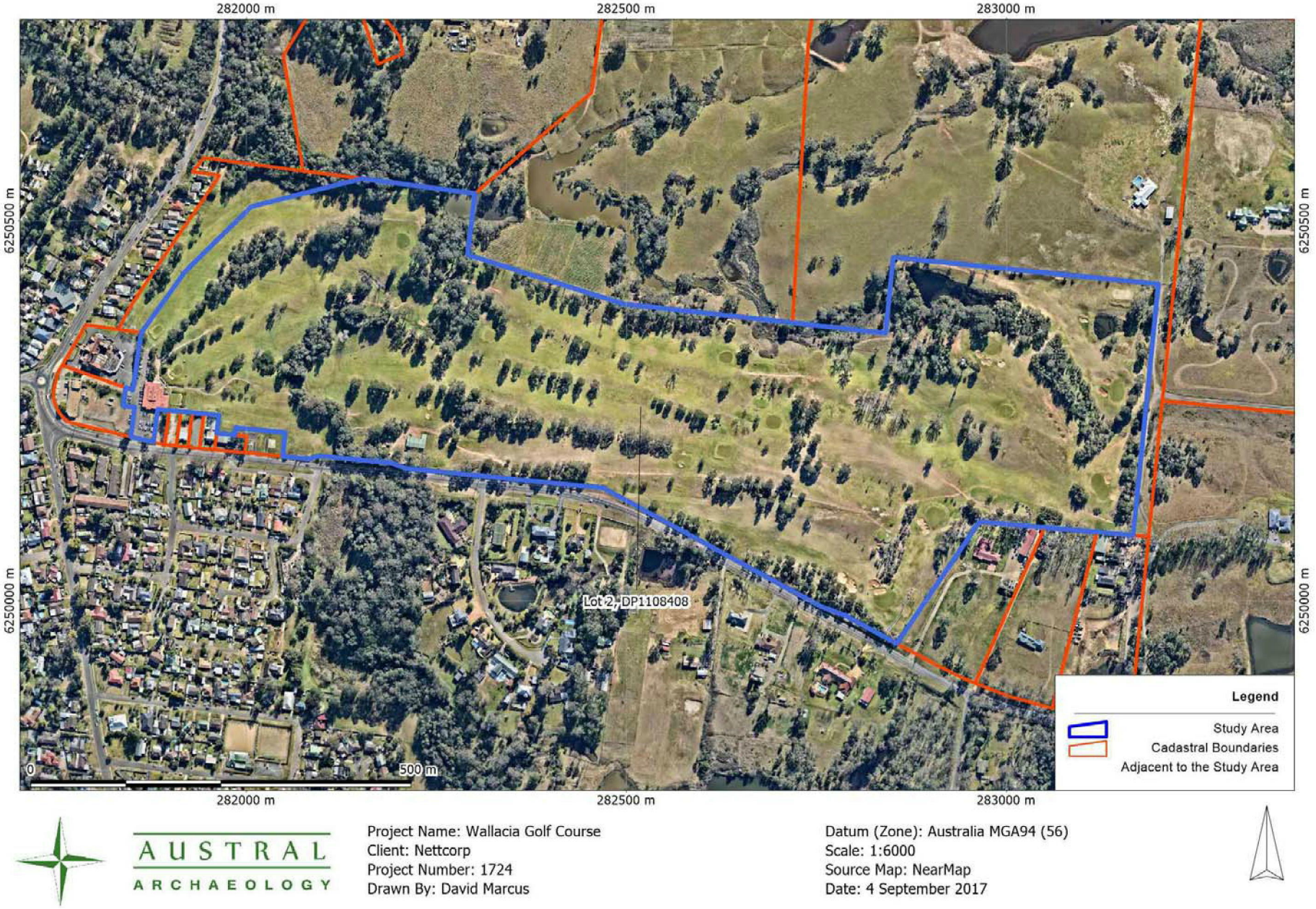

Figure 1.3 Detailed aerial photograph showing the cadastral boundaries within and adjacent to the study area.

1.2 Objectives

The objectives of this report are as follows:

- Undertake a due diligence process to identify whether or not Aboriginal objects are, or are likely to be, present in the study area.
- Determine whether or not any future development activities are likely to harm Aboriginal objects (if present).
- Identify any potential historical archaeological resources, values or constraints present within the study area.
- Produce an archaeological predictive model and sensitivity map to guide any management decisions regarding the study area.
- Make a statement of significance regarding any historical archaeological material which may be present within the study area.
- Make appropriate management and mitigation recommendations in relation to any future development which may occur within the study area.

1.3 Project Team and Acknowledgements

This project was overseen by Justin McCarthy (Managing Director) and managed by David Marcus (Senior Archaeologist). David Marcus wrote the report and also undertook all GIS mapping. Justin McCarthy undertook a final quality assurance review of the draft report.

Austral Archaeology would like to acknowledge the participation of the following people and organisations that have contributed to the preparation of this report:

- David De Angelis – Director, Nettcorp

1.4 Methodology

The methodology supporting this report involved a period of research to locate additional background material and a synthesis of the historical research to better understand the archaeo-historical context and potential of the study area.

This report is underpinned by the philosophy of the ICOMOS Burra Charter and by the practices and guidelines of the New South Wales Heritage Division and the relevant guidelines of the Office of Environment and Heritage.

1.5 Limitations of the Report

At the request of the Proponent, this assessment has been prepared as a desktop-only assessment and does not include a physical site inspection in order to groundtruth the results of the predictive analysis. As such, this assessment has not sought to identify any areas of modern ground disturbance beyond those which are recognisable from aerial photography and as such, the zoning of areas of archaeological potential may be refined following a pedestrian survey of the study area.

In regards to Aboriginal cultural heritage, this assessment has followed the Due Diligence CoP and has not included either the identification of, or consultation with, any Aboriginal stakeholder groups.

The statement of archaeological potential only applies to subsurface features or deposits associated with the Aboriginal and European occupation of the site and not to any built heritage items currently on the site.

The results, assessments and judgements contained in this report are constrained by the standard limitations of historical research and by the unpredictability inherent in archaeological zoning from the desktop. Whilst every effort has been made to gain insight to the historical archaeological profile of the subject site, Austral Archaeology Pty Ltd cannot be held accountable for errors or omissions arising from such constraining factors.

1.5.1 Limitations Relating to Georeferencing of Historical Images

In order to accurately plot a map or aerial image onto a known geographic coordinate system, a GIS program must perform the act of "georeferencing". For the purpose of this project, the GIS operator took previously georeferenced aerial photos and topographic maps to use as a base for the projection. Known reference points, or "control points", are marked on both the base map and the subject map. The GIS program then predicts the spatial location of each control point on the subject map based on their location on the base map, with a residual error.

Additional errors are also present in early plans due to inherent inaccuracy in early survey plans and recordings. While these inaccuracies may be minor, GIS mapping can compound these errors when comparing different maps, as earlier maps inherently contain less structures and features, which can be compared to later maps.

As a result of a combination between the residual error in georeferencing of historical plans and the inherent inaccuracy, many of the figures included in this document show the approximate location of features rather than exact representations of the potential sub-surface archaeology.

1.6 Data Restrictions

This report may contain descriptions and locational data relating to Aboriginal archaeological and cultural material and sites. This information is considered sensitive and of great importance to the Aboriginal community. As a result, public exhibition of this report in its present form would not be appropriate.

Should public exhibition of this document be required, it is advisable that Austral Archaeology be contacted in order to ascertain information which should be removed prior to public release.

1.7 Abbreviations

The following are common abbreviations which may be used within this report:

AHC	Australian Heritage Council
Burra Charter	The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DCP	Development Control Plan
DoP	NSW Department of Planning
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&BC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
Heritage Act	*New South Wales Heritage Act 1977*
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
NHL	National Heritage List
NP&W Act	*National Parks and Wildlife Act 1974*
NSW HC	New South Wales Heritage Council
NT Register	Register of the National Trust (NSW)
OEH	Office of Environment and Heritage
RAIA	Royal Australian Institute of Architects
RMS	Roads and Maritime Services
RNE	Register of the National Estate
SEARS	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SHR	State Heritage Register
SOHI	Statement of Heritage Impact

Refer also to the document Heritage Terms and Abbreviations, published by the Heritage Office and available on the website: http://www.environment.nsw.gov.au/heritage/index.htm.

2 STATUTORY CONTEXT

2.1 Introduction

The following section summarises the relevant statutory context, including heritage listings, Acts, and environmental planning instruments which are relevant to the site and its cultural heritage.

2.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EP&BC Act) established the Australian Heritage Council (formerly the Australian Heritage Commission) and provides for the protection of cultural heritage at a national level and for items owned or managed by the Commonwealth. The EP&BC Act has established two heritage registers:

- **Commonwealth Heritage List**: for significant items owned or managed by Commonwealth Government agencies.
- **National Heritage List**: for items assessed as being of national cultural significance.

Australian Heritage Council approval is required for works to an item registered on either of these lists which would impact on its significance.

No part of the study area appears on either the Commonwealth Heritage List or the National Heritage List.

The Australian Heritage Council is also responsible for keeping the Register of the National Estate (RNE). In 2007 the RNE was frozen and no further sites were added to it For Commonwealth properties, the Register was superseded by the Commonwealth and National Heritage Lists. The RNE is now retained as an archive of information about more than 13,000 places throughout Australia.

No part of the study area is listed on the Register of the National Estate.

2.3 New South Wales Heritage Act 1977

The Heritage Council is the approval authority under the *New South Wales Heritage Act 1977* (the Heritage Act) for works to an item on the State Heritage Register (SHR). Section 57(1) of the Heritage Act identifies the need for Heritage Council approval if the work involves the following tasks:

- demolishing the building or work,
- damaging or despoiling the place, precinct or land, or any part of the place, precinct or land,
- moving, damaging or destroying the relic or moveable object,
- excavating any land for the purpose of exposing or moving the relic,
- carrying out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct,
- altering the building, work, relic or moveable object,
- displaying any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct,
- damaging or destroy any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land

Demolition of an SHR item (in whole) is prohibited under the Heritage Act, unless the item constitutes a danger to its occupants or the public. A component of an SHR item may only be demolished if it does not contribute to the significance of the item.

Section 57(1) of the Heritage Act also applies to archaeological remains (relics) within an SHR site, and excavation can only proceed subject to approval of a Section 60 application by the Heritage Division. Archaeological remains on sites not listed on the SHR are addressed under Section 139 of the Heritage Act.

No part of the study area is listed on the State Heritage Register.

2.3.1 Excavation Permits

Under Section 139 of the Heritage Act, “a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit”.

Relics are defined by the Heritage Act to be:

any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance.

An excavation permit is also required if a relic has been discovered in the course of excavation without a permit (Section 139(2) of the Heritage Act). Section 139 of the Heritage Act applies to all relics which are not listed on the SHR or protected by an Interim Heritage Order (IHO). Relics protected by an SHR listing or an IHO are subject to approval required by Section 57(1) of the Heritage Act and require a Section 60 Application.

If an excavation permit is required by Section 139 of the Heritage Act, an application is made under Section 140 of the Act. To obtain an excavation permit, the Section 140 application must include an archaeological assessment and Research Design. The archaeological assessment establishes the archaeological sensitivity of the site, its significance and the likely impact of the proposed development. The Research Design outlines the method proposed to mitigate the impact of the development (such as monitoring, test excavation, sampling, or open area excavation). The Research Design also provides research questions which the archaeological resource has the potential to answer. An archaeological assessment and Research Design need to be prepared in accordance with the Heritage Council’s relevant guidelines, including Historical Archaeological Sites and the Historical Archaeology Code of Practice. For further details of these guidelines, refer to the Heritage Division website:

http://www.environment.nsw.gov.au/heritage/publications/index.htm

The Heritage Act also contains provisions for the unintentional disturbance of archaeological relics. Under Section 146 of the Act, the Heritage Council must be immediately notified in the event of relics being unintentionally located or disturbed. Works may be required to cease, pending consultation and further research.

2.3.2 Heritage and Conservation Register (Section 170 Register)

Under Section 170 of the Heritage Act, government instrumentalities must keep a Heritage and Conservation Register (a Section 170 Register) which contains items under the control or ownership of the agency and which are, or could, be listed as heritage items (of State or local significance). Road reserves are owned by the Department of Roads and Maritime Services.

The study area is not listed on any Section 170 Heritage and Conservation registers.

2.4 The National Parks and Wildlife Act 1974

Aboriginal cultural heritage in New South Wales is protected under the *National Parks and Wildlife Act 1974* (NP&W Act), with additional clarification provided by the *National Parks and Wildlife Regulations 2009* (NP&W Regulations).

All Aboriginal objects and places are provided blanket protection under Section 86 of the NP&W Act, which makes the harming of any Aboriginal object an offense, irrespective of intent. Several defences against prosecution are provided by Section 87 of the NP&W Act, including having undertaken a due diligence assessment which has "reasonably determined that no Aboriginal object would be harmed" by the proposed offence. The minimum standards for such a due diligence assessment are detailed in Section 80A of the NP&W Regulations and in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010), which forms the basis of this Aboriginal due diligence assessment.

2.5 Environmental Planning Instruments

An Environmental Planning Instrument (EPI) is made under the *Environmental Protection and Assessment Act 1979* (EP&A Act). An EPI can be a Development Control Plan (DCP) Local Environmental Plan (LEP) or a State Environmental Planning Policy (SEPP).

2.5.1 Penrith Local Environmental Plan 2010

The applicable LEP for the study area is the *Penrith Local Environmental Plan 2010* (the Penrith LEP). Part 5.10 of the Penrith LEP deals with Heritage Conservation, and heritage items are listed under Schedule 5, Part 1 of the Penrith LEP.

The study area is not listed as a heritage item on Schedule 5 of the *Penrith Local Environmental Plan 2010*. However, the study area is immediately adjacent to the following heritage items which are shown on Figure 2.1:

- **Wallacia Hotel, 1573-1585 Mulgoa Road (Item 325)**
- **St Andrew's Anglican Church (former), 25 Park Road (Item 326)**
- **Luddenham Homestead Site, 1-9 Park Road (Item A849)**

Archaeological remains associated with these heritage items may extend into the study area.

2.6 Non-Statutory Heritage Listings

A number of organisations maintain registers of buildings or sites which they have assessed and believe to be of cultural heritage significance. These registers have no statutory authority. However, the inclusion of a place on a non-statutory register suggests a certain degree of community esteem and appreciation. Non-statutory registers include the National Trust Register, the Royal Australian Institute of Architects (RAIA) 20th Century Register of Significant Buildings, and the Art Deco Society of New South Wales Art Deco Building Register.

No part of the study area is listed on the National Trust Register, the RAIA or the Art Deco Society registers.

Figure 2.1 Location of heritage sites listed on the Penrith LEP in the immediate vicinity of the study area.

2.7 Section Summary

Table 2.1 lists the relevant statutory and non-statutory registers, listings and orders, and identifies those in which any part of the site is listed.

Table 2.1 Summary of heritage register listings for the subject study area.

Register/Listing	Inclusion	Statutory implications
National Heritage List	No	No
Commonwealth Heritage List	No	No
Register of the National Estate	No	No
State Heritage Register	No	No
Penrith Local Environmental Plan 2010	No	No
Register of the National Trust (NSW)	No	No
The RAIA 20th Century Register	No	No
The Art Deco Society's Art Deco Building Register	No	No

3 LANDSCAPE CONTEXT

The natural environment of an area influences not only the availability of local resources, such as food or raw materials for artefacts, but also determines the likely presence and/or absence of various archaeological site types which may be encountered during a field investigation.

Resource distribution and availability is strongly influenced by the environment. The location of different site-types (such as rock-shelters, middens, open camp-sites, axe grinding grooves, engravings etc) are strongly influenced by the nature of soils, the composition of vegetation cover and the climatic characteristics of a region, along with a range of other associated characteristics that are specific to different land systems and bedrock geology. In turn this affects resource availability of e.g. fresh drinking water, plant and animal foods, raw materials for stone tools, wood and vegetable fibre used for tool production and maintenance.

Therefore examining the environmental context of a study area is essential in accurately assessing potential past Aboriginal land-use practices and/or predicting site types and distribution patterns within any given landscape, cultural or not. The information that is outlined below is applicable for the assessment of site potential of the current study area.

3.1 Geological Context and Soil Landscapes

The study area lies at the border of two different physiographic regions, with the Cumberland Lowlands (or Plains) in the east and the Blue Mountains Plateau in the west. The Cumberland Plains physiographic unit comprises low lying and gently undulating plains and low hills on Wianamatta Group shales and sandstones, with predominantly north-flowing water courses. The Blue Mountains Plateau consists of deeply incised Hawkesbury sandstone overlying Narrabeen sandstone, with occasional outcrops of the Narrabeen group on valley floors and rare volcanic intrusions. Wianamatta group shales and sandstones can occur as a thin capping on the eastern fringes of the plateau (Bannerman & Hazelton 1989:2).

The study area itself falls into three soil landscapes, with the majority of the study area lying on land associated with the Luddenham (**lu**) soil profile and the westernmost part of the study area lying on the Blacktown (**bt**) soil profile, separated by a thin band of the Richmond (**ri**) soil landscape associated with a creekline which bisects the study area. The soil landscapes are summarised below and shown on Figure 3.1.

3.1.1 Blacktown (bt) Soil Landscape

The underlying geology of the Blacktown (**bt**) soil landscape is described as belonging to the Wianamatta group, consisting of Ashfield shale and Bringelly shale; a shale with occasional calvareous claystone, laminate and coal inclusions (Bannerman & Hazelton 1990:28). The topography is usually of gently undulating rises, with local relief of between 10 to 30 metres and slopes of generally less than 5% but occasionally up to 10%. Crests and ridges are broad, measuring between 200 to 600 metres wide, and are rounded with convex upper slopes grading into concave lower slopes, with a general absence of rock outcrops (Bannerman & Hazelton 1990:23).

The A1 horizon generally consists of a friable blackish brown loam (**bt1**) that can contain rounded, fine shale fragments, with charcoal also occasionally present. This overlies a hard-setting brown clay loam (**bt2**) that is classed as the A2 horizon and which commonly contains ironstone shale fragments with charcoal and roots rarely present. Below this is a B horizon of a strongly pedal, mottled brown, light clay (**bt3**) which contains increasing amounts of gravel shale fragments in stratified bands. Finally, the soil profile includes a light grey, plastic mottled clay (**bt4**) which can occasionally contain weathered ironstone with occasional gravel shale fragments and roots (Bannerman & Hazelton 1990:29-30).

Soil depth, and even the presence of the different soil materials can vary considerably, dependant on location within the landscape. On crests, **bt1** can occasionally be absent, but the profile will otherwise consist of up to 300 millimetres of **bt1** overlying between 100 to 200 millimetres of **bt2** and up to 1 metre of **bt3**. On upper slopes and ridges **bt1** can also occasionally be absent, but the profile will otherwise consist of up to 300 millimetres of **bt1** overlying 100 to 200 millimetres of **bt2**, 200 to 500 millimetres of **bt3**, and up to 1 metre of **bt4**. Finally, on lower side-slopes, the soil profile can consist of up to 300 millimetres of **bt1** overlying 100 to 300 millimetres of **bt2**, 400 millimetres to 1 metre of **bt3** and over 1 metre of **bt4** (Bannerman & Hazelton 1990:30).

3.1.2 Luddenham (lu) Soil Landscape

The Luddenham (**lu**) soil landscape is an erosional landscape characterised by rolling to steep hills with relief of between 50 to 80 metres and slopes of between 5% and 20%, but generally averaging between 10% to 15%. Ridges are narrow and convex, often between 20 to 300 metres in width, with hillcrests which morph into moderately inclined slopes with narrow, concave drainage lines. The underlying geology is the Wianamatta group of Ashfield shale and Bringelly shale, but with fine to medium grained lithic sandstone from the Minchinbury sandstone type. Gully and rill erosion is common throughout the soil landscape, with sheet erosion occurring where topsoil removal has occurred (Bannerman & Hazelton 1990:63-64).

The Luddenham soils consist of the following soils (from Bannerman & Hazelton 1990:63-64):

- A loose dark brown loam (**lu1**) which occurs as a topsoil. A few small, shale fragments occur and roots are common in the top 100 millimetres, while charcoal fragments are rare.
- A brown, clay loam (**lu2**) with frequent shale rock fragments, charcoal fragments and roots.
- A strongly pedal clay (**lu3**) which varies in colour from brownish black to dark reddish brown. Shale rock fragments are common while roots are rare and charcoal fragments are absent.
- A mottled bright brown plastic clay (**lu4**) which occurs as a deep subsoil. Shale rock fragments and gravels are common, while roots are rare.
- An apedal brown sandy clay (**lu5**) with up to 10% inclusions of small, well-weathered shale fragments. All other inclusions are absent.

The occurrences and relationships between these soils vary considerably, dependant on location. On crests, 100 millimetres of **lu1** can overlie up to 400 millimetres of **lu5**, which lies directly on bedrock or, more rarely, **lu4**. Dependant on erosion, **lu1** can be absent entirely. On the upper slopes, **lu1** can be identified as a topsoil overlying **lu2**, **lu3** and **lu4**, while on lower slopes eroded soils can form a greyish brown loam overlying **lu5** and bedrock. In other examples, known sequences of the Luddenham soils can be **lu2**, **lu5**, **lu3** and **lu4** (Bannerman & Hazelton 1990:63-64).

3.1.3 Richmond (ri) Soil Landscape

The Richmond (**ri**) soil landscape is an alluvial or fluvial soil landscape which is found along Quaternary terraces along the upper reaches of the Nepean River, with an underlying geology of sand, silt and gravels which derive from sandstone and shale. The topography of the Richmond (**ri**) soil landscape is mostly flat, consisting of the terrace edges and levees associated with tributaries of the Nepean River, and offering local relief of no more than 10 metres (Bannerman & Hazelton 1990:75).

The A horizon generally consists of either a loose, reddish brown loamy sand (**ri1**) or a brown sandy clay loam (**ri2**), both of which are often slightly acidic. The B horizon is a brown mottled light clay (**ri3**), which may contain bands of gravel, overlying a brown mottled stiff medium-heavy clay (**ri4**). With the exception of a few roots in the upper parts of the soil profile, inclusions such as stones and charcoal are generally absent throughout the profile (Bannerman & Hazelton 1990:76).

Soil depth or the presence of the different soil materials can vary considerably, dependant on location within the landscape. Near terrace edges, up to 400 millimetres of **ri1** can overlie between 400 millimetres and 1 metre of **ri2**, with a subsoil of alternating layers of **ri3** and **ri4** and all soil boundaries being clearly defined. Further away from the watercourse, **ri1** can be absent, as can **ri2**, although when present, **ri2** may be up to 1 metre thick overlying up to 1.5 metres of **ri3**, and up to 1 metre of **ri4**. Boundaries between different soil profiles away from watercourses may be gradual and difficult to differentiate (Bannerman & Hazelton 1990:76-77).

3.2 Climate

The climate of Wallacia is temperate with cool winters and warm to hot summers (Bannerman & Hazelton 1990:3-4). Average temperatures at the Badgerys Creek weather station, located approximately 10 kilometres to the east of the study area, are highest in January and can range from a daytime mean of 30.0°c to an overnight mean of 17.1°c. July is the coolest month with average daily temperatures of 17.4°c and mean overnight temperatures of 4.1°c (BOM 2017). The area lies within the rain shadow of the higher coastal plateaux that captures the prevailing south-east winds, thus the annual rainfall is considerably lower than Sydney to the east and the Blue Mountains to the west (Bannerman & Hazelton 1990:3-4). The mean annual rainfall for Badgerys Creek is about 683 millimetres per year, mainly in summer, with rain occurring on an average of 68.6 days per year (BOM 2017).

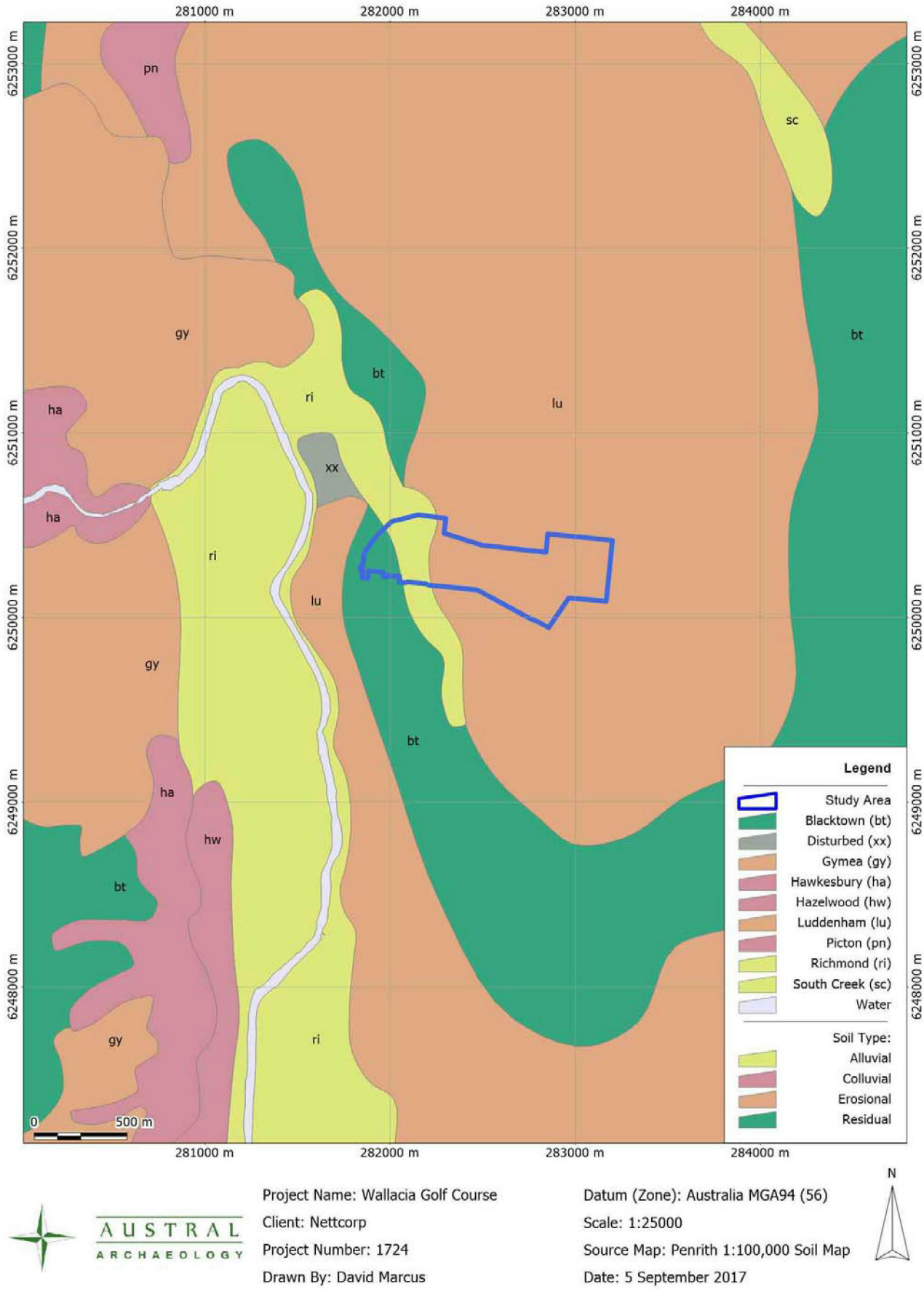

Figure 3.1 Soil landscape of the study area and surrounding area.

3.3 Hydrology

The study area is located in the watershed of Jerry's Creek, which forms part of the Nepean-Hawkesbury River catchment along with the adjacent watersheds of Mulgoa Creek to the north-east and Duncan's Creek to the south (Figure 3.2).

The major watercourse in the vicinity of the study area is the Nepean River which flows approximately 400 metres west of the western boundary of the study area. While the Nepean River generally forms a deep, heavily forested gorge in the region, the river was fordable at Wallacia (Section 5.1.1). The headwaters of the Nepean River rise near the town of Robertson on the western slopes of the Illawarra Escarpment, about 100 kilometres south of Sydney. The Nepean River flows northwards past Wallacia before turning westwards to join the Warragamba River and resuming its northwards flow to join the Grose River near Penrith, marking the point where the river changes its name to the Hawkesbury River. As the Hawkesbury River, it flows roughly north-east before it enters the sea approximately 50 kilometres north of Sydney at Broken Bay. The total length of the Nepean-Hawkesbury River from source to sea is about 265 kilometres.

Jerry's Creek is the major creekline in the local watershed and it passes through the western part of the study area as a 4th order stream. However, the creekline has been at least partially modified, as the creek enters an underground drain in order to pass below a fairway. The headwaters of Jerry's Creek lie predominantly to the south of the study area and the creek runs northwards before joining the Nepean River north of Wallacia. In the north-eastern corner of the study area is a lake which is formed through the damming of a 3rd order creek whose two 2nd order tributaries flow westwards through the north-eastern part of the study area. An unnamed 1st order drainage gully is also present in the northern part of the study area, flowing north-westwards to join the dammed creekline which then continues to flow westwards, re-entering the study area as a 4th order stream in the north-western corner before joining Jerry's Creek and flowing northwards out of the study area (Figure 3.3).

For the discussion on stream order relevance for archaeological site patterning, please refer to Section 4.1.6. One point to consider is that while stream order modelling focuses on predicting the likely year-round permanence of a water source, the Cumberland Lowlands physiographic region contains a dense pattern of drainage channels (Bannerman & Hazelton 1990:2). This means that while a 1st or 2nd order streams would normally be considered semi-perennial and 3rd and 4th order streams would be a permanent water source, several creeks in the vicinity of the study area are considered semi-perennial but are rated as 3rd or 4th order streams.

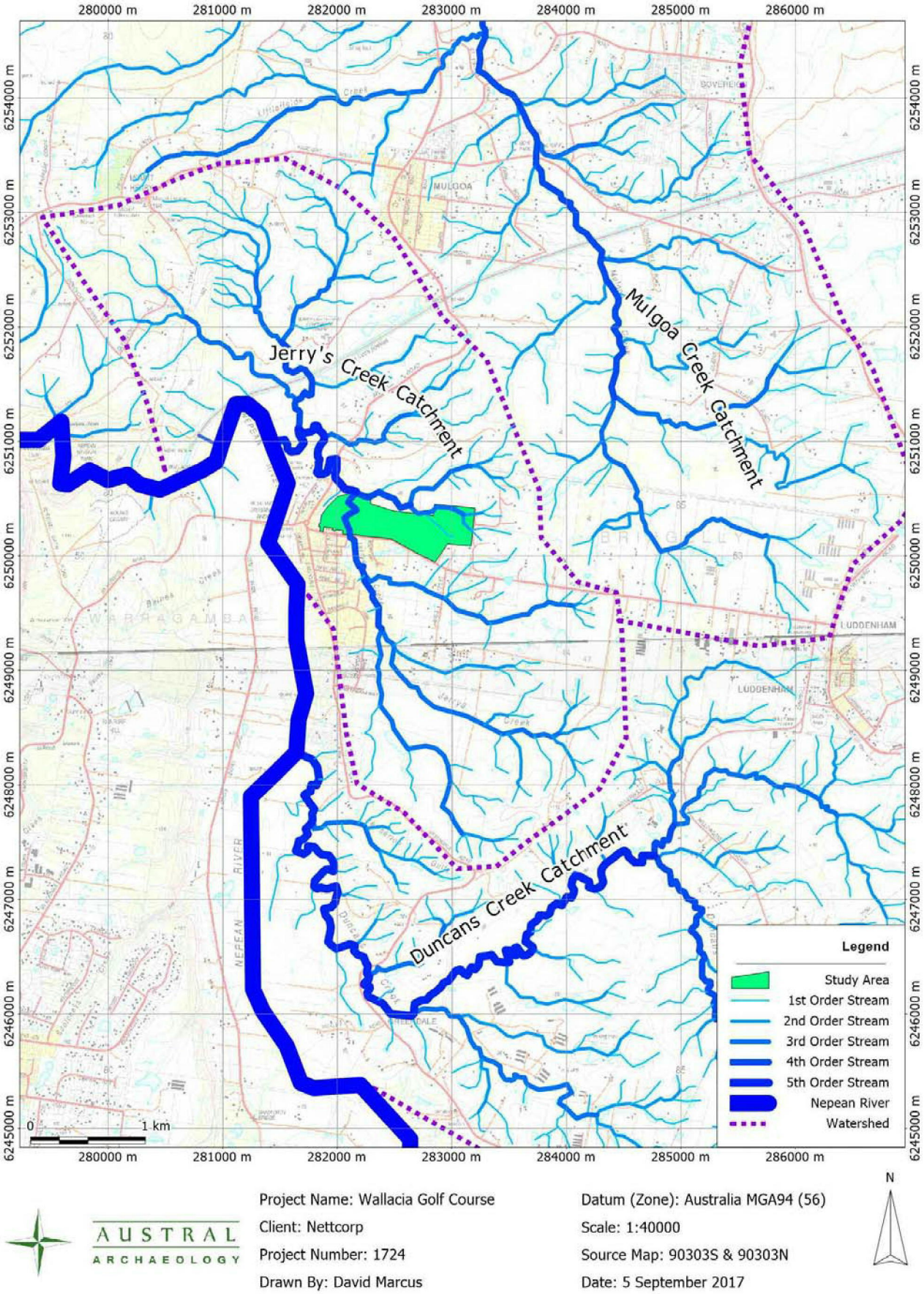

Figure 3.2 Major watersheds including and adjacent to the study area.

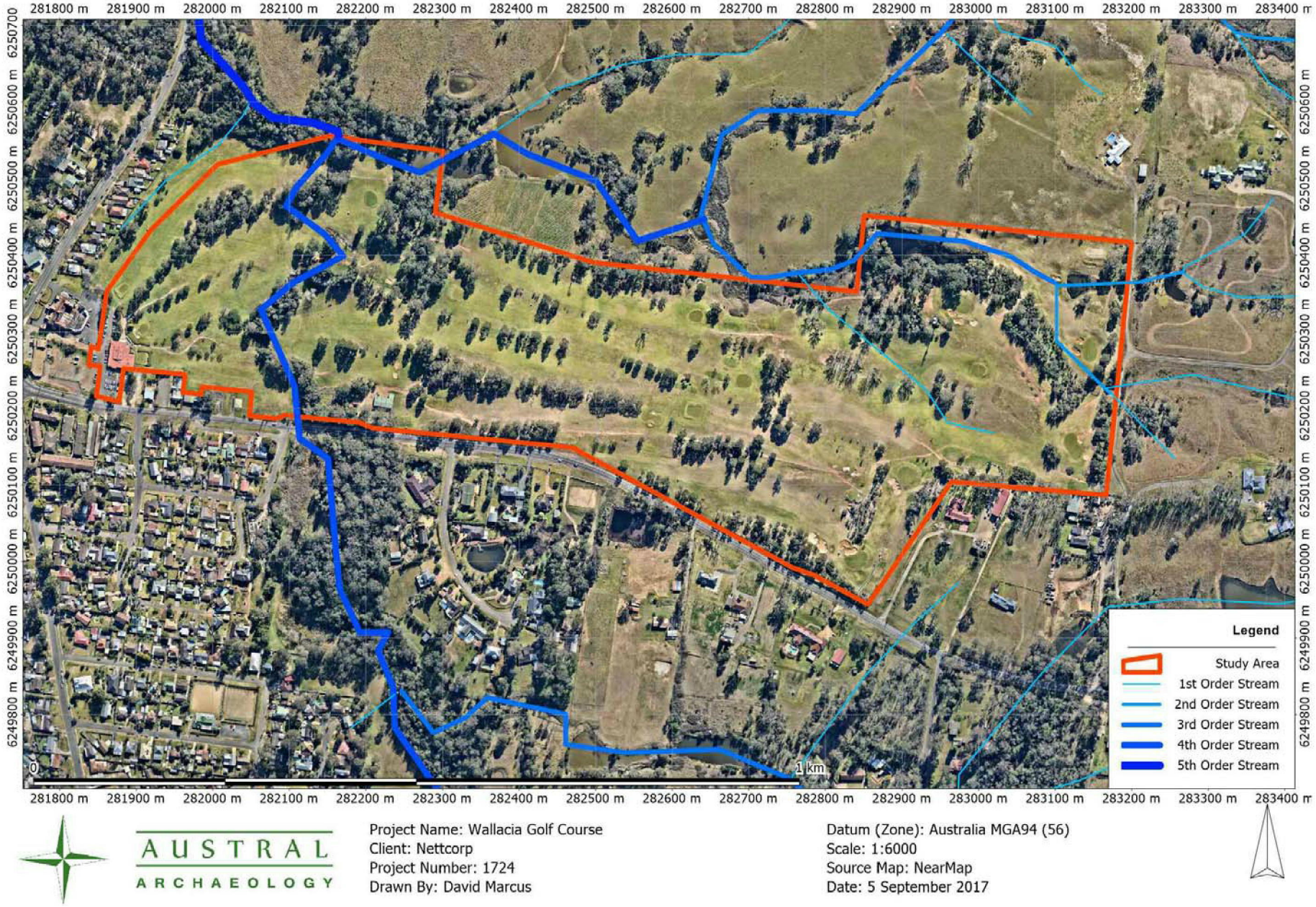

Figure 3.3 Aerial image showing watercourses within the study area.

3.4 Flora and Fauna

Prior to the removal of the natural vegetation, the ecological diversity of the area would have provided a wide range of resources for Aboriginal people. Aboriginal people frequenting the study area would have exploited resources from the nearby Nepean River as well those within the smaller drainage lines such as Jerry's Creek.

The dominant native vegetation community in the region surrounding the study area is characterised as an "Alluvial Woodland" (NPWS 2002b: Map 4). This forest community is predominantly found on watercourses draining through soils which derive from Wianamatta shale (NPWS 2002a:41). Larger trees present within this vegetation community include cabbage gum (*Eucalyptus amplifolia*) and forest red gum (*E. Tereticornis*), with occasional occurrences of rough-barked apple (*Angophora floribunda*). Smaller trees can include Parramatta green wattle (*Acacia parramattensis* subsp. *parramattensis*), swamp she-oak (*Casuarina glauca*), and flax-leaved paperbark (*Melaleuca linariifolia*). A dense ground cover could include grasses such as Australian basket grass (*Oplismenus aemulus*), weeping grass (*Microlaena stipoides* var. *Stipoides*), bordered panic (*Entolasia marginate*) and forest hedgehog grass (*Echinopogon ovatus*), or herb species such as forest nightshade (*Solanum prinophyllum*), whiteroot (*Pratia purpurascens*) and *Commelina cyanea*. Although not as common, shrubs such as blackthorn (*Bursaria spinosa*) could also be present (NPWS 2002b:41).

Additional species present within the Nepean Gorge also include blackbutt (E. *deanei*), river oaks (*Casuarina cunninghamiana*) and red cedar (*Toona australis*) (Benson & Howell 1990:84).

The study area has been predominantly cleared of vegetation, although copses of trees are present along the course of Jerry's Creek, in the vicinity of the dam in the north-east corner of the study area and adjacent to various fairways throughout the golf course. However, the majority of the vegetation within the study area, excluding the trees lining Jerry's Creek, were planted in the latter part of the 20th century and are not shown on an aerial photograph dating from 1955 (Figure 5.10).

The study area and its nearby surroundings would have provided habitats for the usual variety of macropods found in the Cumberland Plain, while the rivers and creeks would provide access to addition faunal resources such as fish species, a range of water birds and a variety of lizards. The Atlas of NSW Wildlife identifies 232 native species having been recorded within 10 kilometres of the study area. This is broken down into 34 mammals, 157 birds and 41 reptiles, amphibians and insects (OEH 2017). A large number of these species would have been hunted by Aboriginal people, including macropods such as the eastern grey kangaroo (*Macropus giganteus*), possums such as the common ringtail possum (*Pseudocheirus peregrines*), and myriad other species of bats, birds, and snakes (Attenbrow 2002:70-76).

3.5 Section Summary

The current flora and fauna inhabiting the study area is not indicative of the range and quality present prior to European settlement. Available plant and animal resources would have been sufficient for the needs of Aboriginal people and allowed for trade with neighbouring groups. Some of the same characteristics which made the area of use to past Aboriginal people also would have made it attractive to European settlers, leading to extensive clearing for residential, commercial and maritime use. The implications of these factors for the archaeological potential of the study area are discussed in Section 6.1.

4 ABORIGINAL ARCHAEOLOGICAL CONTEXT

4.1 The Cumberland Plain and Nepean River Archaeological Context

Archaeological investigations on the Cumberland Plains and along the floodplains of the Nepean River have been conducted in direct response to the spread of urban development. The limited ethnographic accounts of early settlers and explorers were once considered the primary source for archaeological enquiry. However, with the recent spread of urban development within the Cumberland Plain environs, archaeological investigations have undergone a corresponding increase.

The major studies which have contributed to our understanding of the Cumberland Plains, and those with direct relevance to the study area through their proximity, are outlined below. Reference is made to the main trends garnered from these investigations which serve to provide a broad framework in which to base the current study.

Aboriginal occupation of the Cumberland Plain and Nepean River valley extends back well into the Pleistocene, around 10,000 years Before Present (BP). Currently the oldest accepted date for an archaeological site in the Sydney region is a date of about 14,700 years BP which was obtained from Shaws Creek Rockshelter K2, located to the north of Penrith and not far from the present study area (Attenbrow 2002:20). Relatively early dates were obtained by McDonald *et al* (1996) for artefact-bearing deposits at open site RS1 (45-5-982) at Mulgoa Creek, Regentville, but the reliability of these is uncertain (McDonald *et al* 1996: 61-62), while Austral Archaeology have also recorded similar dates within an aeolian sand body associated with the Hawkesbury River at Windsor (Austral Archaeology 2011).

4.1.1 Population and Contact History

Aboriginal people formed part of a dynamic culture which encouraged movement throughout the landscape in order to assist in the ceremonial and functional practicalities of daily life (Helms 1895:389; Niche 2010:17). As such, defined borders for tribal groups need to be recognised as an artificial constraint designed by anthropologists (Organ 1990:xliii).

With these constraints in place, it is possible to characterise the Aboriginal history of the study area. The present study area is thought to lie near the boundary of two major Aboriginal language groups, with Darug (alternatively spelt Dharug or various other spellings – see Attenbrow 2002:table 3.3) speakers occupying the region to the north and east of the Mulgoa valley while the Gundungarra speakers were located to the south and west (Kohen 2009:3). Anthropologist and linguist R.H. Mathews stated that:

> The *Dhar-rook* dialect, very closely resembling the *Gundungarra*, was spoken at Campbelltown, Liverpool, Camden, Penrith, and possibly as far east as Sydney, where it merged into the *Thurrawal* (in Mathews & Everitt 1900:265).

According to Kohen "the band that lived in the [Mulgoa] valley at the time of contact were Dharug, and were known from the early part of the 19th century as the Mulgoa Tribe" (Kohen 1982:3). '*Mulgoa*', '*mulgowy*' or '*mulgaway*' meaning 'black swan' is also believed to be the Dharug name for the area (Kohen 1982:4), while an alternative origin for the name is also suggested based on the word *Mulgowrie*, meaning "a place for water" in a local dialect (*Nepean Times*, 18 May 1939; Reed 2010:59).

The pre-contact Aboriginal population numbers for the study area are not known and, due to epidemics often preceding the arrival of European settlers into a region (Attenbrow 2002:21), it is unlikely that the early European explorers were able to successfully grasp the traditional population size. However, in the early days of the Sydney Cove settlement, Governor Phillip estimated that about 1,500 Aboriginal people lived in the Sydney district. More recent estimates of the contact period population of the greater Sydney region place the number between 5,000 and 8,000, although other estimates are much lower (Kohen 1995:1; Turbet 2001:25-26). For the western Cumberland Plain, Kohen has estimated a pre-contact population of 500 to 1000 people, or a minimum overall density of about 0.5 persons per square kilometre (Attenbrow 2002:17; Kohen 2009:4).

The Aboriginal population of the Sydney district declined dramatically following European settlement even before European explorers reached Mulgoa, as many Aboriginal people had been were killed by the smallpox epidemic which spread through the area in 1789. The epidemic is thought to have caused the deaths of at least half of the Aboriginal population of the Sydney district, while some accounts testify that 90% of the population were decimated (Attenbrow 2002: 21; Kohen 1995:2).

4.1.2 Post-Contact History

Any post-1799 ethno-history should be utilised with caution, as Hiscock (2008:17) has argued that even very early historical accounts of Aboriginal people may not be a suitable basis for analogy. As Aboriginal groups had to change their economic, cultural and political practices in order to cope with the social impacts of disease in the historic period, he argues that it is likely that similar drastic changes happened in prior to the arrival of settlers in a region in response to "altered cultural and environmental circumstances" following the arrival of Europeans. Social disruption around settlement areas and coastal fringes caused by European settlers pushing Aboriginal people to the fringes of their traditional lands would have caused drastic changes.

While early contact between Aboriginals and Europeans in the area was initially neutral, conflict over limited resources resulted in tensions rising dramatically between 1794 and 1800. Increased farming along the banks of the Hawkesbury River replaced areas of natural resources which had traditionally been harvested by the Darug people. As a result, Aboriginal people took corn from the settler's field which, in 1794, led to the farmers capturing, torturing and killing an Aboriginal boy. Retaliations followed and, although the Aboriginal people then tried to sue for peace, soldiers were sent to the region to indiscriminately kill and drive away the remaining Aboriginal survivors. A General Order proclaimed in 1801 stated that all Aboriginal people were to be "driven back from the settlers habitations by firing at them". By this time, an estimated 150 to 200 Darug people had been killed by the British (Kohen 2009:4-5).

While the British had focussed efforts on subjugating the Darug people following the take-up of land in the Mulgoa valley from the start of the 19th century, an influx of Gundungarra (or mountain) people into the valley in 1814, possibly to take advantage of the farmers' harvest, led to a spate of attacks on isolated farms (Kohen 1982:3-4; Turbet 2011:198).

One encounter in February 1814 occurred around Wallacia when Denis McDonald returned home to his farm near the Nepean River at Wallacia to discover his crops and gardens had been destroyed and the fire in the hearth extinguished. McDonald walked 700 metres north along the river get a fresh flame from a neighbouring property owned by James Cox, where he found Ralph Pearson and his wife sat with William Reardon, an older Aboriginal man and three younger Aboriginal boys. The Aboriginal travellers had told Pearson and Reardon that they were strangers to the area and had come from Cowpastures; land associated with the Gundungarra people and highlighting the general movement of Aboriginal people outside of their traditional lands at this time. McDonald grabbed one of the younger boys, accused him of damaging McDonald's crops and threatening to have him taken to jail, to which the boy replied "that not me, more black men over yonder". McDonald released the boy and the group of four Aboriginal people departed, so McDonald obtained a flame and returned to his own house. Later that night, Reardon stepped outside and was hit in the chest by a spear thrown by the older Aboriginal man and although surviving the initial wounding, he died of the injury two days later (Turbet 2011:194-196). During the subsequent inquiry into the death, William Cox, also a landholder in the district, stated that:

> ...on his asking Reardon how the Natives came to throw at him[, Reardon] said he was convinced in his own mind that it was not intended for him, but for McDonald; that they were determined on mischief as they were standing behind a tree close to the house, not knowing that McDonald was gone from it, that the eldest boy threw the first spear which missed him, when the old man threw and struck him on the heart, on the old Native hearing his voice, he looked as it amazed and frightened at what he had done and stood still for a time, then he (Reardon) drew the spear out of himself and the Natives ran off (AAONSW, Reel 6021; 4/1819 pp.539-546)

Pearson went to seek help and to get a firearm from Blaxland's Luddenham Farm, which is immediately west of the study area (see Section 5.1), but despite hunting through the night, the perpetrators of the attack were not caught (Turbet 2011:195-196).

Further trouble came a few months later when the *Sydney Gazette* of 7 May 1814 reported that:

> The mountain natives have lately become troublesome to the occupiers of remote grounds. Mr Cox's people at Mulgoa have been several times attacked within the last month, and compelled to defend themselves with their muskets, which the assailants seemed less in dread of than could possibly have been expected. On Sunday last, Mr Campbell's servants at Shancomore were attacked by nearly 400; the overseer was speared through the shoulder, several pigs were killed, one of which, a very large one, was taken away, together with a quantity of corn, and other provisions; the overseer's wearing apparel, and cooking utensils.
>
> Similar outrages have been committed in other places; which it is to be hoped will cease without a necessity of our resorting to measures equally violent to suppress the outrages (*Sydney Gazette*, 7 May 1814).

The Shancomore Estate, located at Bringelly, is approximately 15 kilometres south-east of the current study area.

Another attack on settlers occurred in July 1814, when two children of James Daley were killed by an Aboriginal raiding party on his land grant at Wallacia. Five Gundungarra men were accused of the murder and Macquarie armed an expedition with order to find and detain the suspected murderers, although the expedition proved fruitless (Turbet 2011:213-215). The remainder of the year was relatively quiet with a suggestion that the Gundungarra had returned to their own lands in the mountains to the west of the Nepean River in the spring, leaving the settlers and Darug people to coexist in relative peace (Turbet 2011:215).

Hostilities in the local region continued for the next two years and were characterised by killings on both sides. In 1816, following the murder of two settlers earlier in the year, Macquarie ordered a punitive raid along the western bank of the Nepean River in the vicinity of Wallacia with the aim of killing or capturing any Aboriginal men who were encountered. The expedition failed to find any camps, at least partially due to the Aboriginal guides claiming that a herd of wild cattle had obliterated the tracks (Turbet 2011:254-255). Later in the year, a white shepherd was killed at Mulgoa along with most of the flock of 200 sheep under his care, which were either forced off a cliff or were mutilated and killed (*Sydney Gazette*, 31 August 1816). Again, according to Kohen, these killings were carried out by Gundungarra people while "the Mulgoa 'Tribe' apparently remained peaceful, but their numbers were rapidly declining" (Kohen 1982:5).

By 1820, it appears the violence had ended in the Mulgoa valley and a form of a co-operation, although often exploitive, had developed between the settlers and the Aboriginal people. In 1826 Cox reported that Aboriginal people had been employed on the Fernhill estate, and that:

> ...the tribe of Mulgoa reaped upwards of thirty acres of wheat for me within the last fourteen days; the work was as well executed as if performed by my best English labourers. The blacks are willing to work if well fed; but the generality of settlers, I regret to say, think these unfortunate people sufficiently renumerated for their days labour by a gift of a small piece of tobacco and a drink of sour milk. I gave to them and their wives three good meals a day, and a moderate quantity of weak rum punch (or what they call bull) in the afternoon. They went to their camp at sun down, in high spirits, and were amongst the first in the field (*Sydney Gazette*, 23 December 2826).

Fifteen Aboriginal people were recorded as living at Mulgoa two years later in 1828, and people in the region are believed to have lived in a 'semi-traditional' way up until about the 1840's. One open artefact scatter site recorded at Mulgoa Park contained 19th century glassware and ceramic sherds along with stone artefacts (Kohen 1982:7). This is likely to suggest a post-contact date for this site, but it is not possible to establish a definite connection between the artefacts.

Even despite all the setbacks and obstacles caused to Aboriginal people by the arrival of the Europeans, there were reports of Aboriginal people further south in the Camden area still hunting using traditional methods and camping along the Nepean River right up to the late 19th century (AECOM 2010:14, Atkinson 1988:7).

4.1.3 Material Culture

The material culture of the Aboriginal people of the Mulgoa region at the time of European contact was diverse, and utilised materials derived from a variety of plants, birds and animals as well as stone. Below is only a short summary of the types of material known to have been used by the Aboriginal people across the Cumberland Plain.

Spears in the Cumberland Plain were usually made of a grasstree spike (for the shaft) with a hardwood point, or alternatively with a hardwood shaft and barbs made of stone, bone, shell or wood (Turbet 2001:40). Thin and straight spear-throwers, or *woomera*, were made from wattle and other hardwoods (Turbet 2001:40). Fishing spears were usually tipped with four hardwood prongs with bone points (Attenbrow 2002:117, 119; Turbet 2001:42), while fish were also caught by means of shell or bird talon fish hooks attached to twine (Attenbrow 2002:117; Turbet 2001:45).

Bark of various types were used for making such diverse items as wrappings for new-born babies, shelters (*gunyahs*), canoes, paddles, shields, water carriers (*coolamon*) and torches (Attenbrow 2002:Table 10.1). Resin from the grasstree was also used as an adhesive for tool and weapon making (Attenbrow 2002:116; Turbet 2001:36).

Various kinds of clubs and throwing sticks were made from hardwoods, as were other useful items such as digging sticks. The word '*boomerang*' is believed to be from the Darug language and the returning variety originated from the Sydney basin. In conjunction with larger, two-handed throwing sticks, it complemented the range of hunting tools available for taking down larger prey (Turbet 2001:37-39, 45; Attenbrow 2002:112).

Stone artefacts are often the only physical indication of Aboriginal use of an area. The knapping of stone artefacts can indicate one of two things, the knapping of stone to create tools and the discard of these tools once they have been used, or sometimes both. The knapping of stone creates a large amount of stone debris in very little time. Large knapping events tend to occur in proximity to sources of permanent water (McDonald 2000). This is probably because the availability and resources made these good places to camp for short periods of time. Small scale knapping events can occur anywhere in the landscape and are associated with the manufacture or maintenance of stone tools as a direct result of a specific need. This implies that locations of sites away from water courses will be more diffuse.

Stone was commonly used for tools and, apart from discarded shell in coastal middens, is the most common material found in archaeological sites of the Sydney region. Stone or stone tools were used for axe heads, spear barbs and as woodworking tools, amongst other things.

Aboriginal people made good use of local stone raw materials sourced from the known quarries on the Cumberland Plain and from the Hawkesbury-Nepean River gravels. Knowledge of source locations for raw materials such as silcrete, basalt, quartz, tuff and chert is of great importance in determining movements, trade and exchange patterns of the people who inhabited the area (Attenbrow 2002). There is evidence, in the form of stone artefacts and axes from inland sources (possibly the Nepean River gravels) for trade between the inland Darug people with the coastal Guringai (Smith 1989:20).

Archaeological investigation has resulted in the recognition of changes in the types of stone tools used by Aboriginal people in the Sydney region through time. A sequence of changes in stone tool types in eastern New South Wales was first noticed by archaeologist FD McCarthy who named it the 'Eastern Regional Sequence' (McCarthy 1976:96-98). McCarthy identified the '*Capertian*,' '*Bondaian'* and '*Eloueran'* phases of the sequence which together appear to span the last 15,000 years in the Sydney region.

McCarthy's sequence was argued against, and Stockton & Holland (1974:53-56) modified McCarthy's theory by proposing four phases of the Eastern Regional Sequence instead. After Capertian, they described the Early Bondaian and Middle Bondaian phases, where Bondi points and other small tools become apparent in assemblages in Eastern New South Wales. Late Bondaian of Stockton & Holland's sequence referred to McCarthy's Eloueran phase. Stockton & Holland's terminology proved more useful to archaeologists and are used throughout the Sydney region today (Attenbrow 2002:156).

Broadly speaking, the earliest, Capertian period assemblages typically contain tools which are larger in size than later assemblages, although smaller tools, such as thumbnail scrapers and dentated saws can also be present.

In the late Holocene (from approximately 5,000 years ago), backed artefacts such as Bondi points, Elouera and geometric microliths appear in archaeological assemblages in the Sydney region and these tools are characteristically much smaller than those of earlier phases. McCarthy (1976) used these formal tools to define this period as Bondaian while for Stockton & Holland (1974:53-56) the appearance of these tools marked the Early Bondaian and Middle Bondaian phases. Edge ground implements also started appearing in regional assemblages for the first time at about 4,500 to 4,000 years ago.

From about 1,600 year ago, Bondi points and geometric microliths began to drop out of use in the coastal parts of the Sydney region, although Elouera continued to be used. This is known as the Late Bondaian phase. On the Cumberland Plain, however, dated archaeological sites suggest that all of these backed artefact types continued to be used "until at least 650-500 years ago, although probably not [as late as the time of] British colonisation" (Attenbrow 2002:156). In coastal areas, and possibly throughout the Sydney Basin, both the use of quartz and of the bipolar flaking technique increased through time, although this tendency is less marked on the western Cumberland Plain (Attenbrow 2002:153-159).

4.1.4 Food

A wide range of land mammals were hunted for food, including kangaroos, possums, wombats and echidnas as well as native rats and mice (Attenbrow 2002:70). Birds, such as the mutton bird and brush turkey, were eaten and it is recorded that eggs were a favourite food (Attenbrow 2002: Table 7.3, p75-76).

Attenbrow has noted that "Sydney vegetation communities include over 200 species that have edible parts, such as seeds, fruits, tubers/roots/rhizomes, leaves, flowers and nectar (Attenbrow 2002:76). Several other plants have medicinal functions, many of which have only recently been discovered by science, although these were traditionally known to the Aboriginal people.

Observations from the earliest European settlers describe Aboriginal people in the Sydney region roasting fern-roots, eating small fruits the size of a cherry as well as a type of nut and the root of "a species of the orchid" amongst other types of plant food, and it was noted that their diet consisted of "a few berries, the yam and fern-root, the flowers of the different Banksia, and at times some honey" (Collins 1804:361). At other times, the Aboriginal people living in woods would "make a paste formed of the fern-root and the ant bruised together; in the season, they also add the eggs of this insect" (Collins 1804:362).

However, as Attenbrow notes, the settlers' lack of knowledge of the local plant species make actual identification of the various plants being discussed difficult, beyond vague terminology which compared plants to those which were known to the settlers' (Attenbrow 2002:76-79). Of the numerous species which are known to have been used by Aboriginal people in the past, the '*murrnong*', or yam daisy (*Microseris lanceolata*), was the most important staple food and it was the destruction of these plants that contributed to an increased strain on the food resources available to Aboriginal people in the early 19th century (Kohen 1995:4). Other important species to the Darug people included the '*burrawang*' (*Macrozamia communis*), whose seeds had to be treated before being turned into flour, and the native yam (*Dioscorea transversa*) (Kohen 2009:5).

In summary, the Cumberland Plains and Nepean River provided a wide variety of plants and animals which were used by the local Aboriginal populations for artefact manufacture, medicinal purposes, ceremonial items and food.

4.1.5 Early Archaeological Models

Many of the earliest archaeological models were either developed for the entirety of the southern New South Wales coastline, stretching from Sydney down to Batemans Bay, or concentrated on the Sydney region (Navin 1987:29). These settlement models focussed on seasonal mobility, with exploitation of inland resources in winter and coastal resources for the remainder of the year (i.e. Attenbrow 1983; Poiner 1976).

Foley (1981) developed a general site distribution model for forager settlement patterns. The general principles described by Foley have been considered useful indicators of sites location across the Australian landscape and has been used as the basis for many later settlement models.

The model splits hunter gatherer sites into two main categories; 'residential base camps' and 'activities areas' (Foley 1981). People reside in one general location or locations, probably in proximity to a good source of permanent water with shelter from the elements, and travel throughout the local landscape to gather resources at known locations. The right hand side of Figure 4.1 shows how this settlement pattern would look in terms of artefact discard. The majority of artefacts are deposited in proximity to the residential base camp, fewer at the various resource locations and a general low, random scatter amount throughout the rest of the landscape, mainly on travelling routes between activity areas and the base camp. The model, however, does not take into account the use of more than one base camp in an area, or changing preferences of camping areas over time; nor does it account for the movement of resources over time.

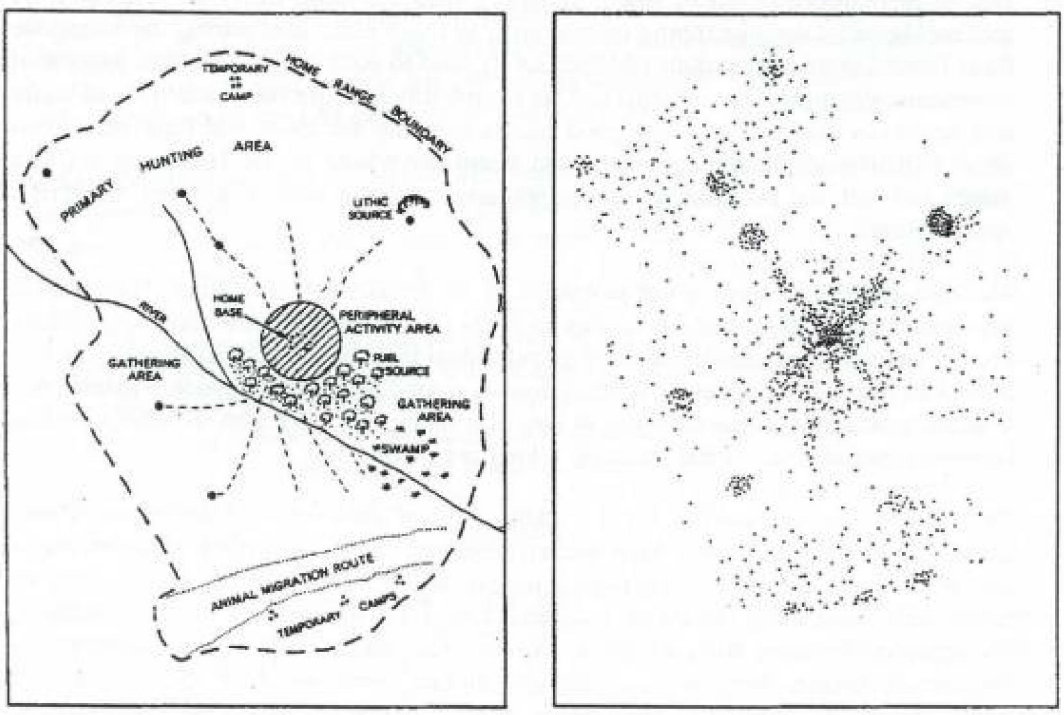

Figure 4.1 Foraging Model (Foley 1981).

Another early model was developed by Kohen in his 1986 study of the Cumberland Plain, where he created a general model of site occurrence, chronology and function for the region. The chronological component of his model posits that the Aboriginal occupation of the Cumberland Plain primarily occurred during the mid to late Holocene (approximately 4,500 BP) and was related to an increase in Aboriginal population in the area and the introduction of a new stone tool technology, the 'small tool tradition'. Prior to the mid Holocene, Kohen argues that Aboriginal occupation of the area was concentrated on and around the Nepean River and the coast.

Similarly, Smith's (1989) work represented the first stage of a National Parks and Wildlife Service (NPWS) Planning Study for the Cumberland Plain. At the time, Smith calculated that less than 0.5% of the Cumberland Plain had been surveyed and/or studied systematically and that only 17 sites had been excavated. A number of surveys were conducted as part of Smith's investigation and, in the 1,600 metre^2 area which she surveyed in the Rickaby's Creek and Londonderry area, four sites and one isolated find were located. A predictive site location model was developed by Smith for the southern Cumberland Plain based the results of her study. This included the theory that sites would be most commonly found along permanent creeks and around swamp margins, which was later expanded upon. Creek flats and banks were considered to be focal topographical features for site location (Smith 1989:2).

4.1.6 Later Work

Despite a surge in the amount of archaeological assessments undertaken in the Mulgoa valley in the late 1980s and early 1990s, little current research has been undertaken to create predictive models which focus specifically on Jerry's Creek. Instead, it is necessary to focus on archaeological models which have been created for the wider Cumberland Plain.

One of the key archaeological models for the Cumberland Plain was created by McDonald (1997a) and was used in her initial assessment of the ADI site at St Marys to undertake a more detailed analysis of site types and their distribution over the wider region. McDonald's investigation identified artefact scatters (also known as open camp sites) to be the dominant site type (composing 89% of all sites) followed by isolated finds and scarred trees (totalling 2.1% of all recorded features). Her analysis was also able to highlight the disproportionate relationship between the lack of artefacts on the ground surface compared to their sub-surface presence.

This investigation revealed the fact that virtually none of the sites which had been excavated on the Cumberland Plain could have been characterised on the basis of surface evidence alone. In addition, McDonald noted that open sites were found in all landscape units and that the high proportion of sites located on creek banks reflected variables such as surface visibility and taphonomy rather than being indicative of cultural artefact distribution across the landscape (McDonald, 1997a:36).

As a corollary to these findings it was deemed that existing predictive models had relied heavily on surface evidence and were inadequate for usage in the Cumberland Plains (McDonald *et al* 1996). It was further assumed that sub-surface results would provide the necessary data on which a model could be based that could predict site location and/or site variability. After extensive salvage and test excavations carried out for the Rouse Hill Test Excavation Programme (McDonald & Rich 1993; McDonald *et al*. 1996) and the Rouse Hill (Stage 2) Infrastructure Project (McDonald 1999) several important characteristics relating to the Cumberland Plain were noted:

- *Most areas - even those with sparse or no surface manifestations – contain sub-surface archaeological deposits.*
- *Where open sites are found in aggrading and stable landscapes, some are intact and have the potential for internal structural integrity. Sites in alluvium possess potential for stratification.*
- *While ploughing occurs in many areas, this only affects top 30 centimetres of the deposit, and ploughed knapping floors have been located which are still relatively intact.*
- *Contrary to earlier models for open sites, many sites contain extremely high artefact densities, with variability appearing to depend on the range of activity areas and site types present.*
- *The complexity of the archaeological record is far greater than was previously identified on the basis of surface recording and limited test excavations. Intact knapping floors, backed blade manufacturing sites, heat treatment locations, a number of apparently specialised tool types, and generalised camp sites can all exist within the Plains.*
- *Two Early Bondaian dates (between 5,000 and 3,000 BP) provide a context for some backed blade manufacture.*
- *Gross site patterning is identifiable on the basis of environmental factors: sites on permanent water are more complex (i.e. they represent foci for larger groups or are used repeatedly by smaller groups over a long period of time) than sites on ephemeral or temporary water lines* (McDonald *et al*.1996:115).

McDonald was also able to argue that environmental factors were integral to developing a predictive model for the Cumberland Plain. As a consequence, she has successfully used stream order models to develop a predictive model for the Cumberland Plain. Stream order modelling as a predictive tool could be utilised to anticipate the potential for Aboriginal camp site locations in the landscape based on the order of water permanence.

According to McDonald, the range of lithic activities and the complexity of the resulting stone assemblage observed at a location of permanent water differ depending on stream order. Overall, artefact scatters in the vicinity of a higher order ranking stream reflect a greater range of activities (e.g. tool use, manufacture and maintenance, food processing and quarrying) than those located on lower order streams. Temporary or casual occupations of a site, reflected by an isolated knapping floor or tool discard, are more likely to occur on smaller, more temporary water courses (McDonald 1997a:134-135).

It is therefore possible, McDonald concluded, that Strahler stream order modelling could be utilised to make general predictions about the location and nature of Aboriginal sites on the Cumberland Plain. Water permanence (i.e. stream order), landscape unit (i.e. hill top, creek flat) as well as the proximity to artefact raw materials can result in variations in the density and complexity of an Aboriginal archaeological feature (McDonald 1997a; 2000:19). Site location and duration of occupation predictions therefore relate to stream order in the following ways:

- *In the headwaters of upper tributaries (1st order creeks) archaeological evidence will be sparse and represent little more than a background scatter;*
- *In the middle reaches of minor tributaries (2nd order creeks) archaeological evidence will be sparse but indicate focussed activity (e.g. one-off camp locations, single episode knapping floors);*
- *In the lower reaches of tributary creeks (3rd order creeks) will be archaeological evidence for more frequent occupation. This will include repeated occupation by small groups, knapping floors (perhaps used and re-used), and evidence of more concentrated activities;*
- *On major creek lines and rivers (4th order creeks) archaeological evidence will indicate more permanent or repeated occupation. Sites will be complex, with a range of lithic activities represented, and may even be stratified;*
- *Creek junctions may provide foci for site activity; the size of the confluence (in terms of stream ranking nodes) could be expected to influence the size of the site;*
- *Ridge top locations between drainage lines will usually contain limited archaeological evidence although isolated knapping floors or other forms of one-off occupation may be in evidence in such a location* (McDonald, 2000:19).

This model was refined by White and McDonald (2010), based on the results of the subsurface testing at the Rouse Hill development on the northern Cumberland Plains. The predictive model identified four main factors which the authors decided determined artefact density and distribution. These were:

1) *Stream order, with higher order streams tending to have higher artefact densities and more continuous distributions than lower order streams;*
2) *Landform, with higher densities occurring on terraces and lower slopes, and with sparse discontinuous scatters on upper slopes;*
3) *Aspect on lower slopes associated with larger streams, with higher artefact densities occurring on landscapes facing north and north-east; and*
4) *Distance from water, with higher artefact densities occurring 51 to 100 metres from 4th order streams, and within 50 metres of 2nd order streams* (White and McDonald 2010:36).

In agreement with Niche (2010:24), despite the relative distances from the data source, it is held that these results are directly transferable to other parts of the Cumberland Plains.

One final predictive model was recently prepared by Kayandel Archaeological Services (2017) for North Silverdale, which is located approximately 4 kilometres south-west of the study area. Their predictive model states that (Kayandel 2017:38):

- *Both low density surface and subsurface artefacts may occur across the entire Subject area;*

- *Subsurface archaeological deposits may be present in areas where no visible surface archaeological remains are evident;*
- *The size, density and significance of sites will vary, although it is anticipated that any sites will be considerably less complex and less dense at distances greater than 250m from major water sources (3rd/4th order streams) such as Warragamba River or the Nepean River, or along ridges and elevated positions overlooking water courses;*
- *Habitation sites will have associated open production and hunting/gathering sites, which will be present in close proximity, along the length of the flat behind the escarpment;*
- *No lithic raw material outcrops have been identified in the Subject Area. As such, any archaeological material present within the Subject Area may provide additional understanding to raw material selection in the Silverdale region;*
- *As past land use disturbance increases in intensity, the ability for Aboriginal objects to provide spatial and chronological information about past Aboriginal land use will decrease; and,*
- *Potential Archaeological Deposits may be located in portions of the Subject Area with minimal previous land disturbance.*

4.2 Heritage Database Search Results

4.2.1 Aboriginal Heritage Information Management System Search Results

A search of the AHIMS database was undertaken on 31 August 2017, AHIMS Client Service ID 298971. The results from the AHIMS search identified 8 previously recorded sites within an approximate 1 kilometre radius of the study area (Table 4.1, Figure 4.2 and Appendix A). No sites were located directly within the study area.

It should be noted that unless otherwise noted, the spatial integrity and data quality of sites located outside of the study area have not been checked for accuracy or contents and are presented directly as recorded in the AHIMS database.

Table 4.1 Summary of sites recorded within approximately 1 kilometres of the study area.

Feature Type	Total	%
Stone Artefact (Isolated or Scatter)	6	75
Culturally Modified Tree	1	12.5
Shelter with Deposit	1	12.5
TOTAL	**8**	**100%**

Table 4.1 shows that there are three different site types represented by the search results: stone artefacts (isolated or scatter), culturally modified trees, and rock shelters with deposits. The spatial distribution of these sites is shown on Figure 4.2.

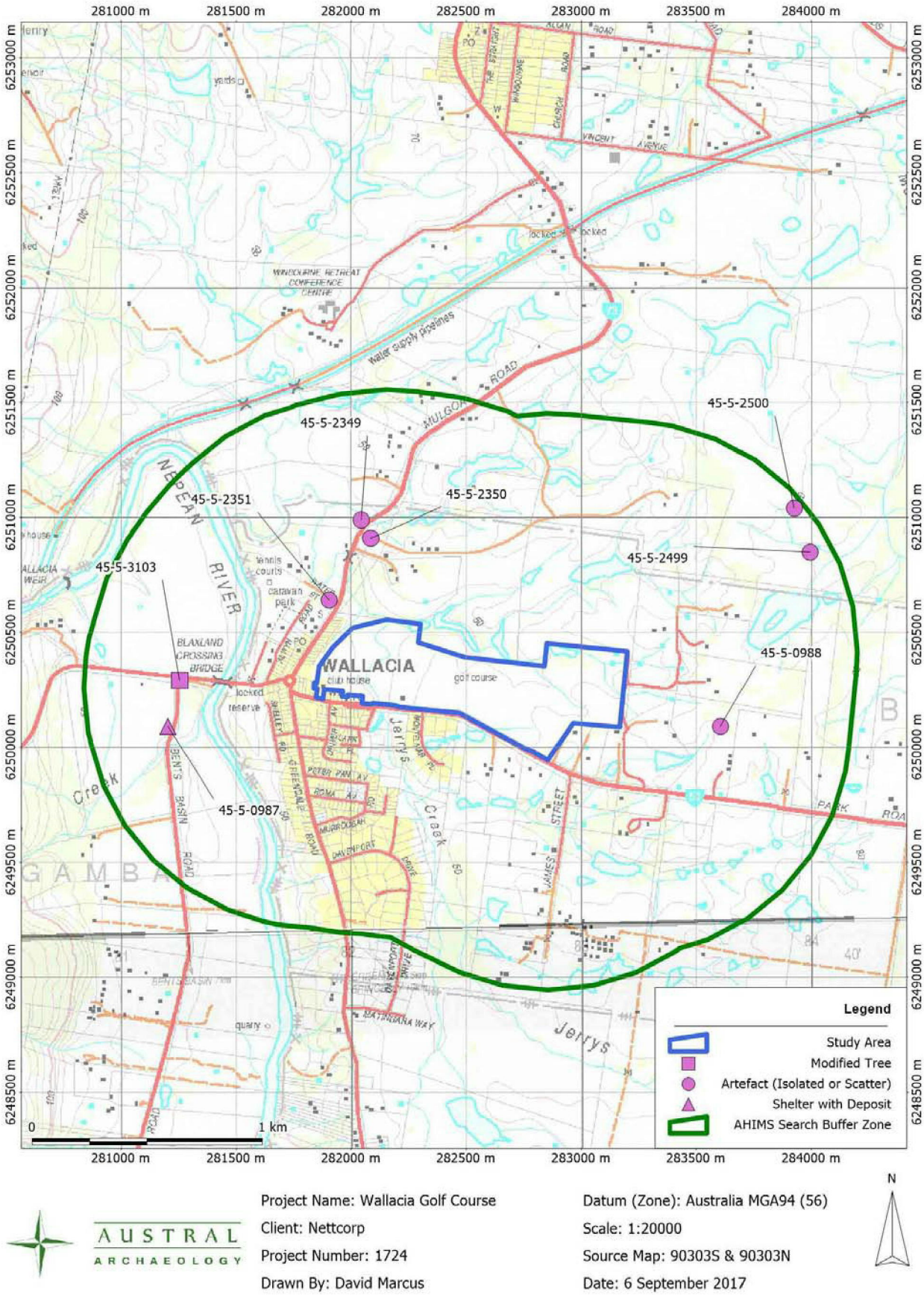

Figure 4.2 Distribution of previously recorded Aboriginal archaeological sites within a 1 kilometre radius of the area surrounding the current study area.

The vast majority of the registered sites identified in the AHIMS database search are stone artefacts (both isolated finds and open artefact scatters). This site type represents 6 reported sites, or 75% of the overall site type frequency in the localised search. In comparison, the remaining 25% of sites represent a single example of a culturally modified tree (n=1, or 12.5%) and a rock shelter with an associated occupational deposit (n=1, or 12.5%).

The distribution of the sites shows a clear spatial differentiation which relates to geological and historical land use aspects of the landscape, with the rock shelter identified close to the Nepean River while the culturally modified tree was found in an area of old-growth vegetation adjacent to a road corridor on the western bank of the Nepean River. All recorded artefact sites are, as expected, within 100 metres of a recognised watercourse. While sites RC 12 (#45-5-2500) and RC 13 (#45-5-2499) are associated with the adjacent Mulgoa Creek catchment, the remaining four artefact scatters are associated with either 1st or 3rd order tributaries of Jerry's Creek or, in the case of site JC3 (#45-5-2351), the 4th order portion of the creek immediately after it has passed through the current study area.

4.3 Previous Archaeological Investigations in the Vicinity of the Subject Land

Although European observers recorded various aspects of the lifestyles of Aboriginal people around the Sydney area from the beginning of European settlement in the 19th century, archaeological investigations of Aboriginal sites were not properly undertaken until the 20th century. Even early in the 20th century a number of extensive stone artefact deposits were collected without proper archaeological recording from areas within the wider Sydney area. These collections are now housed in the Australian Museum (Attenbrow 2002:17).

Archaeological sites are frequently recorded across the Sydney region, with over 4,000 sites registered on the AHIMS database for the Sydney region alone (Attenbrow 2002:15). Most commonly, these sites consist of artefact scatters located on shorelines and ridges, midden scatters located in close proximity to the original shorelines, and rock engraving and art sites located on sandstone outcrops and rock shelters.

4.3.1 Archaeological Investigations in the Local Region

Much of the archaeological work in the local area has been undertaken as a result of development-driven archaeological studies or surveys. Table 4.2 below outlines the details and results of some relevant archaeological consultant's reports from the region. Please note that this is not a complete list.

Table 4.2: A summary of archaeological consultant reports from the region

Reference	Study Area Location / Description	Results	Site Distribution / Conclusion
Brayshaw 1981	Lot 28, Mulgoa district, City of Penrith	Single broken basalt edge ground axe recorded.	N/a
Dallas 1981	South Penrith development site	20 surface artefact scatters and 7 isolated artefacts recorded.	Irregular, but sites recorded "either in hill top or elevated situations or in close proximity to creeks" (Dallas 1981:22).
Brayshaw 1982	Lot 1, Bradley Street, Mulgoa (75ha)	One open artefact scatter and one isolated artefact recorded.	Sites located along main creek (tributary of Mulgoa Creek). Not clear whether site distribution was a "function of Aboriginal land use or other phenomena such as ground visibility and erosional process" (Brayshaw 1982:5).
Kohen 1982	Mulgoa Valley contact-period desktop study (with limited surface survey).	Artefacts recorded in two locations, one of these contained 19th century glass and ceramic which may be associated with stone artefacts.	According to Kohen "these two small sites are certainly not significant in themselves, but considering the limited nature of the survey, it appears that many more sites would be found in any detailed investigation [of the Mulgoa valley]" (Kohen 1982:7).
Greer and Brayshaw 1983	Lot 1, DP541090, Mulgoa (1.5km x 0.5km)	One open artefact scatter and one isolated artefact recorded.	Artefacts located on hilltop, hill slope and creek bank.

Reference	Study Area Location / Description	Results	Site Distribution / Conclusion
Brayshaw 1983	Site 7770, Bradley Street, Mulgoa (19ha).	No sites or artefacts recorded.	"In view of the irregular distribution of archaeological sites in this part of the Cumberland Plain, the absence of sites from an area the size of the proposed quarry is not surprising, although it could not have been predicted (Brayshaw 1983:6).
Kohen 1986	'Winbourne,' Mulgoa, approx 1.2 x 0.5km	Stone artefacts recorded at 9 locations (8 open sites and one rockshelter), one axe grinding groove location recorded.	Open site artefacts generally located within 50 metres of creek lines, with one exception located near the crest of a low hill. Rockshelter site located in sandstone gorge. Grinding grooves found in sandstone outcrops adjacent to creekline.
McDonald 1987	Subsurface testing of site 45-5-0411, previously recorded by Greer and Brayshaw (1983) at Mulgoa	Sub-surface investigation "revealed that there was no intact, archaeological deposit at the site" (McDonald 1987:7).	Site consists of a sparse surface scatter located on a hill slope above a minor tributary.
Kohen 1988	'Fairlight Park' Mulgoa, approx 270ha	Stone artefacts recorded at five locations (including three isolated finds). One scarred tree and one axe grinding groove location recorded.	Five of the sites appear to be located within approximately 100 metres of creek lines, while two of the isolated artefacts are up to about 500 or 600 metres from a creekline (Kohen 1988:Figure 2). Kohen noted that 'the most unexpected result was the lack of evidence for the use of rockshelters in the sandstone gullies adjacent to the Nepean River…This may be partly explained by the lack of suitable shelters in the upper reaches of the gullies' (Kohen 1988:23).
Barton and McDonald 1995	Jerry's Creek Bridge, near Wallacia	Three low density stone artefact scatters recorded on eroded or exposed ground.	Barton and McDonald noted that the "information needed to categorise the nature of this artefact scatter is dependent upon sub-surface testing" (Barton and McDonald 1995:15).
McDonald 1997c	Proposed Telstra Base Station at Regentville, small area of 12 x 7m west of Mulgoa Creek	No sites recorded within study area, but one open site recorded nearby.	According to McDonald "the position of the site – i.e. in a saddle high above and some distance from permanent water is unusual in the local context – although slightly less so when taking into account similar types of environments slightly further afield" (McDonald 1997c:10).
Brayshaw 1999	Warragamba Dam Spillway additional spoil emplacement area, western side of Nepean River, approx 3ha.	In common with an earlier survey of the spoil emplacement areas, no Aboriginal artefacts or sites were recorded.	'The survey indicates that there is unlikely to have been intensive use of the landscape within the boundaries of the study area" (Brayshaw 1999:6).
Austral Archaeology 2007	The study area lies just north of Mulgoa town. The study area is made up of two lots (Lot 1 DP 996994 & Lot 1 DP 1035490).	Five surface artefact scatters and two isolated artefacts were recorded.	Sites located in the northern lot close to the confluence of LIttlefields Creek and Mulgoa Creek were considered to be more significant. Sites located in southern lot were less significant due to their dispersed nature and their location further away from the confluence of Littlefields and Mulgoa Creeks.
AMBS 2009	Relocation of sites located at Theresa Park, Sharpes and Wallacia Weirs.	Relocation of three artefact scatters.	Located along the access tracks to Theresa Park Weir (lower slope), Sharpes Weir (floodplain) and Wallacia Weir (ridge).
Austral Archaeology 2010	St Thomas' Church, Mulgoa	Pedestrian survey identified five artefact scatter containing 40 artefacts and two isolated artefacts.	All artefacts were identified from lower slopes within 100 metres of Littlefields Creek. Test excavations were recommended to further define the artefact scatter.

Reference	Study Area Location / Description	Results	Site Distribution / Conclusion
Austral Archaeology 2013	Eastern Precinct, Fernhill Estate, Mulgoa	A total of 95 artefacts and 28 non-artefactual stone fragments recovered from 90 test pits.	The site contained a "widespread but unevenly dispersed and extremely low density deposit of Aboriginal cultural heritage, interspersed with occasional higher density clusters" (Austral Archaeology 2013:95). Three specific areas of high artefact concentrations were identified located on low ridges overlooking a 2nd order creek.
Kayandel Archaeological Services 2017	Silverdale Road, North Silverdale	A pedestrian survey identified two isolated artefacts; one made from silcrete and one from white quartz.	The silcrete fragment was identified in an area of high modern disturbance and was considered unlikely to be *in situ*, while archaeological testing was recommended at the location of the second artefact (Kayandel 2017:64).

5 HISTORICAL BACKGROUND

The following historical background is designed to contextualise a site specific history which will aid in the understanding of the archaeological potential of the study area. This section aims to provide a historical sketch of early settlement of the region and a targeted historical account of the study area. This work will provide a useful and concise summary of the history of Wallacia and the archaeological potential of the study area.

5.1 Wallacia Historical Sketch

5.1.1 Blaxland's Grant – 1813 to 1851

The study area was originally part of a grant of 6,710 acres (2,715.4 hectares) given to John Blaxland on 30 November 1813 which he named 'Luddenham' after his family property in the Kent, England, and which he used primarily for the grazing of livestock (AMC 2014:21; Thorp n.d.:3). To the north of Blaxland's grant was a 30 acre (12.14 hecatre) grant given to McDonald (see Section 4.1.2), while to the south near the study area, his land bordered a grant of 1,200 acres (485.6 hectares) given to D'arcy Wentworth. An early parish map of the district also shows two fording points across the Nepean River; an unnamed ford on Blaxland's property and a ford on Wentworth's which appears to be named "Cogan's [or Cugan's] Ford".

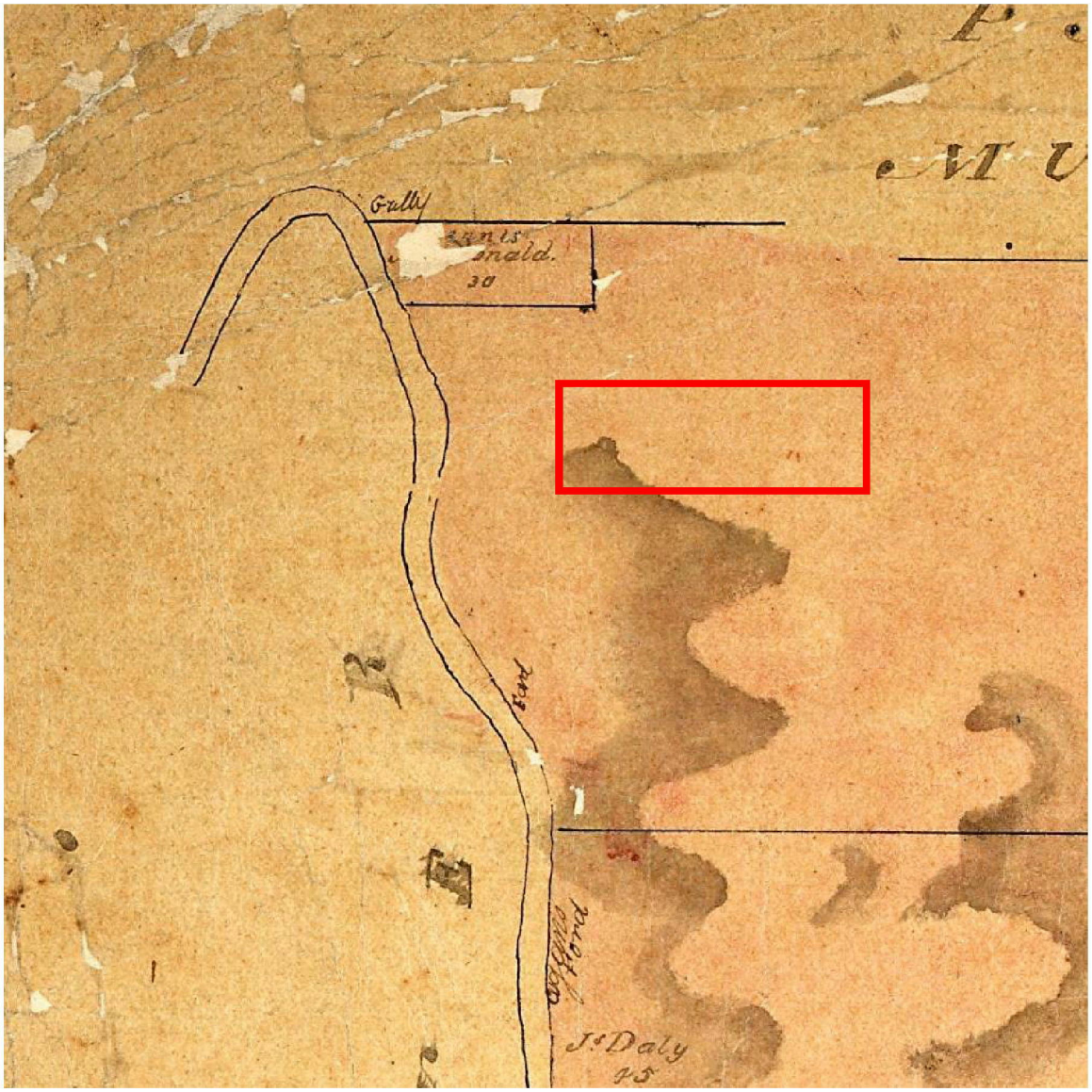

Figure 5.1 Detail from an undated plan of the Parish of Bringelly which shows the location of the two fords, with the approximate location of the study area marked in red (LPI, Map 14071101).

Blaxland appears to have chosen to develop the Luddenham estate as a working farm rather than a country retreat, as his preferred place of residence was at his Newington estate on the banks of the Parramatta River and it is unclear exactly how much time he spent at Luddenham (AHMS 2008:19). However, the Luddenham estate was not left unstaffed, as Blaxland's daughter is recorded as noting that Blaxland "divided the 80 men he first received from the Government between the two properties" (*The Sydney Mail and New South Wales Advertiser*, 27 October 1883, pg. 775).

The main farm complex is shown on an early but undated parish map as lying at the end of a looping cart track which connected the homestead to the Northern Road, which ran between Camden and Richmond (Figure 5.2). Also shown is the first bridge over the Nepean River, which became known as Blaxland's Crossing. Early references to the farm occur in 1814, in connection with the spearing of Reardon (Section 4.1.2), and in May 1816, when instructions issued by Governor Macquarie to Sergeant Robert Broadfoot in relation to a punitive raid states:

> *You are to march early tomorrow morning...to the Farm of Mr John Blaxland in the District of Bringelly on the East Back of the River Nepean...[and o]n your arrival at Mr Blaxland's Farm, you will inquire from his overseer Alexr. Everitt.* (Organ 1990:86).

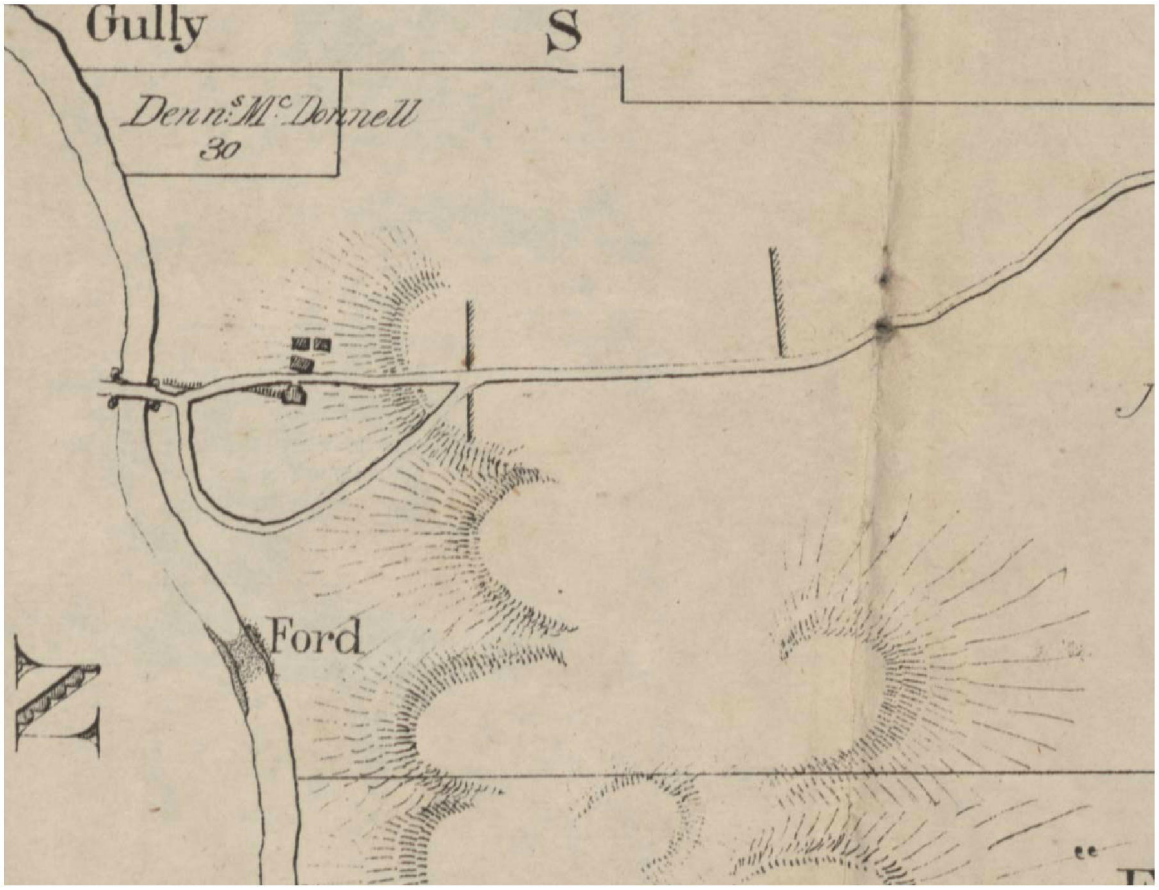

Figure 5.2 Detail from an undated plan of the Parish of Bringelly showing the layout of the buildings (NLA, MAP F 140).

The undated plan (Figure 5.2) shows a complex of three buildings to the north of the track with a fourth building to the south. However, as the plan pre-dates the existence of Mulgoa Road, attempts to correlate the location of the buildings in relation to the current topography are extremely difficult and to make it more difficult, the channel of the Nepean River is incorrectly plotted on the plan. Later plans and photos (c.f. Figure 5.6 and Figure 5.7) show the property fronting Mulgoa Road, which is in accordance with the findings of AHMS who place the complex of buildings "in, or in the vicinity of" 1 Park Road, Wallacia (AHMS 2010:7).

Of note is that the original alignment of the track which connected the farm to the Northern Road is on a different alignment to the present route of Park Road. Where the current route of Park Road runs eastwards along the southern edge of the study area before turning south-east and joining the Northern Road at the present day town of Luddenham, the original alignment continued eastwards, crossing the study area (Figure 5.3), before turning north-east and joining the Northern Road near the present day junction with Elizabeth Drive.

By 1819, Blaxland had procured land on the opposite bank of the Nepean River where he constructed a dam near the present day Wallacia Weir and built a mill and brewery. This suggests that Blaxland sought to use the western side of the river for operating his business interests while retaining the eastern side for crops and farming. While the mill was relatively successful, a combination of a drought and an outbreak of rust disease meant that there was insufficient wheat available for the brewery, and it failed to attract any business (AHMS 2008:19; Ian Jacks 1980:46; *The Sydney Gazette and New South Wales Advertiser*, 5 June 1819, pg. 4).

Assistant Surveyor Felton Mathews visited the farm along with his wife, Sarah, while preparing a survey of the surrounding allotments in 1833. Sarah's journal describes her initial opinion of the local environs and, following a week accompanying her husband on his surveying of the western bank of the Nepean, her rather more prosaic description of the buildings themselves:

> *The approach to the cottage and farm buildings at Ludenham* [sic] *is rather pretty, and just before, the undulating country of Mulgoa is seen to the right, and forms pleasing variety in the picture.*
>
> *...*
>
> *Ludenham* [sic] *as a house, is nothing, a mere settlers habitation, of wood principally and set up with all that neglect of comfort, convenience and appearance, which is so strikingly displayed in all the earlier buildings of the colony* (Mathews, quoted in AHMS 2008:21).

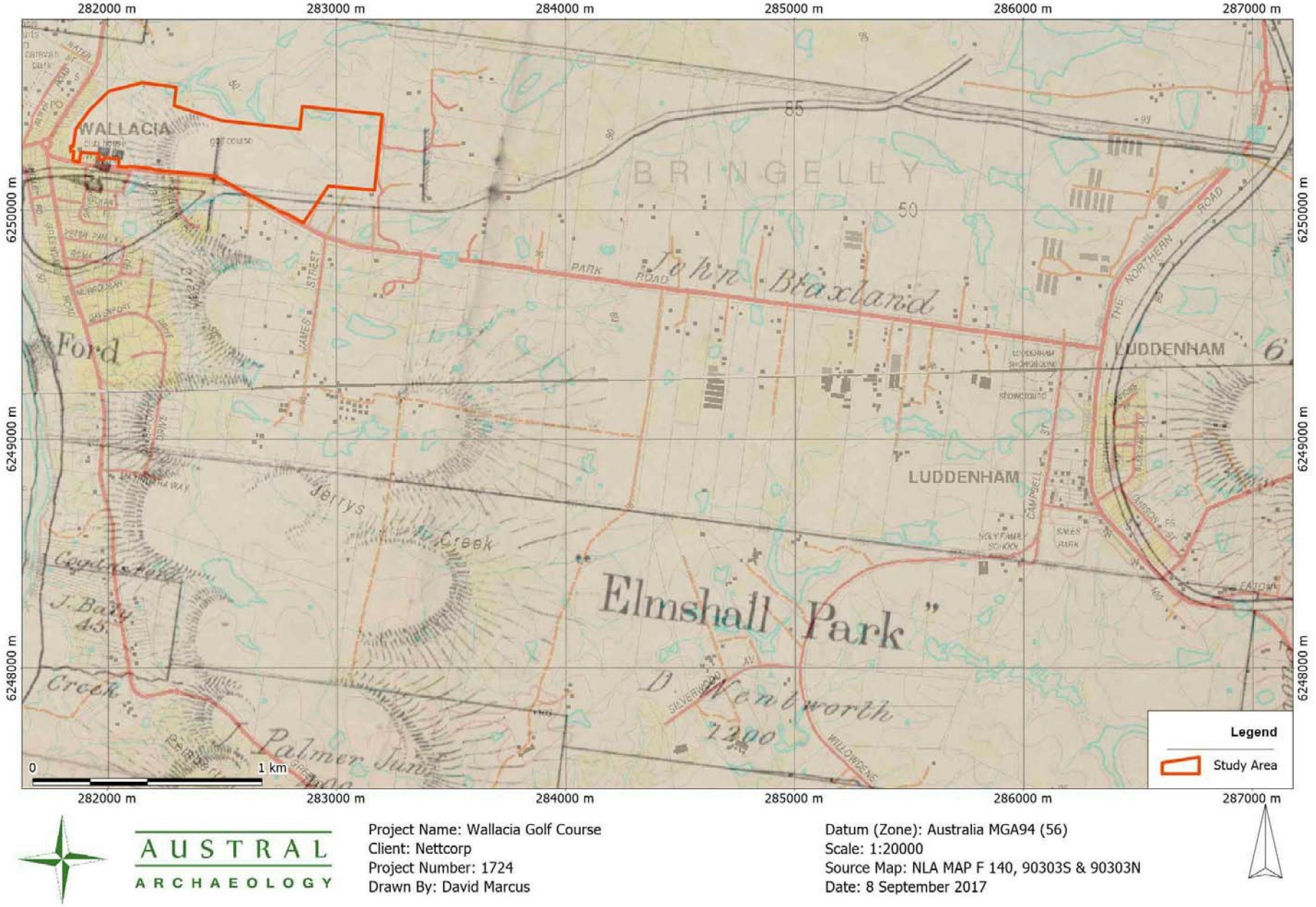

Figure 5.3 Overlay of undated plan of Parish of Bringelly and current topographic maps. Note the alignment of the cart track crossing the study area.

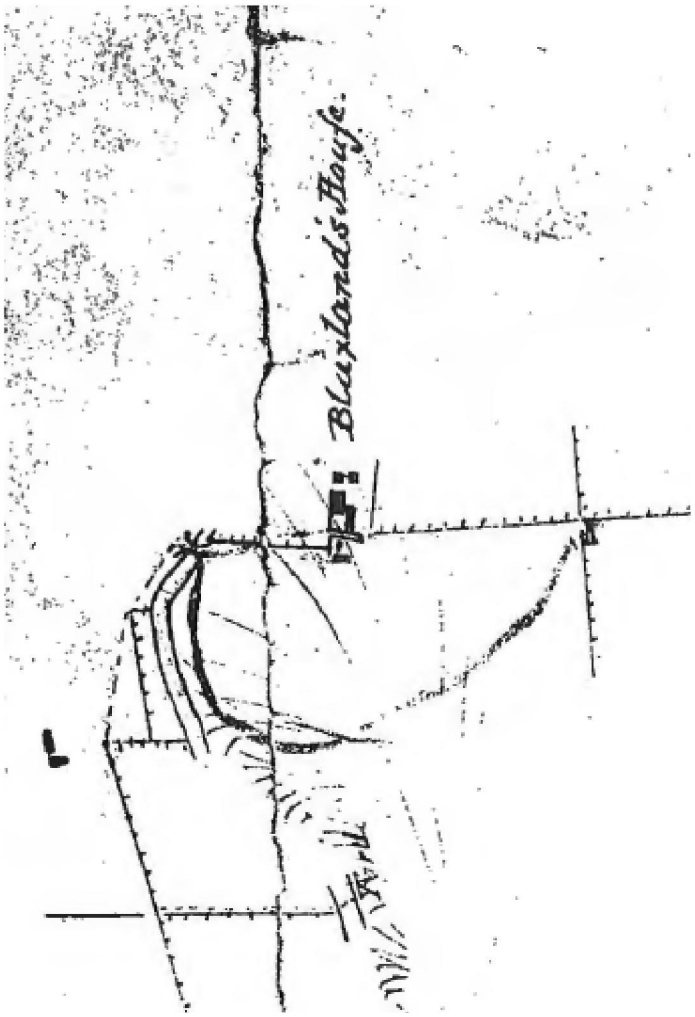

Figure 5.4 Detail from Mathew's 1833 plan showing "Blaxland's House" (after AHMS 2008:28).

Mathew's plan roughly matches the layout of buildings shown on the undated parish map (Figure 5.2), with three buildings to the north of the trackway and, although difficult to identify, potentially the fourth building shown on the southern side. AHMS interpret the linear structure on the eastern end of the main building as being a potential stable block, with the overall impression of the farm complex being one constructed for functionality rather than luxuriousness (AHMS 2008:21).

Due to financial problems suffered by Blaxland leading up to, and exasperated by the depression of the 1840s, John was forced to undertake several measures to ameliorate his losses; he undertook an indenture of mortgage on the property to Thomas Foster in 1830, an indenture of lease followed by a mortgage with Thomas Barker and others in 1841, and a last mortgage with the Australian Trust Company in 1842 (AHMS 2008:22).

A list of assets on the estate dated to March 1840 includes a water mill (valued at £1,800), brewery (£2,750), bridge (£200), barn and a threshing machine. In contrast to the value of these items, and emphasising the 'rustic' nature of the farm, the valuation includes a "building of old establishment" which is thought to be the original farmstead and which is valued at only £100. The drop in value during the subsequent depression of the 1840s is evident from a later valuation following the 1841 mortgage which records:

> *10,029 acres* [4,058.6 hectares] *of land where of 7229 acres* [2,925.5 hectares] *are mortgaged to the Trust Company and 2,800 acres* [1133.1 hectares] *to Messr J Blaxland. On this estate there are a water mill and dam valued at £1,000, a brewery; and mill house with brewen; coppers, vats, steam engine, refrigerator, coolers, casks and all brewing utensils valued at £7,000* (Blaxland Papers, quoted in AHMS 2008:21).

John Blaxland died at his beloved Newington estate on 5 August 1845, and ownership of both the Newington and Luddenham estates passed into the hands of his son, Edward Blaxland (AHMS 2008:22; Irving 1966).

By the end of the 1840s, the estate continued to remain in financial difficulties. Edward was seeking new means of financing the estate and sought to strike a deal with a brewer in Sydney to use his functional but still vacant brewery (AHMS 2008:22; Palmer 1971:3). George Cox, owner of the nearby Winbourne property, for unknown reasons disapproved of the brewery and noted in a letter to his son on 25 May 1848 that:

> *Edward Blaxland passed by here with three other persons in a carriage. I fear the brewery will commence again. One of the persons is a Mr. Wright, the man whose boards used to be stuck up all over Sydney a long time since.* Wright's Colonial Beer. *I hope they may not come to terms. It would be a great comfort to us it if were never again established, but I fear there has been too much done to allow it to go to ruin* (Hickson 1980:47).

While Cox may have wished ill-fortune upon the brewing enterprise, Cox was well aware of the dire financial problems the Blaxland's were experiencing and that a successful venture would ease their burden. Cox, writing to his son a few weeks later, outlines the problems facing the Blaxlands:

> *The Blaxlands are still in an unsettled state.* [John?] *Dobie and John Blaxland have taken all the stock and stations for their money, eleven thousand pounds, and Arthur went up to deliver them over. The Trust Co. have Luddenham and Newington, and they are now offering a composition to other creditors of 5/- in the pound to be paid in twelve months out of some funded property that old Mrs Blaxland seems to have in England. I understand most of the creditors have agreed to it. I suppose finding there is no likelihood of getting anything better, and I believe they promise that every exertion on their part will be used to pay off the rest at some future time. But they will not agree to be disturbed at Newington. Luddenham they want to let, but Arthur says he is sure it will have to be sold. I have not yet heard that Peter* [?] *has succeeded in getting a situation. I think after all he will get into some brewery in Sydney. They are very much cut up as they think Edward might have done more for them before things went to the extremity they did, and I think myself he might be paying over some stock or teams or something of that kind to serve his large arrear of wages* (Hickson 1980:52).

5.1.2 Charles Nicholson & Subdivision – 1851 to 1859

Eventually, the only recourse was to sell the Luddenham estate, with Sir Charles Nicholson reportedly purchasing the estate in 1851 (Stacker 2014:136), although this is contradicted by AHMS who report that the estate was initially sold to JW Lowe in 1869 (AHMS 2008:23) before Nicholson purchased the estate in 1883 (AHMS 2008:24 [note that this reference erroneously says 1833, which is corrected to 1883 in AHMS 2010:8]). A subdivision of the Luddenham estate was definitely announced in 1859 which resulted in the production of plans showing the eastern, western and central divisions of the estate. The current study area formed part of the central division (Figure 5.5), which was described as containing "the original homestead of Luddenham" (*The Sydney Morning Herald*, 22 October 1859, pg. 8) and as having:

> *About 700 acres* [283.3 acres] *are cleared, divided Into paddocks, and ready for the plough. There is a capital dwelling-house, of eight rooms, with stabling, stores, and outoffices, near the banks of the river, on an elevated site, commanding one of the most charming panoramic views to be found in the colony* (SMH, 22 October 1859, pg. 8).

The western division, on the other bank of the Nepean River, contained vineyards, a garden, flour mills and the brewery, which was recorded as having been "erected at an immense cost...being built of cut-stone, containing brewhouse, malt-house, stores, cellars &c" (SMH, 22 October 1859, pg. 8). The brewery had previously been thought to have been destroyed in 1857 (AHMS 2008:22), although it appears that both the brewery and mill finally went out of business following a later outbreak of rust in the local wheat crops in the years following the flood (*NT*, 8 June 1939, pg. 6). Interestingly, tunnelling works under the riverbed of the Nepean River during the creation of the Warragamba Dam found worked timbers and shingles which were attributed to having come from the brewery, which locals describe as having been swept downstream following a disastrous flood in 1867 (*Liverpool News*, 29 June 1939, pg. 3).

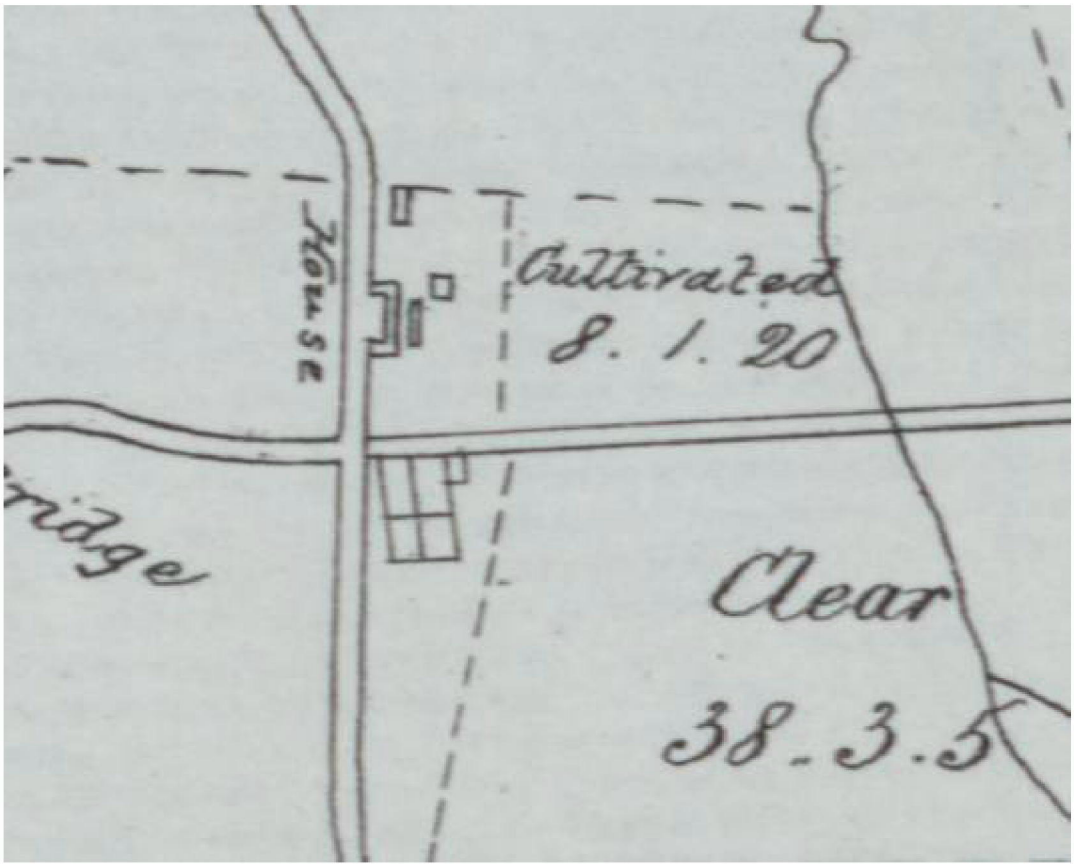

Figure 5.5 Extract from Luddenham estate subdivision plan, showing the house and outbuildings (NLA, MAP F 814).

As with Figure 5.2, it has proven difficult to accurately georeference the subdivision plan. However, the key feature to note is the location of the house and outbuildings in relation to both Park Road and to the original alignment of Mulgoa Road. The house is not shown as being immediately at the intersection of the two tracks but further north, and it directly fronts the recently established Mulgoa Road instead of Park Road as shown on the earlier plans. Park Road itself continues on the alignment noted on the earlier parish plan (Figure 5.2), crossing the south-eastern corner of the study area, with the remainder of the study area marked as either "cultivated" or "cleared" (Figure 5.6).

AHMS interpret the layout of the farm complex as being "a shallow 'U' shape" building or "a long corridor structure with two projecting rooms at the end of the frontage" (AHMS 2008:29). In their interpretation, the linear object to the east of the U-shape is a stable block, while two other buildings are also present along with a detached kitchen and garden on the southern side of Park Road (AHMS 2008:23). However, the plan is ambiguous and the 'U' shape may be a building or it may also be a shallow driveway leading off Mulgoa Road to the main residence.

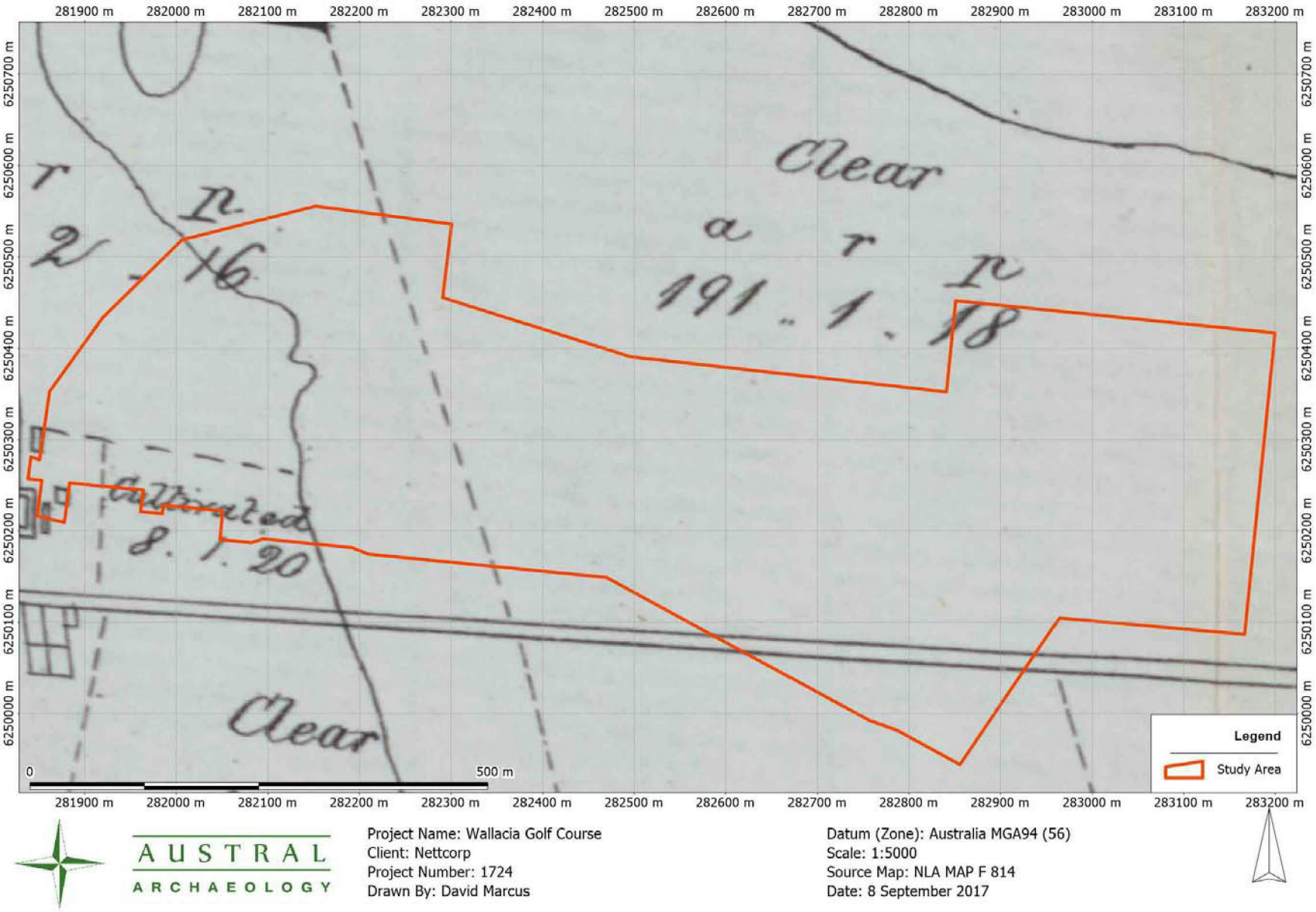

Figure 5.6 Study area overlaid on the 1859 subdivision plan. Note the potential presence of structures associated with the Luddenham estate in the extreme south-western corner of the property.

The only known photograph of the farmstead was identified by AHMS and included in their 2008 assessment and is reproduced below as Figure 5.7. AHMS describe the building as:

> *a long structure with projecting rooms at either end. The photo shows a shingled roof with weatherboard rooms and verandah with part of the central range of the structure of stone rubble construction. A brick chimney indicates the position of a fireplace at the northern end of the central range. Split log post and rail fences sit hard against the road with a bark roofed slab outbuilding to the rear.*
>
> *The house sits, not at the crest of the slope but some way down the Mulgoa Road which still is nothing more than a dirt track* (AHMS 2008:22).

Figure 5.7 Half of a stereoscopic image showing Blaxland's House (after AHMS 2008:29).

5.1.3 Wallacia – 1859 to 1932

The association of the Wallace family with Wallacia is, as with much of the history of the property, contradicted by various sources and complicated by commonness of the name Robert Wallace.

The account which gives the earliest date for the arrival of the Wallace family is the obituary of Henrietta Wallace written in the *Nepean Times* of 1895 and which records that shortly after the her arrival in Australia with her husband Robert in 1840, they were employed by Blaxland and "took up residence in the cottage on exactly the same spot where Alderman Robert Wallace now resides" (*NT*, 25 May 1895, pg. 4). The obituary notes that Robert Wallace took charge of the local school, while also farming land at Pemberton, presumably in the vicinity of Pemberton Gully, located approximately 2.5 kilometres south of the study area. Robert Wallace then left teaching to take up farming as a full time pursuit before moving to Charleville, on the western side of the Nepean River, where Robert died in 1867 (*NT*, 25 May 1895, pg. 4). Henrietta then returned to Blaxland's cottage, where Henrietta and her daughter took over the running of the post office, until Henrietta passed away on 8 June 1895 (*NT*, pg. 1193).

The reference to the Wallace's first residing "in the cottage on exactly the same spot where Alderman Robert Wallace now resides" (*NT*, 25 May 1895, pg. 4) is problematic. Robert George Wallace's own obituary notes that he had been born in a building opposite Mulgoa Hall where Robert and Henrietta were residing in 1841 (*NT*, 23 April 1904, pg. 6), but this is not the same location where Robert George Wallace was recorded as living in his later years. By the end of the 19th century, Robert George Wallace is variously recorded as living at a house named 'Riverview' (Stacker 2014:136), at Luddenham (*NT*, 8 February 1900, pg. 5) and at Wallace (*NT*, 3 July 1897, pg. 3). Even if Robert George Wallace was living in the township of Wallacia, the suggestion that the earlier cottage stood "*on the same spot*" may mean that the original house, constructed by Blaxland, had been replaced. The wording used by several other contemporary and early 20th century accounts also appears to suggest that the original house had been replaced, as will be discussed below.

Stacker, in her history of the Penrith region, implies that Henrietta Wallace first moved into Blaxland's cottage upon taking over a lease formerly held by Joseph Hayes in 1872, several years after the death of Robert. Stacker records that Henrietta moved her family in to Blaxland's old farmstead which had now became known as "Luddenham Cottage", but Stacker also asserts that Henrietta moved out of the property to a cottage near the church in Luddenham in 1880 (Stacker 2014:136); this is contradicted by her obituary which states that Henrietta resided at the post office until the end of her life (*NT*, 25 May 1895, pg.4).

Regardless, the Wallace's house started to become an unofficial receiving depot for any mail needing collection in the district from around the mid-1880s, on account of their property being the only residence to the south of Mulgoa (AHMS 2008:24; *NT*, 4 April 1908, pg. 8; Stacker 2014:136), and assumedly the fording point of the Nepean River meant that it was the first house reached by any settlers living on the western bank of the Nepean. While Stacker says that it was Robert George Wallace's property of "Riverview" which served as the post office, this appears to be an alternate name for Luddenham Cottage, as notices for the birth of Robert George Wallace's children, Robert Vincent Wallace (*Australian Town and Country Journal*, 25 July 1874, pg. 35) and Ruby Wallace (*NT*, 14 August 1886, pg. 2), are both made from Luddenham Cottage, suggesting that Riverview and Luddenham Cottage are one and the same. The *Nepean Times* records that "a receiving office has been established at Riveview [*sic*] near Luddenham (Wallace's)" (*NT*, 3 November 1888, pg. 4), which in 1882, was being run by postmistress "Miss Wallace" (*NT*, 3 March 1882, pg. 7), presumably one of Henrietta's daughters, Ann Wallace or Caroline Wallace.

In 1885, Nicholson sold the Luddenham estate to land developers who proceeded to subdivide and open up for sale land at both Wallacia and Luddenham and by all accounts the sales were a success (AHMS 2008:24; *NT*, 11 July 1885, pg. 2; Stacker 2014:40). The fledgling township began to grow around the post office, which in 1889 was listed as being under the charge of "Mr Wallace", presumably Robert George, when the building was used for voting in the elections of the same year (*NT*, 2 February 1889, pg. 5).

By 1895, a new subdivision was proposed, and the subdivision plan (Figure 5.8) shows " R Wallace" as being the tenant in a 10 acre (4 hectare) plot with two buildings present, one immediately fronting Mulgoa Road and a second behind it and to the east. However, the plan also shows that the alignments of both Mulgoa Road and Park Road match their present counterparts; Park Road now running eastwards before turning south-east instead of crossing the study area, and Mulgoa Road no longer runs directly north to south, but now curves in from the south-west (c.f. Figure 5.5 and Figure 5.8). This means that the location of the buildings shown on the subdivision plan cannot be accurate, as if the building was to directly front the new alignment of Mulgoa Road, then this building would have been beneath the original road alignment. Instead, the map must therefore be taken to simply convey the impression that the buildings are close to the junction of Park Road and Mulgoa Road.

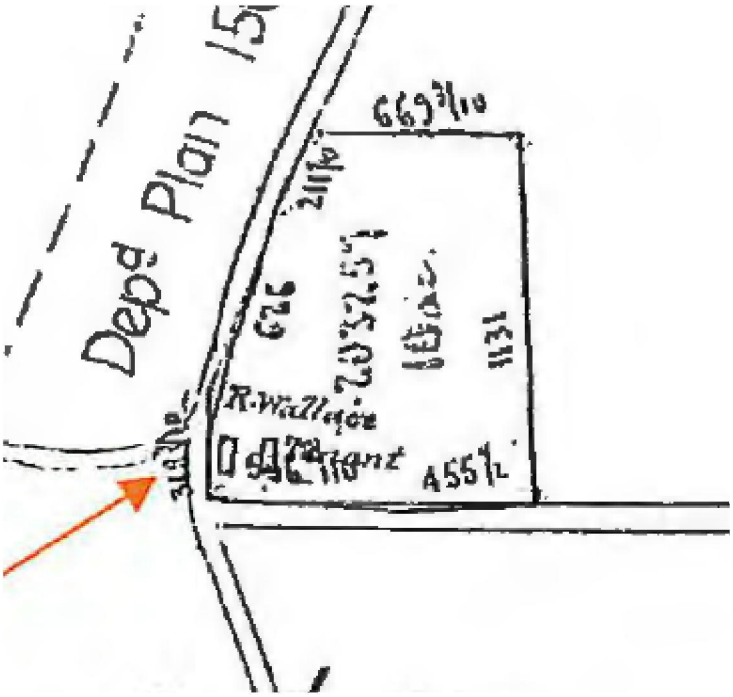

Figure 5.8 Extract from an 1895 subdivision plan (after AHMS 2008:33).

Robert George Wallace was a well-known individual in the area, serving as the Returning Officer for the first municipal election at Mulgoa (*NT*, 23 April 1904, pg. 6), standing for the role of Alderman in the 1890 elections (*NT*, 8 February 1890, pg. 5), being elected an Alderman in 1895 (*NT*, 23 March 1895, pg. 2), and the Mayor of Mulgoa between 1896 and 1898, and again in 1903 until ill health forced his resignation (AHMS 2008:24; Stacker 2014:136). In his professional life, Stacker refers to Robert as being a teacher (Stacker 2014:136), although Wallace himself frequently referred to himself as being a butcher (*NT,* 23 March 1895, pg. 2; 3 July 1897, pg. 3). Robert George Wallace's profession as a butcher is again noted in a statement included in a pamphlet supporting the sale of land in a second subdivision of the Luddenham estate, *circa* 1900, which records:

> *Messrs. G. Wallace, Easterbrook and Smith have been residents for some time, especially Mr. Wallace, who is the local butcher. He owns and occupies the cottage and some 10 acres* [4 hectares] *of land immediately at the corner of Park and Mulgoa Roads. The cottage is the first built on the Estate – upwards of 20 years ago* (NLA, MAP Folder 94, LFSP 1388).

The pamphlet uses curious wording by suggesting that his cottage is "upwards of 20 years" old, as Robert himself had been residing there since at least 1874. This could again be taken as evidence that the original farm buildings had been replaced shortly before Henrietta and her family moved in.

The confusion in Robert George Wallace's profession highlights the contradictions between the various sources, as Robert George Wallace was clearly a butcher by his own admission. However, the obituary of Henrietta Wallace notes that her husband ran the local school, suggesting that Robert senior, not junior was a teacher. This however, is contradicted by Robert George Wallace's obituary which, along with Stacker, states his father was a constable. Further complicating matters, George Robert Wallace's obituary incorrectly states that his father died in 1863 and his mother died in 1893 (*NT*, 23 April 1904, pg. 6), despite the same newspaper having covered Henrietta's own death in 1895! (*NT*, 25 May 1895) While a Robert Wallace did die in 1863, this occurred in the Berrima district and relates to a different gentleman (NSW BDM 2927/1863), and is not the death of Robert senior at Charleville, which is recorded as having occurred in the Penrith district (NSW BDM 7351/1867).

By the start of the 19th century, the Wallace family were acknowledged as being the oldest continuous residents of the district, and the role of the Wallace's house as a post office and meeting place had meant that locals came to refer to the surrounding district simply as "Wallace" (Stacker 2014:136). However, when the General Post Office in Sydney requested that a name be conferred upon the new town, Robert George Wallace initially submitted "Riverview". As this name was already taken, the Postmaster General decided to gazette the already common name of area and proclaimed it "Wallace".

Robert George Wallace died in April 1904 (*NT*, 23 April 1904), and shortly afterwards, the General Post Office realised that it had been incorrect to gazette the township as Wallace, which was too similar to that of Wallace Town, near to Wagga Wagga, which had been gazetted first. A campaign was led by Penrith postmaster John Fowler to notify the General Post Office that, if the name of the village was to be changed, it should only be to a name which honoured the ties to the Wallace family. Their request was ignored and in November 1905 the residents were informed that their town was to be known as Boondah (*NT*, 11 November 1905, pg. 3). The new name was approved by the Mayor of Mulgoa although locals were vocal in their complaints and eventually the General Post Office agreed to the gazettal of the new name of Wallacia (*NT*, 26 May 1906, pg. 4). While the memory of the Wallace family was retained, the physical link was broken when Ellen, widow to Robert, and their children moved out of the district in 1908. The farewell celebration was held, appropriately, in the post office (*NT*, 4 April 1908, pg. 8).

The running of the post office passed from the Wallace family to the Fowlers, starting with John, who had led the call for creating the name 'Wallacia' (*NT*, 26 May 1906, pg. 4). The Fowler family retained ownership of the post office for over 100 years and through three generations, finally stepping down from the role in 2015 (*Western Weekender*, 2 December 2015).

By the early 20th century, the simple cottage which served as both residence and post office was no longer fit for purpose and in 1907 the post office was enlarged from a reported, and unbelievably small, space of 6 ½ feet^2 (0.6 metres^2) to a 12 foot (3.6 metres) by 10 foot (3 metre) space (*NT*, 2 November 1907, pg. 6). There is no suggestion in the news article that a new building had been constructed, and therefore the change in size represented a repurposing of space rather than new build. However, a history of Wallacia written shortly afterwards in 1911 states that Robert Wallace once "resided where the present Wallacia Post-office now stands" (*Camden News*, 30 November 1911, pg. 3). Again, this phrasing is unclear, suggesting that the author of the article may have been aware of the demolition and construction of a new cottage which has not been specifically identified in this assessment.

With regards to the post office, eventually the only recourse was demolish the older building and to build a modern, purpose-built structure which also incorporated a small store and milk bar (Figure 5.9). The new building was placed directly on the corner of Mulgoa Road and Park Road, and while it has since been demolished, the concrete steps on the corner of the two roads still remain (AHMS 2010:8). The date of construction of the new building was not ascertained by AHMS beyond stating that it "is likely to have been a pre-World War 2 construction" (AHMS 2010:8). As the building is outside of the present study area, no further research has been undertaken to date this structure.

Figure 5.9 Photo of the new Wallacia post office in 1950 (NAA C4076, HN1071).

In 1938, Fowler sold the northern part of his property to Tooheys Ltd, who constructed a hotel on the land in 1938 (AHMS 2008:25). The hotel is believed by Historian Ian Jacks to have been built on the location of Blaxland's Luddenham Farm buildings (Ian Jacks 1980:46).

5.1.4 Wallacia Golf Course – 1932 to Present

The Wallacia golf club was founded in 1932, with the original club house consisting of "a tin shed, open on two sides, with a table and bench made from bush timber", while a female associates club was founded shortly afterwards in 1933 (N&IDAGA 1983:29). The links was constructed on grazing land owned by John Fowler (*NT*, 5 July 1951, pg. 5), with special rules in play for hitting cattle or losing balls down rabbit holes (N&IDAGA 1983:29; Stacker 2014:286).

Unhappy with the poor state of the club house/tin shed, the associates sought to join with their male counterparts and raise funds to build a new clubhouse but this offer was rejected. Instead, the associates took it upon themselves to purchase a second-hand timber building which was offered for sale for a sum of £30, and which was brought to the site by a timber jinker, a flat cart usually used for transporting milled wood (N&IDAGA 1983:29).

A pamphlet produced by the Nepean & Illawarra District Associates Golf Association reports that the idea of a woman's golf association owning the club house caused such an outrage that the NSW Ladies' Golf Union took a complaint to the Australian Ladies Golf Union, who in turn sought advice from the Royal and Ancient Golf Club of St Andrews. The response from the Scottish association was reportedly that, while the situation should not act as a precedent, the women would be able to keep the club house (N&IDAGA 1983:29). There may be an element of a tall tale to this story as while it may have happened, no other sources could be located which corroborate this story, nor is the incident reported in any contemporary newspapers despite many such newspaper including extensive coverage of golf news, gossip and results. The only references in newspapers relating to the acquisition of the club house are all positive, with *The Sun* reporting that the "Wallacia associates are to be congratulated on having purchased and furnished the club-house themselves" (*The Sun*, 15 August 1934, pg. 3) and the *Nepean Times* reporting that:

> *The club held its first open day and also had the opening of the new club house, the opening ceremony being performed by Mrs R. Payton of Campbelltown, who paid high tribute to* [sic] *wonderful energy of the Wallacia Club, which had purchased and furnished such a delightful "19th" without the assistance of the members* (*NT*, 18 August 1934, pg. 7)

The golf club formally tendered for the construction of a new club house in 1936 (*Construction and Real Estate Journal*, 11 March 1936, pg. 8) which was completed in 1937. The now obsolete timber club house was sold by the associates for £30 and it was moved offsite to be used as a bank. When the building came up for sale, the associates purchased it, again for £30, and it returned to the golf course before deciding to later sell it for £30, when it was again moved offsite to become a fish shop. The building was eventually offered for sale a third time and the associates purchased it, again for £30, and it was returned to the golf course. However, this time, the building was incorporated into the brick club house where it served as a golf buggy storeroom until being destroyed in the 1970s (N&IDAGA 1983:29).

The golf club was disbanded during the war years as both the course and the neighbouring Wallacia Hotel were requisitioned, the hotel being used as a Radio Physics school and the golf course being used for exercises (N&IDAGA 1983:29). In the 1980s, Arthur Downes recalled the 9th fairway being used for bayonet practices and that there is "still an air-raid shelter under the 10th tee" (Stacker 2014:286). Following the end of the Second World War, the course was restored to a full 18 holes and the club reformed shortly thereafter in May 1946 (N&IDAGA 1983:29; *NT*, 2 May 1946, pg. 2).

An aerial photograph of Wallacia from 1955 shows the condition of the golf course at the time, although the fairways are difficult to distinguish on the black and white photograph (Figure 5.10). The club house constructed in 1936 is visible in the south-western corner of the study area (Figure 5.11), located in the car park to the west of the current building. Of note is that the original alignment of the track or rural version of a scringleway linking Wallacia and Luddenham is visible crossing the south-eastern corner of the study area (Figure 5.12).

A later aerial photograph, taken in 1965, shows little changing within the overall study area, although the actual fairways of each hole are still difficult to identify on the black and white photograph (Figure 5.13). In general, the major changes which occurred between 1955 and 1965 were the planting of trees between several holes, the creation of a dam in the north-eastern corner of the study area, and the enlargement of the club house with the addition of an extension on the south-eastern corner (Figure 5.14).

Figure 5.10 Overlay of the study area on to the 1955 aerial photo.

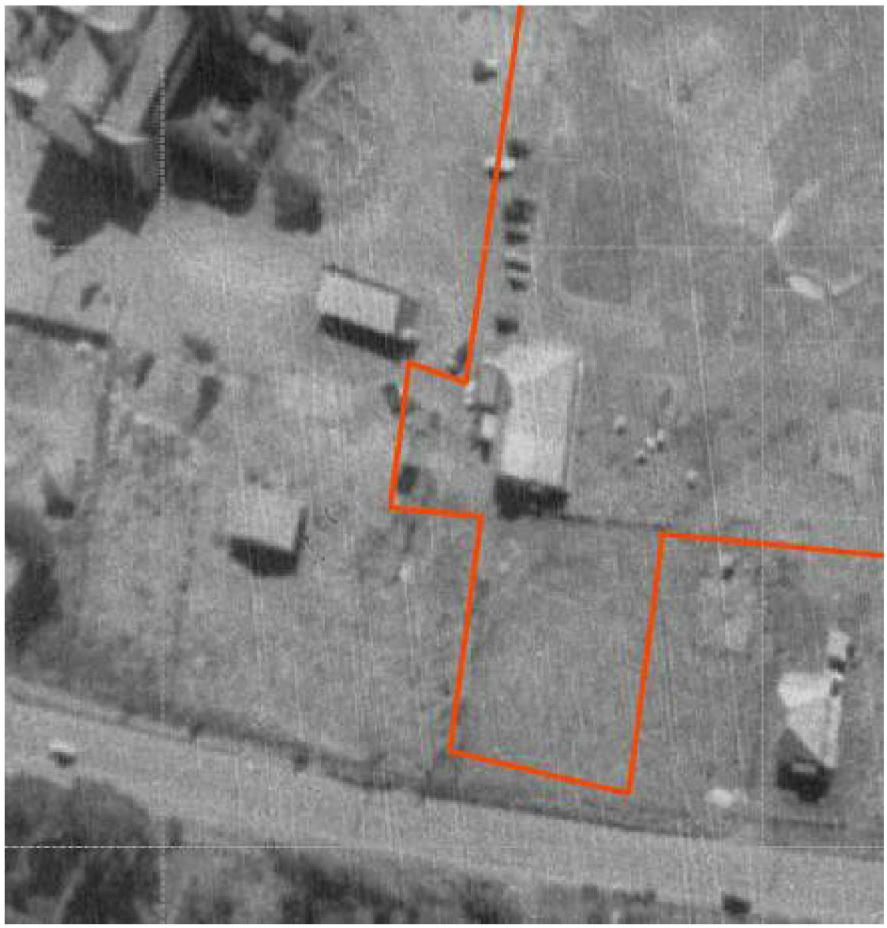

Figure 5.11 Detail of the south-western corner of the golf course, showing the study area in relation to the club house (LPI, 227_22_5089).

Figure 5.12 Original alignment of Wallacia to Luddenham track, shown with a red arrow (LPI, 227_22_5089).

Figure 5.13 Overlay of the study area on to the 1965 aerial photo.

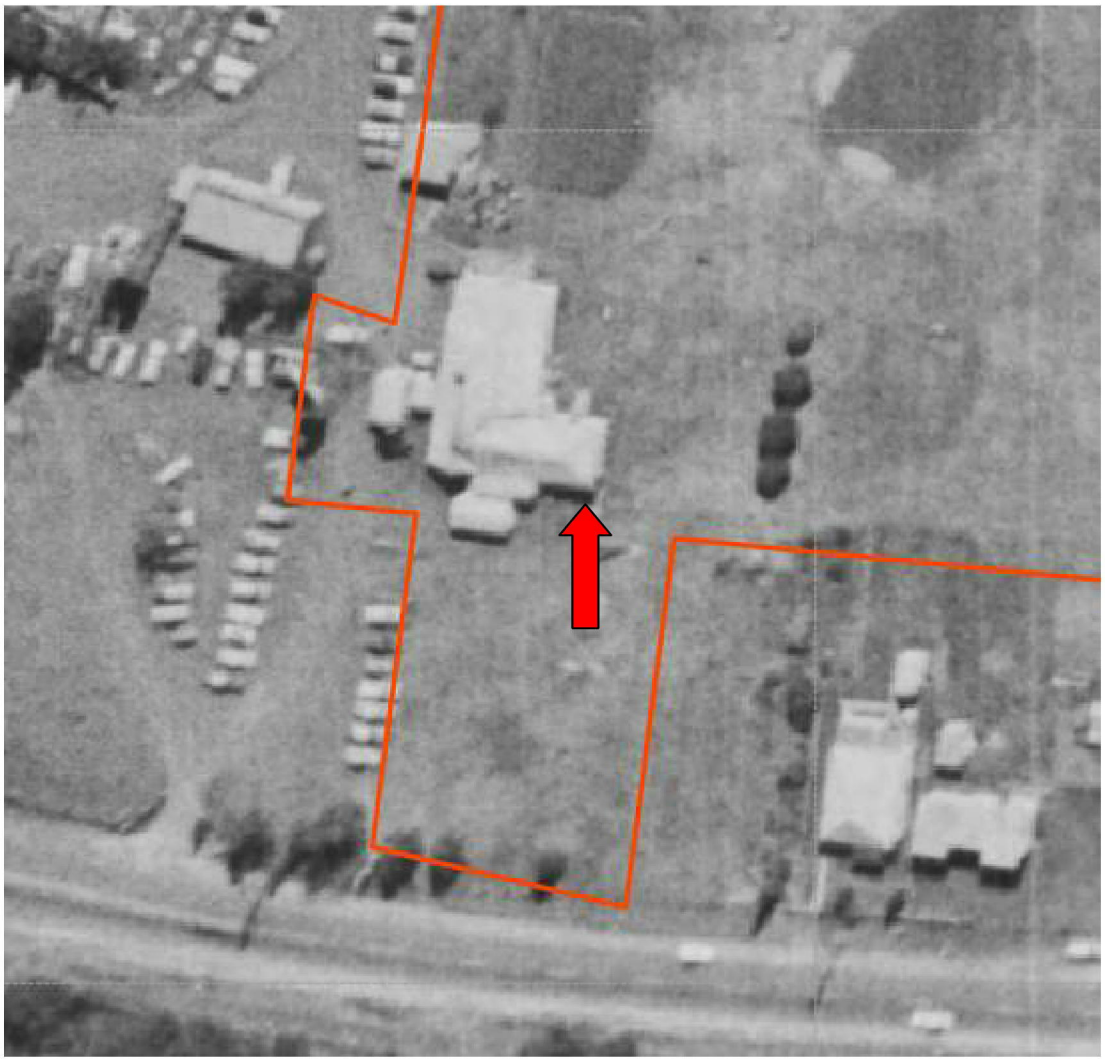

Figure 5.14 Detail of the south-western corner of the golf course, showing the club house. Note the new extension, marked with a red arrow (LPI 1404_20_0599).

A new club house was constructed in 1967 which incorporated elements of the earlier building (N&IDAGA 1983:29) and is shown on the aerial photograph taken in 1975 (Figure 5.16). As with the other photographs, individual fairways are difficult to identify, although the trees first visible in the 1965 aerial have continued to grow. The former alignment of the Wallacia to Luddenham track is barely identifiable by 1975, but no other significant changes occurred within the study area (Figure 5.15).

The current club house appears to have been constructed between 1983, the date of publication of the N&IDAGA pamphlet, and prior to 2011, when aerial images become easily available for research. Based solely on placement of buildings identified from the aerial photographs, the current club house appears to include a hall constructed as part of the 1967 build, but neither the original 1936 club house nor the extension constructed between 1955 and 1966.

Figure 5.15 Overlay of the study area on to the 1975 aerial photo.

Figure 5.16 Detail of the south-western corner of the golf course, showing the study area in relation to the club house. Note the new extension, marked with a red arrow, which may have been incorporated into the current club house (LPI 2237_06_097).

Figure 5.17 Extract from current NearMap aerial photo, showing the large building which corresponds with the location of the extension shown on Figure 5.16.

6 ARCHAEOLOGICAL PREDICTIVE MODELLING

An assessment of archaeological potential usually considers the historic sequence of occupation in comparison to the structures which are currently extant, as well as the impact that the more recent constructions and works would have had on the earlier occupation phases and, as such, the likely intactness of the archaeological resource. This, in turn, is tied in with the extent to which a site may contribute knowledge not available from other sources to current themes in historical archaeology and related disciplines.

In regard to the assessment of the study area, the archaeological potential depends upon the anticipated likelihood for the survival of buried structural fabric and cultural deposits as well as an estimation of archaeological integrity. Structural fabric refers to what is generally regarded as building or civil engineering remnants. Cultural deposits refer to archaeological deposits, i.e. deposited sediments containing artefacts etc.

Having analysed the historical evidence in the previous chapters, the following section presents a summary of the potential for a physical archaeological resource to be present in the study area, that is, its archaeological sensitivity/potential.

6.1 Aboriginal Predictive Modelling

The moderate climate of the Cumberland Plain and its location within the wider Nepean River catchment is likely to have been conducive to Aboriginal occupation in the past. The study area lies within a resource base associated primarily with the Jerry's Creek watercourse, itself a tributary of the Nepean River. Habitats associated with the river would have supported a wide range of animals, fish, birds and mammals.

Due to the environmental setting, the Nepean River landscape would have been subject to a variety of human activities. This primarily would have been due to the presence of permanent water sources, followed by the sheltered camping locations and good resources availability in the immediate area. Activities would have included camping, hunting, gathering, cooking, ceremonies, and other cultural activities associated with semi-permanent settlement sites in the region. Some of these activities, mainly stone tool knapping, are seen in the archaeological record.

In predicting site types within the study area, one would expect to find surface isolated artefacts and scatters on the ground surface of sensitive landforms, scarred trees in areas of remnant native vegetation, and grinding grooves on sandstone rock surfaces and platforms where available. Locations of likely site recordings predictably may occur in areas of high ground visibility such as around dams, the base of trees, tracks and around the disturbances of the building constructions. Surface sites will probably not be visible in the vast majority of the site as it is currently a combination of grassed spaces and areas covered with leaf litter.

If stone tools are recorded they are likely to conform to other known sites in the region. This means that tools are likely to be from a late Holocene occupation with stone technologies attributed to the Bondaian phase of the Eastern Regional Sequence. If stone tools are present on site they will predictably be made from chert, silcrete, or quartz sourced from local quarries. These sites may be the results of activities attributed to people of the Darug language or, less certainly, to the Gundungurra language groups.

In summary, the main trends broadly seen across the Cumberland Plain are that:

- Archaeological sites have the potential to occur on most landforms.
- Site frequency and density are dependent on their location in the landscape.
- There is a constant, or background, presence of low density surface open artefact scatters and isolated finds.
- There is a paucity of scarred trees due to land clearance.
- Aboriginal scarred trees may still be present in areas where remnant old growth vegetation exists, however these are relatively rare on the Cumberland Plain.

- Artefact scatters are commonly located in close proximity to permanent water sources along creek banks, alluvial flats and low slopes, largely concentrated within the first 100 metres of the creekline. More complex sites are usually located close to water sources with major confluences being key locations for occupation sites. Subsurface testing across the Cumberland Plain has established that archaeological material is also present beyond the immediate creek surrounds in decreasing artefact densities.
- Fewer sites occur on ridge tops and crests.
- Subsurface archaeological deposits often exist in areas where no visible surface archaeological remains are evident.
- The dominant raw material used in artefact manufacture is silcrete and fine grained siliceous material with smaller quantities of chert, quartz and volcanic stone seen.
- Artefact assemblages usually comprise a small proportion of formal tool types with the majority of assemblages dominated by flakes and Angular fragment.
- While surface artefact scatters may indicate the presence of subsurface archaeological deposits, surface artefact distribution and density may not accurately reflect those of subsurface archaeological deposits.
- PADs are most likely to occur along valley floors and low slopes in well-drained areas.
- Aboriginal occupation along the Nepean River is focussed around rock shelters.

As a result of these statements, it is reasoned that undisturbed areas within the Cumberland Plains are considered archaeologically and culturally sensitive, with frequent Aboriginal sites in the vicinity.

The general studies of the Cumberland Plains and the Nepean River region, the specific investigations surrounding the study area and the search of the AHIMS database have helped to predict what site types can be expected to occur within the study area. Specifically, the analyses undertaken by McDonald and White (2010) at Rouse Hill in relation to artefact distribution and density have assisted in further modifying these predictions. Based on the results of McDonald and White with regards to site density in relation to stream orders, the following predictive model is offered for the study area:

- Higher artefact densities are likely to occur within a zone of 51 to 100 metres from a 4th order stream, within 25 to 50 metres of a 2nd order stream, with a negligible number of artefacts found in association with a 1st order creek;
- McDonald and White did not have sufficient data to determine the likely distance of higher artefact densities from a 3rd order stream. However, by extrapolating the results from 2nd and 4th order creeks, an assumed zone of between 25 to 75 metres has been applied to 3rd order creeks; and
- Higher densities of artefacts occur on terraces and lower slopes, especially those facing north or north-east, with sparse, discontinuous scatters on upper slopes. As such, the remainder of the site may contain the standard disparate remnants which are common across the landscape.

As such, areas of highest archaeological potential are shown below on Figure 6.1.

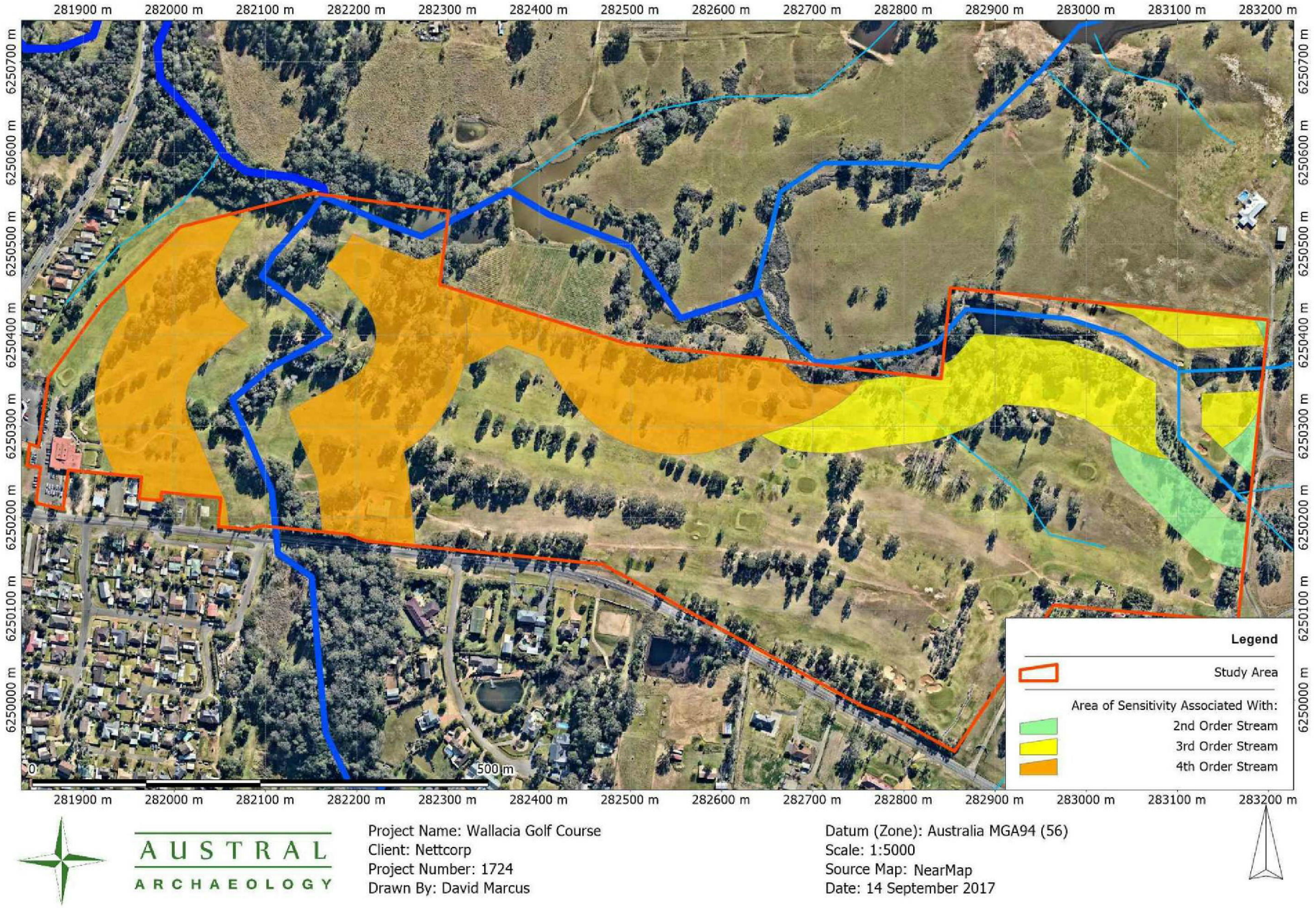

Figure 6.1 Map showing areas of potential Aboriginal artefact distribution in relation to stream order.

In summary, the following statements outline the likelihood for various types of Aboriginal cultural material being present in the study area:

- Surface open camp sites or isolated finds of flaked or ground stone are likely to be present in areas associated with higher order streams and creeklines such as Jerry's Creek.
- PADs are likely to be present, but their identification is dependent on the correct recognition of an area with an absence of historical disturbance situated within a residual soil profile, such as the Blacktown (**bt**) profile present in the western portion of the study area;
- Scarred trees have a low probability of being present due to the widespread vegetation clearance visible in the 1955 aerial photograph (Figure 5.10), although old growth vegetation which may contain scar trees are present along the banks of Jerry's Creek;
- Grinding Grooves are unlikely to be present due to a lack of suitable requirements (i.e. exposed bedrock near to a water source);
- Burials are unlikely to be present, due the lack of sandy locations suitable for inhumation;
- Ceremonial grounds are unlikely to be present due to their general rarity within New South Wales;
- Rockshelter sites are unlikely to be present due to the lack of suitable rocky outcrops in the study area;
- Shell middens are unlikely to be present due to the distance from a permanent and deep water source; and,
- Stone arrangements are unlikely to be present due to their general rarity within New South Wales.

6.2 Historical Predictive Modelling

The following predictive model draws on the areas of known archaeological sensitivity

As a general rule of archaeology, sites first redeveloped in either the 19th or early 20th century can also retain evidence of occupation from earlier periods. It is also very common that such evidence can be recovered even when sites have been redeveloped or disturbed by modern developments. As such, the following general assumptions are made which, in turn, guide the predictive model for the study area:

- Archaeological remains associated with the original cottage or outbuildings are likely to be ephemeral in nature, as the cottage was primarily constructed of timber which would not require any brick footings.
- Due to the ephemeral nature of any early archaeological remains likely to be present in the study area associated with the original cottage or outbuildings, construction of any building is considered likely to have removed any archaeological remains.
- Construction of bitumen road surfaces often serve to "cap" any underlying deposits, acting to preserve archaeological material *in situ*.
- The creation of the golf course and its ongoing maintenance is likely to have had varying levels of impact, dependant on whether the original ground level has been raised or lowered. As specific levels of impact can only be assessed through a pedestrian survey, grassed areas are considered as being undisturbed.

One other issue which complicates matters is the uncertainty regarding the actual location of the Luddenham Farm buildings. The Penrith LEP, based on the results of a heritage study, places the homestead in the lot immediately west of the present study (Figure 2.1) and assumes its location is at the corner of Mulgoa Road and Park Road, whereas Ian Jack's analysis places the farmstead under the location of the present Wallacia Hotel (Ian Jack 1980:46). While the farm is marked on early plans of the district, both AHMS (2008:41) and the present assessment have repeatedly noted the difficulties associated with trying to use these plans to plot the location of the farm complex.

In 2010, AHMS undertook a period of test excavations at 1 Park Road (Lot 1, DP1169209), the corner site marked as the location of the farm complex on the Penrith LEP. While the excavation identified evidence of 19th and 20th century occupation, including rubbish disposal and yard surfaces, the excavations failed to locate any archaeological material directly related to Blaxland's occupation of the site. Their conclusion was that either all remains of the farmstead had been destroyed, or the house was located elsewhere (AHMS 2011:15).

In the absence of any solid confirmation as to the actual location of Blaxland's farm, it is not considered possible to discount the possibility that, if not the actual farmhouse, then outbuildings and rubbish deposits associated with Luddenham Farm may extend westwards into the study area.

Based on the detailed background history and the above assumptions, the following general predictive statements can be made:

- The presence of an extant or demolished 20th century building is considered to have removed all archaeological potential within its footprint.
- There are varying degrees of moderate and low potential for archaeological remains to be present in the western part of the study area which relate to the Luddenham Farm buildings. As the exact locations of the farm buildings are unknown, this potential is considered highest beneath the current car park in the western part of the study area, and includes a buffer zone of lesser archaeological potential extending eastwards into grassed areas forming the golf course.
- This archaeological material may include remnants of structures and outbuildings associated with Luddenham Farm whose locations are not recorded.
- The potential for other deeper features, such as wells, cesspits, cellars or underground storage areas are difficult to predict as the location of any such features are not recorded historically and may have been disturbed by later construction.
- There is moderate to high potential for the original track linking Wallacia and Luddenham to be identified in the landscape. There is unlikely to be any archaeological material associated with the route of the track, and the track is likely to consist of a shallow depression in the ground and possibly a buried, compacted surface.
- There is potential for an air raid shelter to be present under the green of Hole 10, although it is difficult to quantify this potential. The presence of the shelter is based on a single oral source provided by Stacker (2014:286).

While the majority of the study area contains no historical archaeological potential, the following figures show the only parts of the study area which are considered to contain archaeological potential in the western and eastern portions of the site.

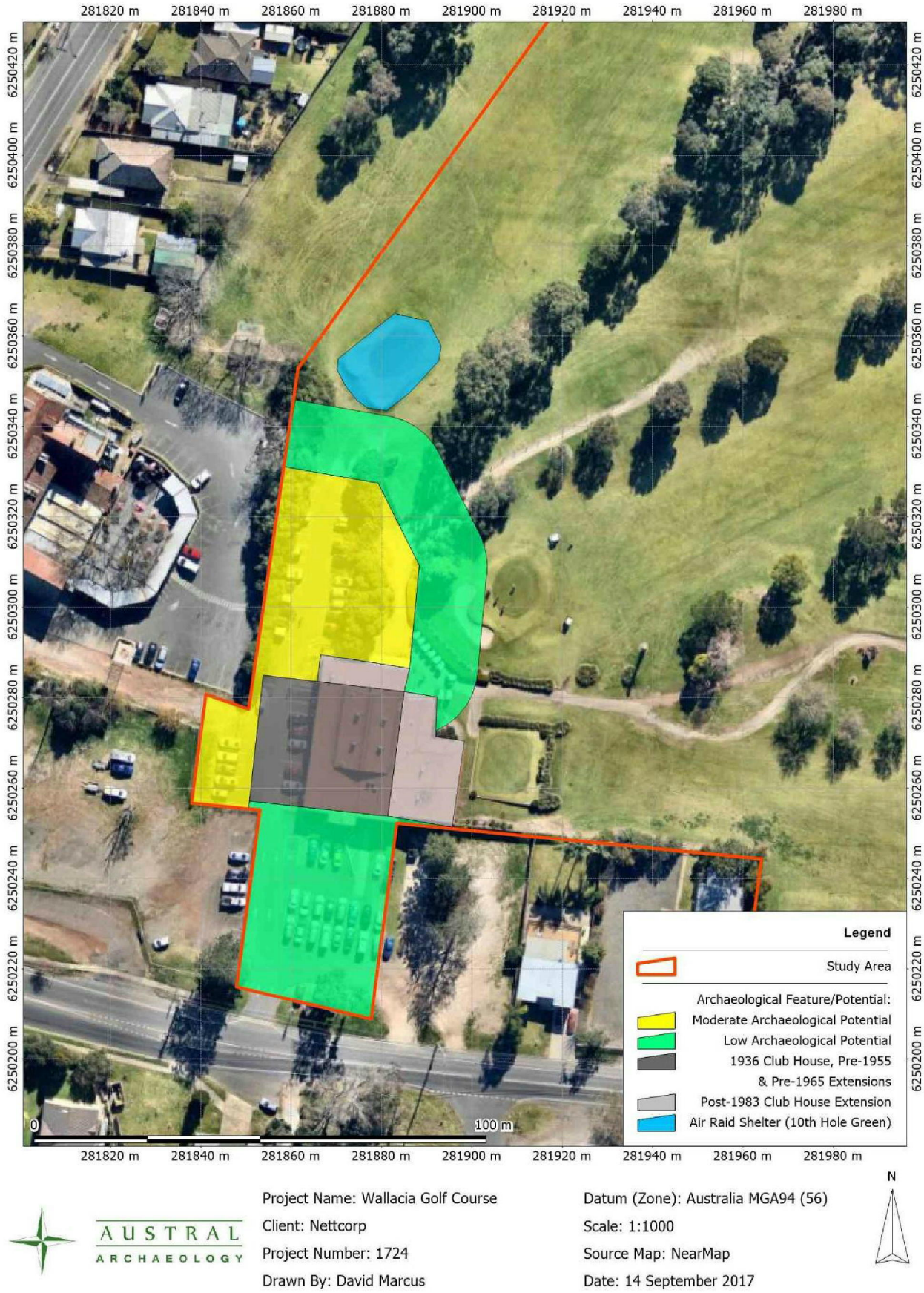

Figure 6.2 Historical archaeological potential of the western portion of the study area associated with Luddenham Farm and the air raid shelter.

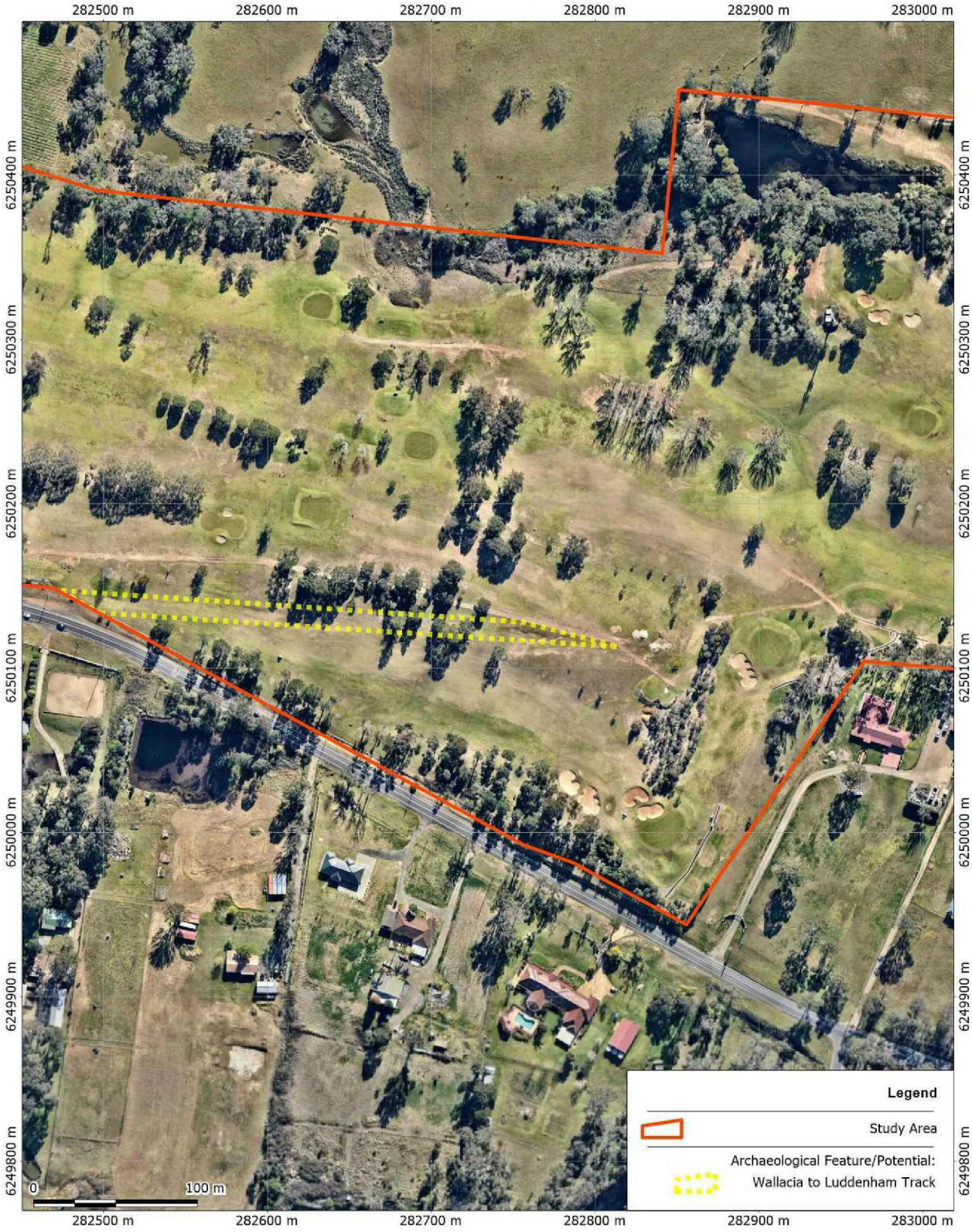

Figure 6.3 Historical archaeological potential of the eastern portion of the study area.

7 ASSESSMENT OF HISTORICAL SIGNIFICANCE

7.1 Introduction

An assessment of cultural significance seeks to establish the importance that a place has to the community. The concept of cultural significance is intrinsically tied to the fabric of the place, its history, setting and its relationship to other items in its surrounds and the response it evokes from the community.

The assessment of cultural significance with respect to archaeological sites can present difficulties because the nature and extent of the "relics" are often indeterminate and value judgements therefore need to be made on the basis of potential attributes. The element of judgement can be greatly reduced by historical or other research, as has been completed for the current study. Archaeological deposits and features provide important evidence of the history and settlement of New South Wales. These heritage items may include deposits containing material culture (artefacts) that can be analysed to yield information regarding early urban development that is unavailable from other sources. Archaeological investigations can reveal much about technology, industry, past economic and social conditions and people's lives.

Sites that contain these elements therefore have scientific value that may be of considerable significance when analysed in association with documentary evidence. It is through this potential to reveal information about the past use of a place that archaeological sites have heritage significance.

7.2 Basis for Assessment

The Burra Charter of Australia ICOMOS was formulated in 1979 (revised 1999), based largely on the Venice Charter (for International Heritage) of 1966. The Burra Charter is the standard adopted by most heritage practitioners in Australia. The Charter divides significance into four categories for the purpose of assessment. They are: Aesthetic, Historical, Scientific/Technical, and Social significance.

The Heritage Council of New South Wales has established a set of seven criteria to be used in assessing cultural heritage significance in New South Wales, and specific guidelines have been produced to assist archaeologists in assessing significance for subsurface deposits. These are published in the Heritage Council's Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). The Heritage Council's criteria incorporate those of the Burra Charter, but are expanded to include rarity, representative value, and associative value.

In order to determine the significance of a historical site, the Heritage Council have determined that the following seven criteria are to be considered (Heritage Branch 2009:3):

- **Criterion (a): an item is important in the course, or pattern, of NSW's cultural or natural history (or 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 local area);**
- **Criterion (c): an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);**
- **Criterion (d): an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area);**
- **Criterion (e): an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the local area);**
- **Criterion (f): an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area); and**
- **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 the local area).**

These criteria were designed for use on known or built heritage items, where above ground heritage is both tangible and easily identified. As the nature of archaeology is that it is invisible until disturbed, the presence and attributes of archaeological material must be assumed based on the recorded levels of disturbance, known site history and the creation of predictive statements. Ultimately, the actual presence of archaeological material can only ever be framed in terms of the potential for it to be present.

The Heritage Branch has assisted archaeologists by creating questions which are framed around the main NSW Heritage Criteria, and which can be used to assess the relative importance of any archaeology which is likely to be present. The questions to be asked of an archaeological deposit differ from the main criteria, but can be seen to be referential to them, in order to create a suitable framework for assessing archaeological sites.

Therefore, it should be noted that although the study area contains built heritage, the significance of the built heritage has already been assessed as being of State significance and as such is listed on the SHR. The following assessment deals also with the significance of any potential archaeological material present within the study area relating not only to the house, but surrounding buildings, grounds and features.

7.3 Significance Assessment

7.3.1 Assessment Criteria

The evaluation of significance is quoted from the historical archaeological significance assessment prepared by AHMS to support a Section 140 permit prior to undertaking test excavations at the neighbouring property of 1 Park Road, Wallacia. Permit 2010/s140/16 was approved on the basis of this significance assessment which is relevant to the current project as it deals with the same features that AHMS were investigating.

The following section is taken verbatim from AHMS (2008:46-49) [*sic* throughout] and is presented with additional commentary as required. Unless otherwise discussed in regards to a specific criterion, neither the original alignment of the Wallacia to Luddenham track nor the air raid shelter are considered significant in terms of that particular criterion for each.

> ***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);***
>
> *The Blaxland farm is a significant component of the wider rural landscape development of the early colony. It reflects the importance of the operations of large scale grants and the management of this type of establishment in the pastoral development of NSW. The potential archaeological remains of the Blaxland occupation may provide information related to the occupation of the site during the critical years of its early development. This information has the potential to contribute to our understanding of the development of the early colony in NSW.*
>
> *The Wallacia area was also important in the early 20th Century as part of the development of holiday guest house areas within easy travel of Sydney. While there is no evidence to suggest that the site itself was directly associated with a guest house the adjacent Wallacia Hotel was constructed as a substantial amenity for guest house occupants in the mid 20th century.*
>
> *The post office was the first local post office in Wallacia. In general, post offices' were central to the local community, particularly in the late 19th and early 20th centuries. The post office would be important to the social and cultural history of the local area.*

The original alignment of the Wallacia to Luddenham track shows how access to both the farm and to Wallacia has changed throughout the years. While it is likely that Blaxland's property had an informal track running to the various farmsteads to the north, the primary link was eastwards towards the Northern Road. However, as Wallacia became a self-sufficient township, the link to the neighbouring community of Mulgoa to the north became the dominant road. As such, the route of the original cart track is evidence of the early years of settlement in the Mulgoa valley.

The air raid shelter would serve as a demonstration of the wide ranging effects that the Second World War caused in both urban and rural settings across Australia. While the town of Wallacia would have been spared the worst hardships brought on by the war conditions, the requisitioning of the golf course and hotel is evidence that the town contributed to the war effort, and the air raid shelter would be a tangible link to that period.

The potential site of the Blaxland House is considered significant, at a State level, in terms of this criterion. The potential site of the Post Office/Wallace House is considered significant, at a local level, in terms of this criterion

Both the original alignment of the Wallacia to Luddenham track and the air raid shelter are considered significant at a local level in terms of this criterion.

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 its the cultural or natural history of the local area);

The site has a strong association with the Blaxland family, an early settler family of the Wallacia area.

John Blaxland was granted the land by Gov. Macquarie and though he does not appear to have resided there for any appreciable time, however historical evidence indicates his son Edward was a resident. The Blaxland' s were pioneers in the early NSW settlement and John Blaxland was a key player in the course of politics and the pastoral development of the colony.

The area in which the Park Road site now sits was originally part of the Luddenham Estate and this area was an important local crossing point on the upper Nepean River originally named, and still known as, Blaxland' s Crossing.

The post office has no known association with any person or group of persons. Any association that may be established is likely to be of local importance only.

The property also has strong links to the Wallace family, whom the town of Wallacia is named after. The Wallaces had been living in the Mulgoa region since the mid-19th century with Robert Wallace being described either as the local constable, or a teacher at Mulgoa. After his death, Henrietta leased Luddenham Cottage in the 1870s, and shortly afterwards their residence became an informal post office, leading to the vicinity simply being known as Wallace. Robert George Wallace went on to become a significant figure in local politics, repeatedly serving on the Council and acting as Mayor on several occasions.

The post office was subsequently run by the Fowler family, who retained ownership of the post office for over 100 years, passing the title of postmaster through several generations of the family.

The potential site of the Blaxland House is considered significant, at a State level, in terms of this criterion. The potential site of the Post Office/Wallace House is considered significant, at a local level, in terms of this criterion

Neither the original alignment of the Wallacia to Luddenham track nor the air raid shelter are considered significant in terms of this criterion.

Criterion (c) - an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);

The former Blaxland period buildings and infrastructure at the Park Road site are likely to have consisted of rough vernacular structures consisting of post and slab construction. Any potential archaeological remains of this period are unlikely to be represented by substantial physical remains.

The buildings and infrastructure associated with the post office and cottage are likely to have been typical late to early 19th century vernacular structure, typical of the period.

The site is not considered significant in terms of this criterion.

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;

The sites of the Blaxland House and the Post Office/Wallace House do not have a strong or special association with a particular community or cultural group in either a local or state context.

The site is not considered to be significant in terms of this criterion.

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);

The early development of the NSW pastoral industry and its subsequent success has been largely based on the success of man such as John Blaxland. The manner in which the holding was operated has been largely unrecorded as Blaxland's major concerns were with his Newington Estate where he spent the majority of his time. Nevertheless the run was a success at least until his death in 1845.

The potential archaeological remains of the Blaxland period occupation may be able to provide us with information related to the exact position, arrangements, and other material culture aspects of the site. They have the potential to yield information regarding early settlement and pastoralism in NSW.

The Post office site may be able to provide details related to construction, configuration of external spaces and living conditions in the latter 19th Century/ early 20th Century in western Sydney.

The potential site of the Blaxland House is considered significant, at a State level, in terms of this criterion. The potential site of the Post Office/Wallace House is considered significant, at a local level, in terms of this criterion.

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);

Early rural sites are well known from the local area. The Blaxland complex at Wallacia is an unrepresentative example in that many of the other larger concerns once established were developed into the major residences of their owners, i.e. Regentville, Fernhill, etc. Blaxland' s farm remained a purely rural/ working estate with no investment in the production of fine residences or substantial buildings.

The post office is neither a rare nor endangered example if its type in NSW. Late 19th Century housing, while not as once prevalent, is still well represented in both central and western Sydney.

The potential site of the Blaxland House is considered significant, at a State level, in terms of this criterion. The potential site of the Post Office/Wallace House is not considered significant in terms of this criterion.

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.

The Blaxland House site is an important site as it has the ability to demonstrate the materials, techniques and development of early rural technology in a small rural context. The fabric form and use of similar structures, once common in NSW, now no longer exist. Any archaeological remains of the structures and their landscape setting have the potential of providing an important contribution of a particular way of life now largely lost.

While the potential remains of the Post Office may be able to demonstrate principal characteristics of similar cultural places they do not represent a significant example of its type nor is it outstanding because of its size, setting, integrity etc.

The potential site of the Blaxland House is considered significant, at a State level, in terms of this criterion. The potential site of the Post Office/Wallace House is not considered significant in terms of this criterion.

Further assessment questions specific to archaeological sites are addressed below:

• Can the site contribute knowledge that no other resource can?

The site has the potential to have an important archaeological resource that may be able to provide information, unavailable elsewhere. The combination of historic significance of the occupants and the archaeological information available from them are considered unavailable from other sources.

• Can the resource contribute knowledge that no other site can?

The site has the potential to have a unique archaeological resource that may be able to provide information, unavailable elsewhere.

• Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

The potential of this site to inform future generations about the history of an industry that was vital to the development of the west of Sydney and the State means that the information it may yield is relevant to a number of substantive research questions including those relating to Australian history.

7.4 Statement of Significance

The statement of significance is quoted from the historical archaeological significance assessment prepared by AHMS to support a Section 140 permit prior to undertaking test excavations at the neighbouring property of 1 Park Road, Wallacia. Permit 2010/s140/16 was approved on the basis of this significance assessment.

The following section is taken verbatim from AHMS (2008:49-50) [sic throughout] and is presented with additional commentary as required.

The potential archaeological remains at Park Road Wallacia have been generally assessed as being of State significant, in accordance with the NSW Heritage Office Assessing Heritage Significance Guidelines (2001).

The archaeological resources at the site have the potential to demonstrate elements of the historic, economic and technological development of the local area and of the state. The information that may be yielded from these potential resources would contribute to an understanding of the development of the colony and pastoralist enterprises, particularly in the period of the first half of the 19th century. The resources have the potential to illustrate the nature of the site's occupation and the types of techniques used by rural populations over an occupation span of 200 years. In particular, the site has some potential to demonstrate the manner in which it was utilized for local rural requirements and the manner in which it ensured the provision of adequate resources in the development of early rural establishments. The site also has an association with John Blaxland, who was granted the estate and whose son lived in the property. There remains an unbroken association of the Blaxland' s with the site as a local crossing in the area is still known as Blaxland' s Crossing.

Any archaeological remains of the structures, occupation deposits and their landscape setting has the potential to yield information regarding the early occupation, the occupants and rural activities undertaken on the site and may provide an important contribution to our understanding of the local and state cultural history.

The Post Office/Wallace house is a representative example of a late 19th Century domestic structure adapted for a variety of uses in a semi-rural context. It is locally significant and its potential archaeological remains have the ability to demonstrate aspects of the interplay between domestic life and "official" status of the local postmaster. The remains of the house have some potential for demonstrating building techniques and adaptation of external spaces in this period.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

A search of the Aboriginal Heritage Information Management System (AHIMS) Database returned no sites within the study area. This is likely due to a lack of any development within the study area rather than due to an absence of Aboriginal cultural material. However, several streams and creeks pass through the study area which suggests that parts of it may contain Aboriginal cultural material (Figure 6.1), although the level of archaeological potential is dependent on low levels of modern disturbance in the vicinity of these creeks. These areas may warrant further investigation through the preparation of a full Aboriginal cultural heritage assessment dependant on the nature of any proposed development which is to occur in these locations.

It is also concluded that there are zones of varying degrees of historical archaeological potential located within the study area which may contain archaeological deposits (Figure 6.2 and Figure 6.3). The archaeological remains may relate to Blaxland's Luddenham Farm and outbuildings, a Second World War air raid shelter, or the original alignment of the Wallacia to Luddenham track. Any such archaeological deposits, should they be intact, are considered to range from local to State significance. These areas may warrant further archaeological investigations dependant on the nature of any proposed development which is to occur in these locations.

8.2 Recommendations

It is recommended that:

1) A pedestrian survey should be undertaken to groundtruth the results of this archaeological assessment in terms of potential for Aboriginal and historic archaeological material to be present in the study area, and to identify areas of modern disturbance which can be discounted from further consideration. The results of the survey should be appended to this report as an addendum, and the mapping of areas of archaeological potential and sensitivity should be updated accordingly.

2) In the absence of having undertaken a pedestrian survey and the lack of a proposed concept design, in the event of any development being proposed in an area marked as being archaeologically sensitive on Figure 6.1, it will be necessary to prepare a full Aboriginal cultural heritage assessment prior to works commencing. This will require the identification of and consultation with Aboriginal stakeholders and may require undertaking a period of archaeological test excavations to confirm the nature of subsoil deposits within archaeological sensitive landforms.

3) In the absence of having undertaken a pedestrian survey and the lack of a proposed concept design, in the event of any development being proposed in an area marked as being areas of archaeological potential on Figure 6.2 and Figure 6.3, it will be necessary to prepare a full historical archaeological assessment, statement of heritage impact and research design prior to works commencing. A permit application will be required under Section 140 of the *NSW Heritage Act 1977* and further mitigation strategies may include undertaking archaeological test or salvage excavations, dependant on the nature and depth of the proposed impacts.

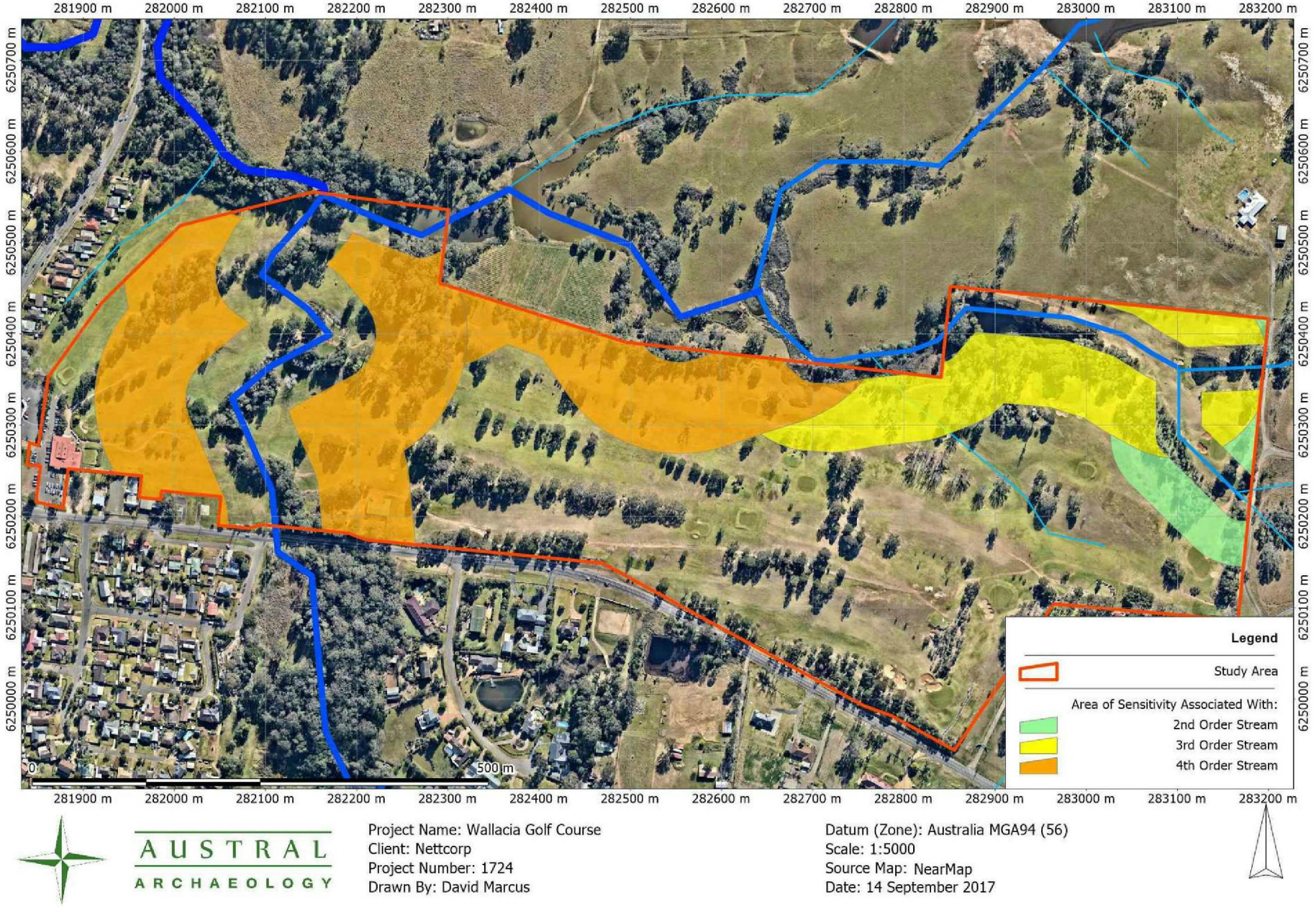

Figure 6.1 (copy) Map showing areas of potential Aboriginal artefact distribution in relation to stream order.

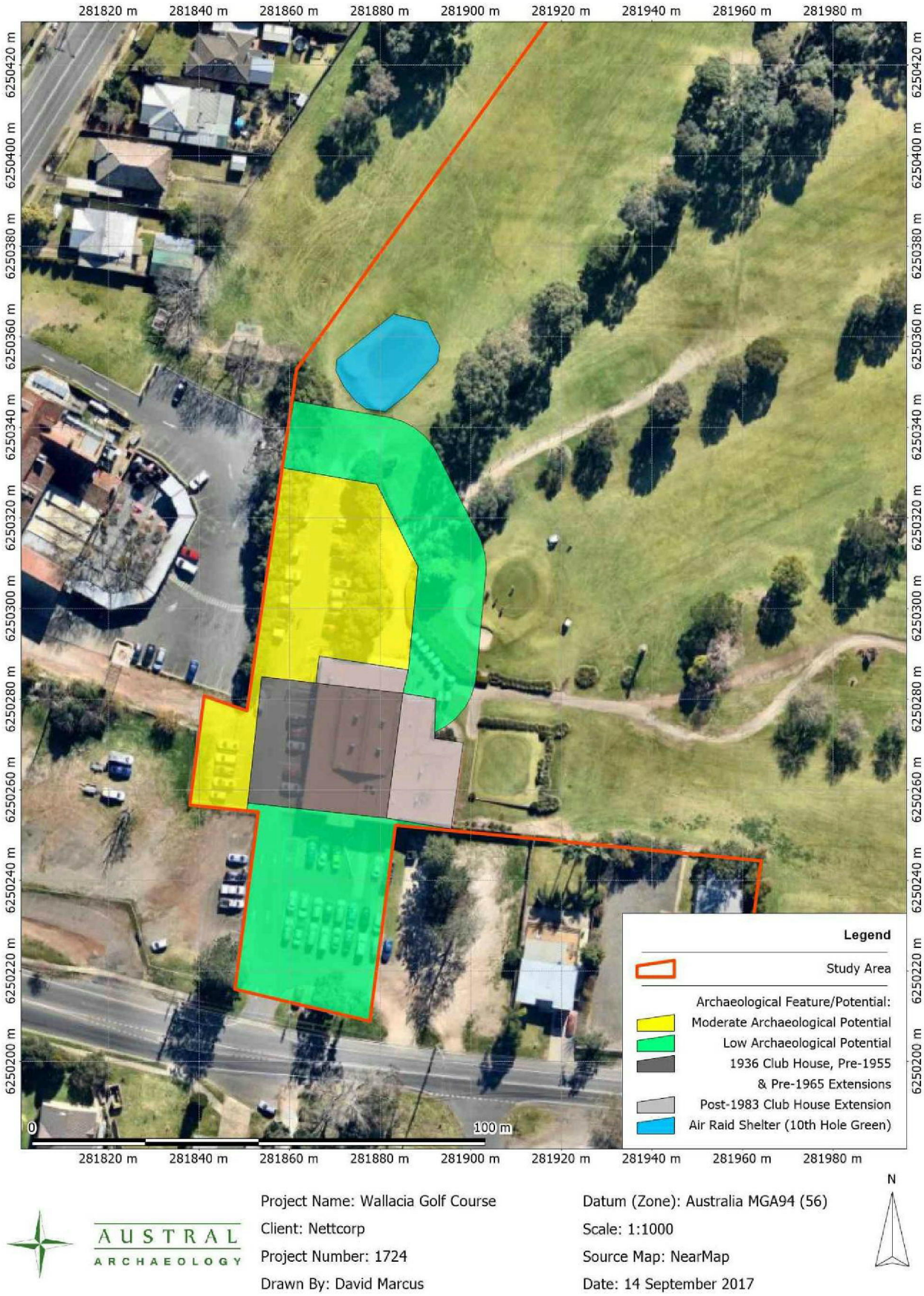

Figure 6.2 (copy) Historical archaeological potential of the western portion of the study area associated with Luddenham Farm and the air raid shelter.

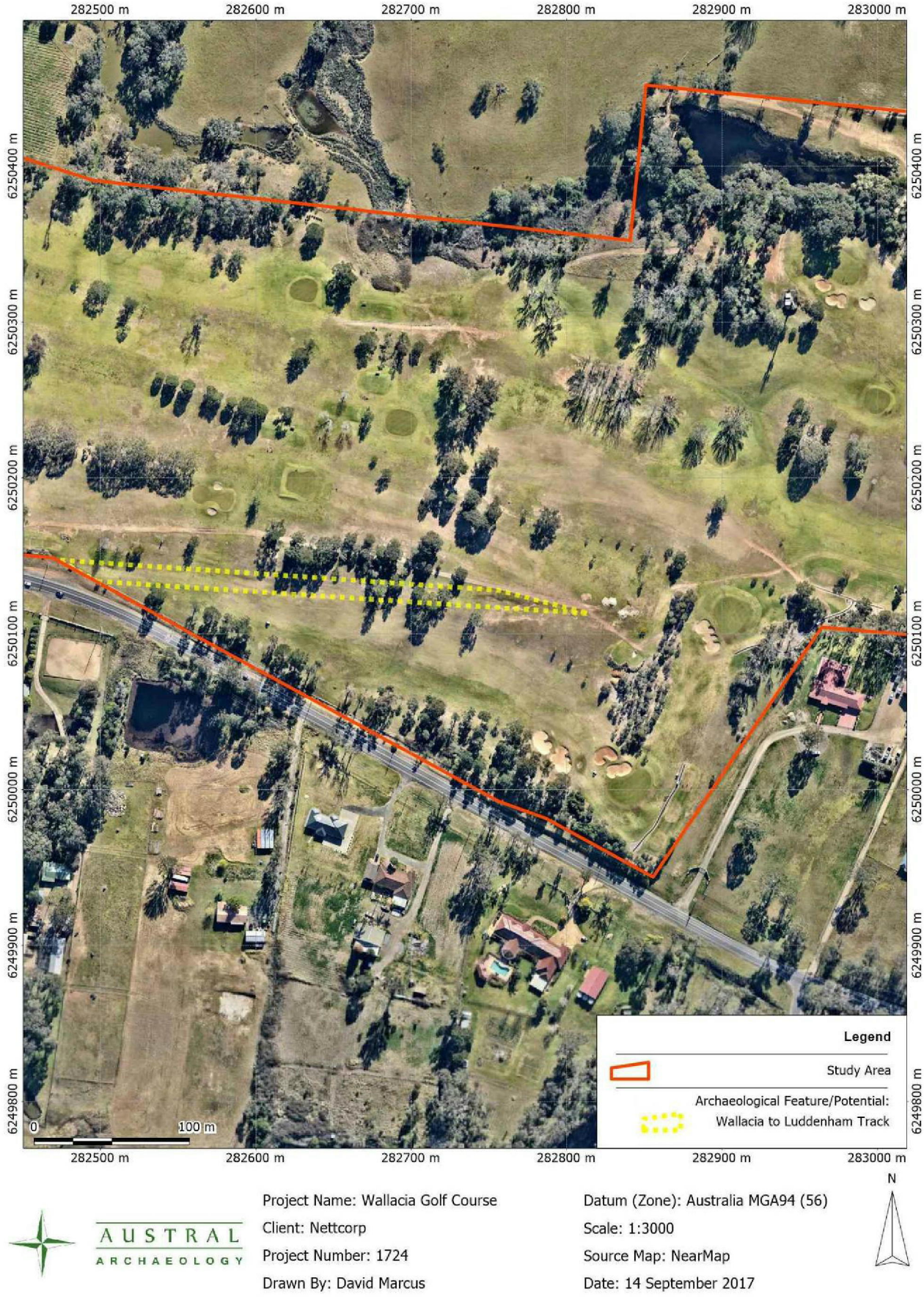

Figure 6.3 (copy) Historical archaeological potential of the eastern portion of the study area.

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APPENDICES

Appendix A: AHIMS Site List Report

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 1724
Client Service ID : 298971

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2499	RC 13 - "Roscrea 13"	AGD	56	283890	6250660	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Doctor.Jo McDonald,Stephanie Garling					Permits		
45-5-2500	RC 12 - "Roscrea 12"	AGD	56	283820	6250850	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Doctor.Jo McDonald,Stephanie Garling					Permits		
45-5-0987	WAL 1;	AGD	56	281100	6249900	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	Iain Stuart					Permits		
45-5-0988	WAL 2;	AGD	56	283500	6249900	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Iain Stuart					Permits		
45-5-2349	Jerry's Ck 1;	AGD	56	281940	6250800	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Huw Barton,Tony Kondek					Permits		
45-5-2350	Jerry's Ck 2 (JC2);	AGD	56	281980	6250720	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Huw Barton,Tony Kondek					Permits		
45-5-2351	Jerry's Ck 3 (JC3);	AGD	56	281800	6250450	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Huw Barton,Tony Kondek					Permits		
45-5-3103	Siverdale Road 1	AGD	56	281150	6250100	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact T Russell	Recorders	Emma Lees					Permits		

Report generated by AHIMS Web Service on 31/08/2017 for David Marcus for the following area at Lot : 2, DP:DP1108408 with a Buffer of 1000 meters. Additional Info : To form part of a due diligence assessment. Number of Aboriginal sites and Aboriginal objects found is 8

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1