AUSTRAL ARCHAEOLOGY

80 SILVERDALE ROAD

THE OAKS, NEW SOUTH WALES

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

Prepared for MR & MRS NOCERA, C/- PROFICIENT CONSTRUCTIONS (AUST) PTY LTD

26 June 2024

Draft

DOCUMENT INFORMATION

PROJECT DETAILS

Project: 80 Silverdale Road, the Oaks, New South Wales

Client: Mr & Mrs Nocera, C/- Proficient Constructions (Aust) Pty Ltd

Service: Aboriginal Cultural Heritage Assessment

Authors: Felicity Smolenaers, Jake Allen, Nicole Monk

Project number: 24004

DOCUMENT HISTORY

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1			Registered Aboriginal Stakeholders

ACKNOWLEDGEMENT OF COUNTRY

We respect and acknowledge the First Nations Peoples of the lands and waterways on which we live and work, their rich cultural heritage, and their deep connection to Country, and we acknowledge their Elders past and present.

CULTURAL WARNING

Aboriginal and Torres Strait Islander readers are advised that this report may contain images or names of First Nations people who have passed away.

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EXECUTIVE SUMMARY

This report has been prepared for Mr & Mrs Nocera, C/- Proficient Constructions (Aust) Pty Ltd [the Client] and details the Aboriginal Cultural Heritage Assessment (ACHA) of land situated at 80 Silverdale Road, The Oaks, New South Wales (NSW) [the study area]. This is within the Wollondilly Shire Local Government Area (LGA), the boundaries of the Tharawal Local Aboriginal Land Council, and the parish of Werombi in the county of Camden. The study area is defined by the boundaries of the proposed development within Lot 3, DP1201486.

This ACHA has been undertaken in order to assist a planning proposal completed under Part 3 of the *Environmental Planning and Assessment Act 1979*, ahead of the proposed development of the study area. This assessment has been in accordance with:

- *The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (Department of Environment Climate Change and Water NSW 2010);
- *The Guide to investigating, assessing, and reporting on Aboriginal Cultural Heritage in NSW* (Office of Environment and Heritage 2011); and
- The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (Department of Environment Climate Change and Water NSW 2010) [Consultation Requirements].

A search of the Aboriginal Heritage Information Management System (AHIMS) identified 117 previously recorded sites within a 10-kilometre radius of the study area. None of these sites were located within any portion of the study area. Many of the AHIMS sites are artefacts, with art and modified trees also being common. Background research suggested that no other archaeological assessments have been undertaken within the study area; however, several such assessments are noted to have been undertaken within the suburbs surrounding The Oaks.

A survey of the study area was conducted on 12 March 2024 by Lindsay Costigan (Senior Archaeologist, Austral), with assistance from members of the local Aboriginal community. The survey comprised pedestrian transects over the proposed development footprint. Several prior disturbances of varying impact were identified throughout. It was concluded that there were areas of high and moderate potential for subsurface archaeological deposits throughout much of the surveyed landscape, as well as low potential across the access tracks, drainage, spoil pile, and berm. Members of the Aboriginal community did not advise archaeologists on-site of any intangible cultural heritage within this zone.

ABORIGINAL COMMUNITY CONSULTATION

Consultation with Aboriginal stakeholders has been completed in accordance with the Consultation Requirements (DECCW 2010a). A summary of this process is included below.

Stage	Component	Commenced	Completed
Stage 1	Letters to agencies	16/02/2024	N/A
	Registration of stakeholders	1/03/2024	22/03/2024
Stage 2	Project information	9/04/2024	N/A
Stage 3	Review of project methodology	9/04/2024	7/05/2024
Stage 4	Review of ACHA by Aboriginal stakeholders	TBC	TBC

Further information on the consultation completed for the project can be found in Section 2 and the Volume 2 appendix of this report.

RECOMMENDATIONS

The following recommendations are derived from the findings described in this ACHA. The recommendations have been developed after considering the archaeological context, environmental information, consultation with the local Aboriginal community, and the predicted impact of the planning proposal on archaeological resources.

It is recommended that:

1. The proposed rezoning may proceed with caution.
2. As areas with moderate potential to contain subsurface artefacts (AHIMS #Pending) have been identified within the study area, no ground disturbing works should be undertaken prior to the completion of a program of archaeological testing.
    a. This will need to comply with the *Code of Practice for Archaeological Investigation of Aboriginal sites in NSW* (DECCW 2011).
3. All Aboriginal objects and Places are protected by the *National Parks and Wildlife Act 1974* (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW. In the event that any Aboriginal cultural heritage finds occur during any stage of the proposed works:
    a. Works must cease in the vicinity of the find. This must not be moved until assessed by a qualified archaeologist.
    b. If the find is determined to be an Aboriginal object, the archaeologist will provide further recommendations.
        i. It is a legal requirement under Section 89A of the NPW Act to notify Heritage NSW as soon as possible.
        ii. Further investigations and an Aboriginal Heritage Impact Permit may be required prior to certain activities recommencing.
4. If human skeletal remains are encountered all work must cease immediately and the NSW Police must be contacted. They will then notify the Coroner's Office.
    a. If the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.
5. It is recommended that the Client continues to inform Aboriginal stakeholders about the management of Aboriginal cultural heritage within the study area throughout completion of the project. The consultation outlined as part of the ACHA is valid for 6 months and must be maintained by the Client for it to remain continuous.
    a. If a gap greater than 6 months occurs, then the consultation will not be suitable to support an AHIP for the project.
6. A copy of this report should be forwarded to all Aboriginal stakeholder groups who have registered an interest in this project.

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FIGURES

TABLES

1. INTRODUCTION

Austral Archaeology Pty Ltd (Austral) has been commissioned by Mr & Mrs Nocera, C/- Proficient Constructions (AUST) Pty Ltd (the Client) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) for the property at 80 Silverdale Road, The Oaks, New South Wales (NSW) [the study area]. This assessment builds upon an Aboriginal Cultural Heritage Due Diligence Assessment (ACHDDA) previously completed by Austral (2024).

1.1. THE STUDY AREA

The study area consists of the entirety of 80 Silverdale Road, The Oaks, NSW (Lot 3, DP1201486), located approximately 78 kilometres from the township of Sydney, within the Wollondilly Local Government Area (LGA), and the parish of Werombi in the county of Camden. It is also within the boundaries of the Tharawal Local Aboriginal Land Council (Tharawal LALC).

The location of the study area is shown on Figure 1.1 and Figure 1.2.

1.2. PURPOSE OF THE ACHA

This advice is intended to assist the client in determining their obligations with regard to the *National Parks and Wildlife Act 1974* (NPW Act) and to determine whether the project will involve activities that may harm Aboriginal objects or places.

The ACHA was undertaken to assess the potential harm that may occur to Aboriginal cultural heritage values. It has been completed as a component of a planning proposal under Part 3 of the *Environmental Planning and Assessment Act 1979* (EPA Act). It is understood that this proposal aims to facilitate the later subdivision and development of the study area under Part 4 of that same Act.

1.3. ASSESSMENT OBJECTIVES

The scope of this ACHA report is based on the legal requirements, guidelines and policies of Heritage NSW, formerly the Office of Environment and Heritage (OEH), and prior to that, the Department of Environment, Climate Change and Water (DECCW), Department of Environment and Climate Change (DECC) and Department of Environment and Climate (DEC). Note that applicable documents have been published under the name of all these Government departments.

The ACHA has been undertaken in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b), the *Guide to Investigating, assessing and Reporting on Aboriginal Cultural Heritage in NSW* (Office of Environment and Heritage 2011) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a) [Consultation Requirements].

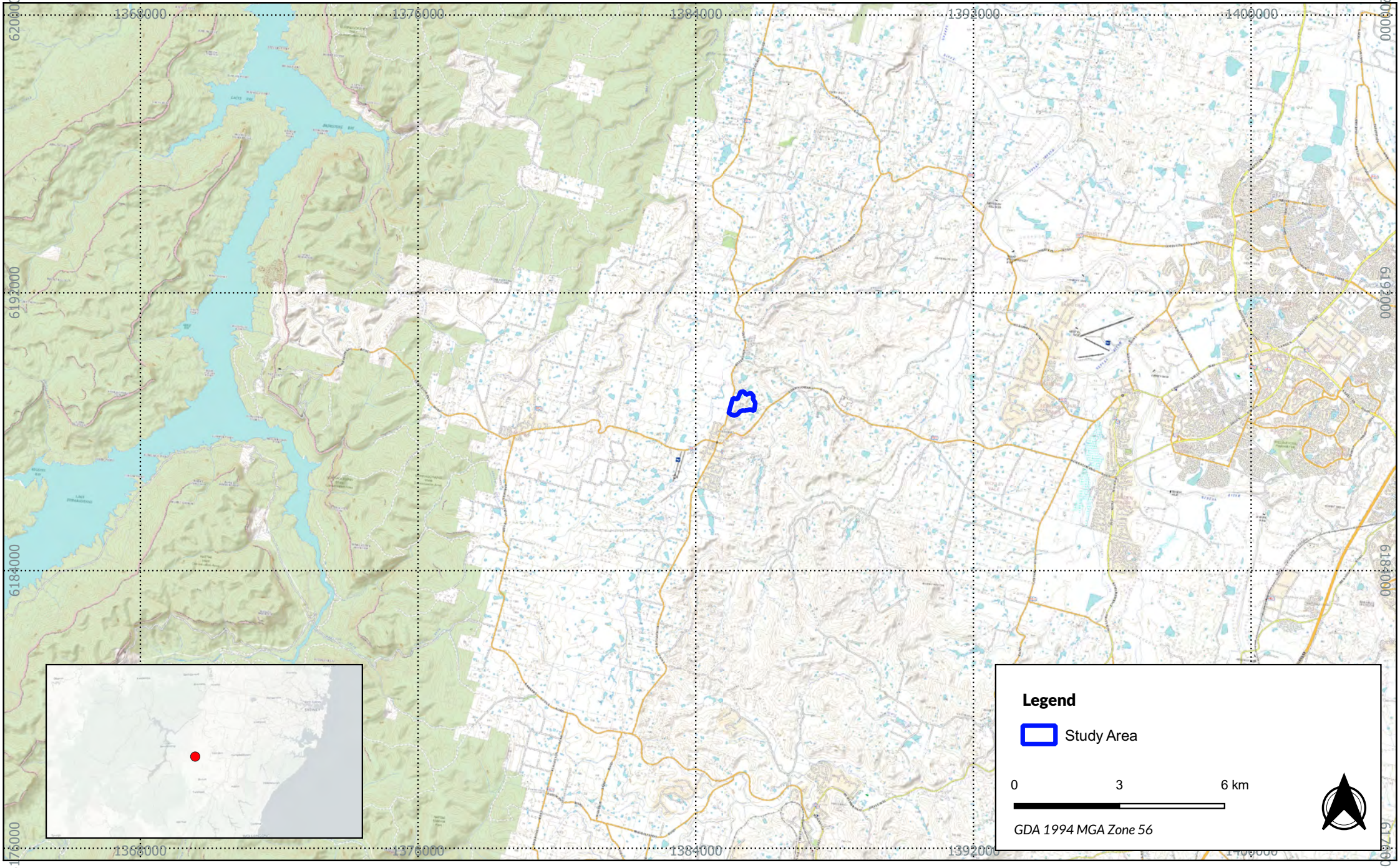

Figure 1.1 - Location of the study area in a regional context

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Basemap, CartoDB Positron

Drawn by: ARH Date: 2024-02-16

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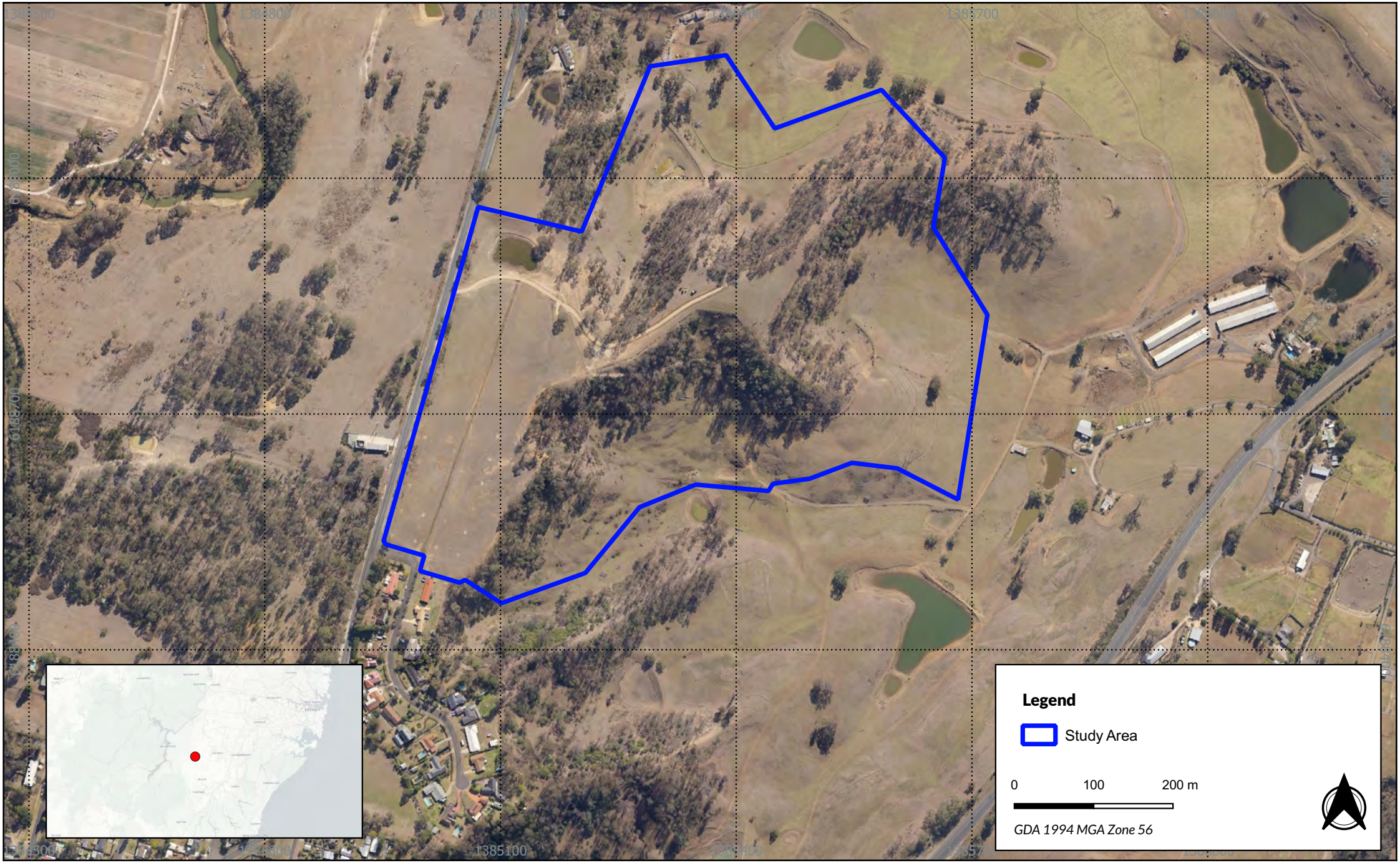

Figure 1.2 - Detailed aerial imagery of the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial, CartoDB Positron

Drawn by: ARH Date: 2024-02-16

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Information provided in this assessment includes, but is not limited to:

- A literary review of available data, including previous studies/investigations from within and adjacent to the study area.
- The results of an archaeological fieldwork including a pedestrian survey of the study area.
- A description of the Aboriginal cultural heritage values identified as being within the study area and its significance.
- An assessment of harm posed to Aboriginal objects, places, or values as part of the project.
- A description of practical measures that have been used to protect, conserve, avoid, or mitigate harm to Aboriginal objects, places and values.
- Documentation of how the Consultation Requirements have been met (specifically Section 80C of the *National Parks and Wildlife Regulation 2019* [NPW Regulations]).
- The views of Aboriginal people regarding the likely impact of the proposed activity on their cultural heritage, including evidence of their submissions and how these have been addressed.
- Adequate documentation to accompany an Aboriginal Heritage Impact Permit (AHIP) application.

1.4. SUMMARY OF LEGISLATIVE PROCESS

Aboriginal archaeological and cultural heritage assessments in NSW are carried out under the auspices of a range of State and Federal acts, regulations and guidelines. The acts and regulations allow for the management and protection of Aboriginal places and objects, and the guidelines set out best practice for community consultation in accordance with the requirements of the acts.

This section outlines the acts and guidelines that are applicable or have the potential to be triggered with regards to the proposed development and are detailed in Table 1.1 to Table 1.4.

Table 1.1 Federal acts.

Federal Acts	Applicability and Implications
Environment Protection & Biodiversity Conservation Act 1999	This Act has not been triggered and so does not apply, on the basis that: • No sites listed on the National Heritage List are present or in close proximity to the study area. • No sites listed on the Commonwealth Heritage List are present or in close proximity to the study area.
Aboriginal & Torres Strait Islander Heritage Protection Amendment Act 1987	Applies. This Act provides blanket protection for Aboriginal heritage in circumstances where such protection is not available at the State level. This Act may also override State legislation.

Table 1.2 State acts.

State Acts	Applicability and Implications
NPW Act	The Act is triggered by the potential presence of Aboriginal cultural material and offers the following protection: • Section 86 – Prohibits both knowingly and unknowingly, causing harm or desecration to any Aboriginal object or place without either an AHIP or other suitable defence from the Act. • Section 87 – Allows for activities carried out under an AHIP or following due diligence to be a defence against the harm of an Aboriginal object. • Section 89A – Requires that the Heritage NSW must be notified of any Aboriginal objects discovered, within a reasonable time. • Section 90 – Requires an application for an AHIP in the case of destruction of a site through development or relocation.
NPW Regulations	The Regulation serves to support the implementation of the NPW Act in the following ways: • Section 57A – States minimum standards for due diligence to have been carried out. • Section 60 – Requires documented Aboriginal community consultation to be undertaken before applying for an AHIP. • Section 61 – Requires production of a cultural heritage assessment report to accompany AHIP applications.
EPA Act	Applies to the wider project and governs the approval pathway required: • The project is being assessed under Part 3 of the EPA Act. • This ACHA is required to support a Planning Proposal. • As such, sections 86, 87, 89A, and 90 of the NPW Act apply to this project.
NSW Heritage Act 1977	There are no sites listed on the State Heritage Inventory associated with the study area, and therefore this Act does not apply.

Table 1.3 State and local planning instruments.

State Acts	Applicability and Implications
Local Environmental Plan (LEP)	The following LEP is applicable to the study area: • *Wollondilly Local Environmental Plan 2011* Aboriginal cultural material is discussed in Part 5, Section 10 of the LEP, which requires consent be granted for any works which may impact on Aboriginal cultural material. Select areas of Aboriginal cultural material are listed on Schedule 5, Part 5 of the LEP.
Development Control Plan (DCP)	The following DCP is applicable to the study area: • *Wollondilly Development Control Plan 2016* — Volume 3 – Subdivision of Land As it pertains to the study area, Aboriginal cultural material is not discussed in Volume 3 of the DCP.

Table 1.4 Aboriginal community consultation requirements.

State Acts	Applicability and Implications
Consultation Requirements	The proposal is to proceed in accordance with Part 3 of the EPA Act. This means that the requirements of Part 6 of the NPW Act will apply, including the need to obtain an approval prior to impacting Aboriginal objects in accordance with Section 90 of the NPW Act, and that it will be necessary to prepare an ACHA in accordance with Section 61 of the NPW Regulations. As such, consultation with Aboriginal stakeholders on this project will follow the Consultation Requirements.

1.5. PROJECT TEAM AND QUALIFICATIONS

The following personnel have been involved in the preparation of this ACHA.

FELICITY SMOLENAERS (B. ARCHAEOLOGY)

Felicity is a Graduate Archaeologist at Austral and has over 3 years' experience in the completion of both Aboriginal and Historical projects. Felicity has Heritage Advisor status with First Peoples-State Relations. Felicity has experience in consultation, background research and report writing for ACHAs, ACHDDAs, Cultural Heritage Management Plans, and Preliminary Historical Heritage Assessments. She also has experience in excavation, Aboriginal and historical surveys, cataloguing and sorting historical artefacts, and Aboriginal lithic analysis. She has also been a member of the international archaeological team at Tell el Timai, Egypt.

JAKE ALLEN (GRAD DIP. ARCHAEOLOGY AND HERITAGE MANAGEMENT, MASTER OF MARITIME ARCHAEOLOGY [IN PROGRESS], BCMS, BA)

Jake is an archaeologist with Austral specialising in maritime and historical cultural heritage. He has carried out several projects across NSW, Victoria, South Australia, and the Australian Capital Territory as well as undertaking assessments on internationally significant monuments and sites. Jake's experience includes project management, report-writing, the production of predictive models, and the carrying out of archaeological surveys and excavations.

NICOLE MONK (B. ARCHAEOLOGY, GRAD DIP. ARCHAEOLOGY)

Nicole is an archaeologist with several years of experience. She has successfully authored approved Cultural Heritage Management Plans in Victoria and has co-authored ACHAs in NSW. Nicole also has experience on complex fieldwork projects, including the Menindee Lakes Water Infrastructure Project, and has begun leading field teams on survey and excavation programs.

LINDSAY COSTIGAN (B. SCIENCE [ANTHROPOLOGY AND SOCIOLOGY])

Lindsay has reviewed this report for quality assurance and technical adequacy, and had input into the management recommendations.

1.6. ABBREVIATIONS

The following are common abbreviations that are used within this report:

ACHA	Aboriginal Cultural Heritage Assessment
ACHDDA	Aboriginal Cultural Heritage Due Diligence Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AMBS	Australian Museum Business Services
Austral	Austral Archaeology Pty Ltd
BP	Before Present
Burra Charter	*Burra Charter: Australia ICOMOS Charter for Places of Cultural Significance 2013*
Client, the	Mr & Mrs Nocera, C/- Proficient Constructions (AUST) Pty Ltd
Code, the	*The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*
Consultation Requirements	*The Aboriginal Cultural Heritage Consultation Requirements for Proponents*
DCP	Development Control Plan
DEC	Department of Environment
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DNC	Didge Ngunawal Clan
EPA Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Act*
ESD	Ecologically Sustainable Development
GSV	Ground Surface Visibility
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
MHC	Mundawari Heritage Consultants
NSW	New South Wales
NPW Act	*National Parks and Wildlife Act 1974*
NPW Regulation	*National Parks and Wildlife Regulation 2019*
OEH	Office of Environment and Heritage
PAD	Potential Archaeological Deposit
Study Area, the	80 Silverdale Road, The Oaks NSW (Lot 3, DP1201486)
Tharawal LALC	Tharawal Local Aboriginal Land Council
Wollondilly DCP	*Wollondilly Development Control Plan 2016*
Wollondilly LEP	*Wollondilly Local Environmental Plan 2011*

2. CONSULTATION PROCESS

This section outlines the consultation process that has been followed as part of the preparation of this ACHA.

2.1. INTRODUCTION

Stakeholder consultation for this project commenced in line with the Consultation Requirements (DECCW 2010a). Heritage NSW recognises that (DECCW 2010a, p. iii):

- Aboriginal people should have the right to maintain their culture.
- Aboriginal people should have the right to participate in matters that may affect their heritage directly.
- Aboriginal people are the primary determinants of the cultural significance of their heritage.

The Consultation Requirements outline a four-stage consultation process which includes:

- Stage 1 – Notification of the project proposal and registration of interest.
  - Stage 1.1 – Letters to agencies that may have a record of potential stakeholders.
  - Stage 1.2 – Invitation to register in the project.
  - Stage 1.3 – Print newspaper advert.
  - Stage 1.4 – Notification of registered parties to Heritage NSW and the Local Aboriginal Land Council.
- Stage 2 – Presentation of information about the proposed project.
- Stage 3 – Gathering information about cultural significance.
- Stage 4 – Review of the draft cultural heritage assessment report.

A copy of the consultation log and evidence of all correspondences that were sent and received as part of the consultation process is included in Volume 2 of this ACHA.

2.2. STAGE 1: NOTIFICATION AND REGISTRATION OF INTEREST

The following section outlines the tasks that were undertaken as part of Stage 1 of the Consultation Requirements.

2.2.1. IDENTIFICATION OF RELEVANT ABORIGINAL STAKEHOLDERS (STAGE 1.1)

In accordance with the Consultation Requirements, Austral notified the bodies and organisations listed in Section 4.1.2 on 16 February 2024 (DECCW 2010a, p. 10) [Table 2.1].

Table 2.1 Overview of responses to consultation: Stage 1.1.

Organisation	Date of response	Summary
Heritage NSW	23/02/2024	Responded with a list of potential stakeholders .
National Native Title Tribunal	19/02/2024	Responded they had no record of potential stakeholders.
Office of the Registrar	23/02/2024	Provided details for Tharawal LALC.
Wollondilly Council	21/02/2024	Responded with a list of potential stakeholders.
No response received		
NTSCORP	-	Did not respond.
Tharawal LALC	-	Did not respond.

As no record of The Greater Sydney Local Land Service being contacted could be identified, a supplementary round of Stage 1.1 consultation was sent on 12 June 2024. No further response was received.

2.2.2. INVITATION TO REGISTER

Letters were written to the Aboriginal stakeholders identified through notifying the various agencies suggested in Section 4.1.2 of the Consultation Requirements (DECCW 2010a, p. 10). Aboriginal stakeholders were provided with a 14-day period to register an interest in the project.

As a result of the consultation procedure, the groups shown in Table 2.2 registered as Aboriginal stakeholders with an interest in this project.

Table 2.2 List of Registered Aboriginal stakeholders.

Organisation	Contact Person
A1 Indigenous Services	Carolyn Hickey
Amanda Hickey Cultural Services	Amanda De Zwart
Barraby Cultural Services	Lee Field (Manager)
Butucarbin Aboriginal Corporation	Jennifer Beale
Cubbitch Barta Native Title Claimants Aboriginal Corp	Glenda Chalker
Dharramalin	Gary Dunn
Didge Ngunawal Clan (DNC)	Lilly Carroll; Paul Boyd
Freeman & Marx Pty Ltd	Clive Freeman
Gundungurra Elder	Kazan Brown
Guntawang Aboriginal Resources Incorporated	Wendy Morgan
Individual	Aunty Frances "Fran" Bodkin
JVDCORP	James Davis
Kamilaroi Yankuntjatjara Working Group	Phil Khan
Konanggo Aboriginal Cultural Heritage Services	Robert Young
Mundawari Heritage Consultants (MHC)	Dean Delponte
Murra Bidgee Mullangari Aboriginal Corporation	Darleen Johnson

Organisation	Contact Person
Ngambaa Cultural Connections	Kaarina Slater
Stakeholder 1	Anonymous
Stakeholder 2	Anonymous
Thomas Dahlstrom Offers ACH value by using 3D Laser and Drone technology	Thomas Dahlstrom
Waawaar Awaa Aboriginal Corporation	Rodney Gunther
Wori Woolilywa	Daniel Chalker
Wurrumay Pty Ltd	Vicky Slater
Yulay Cultural Services	Arika Jalomaki (Manager)
Yurrandaali	Bo Field (Manager)

2.2.3. PUBLIC NOTICE

An advert was placed in *The District Reporter* to run on Friday, 8 March 2024, requesting the registration of individuals or organisations who hold cultural knowledge relevant to the project area.

2.2.4. SUBMISSION OF RECORDED STAKEHOLDERS

In accordance with Section 4.1.6 of the Consultation Requirements (DECCW 2010a, p. 11), Austral provided details of all registered Aboriginal stakeholders to Heritage NSW and Tharawal LALC on Friday, 22 March 2024.

2.3. STAGE 2: PRESENTATION OF INFORMATION

All registered Aboriginal stakeholders were provided with information outlining the proposed works, including information relating to proposed impacts as well as the project's methodology, on 9 April 2024.

Following a review of the consultation log, it was identified that an administrative error had occurred, and five stakeholders were not included in the initial send-out. This was rectified on 13 June 2024.

2.4. STAGE 3: GATHERING DATA ABOUT CULTURAL SIGNIFICANCE

This section details information relating to cultural significance provided by Aboriginal stakeholders, through the formalised process of Stage 3 of the Consultation Requirements and any additional information which may have been provided during fieldwork.

2.4.1. REVIEW OF PROJECT METHODOLOGY

Austral provided each Aboriginal stakeholder with a copy of the project methodology on 9 April 2024 and 13 June 2024. The methodology outlined the proposed assessment process that would be used in the completion of the ACHA. Aboriginal stakeholders were provided with 28 days to review and provide feedback on the methodology.

The following comments were received from Aboriginal stakeholders:

- Lily Carroll from DNC replied on 9 April 2024 stating '*DNC agrees and is happy with what has been presented to us, and hopefully we can be added to the rap list for the test excavation as we know the area and lived here all of our lived and where* (sic) *totally experienced and insured.'*

- Dean Delponte from MHC responded on 17 April 2024 '*Thank you for providing us with a copy of the project information and assessment methodology. MHC is satisfied with the methodology and look forward to assisting further with the investigation and assessment of the study area.*'

2.4.2. INFORMATION GATHERED DURING FIELDWORK

During the visual inspection of the study area, undertaken on 12 March 2024, Kiahni Chalker from Cubbitch Barta Native Title Corp. raised that the area would have been optimal for occupation and supported testing prior to any development works.

2.5. STAGE 4: REVIEW OF DRAFT ACHA

This section will be completed following the review of the report by Aboriginal stakeholders.

2.6. PROVISION OF FINAL ACHA

To comply with Section 4.4.5 of the Consultation Requirements (DECCW 2010a, p. 14), a copy of the final ACHA is to be provided to all registered Aboriginal stakeholders and Tharawal LALC following its completion.

2.7. RECORD OF CONTINUOUS CONSULTATION

As a part of the AHIP application process, it is necessary to demonstrate that consultation with Aboriginal stakeholders has remained continuous (i.e., with no gaps greater than 6 months) from project commencement through to final AHIP approvals.

A summary of the consultation completed for this project is provided in Table 2.3 below.

Table 2.3 Summary of continuous consultation.

Consultation Stage	Date Completed
Stage 1.1	16 February 2024
Stage 1.2	1 March 2024
Stage 1.3	8 March 2024
Stage 2	9 April 2024
Stage 3	9 April 2024
Stage 4	TBC

3. LANDSCAPE CONTEXT

The following section defines the study area, its environmental and cultural context.

3.1. ENVIRONMENTAL CONTEXT

The following section discusses the study area in relation to its landscape, environmental and Aboriginal landscape resources. This environmental context has been prepared in accordance with Requirement 2 of *The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2011, pp. 8–9) [the Code].

The study area is located within the Sydney Basin bioregion, covering approximately 3,624,008 hectares of NSW, extending north to Nelson Bay, south to Pebbly Beach, west to Scone and Dunedoo, and is bounded to the east by the Pacific Ocean (NSW National Parks and Wildlife Services 2003, p. 185). The Sydney Basin is described as having near horizontal sandstones and shales of Permian to Triassic age (NSW National Parks and Wildlife Services 2003, p. 186). Landforms within this bioregion consist of dunes, gorges volcanic bents, deep estuaries, and cliffs, with several geological features that would have been important to Aboriginal people (NSW National Parks and Wildlife Services 2003, p. 186).

The study area lies within the Cumberland subregion of the Sydney Basin bioregion, which extends over an area of 261,383 hectares and is known for Triassic Wianamatta shale and sandstone (Bioregional Assessments 2019). The Cumberland Plain is defined by 'low rolling hills and wide valleys', as well as swamps and lagoons on the floodplains of the Nepean River. Across hills and valleys, the vegetation typical of this subregion includes:

- Grey box eucalypt (*Eucalyptus macrocarpa*)
- River red gum (*E. camaldulensis*)
- Narrow-leaved ironbark (*E. crebra*)

Comparatively, in the swamp and lagoon contexts of the subregion, typical vegetation is (NSW Department of Planning and Environment 2021):

- Paramatta red gum (*E. parramattensis*)
- Tall spike-rush (*Eleocharis sphacelate*)
- Rushes (*Juncus spp.*)

The diverse microenvironments throughout the subregion would have provided abundant and varied resources to facilitate the occupation by past Aboriginal peoples.

3.1.1. TOPOGRAPHY

Landforms within the wider region are associated with Blacktown (bt) soils, which are characterised by gently undulating rises on Wianamatta Group shales with local relief of 30 metres, and the Picton landscape, characterised by steep to very steep hills with concave upper slopes and irregular lower slopes.

Within the study area, the landforms are diverse and vary in elevation from valleys to ridges, with shoulders, slopes, spurs and hollows also present. The highest point of elevation, at 280 metres, is the shoulder on the western side of the study area. This shoulder is associated with a hill, located outside and to the south-west of the study area, which decreases in elevation as it extends north. Although only slightly lower, the crest within the study area is at an elevation of 274 metres, with the landforms east decreasing in elevation to a height of 210 metres, which is associated with a valley landform.

Cultural heritage is often identified on elevated landforms, particularly near water sources, as they provide ideal conditions for occupation; however, due to erosion caused by wind and land clearing practices, the slopes of elevated landforms are also known to contain cultural heritage that has been displaced as a consequence of erosion.

The landform units identified within the study area are identified in Figure 3.1.

3.1.2. HYDROLOGY

There are three unnamed first order non-perennial tributaries located within the study area. These unnamed first order streams would fill following rain events and would flow into the second and third-order streams located outside of the study area, to the north and east before reaching Flaggy Creek, a fourth order stream located to the east of the study area.

Flaggy Creek is located approximately 743 metres east of the study area, while the Nepean River is approximately 11 kilometres further east. A significant portion of the AHIMS registered sites exist along these perennial waterways. This suggests that these larger watercourses would have provided invaluable resources for long term occupation whilst the smaller non-perennial water sources would have been used for shorter occupation periods.

In addition to the natural water sources in the study area, the landscape has been modified with the construction of dams in the western and northern portions of the study area, These dams, likely installed to act as reservoirs for the storage of water for agricultural practices, would have harmed or destroyed any cultural heritage, if present, within these areas.

The hydrological systems identified within and in the locality of the study area are identified in Figure 3.2.

3.1.3. GEOLOGY

Geological units are used to predict the presence and/or absence of certain Aboriginal site types including rock shelters, grinding grooves, or quarries in addition to providing an insight into the range of raw material types that may have been available to past Aboriginal groups for stone tool production.

The study area is located in the Sydney Basin bioregion, an area characterised by extensive riverine floodplains with low relief. Most of the study area is located on the Ashfield Shale geological unit and is described as black mudstones and grey shales with frequent sideritic clay ironstone bands (Geoscience Australia 2023). Natural outcrops of shale and mudstone among other materials occurring in the area provide suitable resources for stone tool manufacture, while the presence of sandstone provides suitable landforms for art sites to be present in the area. The Ashfield Shale forms part of the Wianamatta Group and is dated to the Middle Triassic (257.2 – 237.0 million years ago) [Colquhoun et al. 2019].

The remaining portion of the study area lies on Bringelly Shale, a sub-unit of the Wianamatta Shale Group. Bringelly Shale is the youngest Triassic unit in the Sydney Basin; as well as one of the thickest, reaching depths of up to 250 metres. This geological unit is noted to contain finely bedded shale, siltstones, and laminate (Geoscience Australia 2023). Bringelly Shale has the potential for quartzite deposits to occur within sandstone. This presence of this quartzite, however, is subject to heating events. As such, there is only potential for the production of lithics in special circumstances within these formations.

The geological units identified within the study area are identified in Figure 3.2.

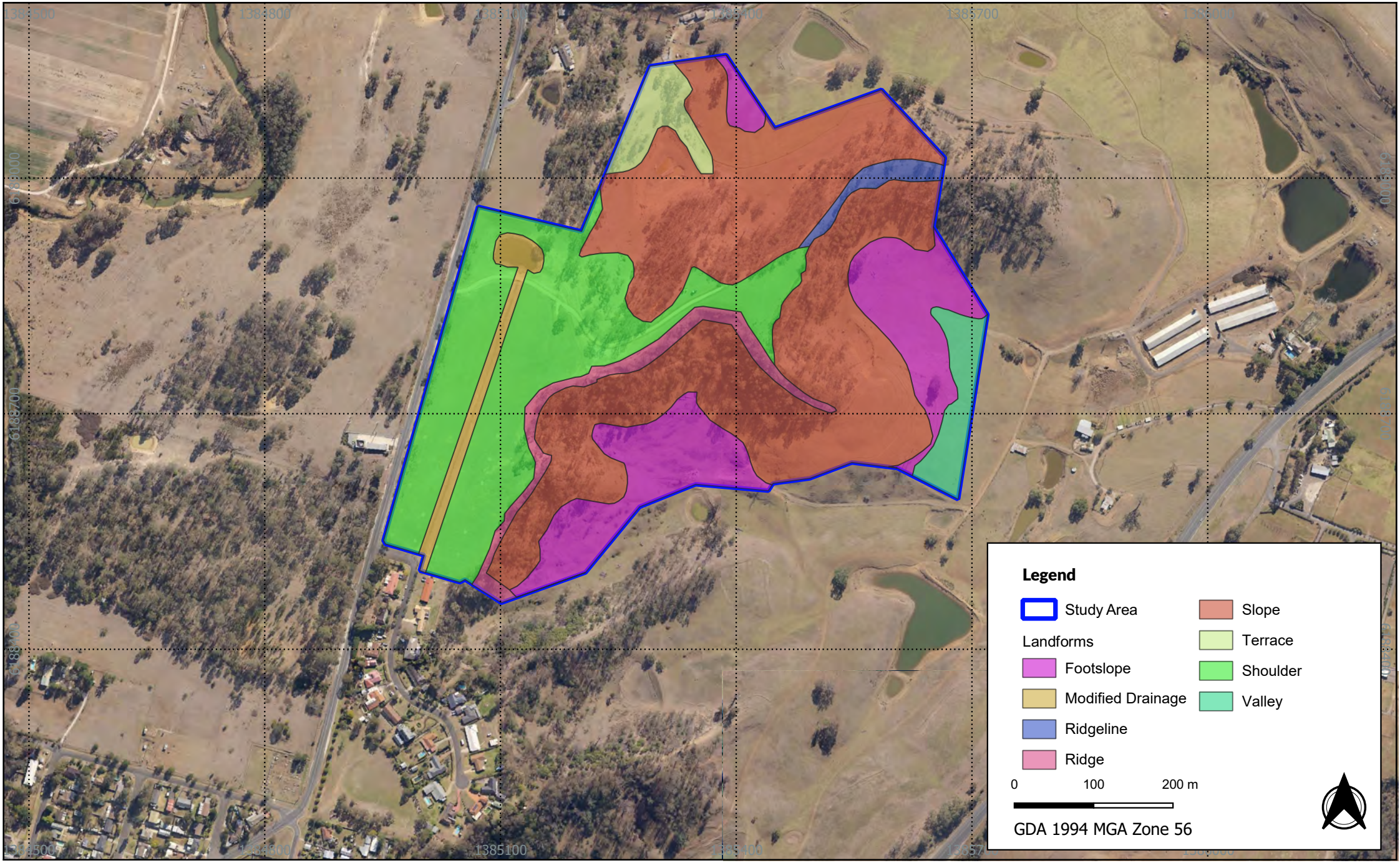


Figure 3.1 - Landform units identified within the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2024-06-24

AUSTRAL ARCHAEOLOGY

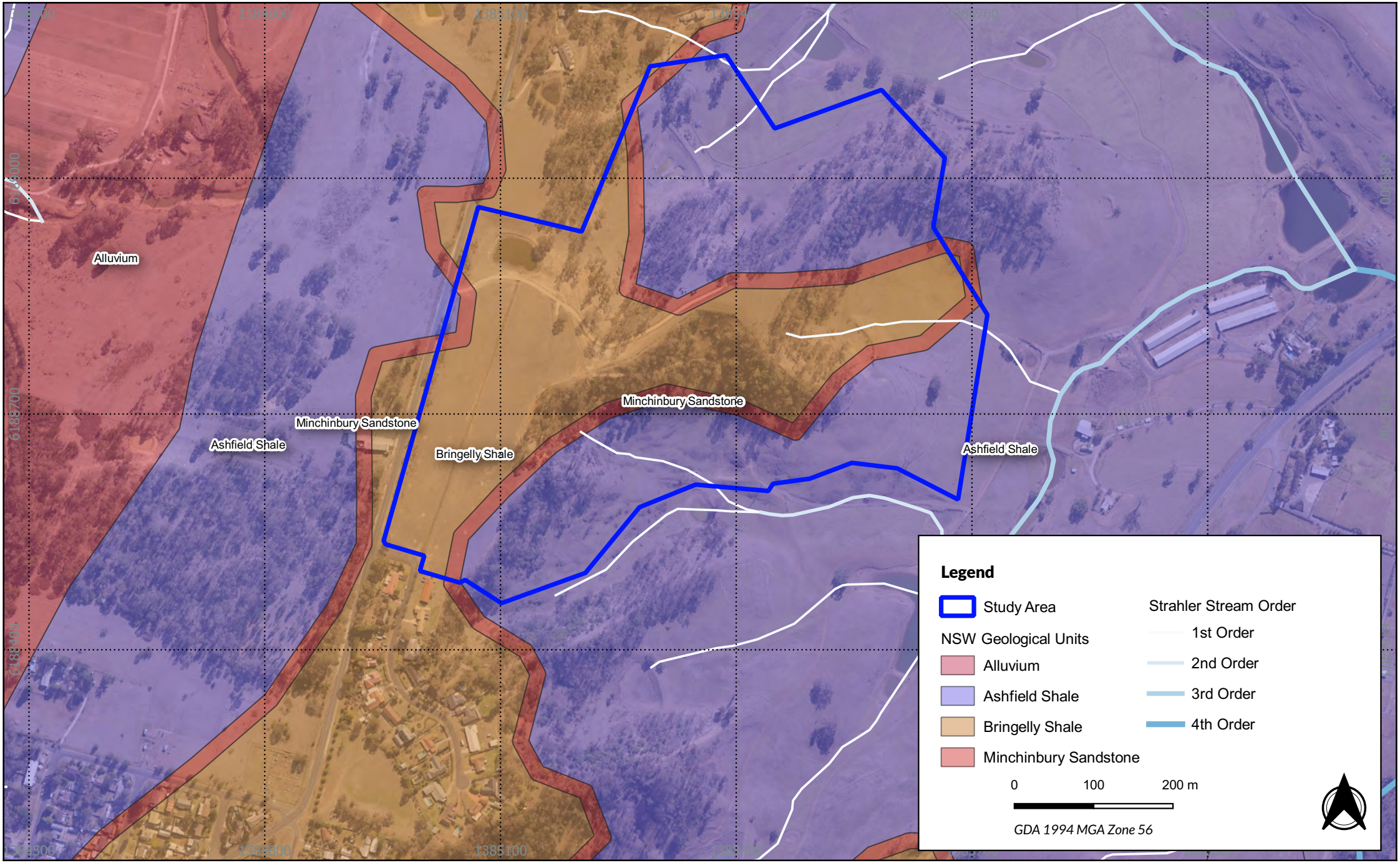


Figure 3.2 - Geology and hydrology of the study area and surrounding landscape

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2024-02-16

AUSTRAL ARCHAEOLOGY

3.1.4. SOILS

Understanding soil landscapes is critical to interpreting the archaeological landforms, and subsequently their uses by the traditional communities occupying the region. Soil landscapes can have a major impact on the preservation potential of many Aboriginal artefacts and may dictate the archaeological potential of a given landscape.

The study area is within the Blacktown (bt) and Picton (pn) soil landscapes. Landforms associated with Blacktown (bt) soils are characterised by gently undulating rises on Wianamatta Group shales with local relief of 30 metres. The soils are moderately erodible, with topsoils (bt1 and bt2) being generally hard setting with significant fine sand and silt contents, offset by moderate amounts of organic matter (Department of Environment, Climate Change and Water NSW 2010). Areas with the Blacktown (bt) soil landscape have the potential for subsurface artefacts to be identified, as the soil profile is suitable for the retention of deposited objects.

The soil landscapes identified within the study area are identified in Table 3.1 and Figure 3.3.

Table 3.1 Soil landscapes identified as being within study area.

Soil landscape	Description
Blacktown	The dominant soil materials are: • **bt1** – Friable blackish-brown loam A horizon (10YR 2/2 can range from 5YR 3/2 to 10YR 3/4). pH from 5.5 to 7.0. Ironstone, shale fragments and charcoal are sometimes present. • **bt2** – Hard setting dark brown clay loam A2 horizon (7.5YR 4/3 can range from 2.5YR 3/3 to 10YR 3/3). pH from 5.5 to 7.0. Ironstone and shale gravel are common. • **bt3** - Strongly pedal, mottled brown light clay subsoil B horizon (7.5YR 4/6 can range from 2.5YR 4/6 to 10YR 4/6). Frequent red, yellow or grey mottles occur. pH 4.5 to 6.5. Shale gravel is common in stratified bands. • **bt4** - Light grey plastic mottled clay B3 or C horizon (10YR 7/1 or 2.5YR 6/2). pH 4.0 to 5.5. Ironstone is common, charcoal rare.
Picton	The dominant soil materials are: • **pn1** – Apedal dark brown, hard-setting sandy loam. Colour ranges from 5YR 3/4 to 10YR 3/3 with a pH range of 5.5 to 6.5. Irregular sub-rounded gravels may make up to 60% of this material. Highly erodible. • **pn2** – Strongly pedal reddish brown sandy. Small (2-5mm) peds that decrease with depth. Colour ranges from 5YR 3/2 to 5YR 3/4 with a pH range of 5.0 to 6.5. Occasion red or grey mottles occur at depth. Low fertility and permeability. • **pn3** - Highly pedal, brown stony light clay, with small peds (6-20mm). Colour ranges from 7.5YR 3/4 to 2.5YR 3/4 with a pH range of 5.0 to 4.0. Extreme erodibility, sodic and low fertility.

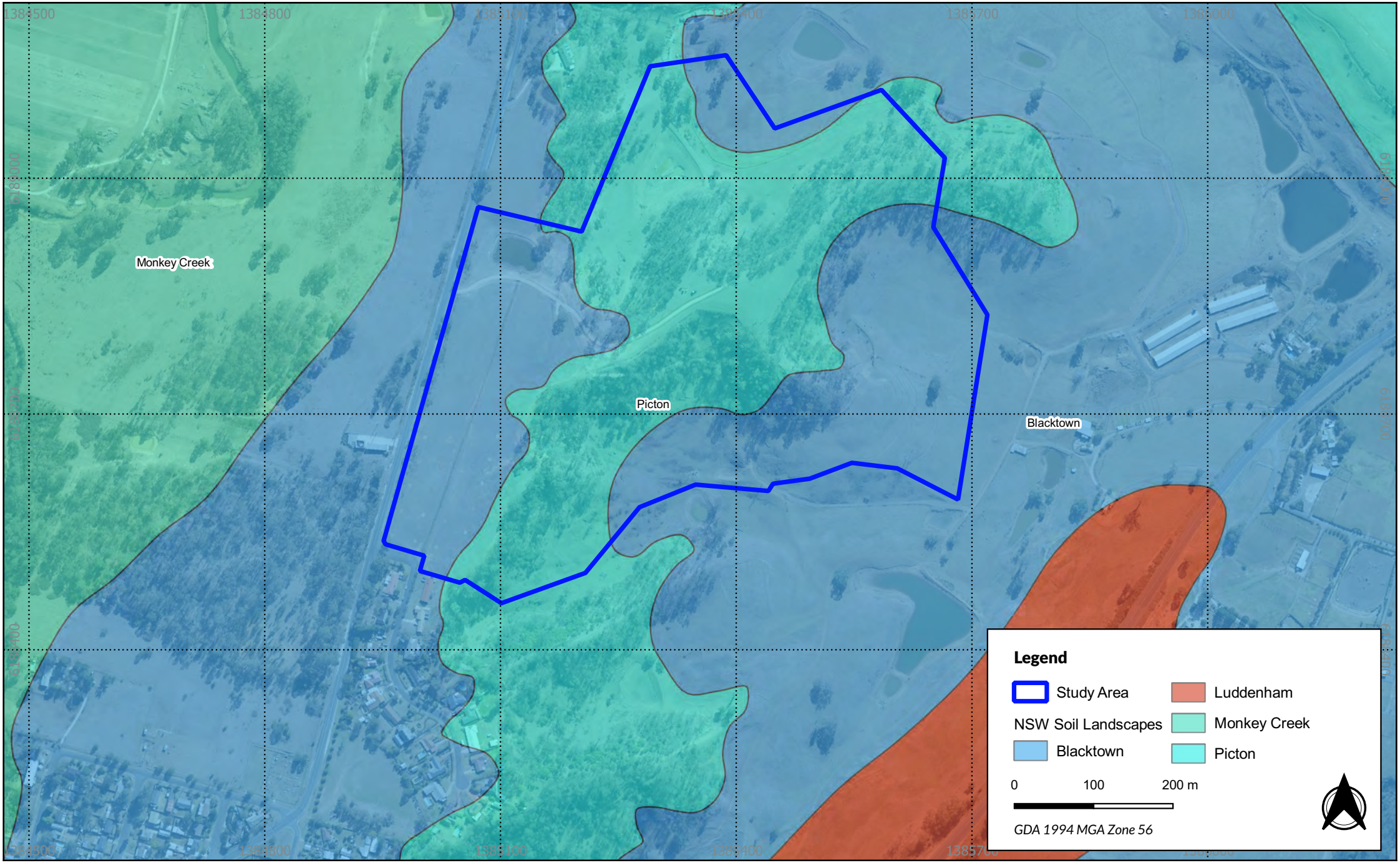


Figure 3.3 - Soil landscapes identified with the study area and surrounding landscape

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial *Drawn by: ARH Date: 2024-02-16*

AUSTRAL ARCHAEOLOGY

3.1.5. CLIMATE AND VEGETATION

The closest station to the study area is at Picton, which is characterised by warm summers, reaching a top temperature of 29.3 degrees, and winters that are short, cold and wet, that drop to 1.7 degrees (Bureau of Meteorology 2024). Rainfall occurs during all seasons, with February experiencing the most amount of rainfall at 91 millimetres and September having the least amount at 43.5 millimetres. An overview of the rainfall from 1991 to 2020 is shown in Figure 3.4.

Prior to the climatic shift to the Holocene, the Pleistocene was colder and drier than it is currently which would have made the study area an optimal location for resources. In addition, there would have been a more diverse range of flora and fauna that would have been utilised by people for resources.

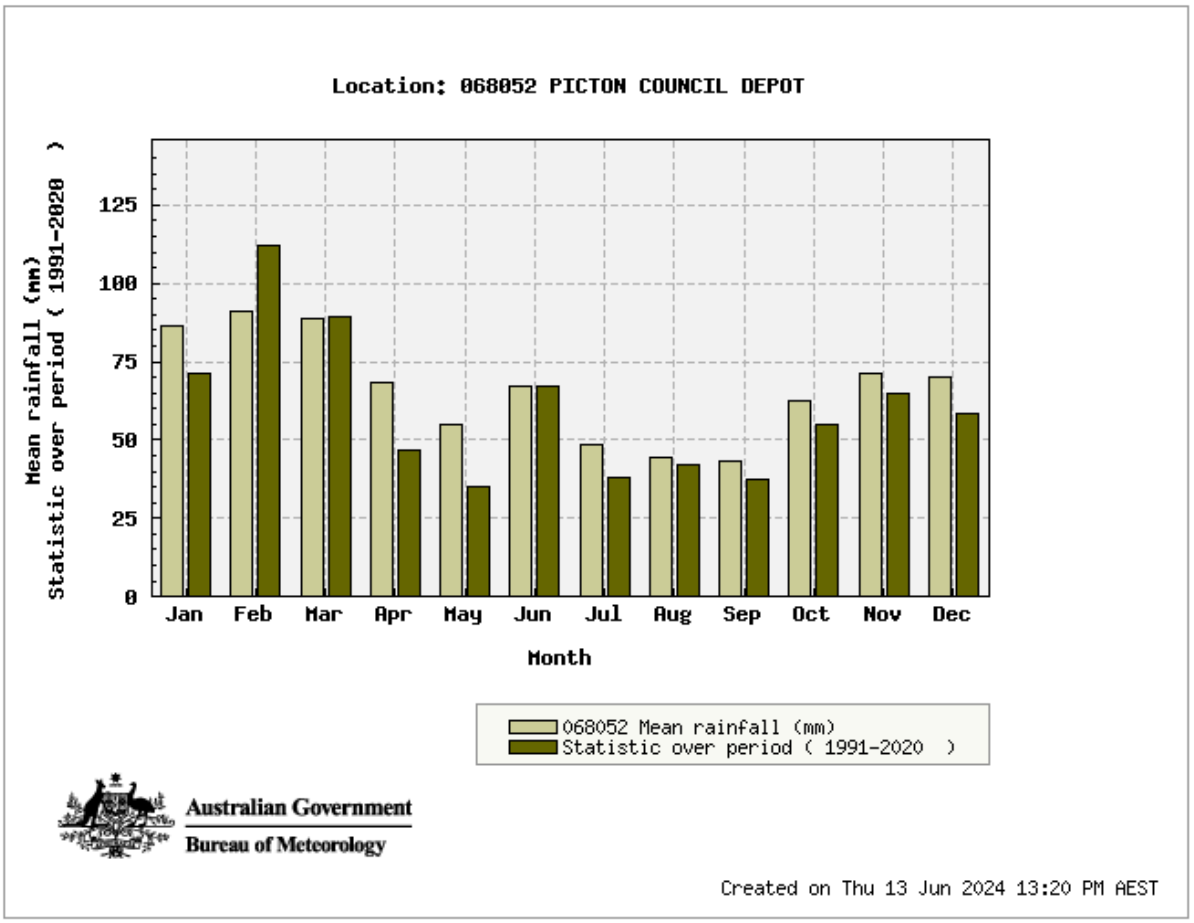


Figure 3.4 1991 to 2020 rainfall statistics from the Bureau of Meteorology.

3.1.6. LANDSCAPE RESOURCES

The study area lies in a landscape that would have been rich in biological and ecological diversity before European clearing practices. The landscape would have typically supported a wide variety of flora and fauna, which coupled with proximity to watercourses, would have provided abundant natural resources for past Aboriginal people utilising the area. Aboriginal people could use many of the plants found in the region for numerous purposes. These include using wood to make implements, berries, leaves, and tubers for food and medicines as well as bark for shelter construction (Smith 1989). Various faunal species within the region would have provided numerous resources for the Aboriginal peoples. Terrestrial resources such as kangaroos and wallabies as well as arboreal mammals such as possums can be used as a food source, for tool making, and social and ceremonial aspects of Aboriginal life. Aquatic species such as fish, eels, and crayfish would have been easily accessible in larger waterways.

The Werriberri Creek and other unnamed creeks and tributaries near the study area would have provided reliable sources of water, that would have supported a wide variety of flora and faunal resources. Larger tributaries would have provided access to aquatic vertebrates, including fish and eels (Attenbrow 2010). A range of land mammals were hunted for food, including kangaroos, possums, wombats, and echidnas as well as native rats and mice (Attenbrow 2003, p. 70). Birds such as the Muttonbird and the Bush Turkey were eaten, and it is recorded that eggs were a staple food for the Aboriginal people of the area (Attenbrow 2003, pp. 75–76). The variety of faunal resources would have supported the production of tools and cultural material, from animal parts including claws, talons, teeth, fur, feathers, shells, and bones (Attenbrow 2010). 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 2003, p. 76).*

Eucalypt leaves may have been used for medicinal purposes and the sap may have been used in the construction of shelters as well as used as a sweet food source (Biosis Research Pty Ltd 2010 as originally sourced from Rhoads and Dunnet 1985).

Early European documentary sources state that the settlers observed Aboriginal communities roasting fern root, small fruits, nuts, and orchid root, amongst other such resources. Attenbrow notes, however, the settlers' lack of knowledge of the local floral species makes identification of the various plants used difficult (Attenbrow 2003, pp. 76–79).

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

3.2. PAST LAND USE PRACTICES

When compared to the increasing urbanisation of the wider The Oaks area, most of the study area seems to exhibit comparatively low disturbances. A comparison of the historic aerials shows that the study area has had the same layout since 1969, suggesting that undeveloped areas are less likely to have been disturbed (c.f. Figure 3.5 and Figure 3.6).

The 2005 aerial (Figure 3.6) shows that minor disturbances and additions to the study area have been made when compared to the 1969 aerial. This includes the installation of access tracks along the western and southern boundaries of the study area. While not in the study area it should be noted that land clearing along Silverdale Road and outside the southwestern portion of the study area has occurred for residential development.

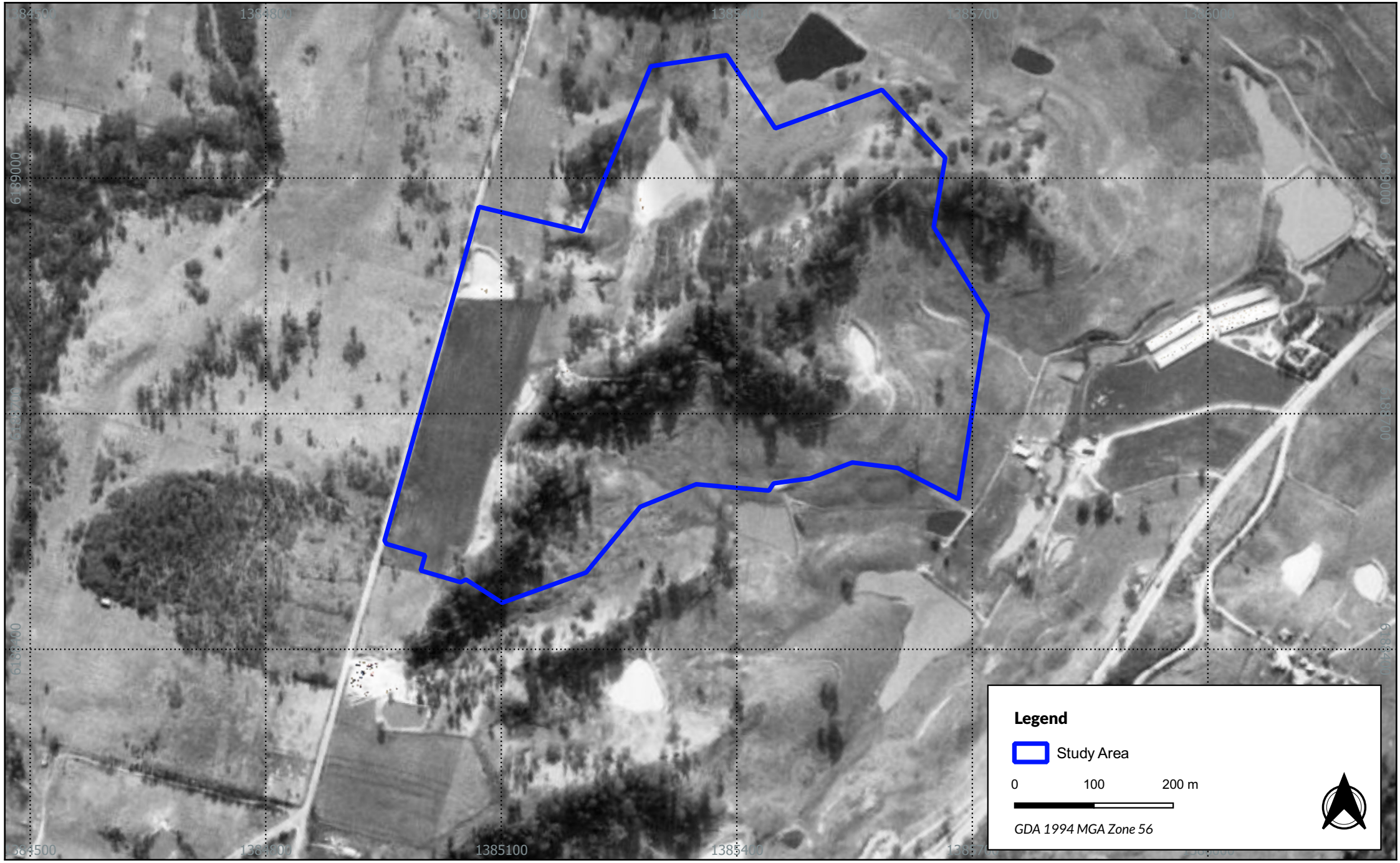


Figure 3.5 - 1969 aerial of the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW Spatial Services

Drawn by: ARH Date: 2024-02-16

AUSTRAL ARCHAEOLOGY

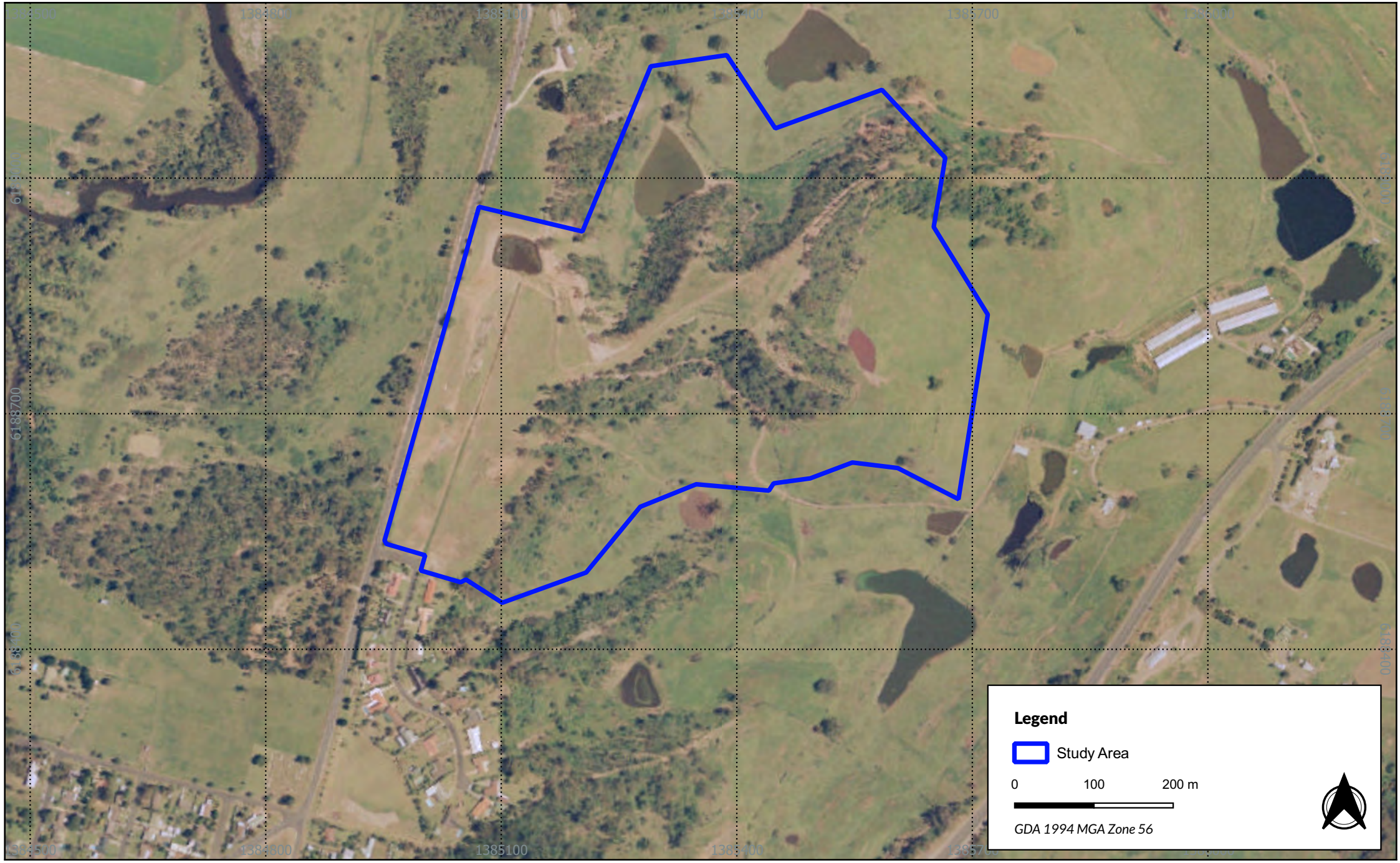


Figure 3.6 - 2005 aerial of the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW Spatial Services

Drawn by: ARH Date: 2024-02-16

AUSTRAL ARCHAEOLOGY

4. ARCHAEOLOGICAL CONTEXT

The range of environments and landscapes within the Wollondilly Shire region had a profound influence on the lives of the Aboriginal people who lived there. As hunters and gatherers, Aboriginal people were reliant on their surroundings to provide food. Their transitory lifestyle affected population size, social interactions, and degree of mobility, which can be confirmed in the archaeological record.

4.1. POPULATION AND CONTACT HISTORY

The earliest accepted consensus of the first peopling of Australia dates Aboriginal inhabitation of the continent to 65,000 years before present (BP) (Clarkson et al. 2017). With regard to the Cumberland Plain, being the wider biogeographic region that houses the study area, the earliest identified sites have been dated in the range of 30,000 to 35,000 years ago (Jo McDonald Cultural Heritage Management. 2005, Williams et al. 2014), and potentially up to over 40,000 years BP (Nanson et al. 1987). One such site, Cranebrook Terrace, has been dated to this 40,000-year BP epoch and is in a similar landscape context to the study area, in proximity to the Nepean River (Attenbrow 2010). Despite this, ongoing assessments undertaken throughout the region have dated the majority of recovered samples to within the last 15,000 years, with most occurring within the last 2,500 years BP (NSW Department of Environment, Climate Change & Water 2011, p. 1).

The Tharawal-speaking Wodi Wodi group have been identified as the Aboriginal custodians of the Wollondilly region, including the study area (DEC 2005, p. 6). The range of the Tharawal speakers is described as the country from Botany Bay in the north and Campbelltown in the west, south through the Nepean, Wollondilly, Georges River, and Cataract River water catchments down to the Shoalhaven River and Jervis Bay. Alternatively, Tharawal land has also been described as spreading from Sydney in the north to the Blue Mountains and Goulburn in the west and as far south as Bega (Organ and Speechley 1997, p. 1, DEC 2005, p. 6). Tharawal people are often sub-divided into several smaller categories referred to as freshwater, bitter water, or salt water people depending on whether they occupied the coastal regions, the swamps, or the plateaus and inland river valleys (DEC 2005, p. 6).

Aboriginal people formed part of a dynamic culture that encouraged movement throughout the landscape to assist in the ceremonial and functional practicalities of daily life (DEC 2005). Neighbouring Aboriginal groups included the Gundungurra, Darug, Dhurga, Awabakal, and Wiradjuri people, and movement in neighbouring territories was permissible under certain circumstances. Favoured north-to-south travel routes included the current Princes Highway Route, Meryla Pass, and the Kangaroo River Route; Bulli Pass, the Bong Bong Route, and the Cordeaux River were used for travel east to west (DEC 2005, p. 8). A close connection has been identified between the Illawarra Tharawal speakers and the Gameygal (Botany Bay) Tharawal speakers, who traded together, shared ceremonies, and intermarried (DEC 2005, p. 27). Evidence of similar interaction has been observed between Illawarra Tharawal speakers and the Awabakal. During the 1800s, Aboriginal people were known to have moved from the Tablelands down to Lake Illawarra to facilitate food-gathering and inter-tribal activities (Sefton 1981, p. 15, Organ and Doyle 1994, pp. 3–5). Movement between these environmental contexts was common across the Tablelands and Illawarra (Lindsay 1994). As such, defined geographic borders for Aboriginal groups need to be recognised as an artificial constraint designed by anthropologists (Organ 1990).

Population estimates from the time of European contact are notoriously problematic. Aboriginal groups were highly mobile and often avoided early European settlers. Moreover, the introduction of European diseases such as influenza and smallpox, alongside widespread displacement from country and warfare, significantly impacted the populations in question. Despite these uncertainties in the dataset, in 1792 Governor Arthur Phillip estimated that the local Aboriginal populations of Western Sydney were in the order of 1,000 individuals. However, it is unlikely that colonial settlers were able to successfully grasp traditional population sizes. More recent estimates of the Aboriginal population of greater Sydney at the time of first European contact place the number between 5,000 to 8,000, although these numbers too are a source of debate (Turbet 2001).

4.2. PREVIOUS ARCHAEOLOGICAL WORK

The material evidence of Aboriginal land-use has been compiled based upon a review of previous archaeological studies at a regional and local level, heritage database searches and field investigations.

4.2.1. REGIONAL ARCHAEOLOGICAL CONTEXT

The early archaeological analyses of the Wollondilly Shire aimed to predict site occurrence, and chronology, and to also determine the likely functions of sites. One of the earliest such programs was undertaken by Smith (1989), whose work represented the first steps of a National Parks and Wildlife Service (NPWS). At the time, Smith calculated that less than 0.5% of the Cumberland Plain had been surveyed and noted that only 17 sites had been excavated. To wit, Smith (1989) conducted several surveys as part of a wider regional investigation. One such survey, totalling 1,600m^2 centred on the Rickabys Creek and Londonderry area, reidentified four sites and one isolated find. From these findings, Smith developed a predictive site location model for the southern Cumberland Plain; this included the theory that sites would be more commonly found along permanent creeks and around swamp margins. In particular, creek flats and banks were considered to be focal topographical features for site location (Smith 1989).

However, Smith's (1989) model was built during a period where existing data was limited, which in turn limited the efficacy of the model. That is, until the creeping urbanisation and development of the Cumberland Plain led to an increase in the number of identified Aboriginal sites. The access to this data allowed McDonald (1997a, b) to undertake a more detailed analysis of site types and their distribution over the Cumberland Plain. Despite this, McDonald noted that lack of archaeological visibility remained a significant issue.

McDonald's findings led her to conclude that open artefact scatters and camp sites were the dominant site type, occurring in 89% of instances. These preceded isolated finds, which all occurred in 3.5% of instances, and scarred trees at 2.1%. She also determined that open sites were identified within all landscape contexts, concluding that the high proportion of sites along creek banks were reflective of surface visibility and taphonomy, not patterns of discard (McDonald 1997a). Per these findings, McDonald also concluded that virtually none of the site that had been excavated to date on the Cumberland Plain could be characterised based on surface evidence alone, due to a reoccurring disparity between the number of surface and subsurface artefacts (McDonald 1996).

McDonald further developed these initial trends following extensive testing and salvage excavations in Rouse Hill: the Rouse Hill Test Excavation Programme (McDonald, Rich, & Barton 1994) and the Rouse Hill (Stage 2) Infrastructure Project, respectively. From these, McDonald (1996) devised several predictive statements based on the typical site characteristics recorded within the Cumberland Plain:

- *Most areas, even those with sparse or no surface manifestations, contain subsurface archaeological deposits.*
- *Where open sites are found in aggrading and stable landscapes, some are intact and have the potential for subsurface structural integrity. Sites in alluvium possess the potential for stratification.*
- *While ploughing occurs in many areas of the Cumberland Plain, this only affects the deposit up to 300 millimetres deep, and even then, ploughed knapping floors have been located which are still relatively intact and depths of between 700 to 900 millimetres from the surface.*
- *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 that are present.*
- *The complexity of the archaeological record is also far greater than was previously identified on the basis of surface recording and limited test excavation. Intact knapping floors, backed blade manufacturing sites, heat treatment locations, several apparently specialised tool types, and generalised camp sites were all found following more detailed investigations.*
- *Two Early Bondaian dates (between 5,000 and 3,000 BP) from Rouse Hill provide a context for backed blade manufacture.*
- *Overall site patterning is identifiable on the basis of environmental factors, where 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 1996, p. 115).

These predictive statements were further developed and expanded following McDonald's excavations of the ADI site in St Marys (McDonald 1997b, p. 133). The findings of this programme evidenced a correlation between stream order and occupation events. Analysing stream order can assist researchers in locating areas of past water permanence, which would have been vital for traditional Aboriginal communities. That is, abundant food materials and several unique resources typically occur in areas of water permanence, which would have in turn attracted Aboriginal occupations of a given landscape.

According to McDonald, the range of lithic activities and the complexity of the resulting stone assemblage observed at a location of permanent water differed depending on stream order. Overall, artefact scatters in the vicinity of a higher order ranking streams 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 occupation 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). It is therefore possible, McDonald concluded, that 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., hilltop, creek flat), as well as the proximity to appropriate raw materials, can result in variations in the density and complexity of an Aboriginal archaeological feature (McDonald 1997a).

McDonald determined that site location and duration of occupation predictions therefore related to stream order in the following ways:

- *In the headwaters of upper tributaries (i.e., first order creeks) archaeological evidence will be sparse and represent little more than a background scatter.*
- *In the middle reaches of minor tributaries (second 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 (third 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 (fourth order) 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).

That is not to imply, however, that this is the only relevant predictive model that has been devised. A synthesis by ENSR (2008, pp.35–38) of sites excavated in the Blacktown region over the last 30 years yielded the following conclusions regarding the types of sites and artefacts that can be extrapolated more broadly for the Greater Western Sydney region and the archaeological patterning that could be expected in the study area:

- *Silcrete outcroppings and natural concentrations are common on ridgelines and hilltops and have been extracted and used by Aboriginal people in the past giving these landforms a high likelihood of quarry or extraction sites being present.*
- *Rock shelters are not present in the Blacktown region as the underlying geology is not suitable.*
- *Open camp sites or artefact scatters are the most common site type in the region. Isolated artefacts, scarred trees, and [Potential Archaeological Deposits (PADs)] also present.*
- *Most areas with artefacts present on the surface also contain subsurface deposits. Additionally, many landforms which have no evidence of Aboriginal cultural heritage on the surface may still retain subsurface deposits.*
- *Subsurface deposits are normally found in alluvium, river terraces, lower slopes, and other remnant soils (with less than 700 millimetres of topsoil)… Lower slopes and river terraces have the potential to retain the highest concentration of artefactual material (40,909 lithics within lower slopes and 32,786 lithics within RH/SP 12, a river terrace). These areas also often retain good structural and stratigraphical archaeological integrity.*
- *A greater complexity of Aboriginal sites is broadly correlated with the permanence of water, with the larger tributaries containing more complex archaeological sites. The likelihood of a site being present is also often drastically reduced when the distance to a water source is greater than 150 metres.*
- *A large range of raw materials were utilised by Aboriginal people in the region, including silcrete (which is often the dominate material), indurated mudstone, chert, tuff, quartz, basalt, and quartzite. Silcrete artefacts can also often be heat treated.*
- *Modern human activities can cause dramatic disturbance and can affect archaeological resources and their stratigraphic integrity. In particular, agricultural and horticultural activities near creeks often modify creek lines and river terraces, destroying the archaeological resource.*

From these aforementioned models, and Based on the results of subsurface testing at the Rouse Hill development on the northern Cumberland Plain, an updated set of predictive statements was created by White and McDonald (2010). Their model identified four main factors which 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 northeast; and
4) Distance from water, with higher artefact densities occurring 51 to 100 metres from fourth order streams, and within 50 metres of second order streams (White and McDonald 2010, p. 36).

These results are directly transferable to other parts of the Cumberland Plain, such as the study area.

4.2.2. HERITAGE DATABASE SEARCH

A search of the Heritage NSW AHIMS database was undertaken on 13 February 2024 (Client Service ID 863798). The results from the AHIMS search identified 117 previously recorded sites within a 10-kilometre radius of the study area. The search indicates that artefacts are the predominant site type, with 56.41% (n=66) of known sites containing materials that belong to this category (Table 4.1 and Figure 4.1).

It is further noted that none of the recorded sites included in the AHIMS dataset are within or in close proximity to the study area. The closest such site is a PAD registered 2 kilometres south-west of the current study area.

For the purpose of Figure 4.1 and Table 4.1, it is assumed, that the correct coordinate system has been registered for each site.

Table 4.1 AHIMS sites identified within 20 kilometres of the study area.

Site Feature Type	Occurrence	Frequency (%)
Artefact	59	50.43%
Art (Pigment or Engraved)	14	11.96%
Modified Tree (Carved or Scarred)	13	11.12%
Grinding Groove	12	10.26%
Potential Archaeological Deposit (PAD)	8	6.84%
Artefact; Art (Pigment or Engraved)	7	5.98%
Stone Arrangement	2	1.71%
Burial; Modified Tree (Carved or Scarred)	1	0.85%
Art (Pigment or Engraved); Grinding Groove	1	0.85%
TOTAL	**117**	**100%**

Searches of the NSW State Heritage Register and the Australian Heritage Database identified one site, Oaks General Cemetery (Item No I247) on the Wollondilly LEP. The Oaks General Cemetery is located approximately 293 metres south-west of the study area.

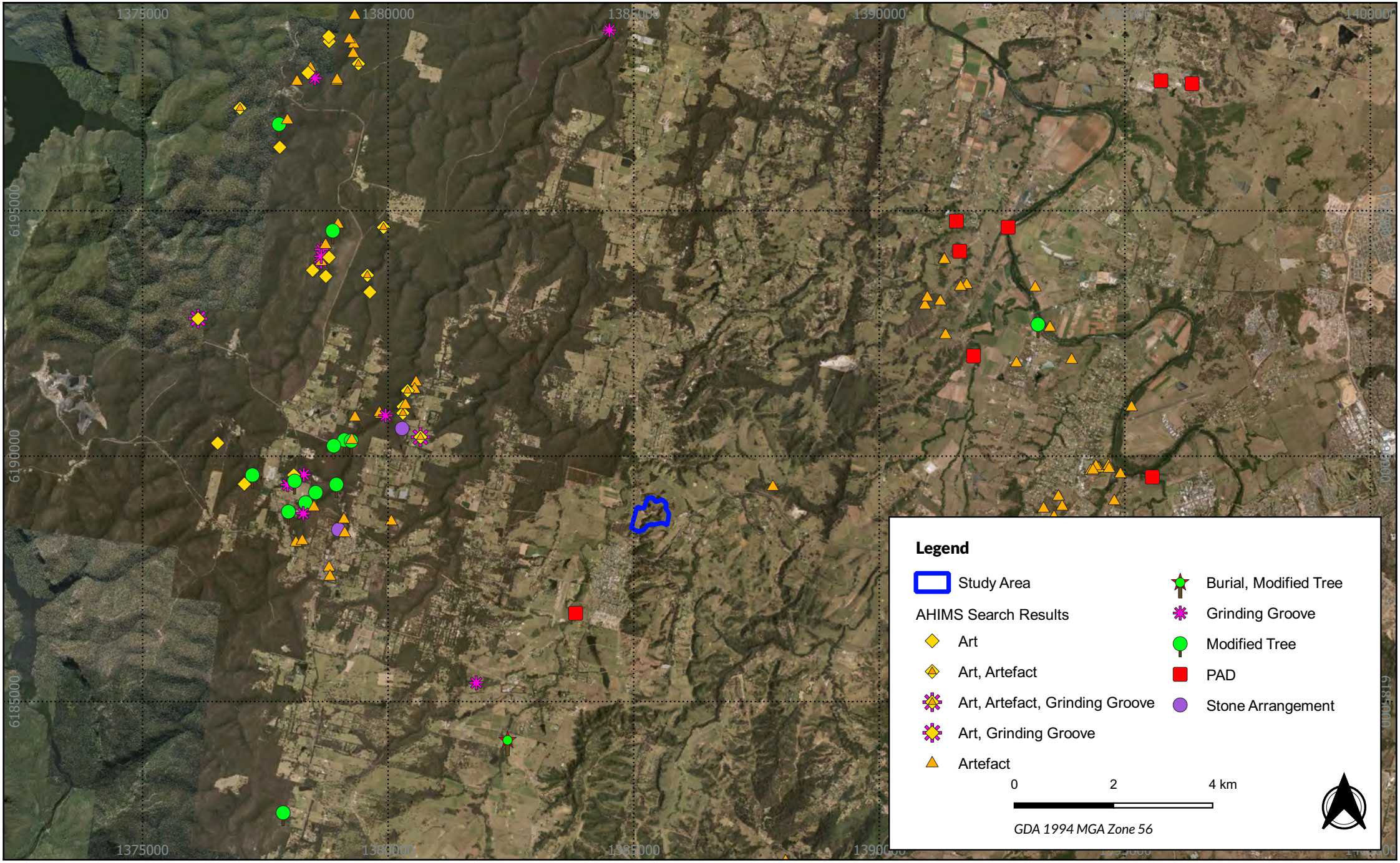


Figure 4.1 - AHIMS sites within 10 kilometres of the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2024-02-16

AUSTRAL ARCHAEOLOGY

4.2.3. LOCAL ARCHAEOLOGICAL CONTEXT

Archaeological investigations of the Cumberland Region, and in particular the Greater Sydney Region, specifically the suburb of The Oaks, have been conducted in 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 Oak environs, archaeological investigations have increased accordingly.

A large volume of studies have been completed in the region; as such, this section presents a synopsis of selected archaeological investigations of direct relevance to the study area. These reports have been selected based on their landform context, proximity and in particular, relationship to the landform context and proximity to the study area. The reports that have been reviewed are detailed in Table 4.2 and their location in relation to the study area is provided in Figure 4.2.

Table 4.2 Reports selected for review as part of local archaeological context.

Author	Date	Relevance to Study Area	Type of assessment
Navin	1994	Proposed Longwall Mining Application, Oakdale Colliery, NSW. Archaeological Survey – Located 7 km north-west of the study area	Archaeological Survey
Navin	1995	Archaeological Survey and Assessment of Longwall Mining Application Areas 1 and 2, Brimstone Colliery, NSW— Continued surveys from Navin (1994)	Archaeological Survey
Navin and Knight	1997	Archaeological Survey and Assessment of Longwall Mining Application – Area C, Oakdale Colliery, NSW – Expansion of Navin's (1994) and (1995) assessments	Archaeological Survey
Australian Museum Business Services (AMBS)	2009	Theresa Park and Wallacia Weirs: Environmental Flow Releases for the Upper Hawkesbury-Nepean River – 2 study areas located 12.5 km and 9.3 km north-east of the current study area	ACHA
Archaeological & Heritage Management Solutions	2014	Stonequarry Commercial Picton, Lot 7 DP1072259, and Lot 4/ Section 13/ DP939739, Cliffe Street, Picton NSW – located approximately 11 km south-east of the study area	ACHA
Archaeological and Heritage Management Solutions	2014	A: Picton East Rezoning, 1735 Remembrance Drive and 108-118 Menangle Street, Picton NSW – located approximately 10 km south-east of the current study area	ACHA

PROPOSED LONGWALL MINING APPLICATION, OAKDALE COLLIERY, NSW - ARCHAEOLOGICAL SURVEY (NAVIN 1994)

Navin was commissioned by Clutha Limited to undertake an archaeological survey ahead of a proposed expansion of the Oakdale Coal Mine. Their study area comprised a total area of 414 hectares, located on a steeply incised plateau approximately 7 kilometres north-west of the current study area. This was undertaken with the goal of identifying at-risk heritage sites, and as such their survey targeted landforms where risk was greatest, including rock exposures, boulder overhangs, shelters, and benches.

During this assessment, Navin reidentified 12 Aboriginal sites and 16 sites of PAD. A summary of the Aboriginal sites is provided in Table 4.3 below.

Table 4.3 Sites identified by Navin (1994).

Site Name	AHIMS #	Summary
Oakdale 1	52-2-1689	Rock shelter with art; 8 distinct motifs, no archaeological deposit.
Oakdale 2	52-2-1690	Rock shelter with art and deposit; 5 distinct motifs, 2 tuff artefacts.
Oakdale 3	52-2-1691	Rock shelter with art and deposit; 6 areas of stencilling.
Oakdale 4	52-2-1692	Artefact deposit; 2 silcrete objects.
Oakdale 5	52-2-1693	Grinding grooves; over 40 visible.
Oakdale 6	52-2-1694	Grinding grooves; 14 identified.
Oakdale 7	52-2-1695	Grinding grooves; 2 identified.
Oakdale 8	52-2-1696	Rock shelter with art; 1 motif, no archaeological deposit.
Oakdale 9	52-2-1697	2 rock shelters with deposit; 13 artefacts identified.
Oakdale 10	52-2-1698	Rock shelter with art; 1 motif, no archaeological deposit.
Oakdale 11	52-2-1699	1 quartz core, 1 quartz flake, 1 quartzite flaked piece, 1 chert flaked piece
Oakdale 12	52-2-1700	Rock shelter with art; 2 distinct motifs, no archaeological deposit.

No subsurface testing was completed during this phase of the assessment. Site density was calculated at one site per 110 hectares.

ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF LONGWALL MINING APPLICATION AREAS 1 AND 2, BRIMSTONE COLLIERY, NSW (Navin 1995)

Navin was commissioned by Clutha Limited for several surveys associated with the eastern coal reserves at Oakdale, known as the Brimstone Colliery.

This assessment evaluated two areas, Brimstone 1, a 57-hectare, moderately incised plateau landscape, and Brimstone 2, a 48-hectare, steeply incised plateau landscape. Over 2.5 days with a team of three people, a total of two sites and two PADs were identified, including:

- Oakdale 29 (AHIMS #52-2-1811) — Scarred tree with two scars
- Oakdale 30 (AHIMS #52-1-0164)— Rock shelter with art
- PAD 42 — Not registered
- PAD 43 — Not registered

The report noted that the scarred tree (Oakdale 20 AHIMS#52-2-1811) was either a eucalypt or box, with fire damage and was possibly cultural. As a result of the survey, it was determined that the site density was relatively low at one site per 57 hectares at Brimstone 1 and one site per 48 hectares at Brimstone 2.

ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF LONGWALL MINING APPLICATION, AREA C OAKDALE COLLIERY, NSW (NAVIN AND KNIGHT 1997)

Navin and Knight were engaged by Oakdale Collieries Pty Ltd as part of a series of surveys associated the Oakdale and Brimstone Collieries. Their study area built upon Navin's (1994) earlier assessment of the lands.

This assessment area spanned approximately 70 hectares and targeted rock exposures. In total, four Aboriginal sites were re-identified and registered as part of this survey:

- Oakdale 47 (AHIMS #52-2-2038) – Rock shelter with art
- Oakdale 48 (AHIMS #52-2-2037) – Modified tree (scarred)
- Oakdale 49 (AHIMS #52-2-2039) – Rock shelter with art and deposit
- IF1 (AHIMS #52-2-2040) – Isolated find

Oakdale 49 (AHIMS #52-2-2039) was noted to contain one artefact, a bifacially flaked, ground-edge basalt axe. IF1 (AHIMS #52-2-2040) was a retouched grey chert thumbnail scraper.

No subsurface testing was completed during this phase of the assessment.

ACHA FOR THERESA PARK & WALLACIA WEIRS: ENVIRONMENTAL FLOW RELEASES FOR THE UPPER HAWKESBURY-NEPEAN RIVER (AMBS 2009)

AMBS was engaged in 2009 to complete works associated with an AHIP (#1100332) for sites at:

- Theresa Park Weir, located approximately 12.5 kilometres to the north-east of the current study area, and
- Sharpes Weir, located approximately 9.3 kilometres north-east of the current study area.

It is noted that this also involved a third study are, being Wallacia Weir. However, this is situated some 23.8 kilometres north of the study area and, as such, is outside the scope of this assessment. Their assessment aimed to relocate and further record open artefact scatters TPW01 (AHIMS #52-2-3626) and SW01 (AHIMS #52-2-3666). They successfully identified and relocated 14 artefacts at TPW01 (AHIMS #52-2-3626), and 9 artefacts at SW01 (AHIMS #52-2-3666).

It is noted that no subsurface testing was undertaken during these, and the materials identified were within areas of exposure on access tracks and their immediate vicinity.

ACHA: STONEQUARRY COMMERCIAL PICTON, LOT 7 DP1072259 AND LOT 4 SECTION 13 DP939379, CLIFFE STREET PICTON NSW (ARCHAEOLOGICAL AND HERITAGE MANAGEMENT SOLUTIONS 2014)

Michael Brown Planning Strategies commissioned Archaeological & Heritage Management Solutions to complete an ACHA for the proposed rezoning of land at Lot 7, DP1072259 and Lot 4, Section 13, DP939379 at Cliffe Street, Picton. Their assessment area was located approximately 11 kilometres south-east of the current study area and was 8.1 hectares in size.

An initial desktop assessment identified one Aboriginal site in proximity to their assessment area, AHIMS #52-2-1378, situated 500 metres east of their property boundary. From their AHIMS data, Archaeological & Heritage Management Solutions developed a predictive model that indicated contexts adjacent to the river exhibited high potential for artefact materials, whilst the adjacent terrace was moderate.

Following this, a pedestrian survey was undertaken over their assessment area. This targeted areas of exposure, as well as those areas identified in the predictive model as having potential and native mature trees. Ground surface visibility (GSV) during the survey was very low and no Aboriginal sites were identified.

No subsurface testing was conducted during this assessment. It was recommended that — if there are any changes to the boundaries or design of the project — further archaeological assessment should be considered (Archaeological and Heritage Management Solutions 2014).

ACHA: PICTON EAST REZONING, 1735 REMEMBERANCE DRIVE AND 108-118 MENANGLE STREET, PICTON NSW (ARCHAEOLOGICAL & HERITAGE MANAGEMENT SOLUTIONS 2014)

Michael Brown Planning Strategies commissioned Archaeological & Heritage Management Solutions to complete an ACHA for the proposed rezoning of land at 1735 Remembrance Drive and 108-118 Menangle Street, Picton. This assessment was undertaken approximately 10 kilometres south-east of the current study area.

The initial desktop review found that most of the study area had been cleared of vegetation, largely to support agricultural or pastoral use of the lands, with some smaller residential development noted to have been undertaken during this land-use period.

A pedestrian survey was undertaken over the study area, targeting areas of exposure. This largely involved transects over spurs, as well as mid- and footslopes. Archaeological & Heritage Management Solutions reported low GSV, and no Aboriginal sites were identified.

The topography of the study area was moderate, and lower hill slopes and low spurs that interspersed open depressions. Ground surface visibility during the survey was very low (10%) and no Aboriginal sites were identified. No subsurface testing was conducted during this assessment (Archaeological & Heritage Management Solutions 2014a).

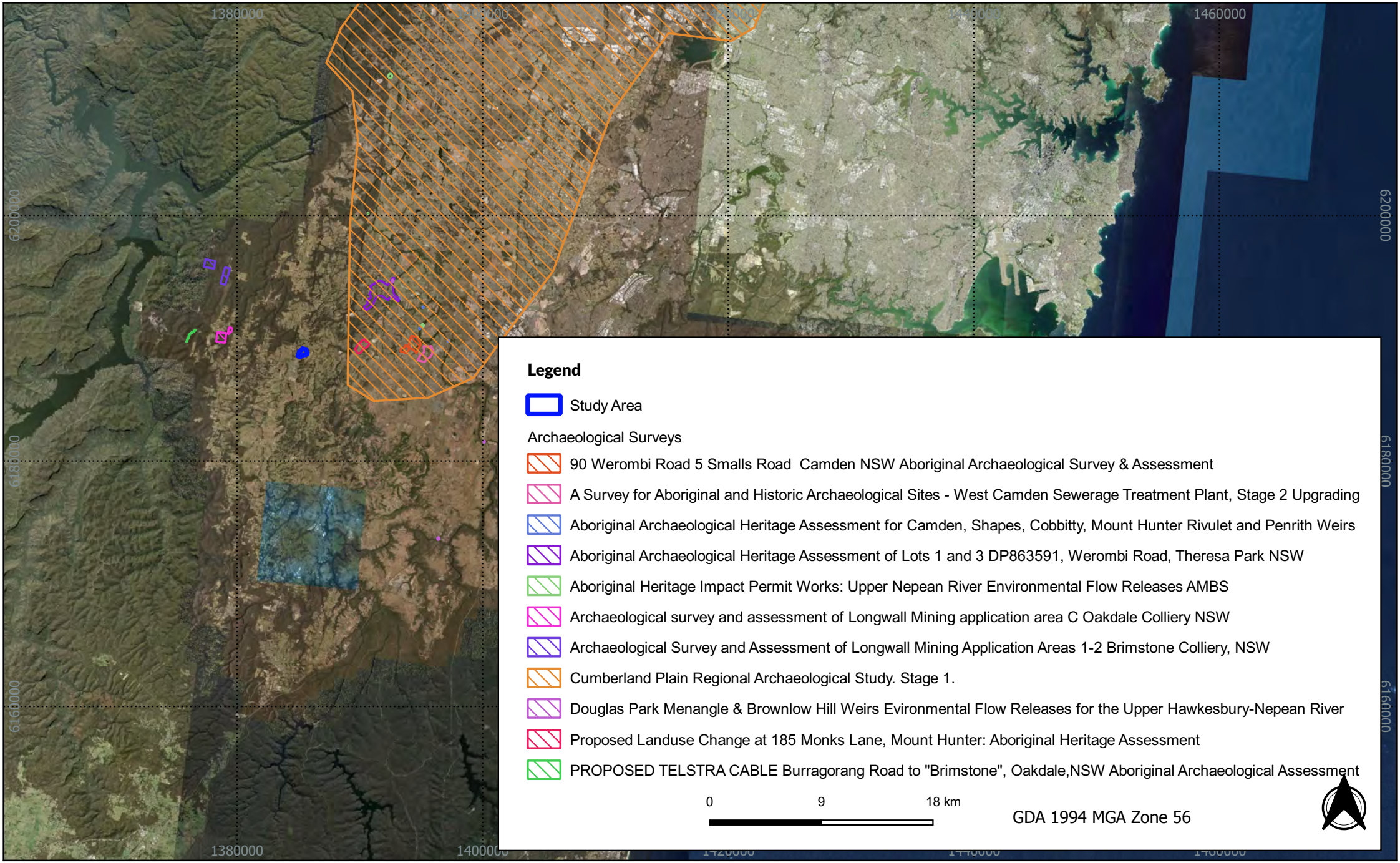


Figure 4.2 - Location of studies undertaken in the vicinity of the study area

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2024-06-20

AUSTRAL ARCHAEOLOGY

5. PREDICTIVE MODEL

Austral has used the information produced as part of the landscape (Section 3) and archaeological context (Section 4) sections to formulate a predictive model. This seeks to identify the type and character of Aboriginal heritage sites, if present, within the study area. It is based upon the following key variables:

- The inter-relationship between site types and their spatial distributions within the landscape.
- Artefact types, available raw materials, and observed densities, as well as their relationship to salient environmental features.
- Information in ethnohistorical sources that may indicate important natural resources or landscape features that may have been exploited.
- Potential chronological and spatial relationships between sites.

5.1. ANALYSIS OF KEY VARIABLES

The AHIMS search that has been completed for this project has identified several trends in Aboriginal site types within the region. However, it must be noted that any analysis based on AHIMS data is prone to biases. The database itself is built off of cumulative records, taken over the past 40 years. During this time varying methodologies have been used to identify sites, and a large portion of the surrounding landscape may have been subject to limited, or no, assessment. Therefore, site distribution statistics are likely to be reflective of survey methods and patterns and should not be considered as a comprehensive list of all Aboriginal sites in a given region. A summary of Aboriginal heritage sites recorded within 20 kilometres of the study area is included in Table 5.1 below.

Table 5.1 Summary of sites recorded within a 20 kilometres radius of the study area

Site Feature Type	Occurrence	Frequency (%)
Artefact	59	50.43%
Art (Pigment or Engraved)	14	11.96%
Modified Tree (Carved or Scarred)	13	11.12%
Grinding Groove	12	10.26%
Potential Archaeological Deposit (PAD)	8	6.84%
Artefact; Art (Pigment or Engraved)	7	5.98%
Stone Arrangement	2	1.71%
Burial; Modified Tree (Carved or Scarred)	1	0.85%
Art (Pigment or Engraved); Grinding Groove	1	0.85%
TOTAL	**117**	**100%**

The information detailed in Table 5.1 shows that, 92.3% (n=108) of sites (n=117) were recorded in isolation of other site features. That is, that they were the only present feature at a given site. Comparatively, the composite site with the highest frequency (art and artefact sites [n=7, 5.98%]) are noted to be comprised of the two most common site features in the sample, being artefacts (n=66, 56.4%) and art sites (n=22, 18.8%). Therefore, sites in the vicinity of the study area are most likely to consist of a single site feature, and typically be isolated artefacts or lithic assemblages.

5.1.1. SOIL LANDSCAPE

The AHIMS data shows that Aboriginal sites have been recorded most frequently in the Hawkesbury (n=33) and Blacktown soil landscapes (n=31). However, there is greater variety in the occurrence of these features within the Hawkesbury landscape. The study area is within the Picton and Blacktown landscapes, with much of the proposed subdivision footprint being within the latter.

Interestingly, artefacts were the only site feature type recorded within the sample that occurred in all soil units, likely due to the comparative prevalence of the feature. Sites of PAD were the next most common, being recorded within 5 of the 9 units. An overview of site distributions by soil unit is provided in Figure 5.1.

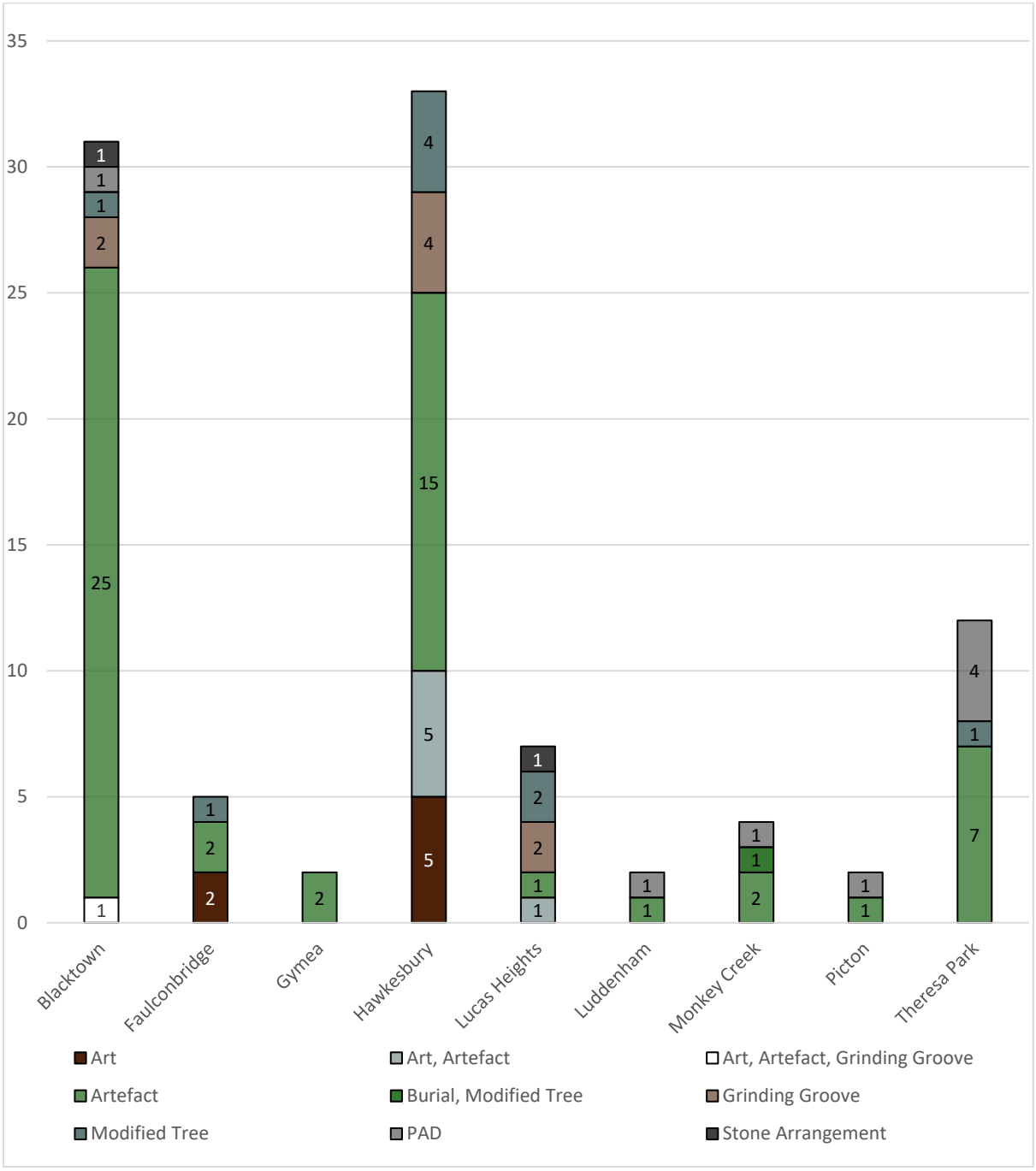


Figure 5.1 Site feature distributions by soil unit.

This shows that artefacts are the dominant site feature in the Blacktown landscape, occurring in 83.9% (n=26) of recorded instances. The other feature types recorded within this unit, noted to be present in far lower frequencies, are typically reliant on specific landscape elements, namely: grinding grooves (n=3, 9.7%) typically occurring in proximity to waterways, and modified trees (n=1, 3.2%) occurring only where old-growth vegetation is present.

It is further noted that the Picton assemblage showed similar frequencies; however, due to limitations in the dataset this is likely to be more representative of sample bias than an accurate picture of site makeup and distributions.

5.1.2. GEOLOGY

The relative habitability of a given area is intrinsically linked to the geological conditions surrounding it. Geological units determine the availability of raw materials and the steepness and layout of the landscape. Given this, there is a profound interrelation between geological formation and the presence and composition of tangible sites.

The study area is largely within the Bringelly Shale and Ashfield Shale geological landscapes. Moreover, within the study area the boundary between these is a third unit, the Minchinbury Sandstone landscape. Within the AHIMS sample, both the Bringelly Shale (n=20, 17.1%) and Ashfield Shale (n=14, 11.96%) units yielded comparable site densities, while there were no existing sites recorded within Minchinbury Sandstone contexts (Figure 5.2). More generally, the Hawkesbury Sandstone unit was noted to contain the highest frequencies of artefact materials, at 62.4% of the recorded sites (n=73). However it is noted that this landscape covers most of the coastal contexts within the Sydney Basin, and that these frequencies are likely to be representative of the prevalence of the unit (Raymond et al. 2012).

With regards to the study area, and as detailed in the review of geological context in Section 3.1.2 above, the Ashfield Shale landscape is known to exhibit outcrops suitable for the manufacture of stone tools, with mudstone-based materials such as tuff noted to be particularly likely. Further comparison of this information to the AHIMS dataset shows that these include outcrops suitable for the formation and preservation of grinding grooves and art sites.

Comparatively, the distribution of sites observed within the Bringelly Shale landscape is notably less variable. Figure 5.2 shows that only artefact sites and sites of PAD have been recorded within this landscape in the vicinity of the current study area. It is noted that this may indicate the possibility of quartz-based artefact materials, namely quartzite. This is particularly likely in areas subject to heating events.

An overview of site distributions against their respective geological unit or formation is provided in Figure 5.2 below.

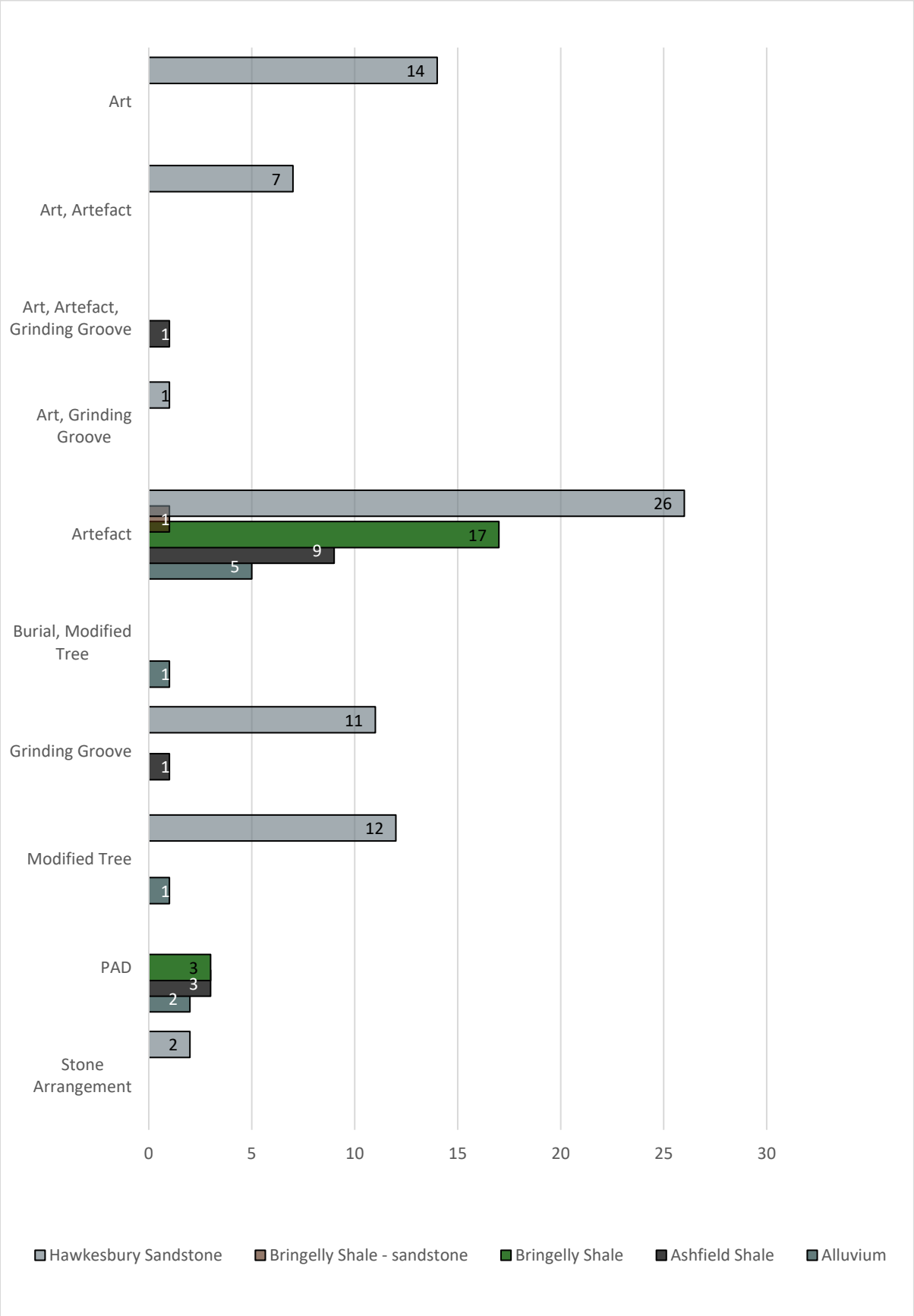


Figure 5.2 **Site feature distributions by geological unit.**

5.1.3. HYDROLOGY

There is a strong interrelationship between the distribution of sites and their given proximity to waters. Put simply, sites occur more frequently in proximity to waterways. The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010c) states that the given archaeological sensitivity of a site increases within 200 metres of a watercourse. With regard to the study area, 88.0% (n=103) of sites were recorded within 200 metres of waters.

An overview of these distributions is provided in Figure 5.3.

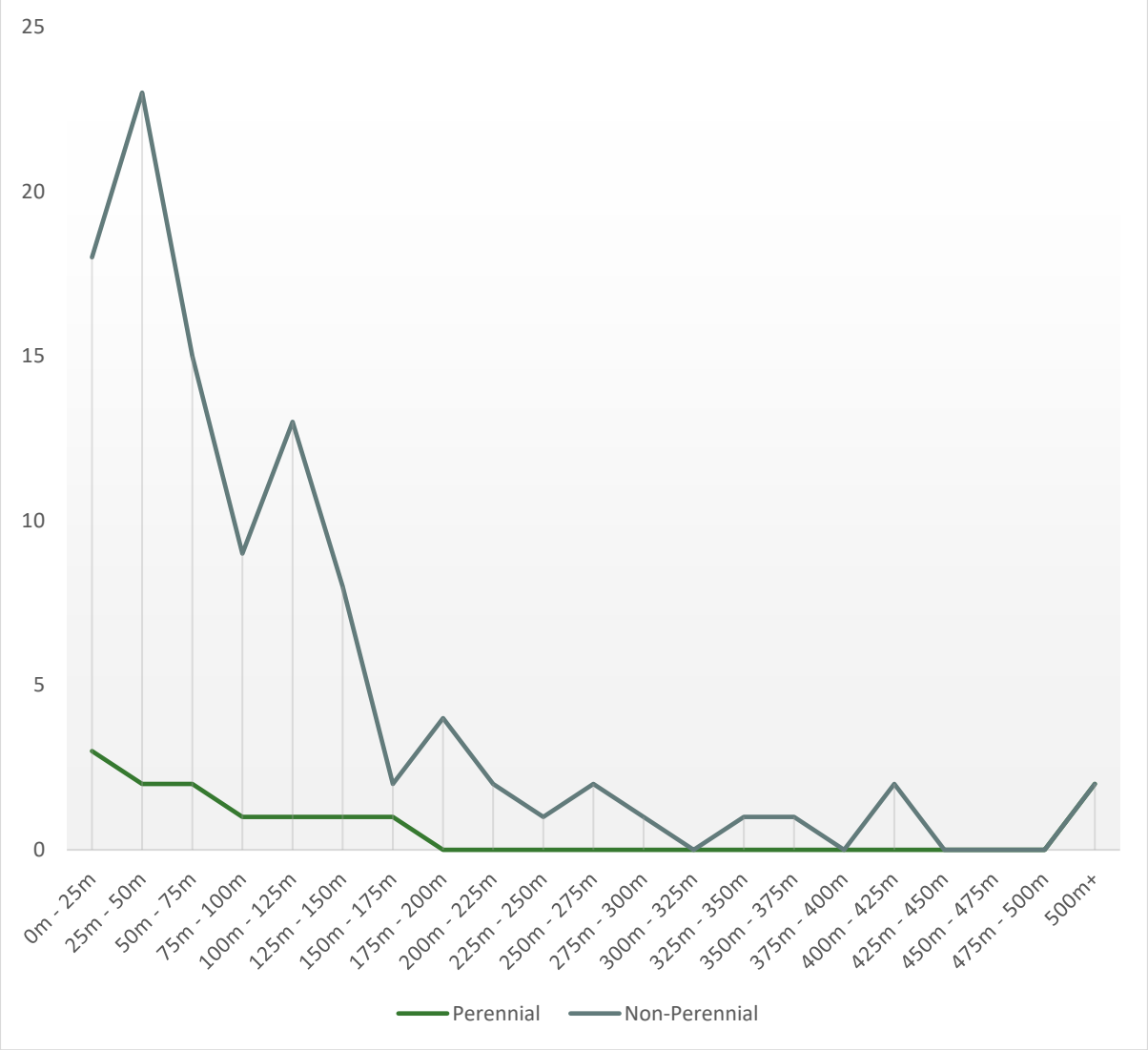


Figure 5.3 Site distributions by distance from perennial and non-perennial waters.

Figure 5.3 shows that the vast majority of the recorded assemblages were located in closer proximity to non-perennial waters (n=104, 88.9%). Typically, landforms in proximity to perennial waters are more prone to flooding events and inundation. The distributions observed around the study area and surrounds are therefore indicative of there being enough access to resources in proximity to non-perennial waters. This, in turn, would promote longer, more routine occupations.

Similarly, the AHIMS data shows that sites in the surrounding landscape occur most frequently in proximity to ephemeral, 1st-order streams (n=72, 61.5%), followed by 3rd-order waterways (n=60, 51.3%), then 2nd (n=36, 30.8%). A summary of site distributions is visualised in Figure 5.4 below.

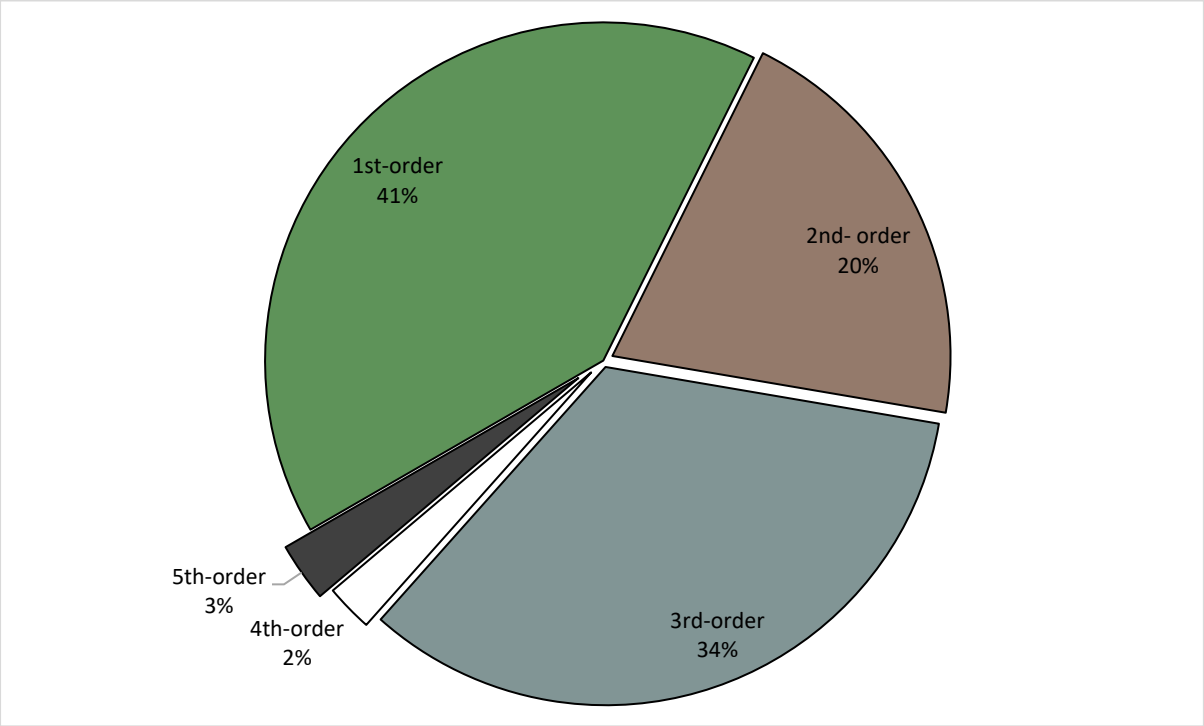


Figure 5.4 Frequency of site distributions by Strahler stream order.

It is further noted that four 1st-order streams intersect and cross into the study area through the eastern boundary. As detailed above and shown in Figure 5.4, these waterways are known to contain Aboriginal archaeological sites and their associated deposits in greater frequencies (Figure 5.5).

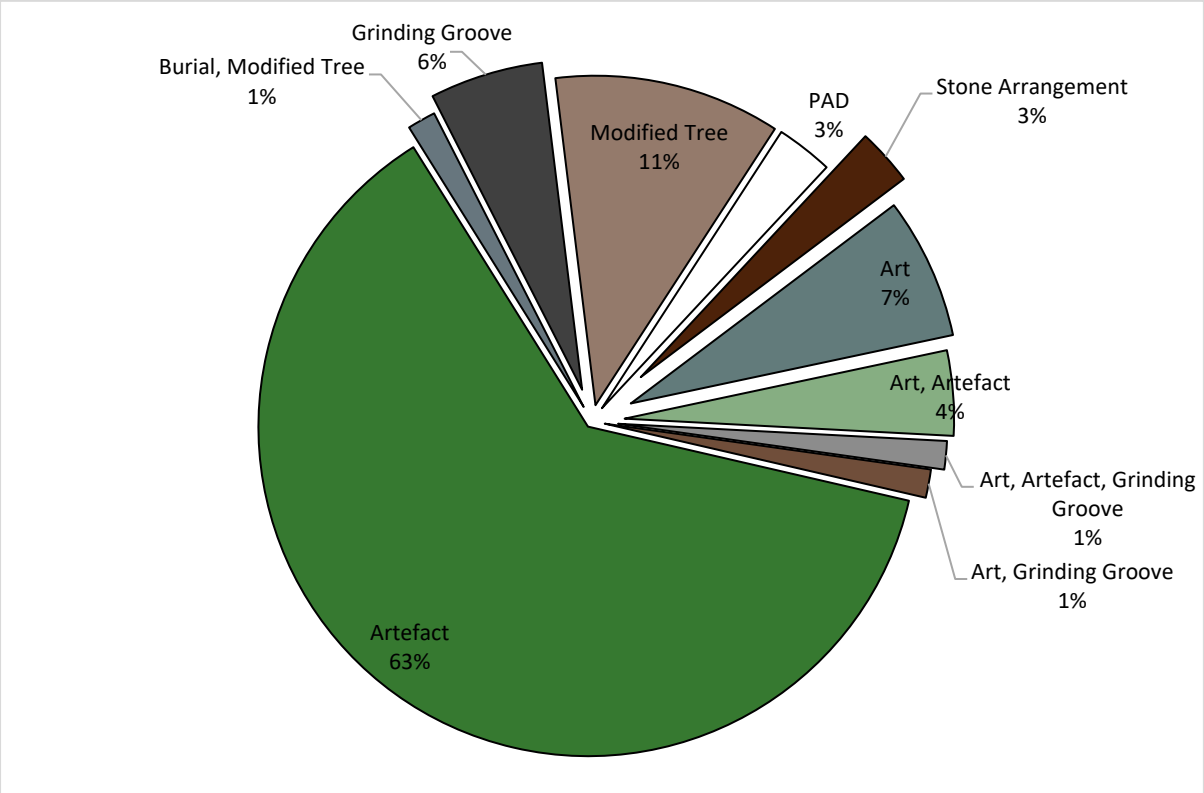
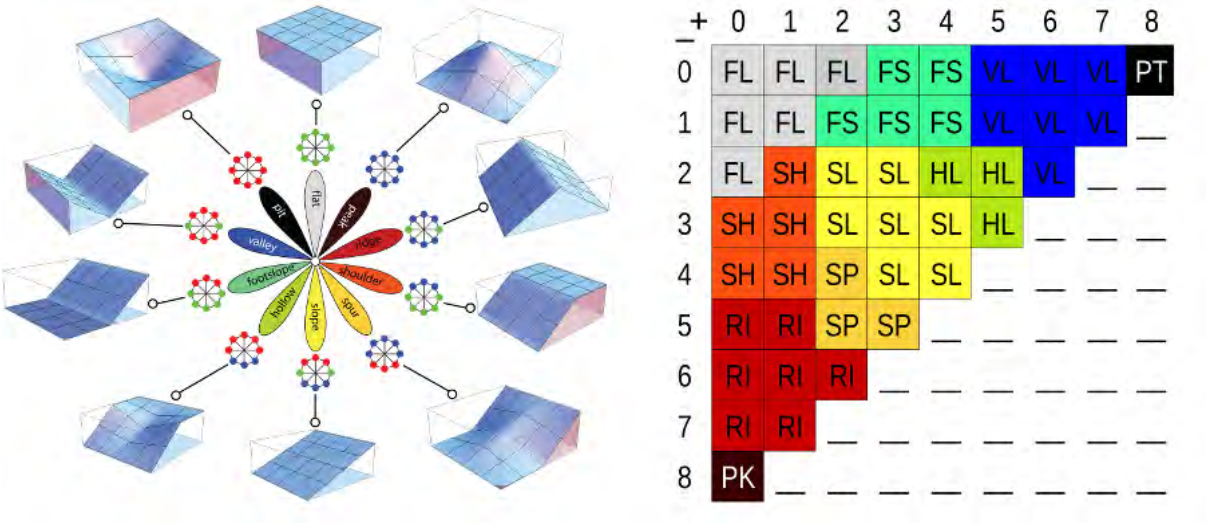


Figure 5.5 Site feature distributions in proximity 1st-order streams.

Figure 5.5 above shows that these landscapes also contain all identified site feature types and combinations within the AHIMS dataset. Given the presence of these waterways in and around the study area, it can be inferred that similar heritage diversity may also be present within this context.

5.1.4. TOPOGRAPHY

An analysis of the distribution of local sites in comparison to terrain has been undertaken using a spatial tool that classifies landforms using a range of parameters including slope, elevation and form (Stepinski and Jasiewicz 2011, Jasiewicz and Stepinski 2013). An overview of the landform classifications used by the algorithm are detailed in Figure 5.6.



_+	0	1	2	3	4	5	6	7	8
0	FL	FL	FL	FS	FS	VL	VL	VL	PT
1	FL	FL	FS	FS	FS	VL	VL	VL	—
2	FL	SH	SL	SL	HL	HL	VL	—	—
3	SH	SH	SL	SL	SL	HL	—	—	—
4	SH	SH	SP	SL	SL	—	—	—	—
5	RI	RI	SP	SP	—	—	—	—	—
6	RI	RI	RI	—	—	—	—	—	—
7	RI	RI	—	—	—	—	—	—	—
8	PK	—	—	—	—	—	—	—	—

Figure 5.6 Examples of landform definitions by geomorphons.

Based on these landform definitions, landform 'flats' exhibited the highest volume of site densities (n=42, 35.9%), followed by 'valleys' (n=27, 23.1%) and 'footslopes' (n=20, 17.1%). From this combination, it can be inferred that post-depositional movement of materials in the surrounding landscape is likely. Further, given the lack of alluvial contexts noted in Sections 5.1.1 and 5.1.2 above, this is likely to be representative of colluvial movement and erosion, rather than flooding. This depositional pattern may therefore represent preservation potential of contexts, rather than being representative of use and occupations.

As per the definitions provided, within the study area most of the proposed subdivision footprint is situated on a landform 'flat' associated with a prominent ridgeline. The viewsheds from which would have provided a comprehensive understanding of the surrounding landscape and its associated resources (Navin Officer 2019, p. 44). Given the frequent nature of ridgelines as travel routes, it is likely that the archaeological record within the study area will reflect a history of shorter-term occupations.

A breakdown of site feature distributions by landform is provided below in Figure 5.7. This outlines the features that may be present in those same contexts within the study area. It is noted that the AHIMS dataset identifies all but one of the included sites feature types within this landform context.

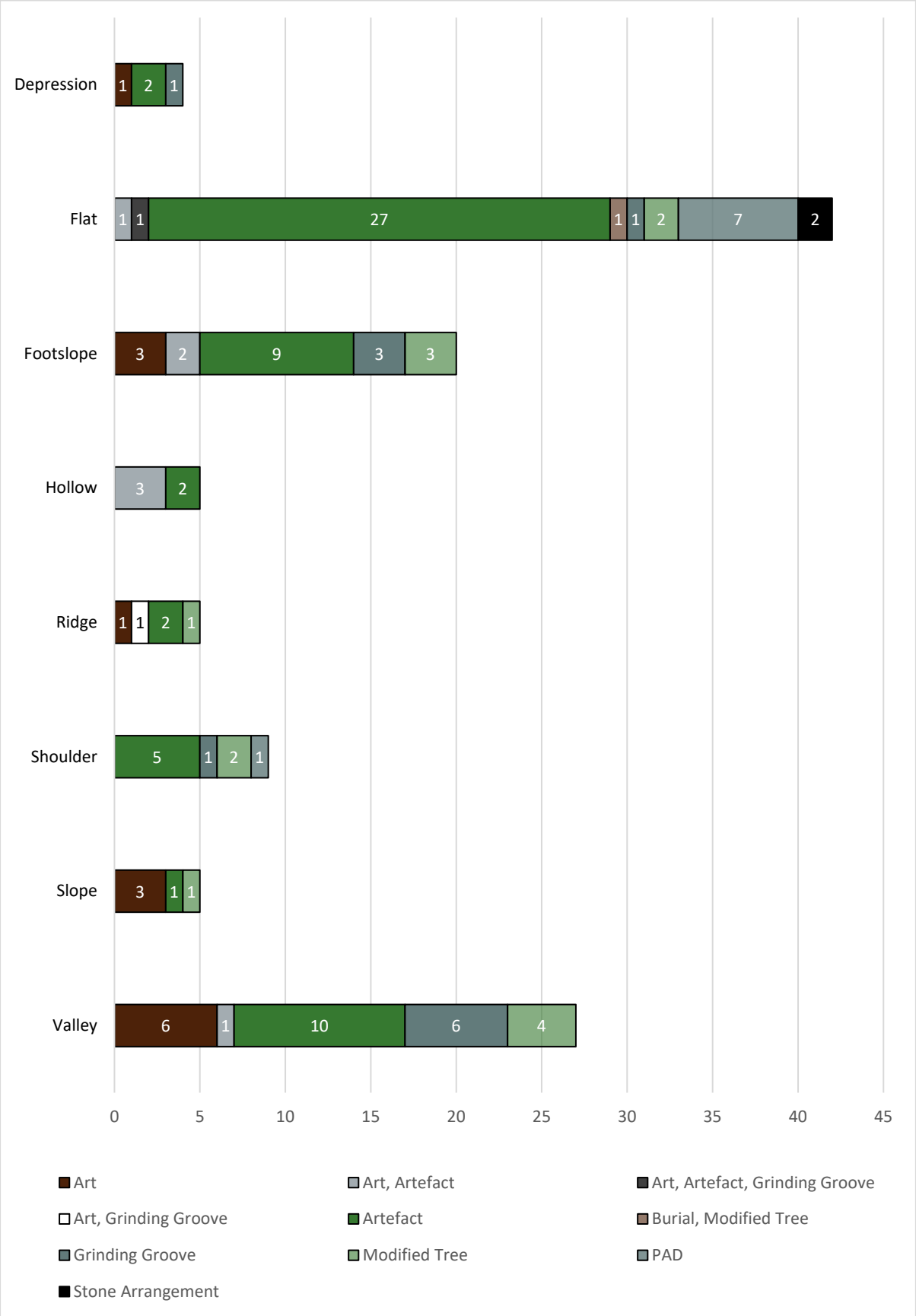


Figure 5.7 Site feature distributions by landform.

5.1.5. ANALYSIS OF THE KNOWN SITES IN THE LOCALITY

In order to provide a detailed analysis of the anticipated density and composition of lithic assemblages with potential to be present within the study area, Austral has undertaken an analysis of excavated sites in proximity to the study area. Given the density of assessments available, the following section utilises a convenience sample selected for the depth of data available and applicability to current assessment conditions. To facilitate this, data has been extracted from the following site recordings:

- AHIMS #52-2-1690
- AHIMS #52-2-1692
- AHIMS #52-2-1697
- AHIMS #52-2-1699
- AHIMS #52-2-2626
- AHIMS #52-2-3666

These assemblages returned a diverse collection of raw material types. A summary of these is provided in Figure 5.8.

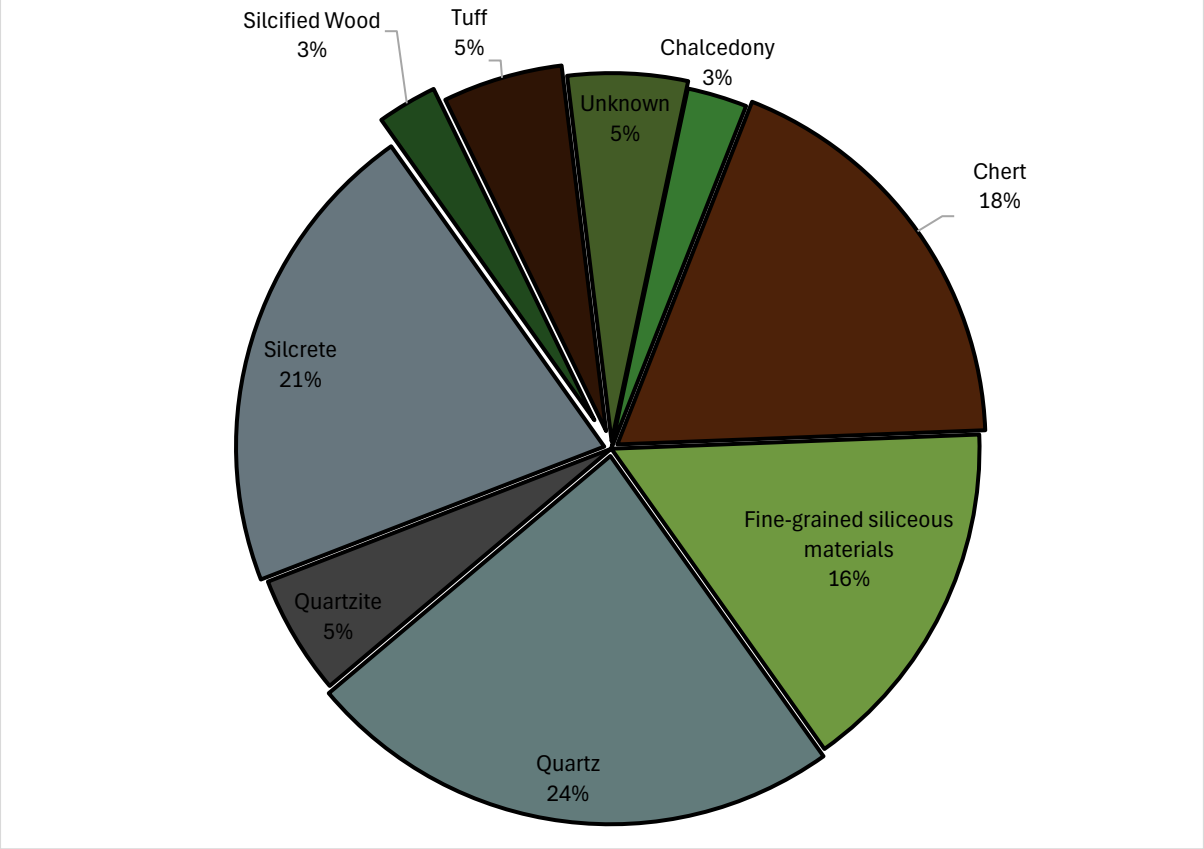


Figure 5.8 Frequency of raw material types in sample of local assemblages.

Figure 5.8 shows that typically quartz is the most common raw material in local assemblages, comprising 23.1% (n=9) of the total sample; this is followed by silcrete (n=8, 20.5%) and chert (n=7, 17.9%). However, the further analysis of these shows that silcrete based artefacts — being silcrete, silicified wood, and fine-grained siliceous materials — occur in slightly higher frequencies (n=15, 38.5%) when compared to quartz-based materials (n=11, 28.2%). Even so, the efficacy of this sample is limited by the lack of data available.

These limitations in the data are even more apparent among discussions of artefact types. As the data is limited, conclusions must be treated as preliminary findings. To wit, for the purposes of Figure 5.9 below all sites where artefact type were not listed or identified have been removed from the sample.

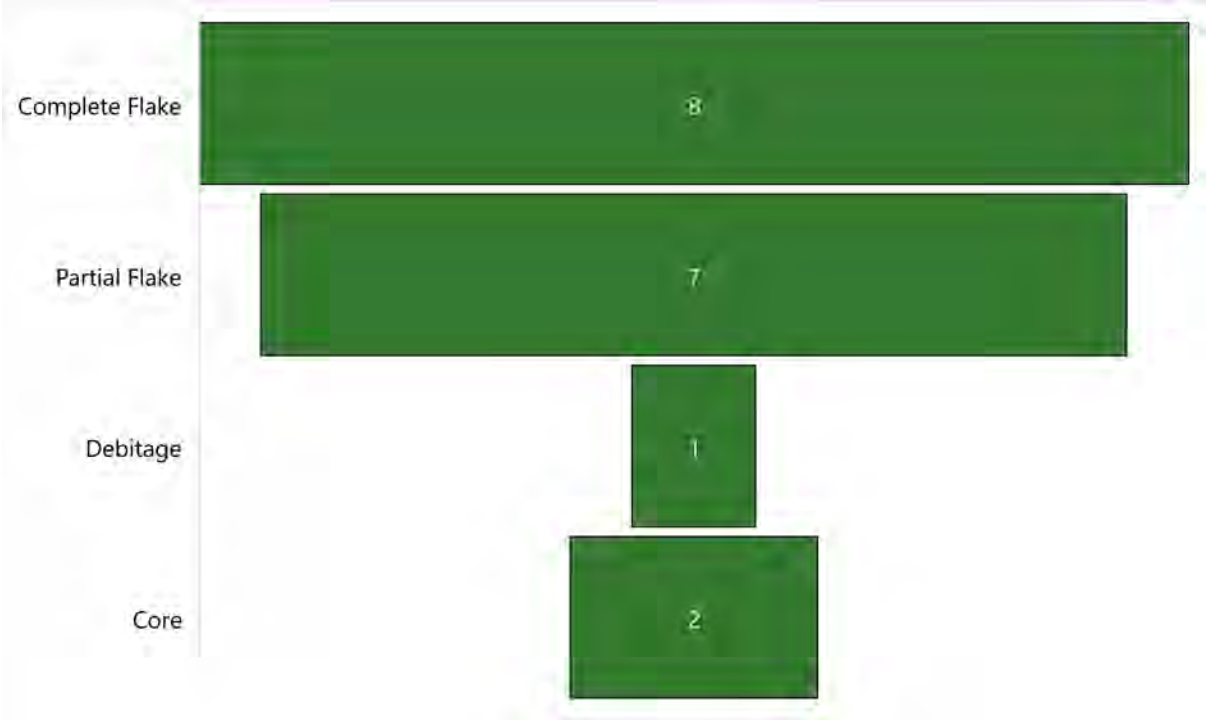


Figure 5.9 Artefact types from locally excavated assemblages.

From this data, we can infer that secondary reduction lithics — i.e., flakes and debitage — are likely to be the most common artefact types in assemblages throughout the region. This also identifies primary reduction materials, such as cores, as being reflected in the given archaeological record, and establishes these as more common than instances of tertiary reduction lithics, such as tools.

5.2. PREDICTIVE STATEMENTS

Based on the analysis presented in Section 5.1, the following predictive statements can be made:

- The known sites within the region are dominated by artefact sites, typically low-density scatters and isolated finds.
  - These are more likely to occur on raised, level ground, near sources of fresh water or wetlands, or along spur crests and ridges; however, Aboriginal archaeological sites occur on most landforms.
- Aboriginal heritage sites are likely to occur within 200 metres of past or current water sources. Archaeological material is also present beyond this buffer zone, in decreasing densities.
- Most sites are located on 1st-order streams, and typically in proximity to non-perennial waters.
- It is unlikely that culturally modified trees are present, due to the lack of old-growth vegetation within the study area.
- Despite favourable geologies, it is unlikely that there will be art or rock shelters within the study area, due to the lack of appropriate outcrops.
- Silcrete-based materials are likely to be the most commonly identified, followed by quartz-based.

6. FIELD METHODS

A site specific investigation methodology has been developed for the project that complies with the Requirements of the Code of Practice (DECCW 2011).

6.1. SURVEY METHODOLOGY

The survey was conducted on 12 March 2024 by Lindsay Costigan (Senior Archaeologist, Austral), with assistance from Kiahni Chalker (Site Officer, Cubbitch Barta) and apprentice.

6.1.1. SURVEY OBJECTIVES

The objectives of the survey were to:

- Complete a systematic survey that targets areas that have been identified as having the potential to contain Aboriginal heritage values.
- Identify and record Aboriginal archaeological sites visible on the ground surface and areas of PAD.

6.1.2. SAMPLING STRATEGY

The survey methodology was designed to optimise the investigation of areas where archaeological materials may be present and visible, as well as investigation of the broader archaeological potential of all landform elements present within the study area, which included:

- Drainage Depression.
- Ridgeline.
- Terrace (flat).

The specific survey methodology developed for this assessment was guided by the survey requirements as set out in Requirement 5 to 10 of the Code of Practice (DECCW 2011) and based upon consideration of the overall landform pattern within the study area, known landform elements (after Speight 2009), and the location of the previously identified sites.

The survey targeted portions of the study area identified as being likely to be impacted by future proposed works.

6.1.3. SURVEY METHODS

The archaeological survey consisted of pedestrian traverses completed by two team members accompanied by Chad Ghassibe of Proficient Constructions. A key survey variable is GSV, which considers the amount of ground surface which is not covered by any vegetation, and exposure, which defines areas where dispersed surface soils and vegetative matter afford a clear assessment of the ground. These factors were assessed across the study area and categorised within each landform element. From this, overall survey coverage and calculated survey effectiveness was recorded. It is noted that the effectiveness of the field survey was largely dependent on the degree of GSV. Where surface visibility was restricted by dense vegetation cover, the potential for PADs was assessed, particularly in association with those landforms identified within the predictive model as more likely to contain Aboriginal archaeological sites. The potential of these areas and all landform elements within the study area was considered against available evidence of land disturbance.

Photographs were taken of all survey units and landforms as well as representative surface visibility, and where present, surface exposures, soil profiles and disturbances relevant to the interpretation of the stratigraphic conditions and archaeological potential within each survey unit.

7. ARCHAEOLOGICAL RESULTS

The following section outlines the results of the archaeological investigations conducted within the study area.

7.1. ARCHAEOLOGICAL SURVEY RESULTS

7.1.1. VISIBILITY

In most archaeological reports and guidelines visibility refers to GSV, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2011). GSV within the study area was estimated to be between approximately 10% and 20% due to the ground surface being covered in various grasses and organic debris.

7.1.2. EXPOSURE

Exposure refers to those parts of the surveyed landforms whose topsoil has visibly been removed due to naturally occurring erosion or man-made disturbances. Usually expressed as a percentage of the total land surface, it is a theory predicting the nature of geomorphological change (DECCW 2011). Generally, approximately 10% exposure was observed across the study area in areas disturbed during maintenance of the drainage as well as those near the ridgeline and under treed areas.

7.1.3. DISCUSSION OF RESULTS

The visual inspection of the study area began in the northeast of the proposed subdivision zone. The ridgeline was surveyed first from north to south (Figure 7.1), and several areas with expansive views across the Southern Highlands — reaching as far as the Sydney Central Business District — were observed (Figure 7.2).

The survey then covered each side of the drainage ditch, as well as the large berm along Silverdale Road (Figure 7.3). Communications with the client dated the excavation of this ditch as being contemporaneous with the construction of housing to the south of the study area.

One tree was noted to be within the proposed development footprint and was confirmed as being planned for removal; no scars or markings were observed, and it was concluded that the conditions were indicative of new-growth vegetation.

Several previous disturbances were identified within the study area, including:

- Construction of an access road (Figure 7.4);
- Installation of fencing;
- Creation of livestock trails throughout the property;
- Creation of the drainage depression;
  - Deposition of soil to the immediately west of said depression; and
- Addition of the large berm along Silverdale Road.

Overhead powerlines were identified as running east-west across the study area (Figure 7.5). However, there was no evidence of their installation and ongoing use having significantly contributed to any significant disturbances within the study area proper. Though much of the survey area had been farmed, comparison with historical aerials shows that this ridgeline portion was not heavily disturbed by use during this period.

The survey area was found to be relatively flat, though a roughly 15-metre swatch on either side of the drainage depression seems to have been excavated in the past to channel surface water into it.

Figure 7.1 South-east facing photo showing typical GSV and exposure along ridgeline (2m scale).

Figure 7.2 East facing view showing viewshed from ridgeline (2m scale).

Figure 7.3 South-east facing view towards drainage depression from berm.

Figure 7.4 East facing view along access road (2m scale).

Figure 7.5 North facing view toward powerlines and drainage (2m scale).

A description of these results, as they relate to the survey units and observed landforms within the study area can be seen in Table 7.1 and Table 7.2.

Table 7.1 Survey coverage.

Survey unit	Survey unit area (m²)	Visibility (%)	Exposure (%)	Effective coverage area (m²)	Effective coverage (%)
1	4,070	20	10	81.40	2

Table 7.2 Landform summary.

Landform	Landform area (m²)	Area effectively surveyed (m²)	% of landform effectively surveyed	No. sites	No. artefacts / features
Berm	170	6.80	4	0	0
Drainage	600	12.00	2	0	0
Ridge	500	10.00	2	0	0
Shoulder	2,800	56.00	2	0	0

No artefact materials were identified during the archaeological survey of the study area. Based on these results and analysis of the landforms present, it was concluded that there was moderate potential for subsurface archaeological deposits throughout much of the surveyed landscape, with some areas of low potential identified across the access tracks, drainage, spoil pile, and berm. Communications with Kiahni Chalker confirmed the requirement for an ACHA and associated testing prior to any development works. An overview of archaeological sensitivity is provided in Figure 7.6.

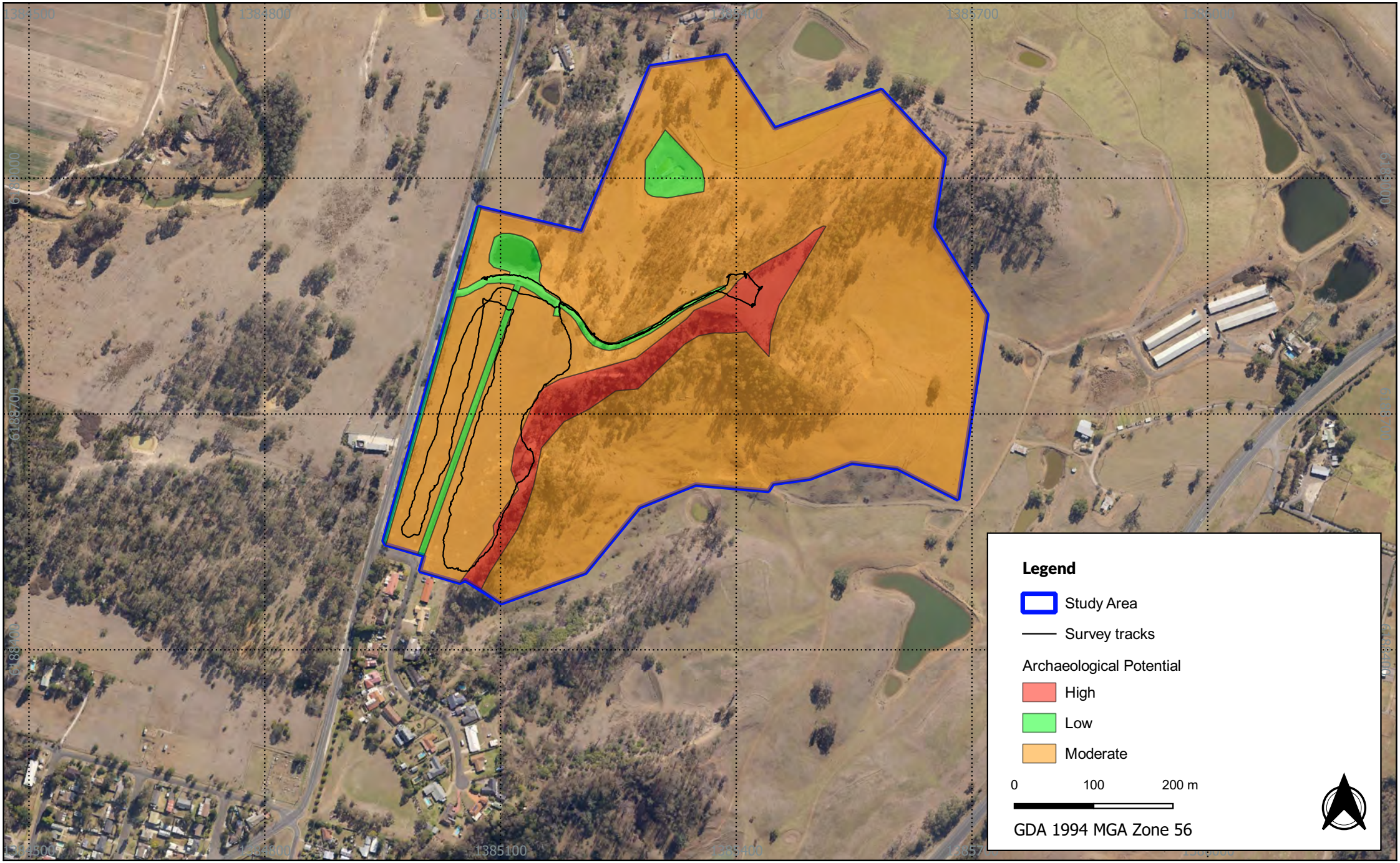


Figure 7.6 - Results of the archaeological survey

24004 - 80 Silverdale Road, The Oaks, NSW 2570 - ACHA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2024-06-21

AUSTRAL ARCHAEOLOGY

8. CULTURAL HERITAGE VALUES

An assessment of significance seeks to determine and establish the importance or value that a place, site or item may have to the community at large. The concept of cultural significance is intrinsically connected to the physical fabric of the item or place, its location, setting and relationship with other items in its surrounds. The assessment of cultural significance is ideally a holistic approach that draws upon the response these factors evoke from the community.

8.1. BASIS FOR THE ASSESSMENT

The significance values provided in the Australia ICOMOS *Charter for the Conservation of Places of Cultural Significance* (the Burra Charter) are considered to be the best practice heritage management guidelines in Australia (Australia ICOMOS 2013a). The Burra Charter defines cultural significance as:

> *"...aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups."* (Australia ICOMOS 2013a, p. 2).

The Burra Charter significance values are outlined in Table 8.1; these are frequently adopted by cultural heritage managers and government agencies as a framework for a more holistic assessment of significance.

Table 8.1 Definitions of Burra Charter significance values (Australia ICOMOS 2013b).

Value	Definition
Aesthetic	Refers to the sensory and perceptual experience of a place. That is how a person responds to visual and non-visual aspects such as sounds, smells, and other factors having a strong impact on human thoughts, feelings and attitudes. Aesthetic qualities may include the concept of beauty and formal aesthetic ideals. Expressions of aesthetics are culturally influenced.
Historic	Refers to all aspects of history. For example, the history of aesthetics, art and architecture, science, spirituality and society. It therefore often underlies other values. A place may have historic value because it has influenced, or has been influenced by, an historic event, phase, movement or activity, person or group of people. It may be the site of an important event. For any place the significance will be greater where the evidence of the association or event survives at the place, or where the setting is substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of such change or absence of evidence.
Scientific	Refers to the information content of a place and its ability to reveal more about an aspect of the past through examination or investigation of the place, including the use of archaeological techniques. The relative scientific value of a place is likely to depend on the importance of the information or data involved, on its rarity, quality or representativeness, and its potential to contribute further important information about the place itself or a type or class of place or to address important research questions.
Social	Refers to the associations that a place has for a particular community or cultural group and the social or cultural meanings that it holds for them.

Value	Definition
Spiritual	Refers to the intangible values and meanings embodied in or evoked by a place which give it importance in the spiritual identity, or the traditional knowledge, art and practices of a cultural group. Spiritual value may also be reflected in the intensity of aesthetic and emotional responses or community associations and be expressed through cultural practices and related places. The qualities of the place may inspire a strong and/or spontaneous emotional or metaphysical response in people, expanding their understanding of their place, purpose and obligations in the world, particularly in relation to the spiritual realm. The term spiritual value was recognised as a separate value in the Burra Charter, 1999. It is still included in the definition of social value in the Commonwealth and most state jurisdictions. Spiritual values may be interdependent on the social values and physical properties of a place.

In addition to the Burra Charter significance values, other criteria's and guidelines have been formulated by other government agencies and bodies in NSW to assess the significance of heritage places in NSW. Of particular relevance to this assessment are the guidelines prepared by the Australian Heritage Council and the Department of the Environment, Water, Heritage and the Arts (DEWHA), and Heritage NSW (NSW Heritage Office 2001, Australian Heritage Council and DEWHA 2009, DECCW 2011, OEH 2011).

The Guide (OEH 2011, p. 10) states that the following criteria from the NSW Heritage Office (2001, p. 9) should be considered:

- Social value: Does the subject area have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?
- Historic value: Is the subject area important to the cultural or natural history of the local area and/or region and/or state?
- Scientific value: Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state?
- Aesthetic value: Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state?

OEH (2011, p. 10) states that when considering the Burra Charter criteria, a grading system must be employed. Austral will use the following grading system to assess the cultural values of the study area and its constituent features. These are outlined in Table 8.2.

Table 8.2 Gradings used to assess the cultural values of the study area.

Grading	Definition
Exceptional	The study area is considered to have rare or outstanding significance values against this criterion. The significance values are likely to be relevant at a state or national level.
High	The study area is considered to possess considerable significant values against this criterion. The significance values are likely to be very important at a local or state level.
Moderate	The study area is considered to have significance values against this criterion; these are likely to have limited heritage value but may contribute to broader significance values at a local or State level.
Little	The study area is considered to have little or no significance values against this criterion.

8.2. ASSESSMENT OF SIGNIFICANCE

The following section addresses the Burra Charter significance values with reference to the overall study area.

8.2.1. AESTHETIC SIGNIFICANCE VALUES

Aesthetic values refer to the sensory, scenic, architectural and creative aspects of the place. These values may be related to the landscape and are often closely associated with social and cultural values.

The study area is positioned along a ridgeline that affords sprawling views of the wider Wollondilly Shire. This context allows for uninterrupted viewsheds nearly to the coast, as far as the Sydney Central Business District. The aesthetic significance of this site lies not in architectural, artistic, or creative aspects, but in the scenery and ambiance of the site.

Based on this assessment, the study area is considered to have moderate aesthetic significance values.

8.2.2. HISTORIC SIGNIFICANCE VALUES

The assessment of historic values refers to associations with particular places associated with Aboriginal history. Historic values may not be limited to physical values but may relate to intangible elements that relate to memories, stories or experiences.

The background research associated with this ACHA has returned no evidence of historical associations within the study area; further, there are no tangible materials or intangible histories identified that denote particular significance.

Based on this assessment, the study area is considered to have little historic significance values.

8.2.3. SCIENTIFIC SIGNIFICANCE VALUES

Scientific significance generally relates to the ability of archaeological objects or sites to answer research questions that are important to the understanding of the past lifeways of Aboriginal people. Australia ICOMOS (2013b, p. 5) suggests that to appreciate scientific value, that the following question is asked:

> *"Would further investigation of the place have the potential to reveal substantial new information and new understandings about people, places, processes or practices which are not available from other sources?".*

In addition to the above criteria, The Guide (OEH 2011, p. 10) also suggests that consideration is given to the Australian Heritage Council and DEWHA (2009) criteria, which are particularly useful when considering scientific potential:

- Research potential: does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state's natural and cultural history?
- Representativeness: how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
- Rarity: is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
- Education potential: does the subject area contain teaching sites or sites that might have teaching potential?

The study area has been identified as exhibiting largely moderate archaeological potential. Based on this assessment, the study area is considered to have moderate scientific significance values.

8.2.4. SOCIAL AND SPIRITUAL SIGNIFICANCE VALUES

As social and spiritual significance are interdependent, Austral has undertaken a combined assessment of these values. The Consultation Requirements specify that the social or cultural values of a place can only be identified through consultation with Aboriginal people.

This section will be updated following completion of the Stage 4 consultation review.

Based on this assessment, the study area is considered to have indeterminate social and spiritual significance values.

8.3. STATEMENT OF SIGNIFICANCE

This statement of significance has been formulated using the Burra Charter and relevant NSW guidelines (DECCW 2011, OEH 2011, Australia ICOMOS 2013a).

Heritage NSW specifies the importance of considering cultural landscapes when determining and assessing Aboriginal cultural values. The principle behind this is that:

> *"For Aboriginal people, the significance of individual features is derived from their inter-relatedness within the cultural landscape. This means features cannot be assessed in isolation and any assessment must consider the feature and its associations in a holistic manner" **(DECCW 2010d)**.*

Currently, there is limited capacity for a complex statement of archaeological significance to be developed for the study area. Investigations completed to date have identified areas of archaeological potential, and therefore any such significance would be considered as indeterminate until the nature and extents of the potential materials, if present, are identified. Simply put, the presence and intactness of sites cannot currently be wholly verified.

9. IMPACT ASSESSMENT

This section outlines, according to Heritage NSW guidelines, the potential harm that the proposed activity may have on identified Aboriginal objects and places within the study area (DECCW 2011, OEH 2011).

9.1. LAND USE HISTORY

The Oaks is an area subject to creeping urbanisation and constant anthropologically driven change. However, following the initial clearing of the lands and subsequent pastoral use, there is limited evidence of significant impacts. The primary exception to this is the installation and subsequent expansion of the drainage channel in the western contexts of the study area.

A summary of land use history is provided in Table 9.1 below.

Table 9.1 Summary of past land use within the study area.

Past land uses	Potential impacts on archaeological resources
Vegetation clearance	The prior removal of vegetation in and around the study area, likely to furnish pastoral use of the lands, is likely to have impacted any archaeological materials in these zones. It is unlikely, however, to have resulted in the complete loss of sites and materials.
Pastoral	Long-term pastoral use of the study area is likely to have resulted in a loss of stratigraphic integrity, displaced soils, and potentially exacerbated erosion and colluvial risks to the land and its resources, if present.
Drainage	The excavation of the drainage channel and its surrounding contexts is likely to have resulted in the total loss of archaeological context and materials, if present. Further, the displacement of these soils may increase the alluvial potential of the surrounding contexts, suggesting more widespread loss in these zones.

9.2. PROPOSED ACTIVITY

The proposed activity at this stage consists of the rezoning of the study area. This is understood to be an administrative process that will not impact tangible heritage. This is further understood to have been planned in advance of a proposed subdivision. A reassessment of impacts to potential archaeological resources should be undertaken prior to any such works being undertaken.

9.3. ASSESSING HARM

This section outlines the assessment process for addressing potential harm to Aboriginal objects and/or places within the study area, as outlined by Heritage NSW (OEH 2011, p. 12).

9.3.1. ECOLOGICALLY SUSTAINABLE DEVELOPMENT

An objective of the NPW Act, under Section 2A(1)(b)(i) is to conserve "*places, objects and features of significance to Aboriginal people*" through applying the principles of ecologically sustainable development (ESD) (Section 2A(2)). ESD is defined in Section 6(2) of the *Protection of the Environment Administration Act 1991* (NSW) as:

> *"…the effective integration of social, economic and environmental considerations in decision-making processes".*

ESD can be achieved with regards to Aboriginal cultural heritage, by applying principle of inter-generational equity, and the precautionary principle to the nature of the proposed activity, with the aim of achieving beneficial outcomes for both the development, and Aboriginal cultural heritage.

INTERGENERATIONAL EQUITY

The principle of intergenerational equity is that the present generation has a responsibility to ensure the health, diversity, and productivity of the environment for the benefit of future generations. The Department of Environment and Climate Change (DECC), now Heritage NSW, states that with regard to Aboriginal cultural heritage:

> *"intergenerational equity can be considered in terms of the cumulative impacts to Aboriginal objects and places in a region. If few Aboriginal objects and places remain in a region (for example, because of impacts under previous AHIPs), fewer opportunities remain for future generations of Aboriginal people to enjoy the cultural benefits of those Aboriginal objects and places."*(DECC 2009, p. 26).

The assessment of intergenerational equity and understanding of cumulative impacts should consider information about the integrity, rarity, or representativeness of the Aboriginal objects and/or places that may be harmed, and how they illustrate the occupation and use of the land by Aboriginal people across the locality (DECC 2009, p. 26).

Where there is uncertainty over whether the principle of intergenerational equity can be followed, the precautionary principle should be applied.

PRECAUTIONARY PRINCIPLE

Heritage NSW defines the Precautionary Principle as:

> *"if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation"*(DECC 2009, p. 26).

The application of the precautionary principle should be guided through:

- A careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment.
- An assessment of the risk—weighted consequences of various options.

DECC (2009, p. 26) states that the precautionary principle is relevant to the consideration of potential impacts to Aboriginal cultural heritage, where:

- The proposal involves a risk of serious or irreversible damage to Aboriginal objects and/or places or to the value of those objects and/or places.
- There is uncertainty about the Aboriginal cultural heritage values, scientific, or archaeological values, including in relation to the integrity, rarity or representativeness of the Aboriginal objects or places proposed to be impacted.

Where either of the above is likely, a precautionary approach should be taken and all effective measures implemented to prevent or reduce harm to Aboriginal cultural heritage values.

9.3.2. TYPES OF HARM

When considering the nature of harm to Aboriginal objects and/or places, it is necessary to quantify direct and indirect harm. The types of harm, as defined in the Guide (OEH 2011, p. 12), and are summarised in Table 10.2. These definitions will be used to quantify the nature of harm to identified Aboriginal objects and/or places that have been identified as part of this assessment. The Code states that the degree of harm can be either total or partial (DECCW 2010c, p. 21).

Table 9.2 Definition of types of harm.

Type of harm	Definition
Direct harm	May occur as the result of any activity which disturbs the ground including, but not limited to, site preparation activities, installation of services and infrastructure, roadworks, excavating detention ponds and other drainage or flood mitigation measures, and changes in water flows affecting the value of a cultural site.
Indirect harm	May affect sites or features located immediately beyond, or within, the area of the proposed activity. Examples of indirect impacts include, but are not limited to, increased impact on art in a shelter site from increased visitation, destruction from increased erosion and changes in access to wild food resources.

9.4. IMPACT ASSESSMENT

An assessment of landforms in and around the study area has identified several features that suggest archaeological potential for Aboriginal cultural heritage. This, in tandem with the archaeological survey of the study area, has resulted in the classification of the lands as exhibiting generally moderate archaeological potential.

It is understood that, as an administrative process, the proposed rezoning of the study area is unlikely to impact on any known tangible or intangible Aboriginal heritage values. However, in accordance with cumulative impact and the principles of ESD, the proposed rezoning may indirectly harm the archaeological resource, if present, by facilitating later impacts.

10. AVOIDING AND MINIMISING HARM

> *"do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained"* (Australia ICOMOS 2013a, p. 1).

The Burra Charter advocates a cautious approach to change. Based on this principle, this section identifies the measures that have been taken to avoid harm and what conservation outcomes have been achieved through the preparation of this ACHA.

10.1. DEVELOPMENT OF PRACTICAL MEASURES TO AVOID HARM

In accordance with the approach detailed above, and the impact assessment detailed in Section 9.4, the archaeological excavation of the study area is not proposed at this stage of the planning process. This is because the impacts associated with a potential excavation are noted to be greater than the current proposed works.

In accordance with the relevant legislation, as well as the guidelines and policies of Heritage NSW, the identified areas of potential are to be listed on the AHIMS database as a site of PAD (AHIMS #Pending). The archaeological excavation of this PAD and a reassessment of associated impacts will be necessary prior to any ground-breaking or development works. This should limit the potential for indirect harm associated with the proposed rezoning.

10.2. PRINCIPLES OF ESD AND CUMULATIVE IMPACTS

The Guide to Investigating, Assessing, and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011) requires that an assessment of Aboriginal cultural heritage values considers the cumulative impact of developments in accordance with the principles of ESD. With regard to The Oaks, and more generally the Wollondilly Shire, the progressive urbanisation of the landscape places Aboriginal archaeological sites at risk.

To assess the outcomes and nature of these cumulative impacts, Austral has undertaken an analysis of AHIMS sites associated with a current or prior AHIP. This dataset is based off of the 20-kilometre search detailed in Sections 4.2.2 and 5 above (Table 10.1).

Table 10.1 Analysis of AHIMS sites with AHIP's issued.

Site types	No. Sites	No. sites with AHIPs	% Sites with AHIPs
Artefact	59	3	5.17%
Art	14	1	7.14%
Modified Tree (Carved or Scarred)	13	0	0.00%
Grinding Groove	12	0	0.00%
PAD	8	0	0.00%
Art; Artefact (Pigment or Engraved)	7	0	0.00%
Stone Arrangement	2	0	0.00%
Art; Grinding Groove	1	0	0.00%
Burial; Modified Tree (Carved or Scarred)	1	0	0.00%
TOTAL	**117**	**4**	**3.42%**

This analysis indicates that, in the contexts surrounding the study area, there is a trend towards conservation. In total, 3.4% (n=4) of sites have had an AHIP issued against them, indicating that these sites have been subject to successive approvals. Generally, however, sites are being preserved rather than destroyed.

To expand upon these findings, AHIMS sites were additionally analysed in relation to their current or proposed zonings. The purpose of this analysis is to determine the volume of sites within land zones that have been, or are likely to be, subject to progressive development. This assumes that sites located in zonings for residential use, business, and industry are more likely to have been or to be harmed. Conversely, it assumes that sites zoned for environmental conservation, recreational use, and rural housing are more likely to avoid these harms (Table 10.2).

Table 10.2 Analysis of AHIMS sites in relation to land zonings.

Land Zone Classification	No. Sites by Zone	Frequency (%)
At Risk		
Large Lot Residential	10	8.55
Infrastructure	3	2.56
Low Density Residential	1	0.85
Sub total	**14**	**11.97**
Protected		
Primary Production	40	34.19
National Parks and Nature Reserves	32	27.35
Rural Landscape	16	13.68
Environmental Conservation	10	8.55
Special Activities	3	2.56
Environmental Management	2	1.71
Sub total	**103**	**88.03**
TOTAL	**117**	

Table 10.2 further supports the outcomes as detailed in Table 10.1 above, that is that sites in the vicinity of the study area have been recorded within land zonings that trend towards conservation, rather than destruction.

10.3. STRATEGIES TO MINIMISE HARM

As outlined in Sections 9.4 and 10.1 above, due to the nature of the proposed undertaking there is limited capacity for direct harms. Comparatively, by their nature, strategies to mitigate indirect harms must be adaptable and consider the wider context and significance of the given site. Additional assessment works are recommended later in the planning process, should those harms become direct.

11. RECOMMENDATIONS

The following recommendations are derived from the findings described in this ACHA. The recommendations have been developed after considering the archaeological context, environmental information, consultation with the local Aboriginal community, and the predicted impact of the planning proposal on archaeological resources.

It is recommended that:

1. The proposed rezoning may proceed with caution.
2. As areas with moderate potential to contain subsurface artefacts (AHIMS #Pending) have been identified within the study area, no ground disturbing works should be undertaken prior to the completion of a program of archaeological testing.
    a. This will need to comply with the *Code of Practice for Archaeological Investigation of Aboriginal sites in NSW* (DECCW 2011).
3. All Aboriginal objects and Places are protected by the *National Parks and Wildlife Act 1974* (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW. In the event that any Aboriginal cultural heritage finds occur during any stage of the proposed works:
    a. Works must cease in the vicinity of the find. This must not be moved until assessed by a qualified archaeologist.
    b. If the find is determined to be an Aboriginal object, the archaeologist will provide further recommendations.
        i. It is a legal requirement under Section 89A of the NPW Act to notify Heritage NSW as soon as possible.
        ii. Further investigations and an Aboriginal Heritage Impact Permit may be required prior to certain activities recommencing.
4. If human skeletal remains are encountered all work must cease immediately and the NSW Police must be contacted. They will then notify the Coroner's Office.
    a. If the remains are believed to be of Aboriginal origin, then the Aboriginal stakeholders and Heritage NSW must be notified.
5. It is recommended that the Client continues to inform Aboriginal stakeholders about the management of Aboriginal cultural heritage within the study area throughout completion of the project. The consultation outlined as part of the ACHA is valid for 6 months and must be maintained by the Client for it to remain continuous.
    a. If a gap greater than 6 months occurs, then the consultation will not be suitable to support an AHIP for the project.
6. A copy of this report should be forwarded to all Aboriginal stakeholder groups who have registered an interest in this project.

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APPENDIX A: AHIMS RESULTS

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 24004

Client Service ID : 863798

Austral Archaeology

148 Tongarra Road
Albion Park New South Wales 2527

Attention: Felicity Smolenaers

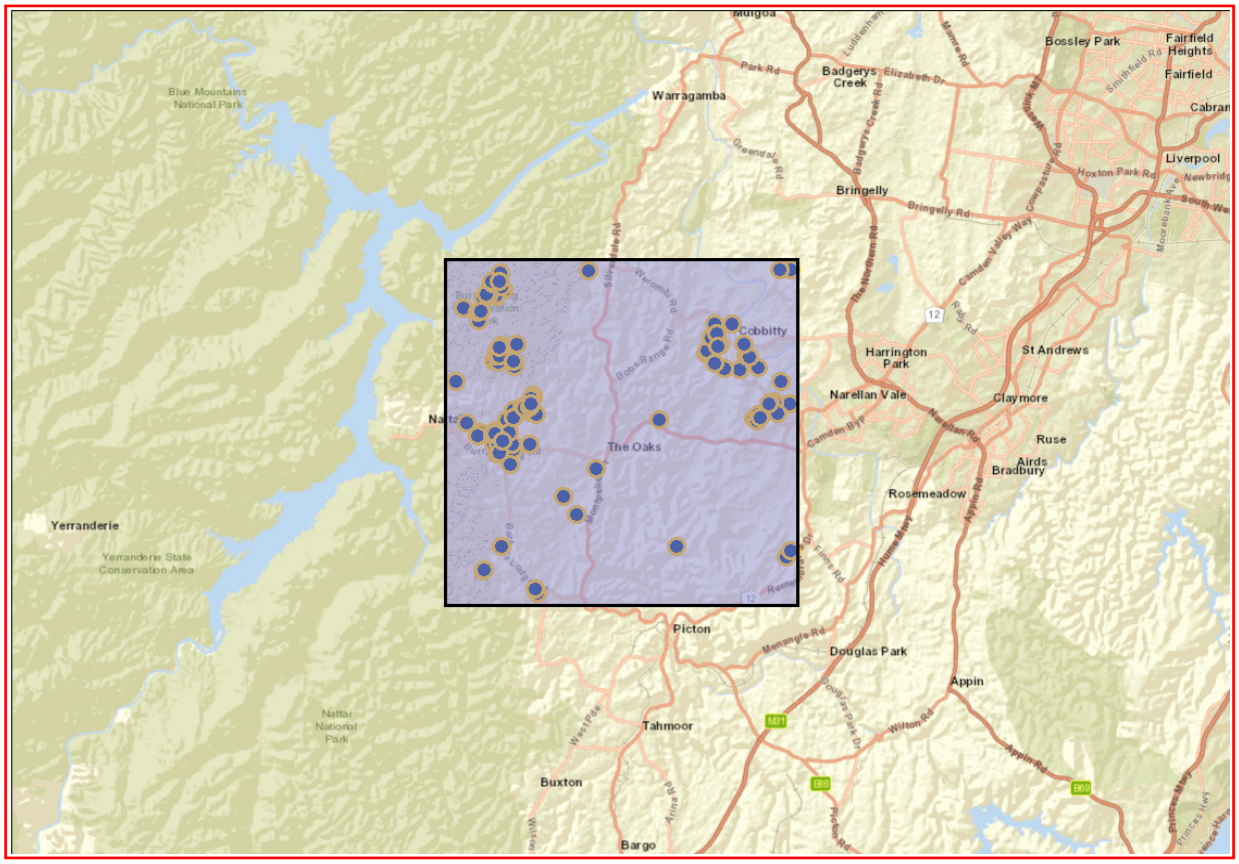
Email: felicitys@australarch.com.au

Date: 13 February 2024

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters, conducted by Felicity Smolenaers on 13 February 2024.

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



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

Important information about your AHIMS search

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

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-2-3782	WERIF1	GDA	56	281771	6232805	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-2268	KP2	AGD	56	286318	6220554	Open site	Valid	Artefact : 4		103104
	Contact	**Recorders**	Doctor.Julie Dibden					**Permits**		
52-1-0040	Oakdale, Brimstone Gully 2	AGD	56	266829	6230507	Closed site	Valid	Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art	
	Contact	**Recorders**	Ann Jelinek					**Permits**		
45-4-0904	Oakdale 38	AGD	56	268490	6235800	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-1-0197	Oakdale 56	AGD	56	269100	6226850	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
52-2-4670	OA-PAD-2020-01	GDA	56	275203	6225686	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Doctor.Tse Siang Lim					**Permits**		
52-2-3225	EMAI Site 2	GDA	56	280000	6221208	Open site	Valid	Artefact : 30		103104
	Contact T Russell	**Recorders**	Mr.Dominic Steele					**Permits**		
52-2-4633	IF 4 (Camden)	GDA	56	284332	6228896	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-1705	Oakdale 21;	AGD	56	271150	6229230	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-1701	Oakdale 25;	AGD	56	271350	6229750	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
45-5-4821	Coates Park Rd PAD 2	GDA	56	286297	6237767	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Advitech Pty Limited,Ms.Viki Gordon					**Permits**		
52-2-3952	IF3a	GDA	56	285260	6229810	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-3946	CR1a	GDA	56	285790	6229770	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-4503	Burragorang Road AS 2	GDA	56	269428	6226438	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats					**Permits**		

Report generated by AHIMS Web Service on 13/02/2024 for Felicity Smolenaers for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 117

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-2-3055	Burragorang SCA 001	AGD	56	269709	6220799	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact T Russell	**Recorders**	NPWS - Nattai Sub-District					**Permits**		
52-2-2038	Oakdale 47 (Camden)	AGD	56	269600	6227300	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	4075
	Contact	**Recorders**	Ben Evans,R Williams,Tom Knight					**Permits**		
52-2-3949	CR4a	GDA	56	284600	6229170	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-4530	Fergusons Land Potential Archaeological Deposit (FL PAD)	GDA	56	286435	6229788	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Artefact Heritage and Environment - Pyrmont,Artefact Heritage and Environment -					**Permits**		
52-1-0387	Sheehys Creek Art01	GDA	56	268794	6219499	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Mark Simon					**Permits**		
45-4-0909	Oakdale 42	AGD	56	268450	6235700	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3196
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1696	Oakdale 8;	AGD	56	269010	6231750	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1693	Oakdale 5;	AGD	56	269140	6232190	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-0003	Waterfall Creek;Oakdale;	AGD	56	273271	6223864	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	103104
	Contact	**Recorders**	Australian Museum					**Permits**		
52-1-0165	Oakdale 33	AGD	56	267170	6234830	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	3196
	Contact	**Recorders**	P Saunders					**Permits**		
52-1-0164	Oakdale 30	AGD	56	268060	6234140	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3092
	Contact	**Recorders**	P Saunders					**Permits**		
52-2-1707	Oakdale 19;	AGD	56	271180	6228790	Open site	Valid	Stone Arrangement : -	Stone Arrangement	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
45-5-4820	Coates Park Rd PAD 1	GDA	56	285666	6237753	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		

Report generated by AHIMS Web Service on 13/02/2024 for Felicity Smolenaers for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 117

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Advitech Pty Limited,Ms.Viki Gordon					**Permits**		
52-2-1695	Oakdale 7;	AGD	56	269160	6231940	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
45-5-2318	Oakdale 34;	AGD	56	269440	6236000	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-1-0196	Oakdale 55	AGD	56	268290	6227500	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
45-5-2315	Oakdale 39;	AGD	56	269050	6235600	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Kerry Navin					**Permits**		
45-5-2312	Oakdale 35;	AGD	56	269050	6235630	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-4494	BR-IF-01	GDA	56	270152	6226017	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Kayandel Archaeological Services,Miss.Meg Walker					**Permits**		
52-2-3619	Oakdale 27	GDA	56	270250	6226800	Open site	Valid	Stone Arrangement : 5		3001
	Contact	**Recorders**	Kerry Navin,Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
52-2-3924	EG-S-02	GDA	56	270383	6226742	Open site	Valid	Artefact : 2		
	Contact	**Recorders**	Artefact Heritage and Environment - Pyrmont,Mr.Leigh Bate					**Permits**		
52-1-0426	Brimstone Creek Shelter 1	GDA	56	267622	6228249	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	DPIE - Armidale,Ms.Jessica Wardhaugh					**Permits**		
52-1-0199	Oakdale 58	AGD	56	268150	6227300	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
52-2-1710	Oakdale 16;	AGD	56	270720	6229020	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-1702	Oakdale 24;	AGD	56	271340	6229600	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-1221	Flaggy Creek 1;	AGD	56	278750	6228500	Closed site	Valid	Artefact : -	Shelter with Deposit	1281
	Contact	**Recorders**	Margrit Koettig					**Permits**		
52-2-1697	Oakdale 9;	AGD	56	269160	6231940	Closed site	Valid	Artefact : -	Shelter with Deposit	2664

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Kerry Navin					Permits		
52-1-0195	Oakdale 54	AGD	56	269320	6227630	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits		
52-2-1698	Oakdale 10;	AGD	56	269290	6231660	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	2664
	Contact	Recorders	Kerry Navin					Permits		
52-2-1692	Oakdale 4;	AGD	56	269410	6232730	Open site	Valid	Artefact : -	Open Camp Site	2664
	Contact	Recorders	Kerry Navin					Permits		
52-2-4935	Camden Campus OCS1	GDA	56	283442	6231749	Closed site	Valid	Artefact : -		
	Contact	Recorders	Ms.Rebecca Chalker					Permits		
52-2-4634	IF 5 (Camden)	GDA	56	284561	6228753	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Fiona Leslie					Permits		
52-2-4934	Camden Campus OCS2	GDA	56	284540	6231944	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.Rebecca Chalker					Permits		
52-1-0388	Sheehys Creek Art02	GDA	56	268816	6219575	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Mr.Mark Simon					Permits		
52-1-0194	Oakdale 53	AGD	56	269120	6227600	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Kerry Navin,Mr.Kelvin Officer					Permits		
52-2-4493	BR-IF-02	GDA	56	270192	6225837	Open site	Valid	Artefact : 1		
	Contact	Recorders	Kayandel Archaeological Services,Miss.Meg Walker					Permits		
52-2-2037	Oakdale 48;Oakdale;	AGD	56	270050	6228420	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Ben Evans,R Williams,Tom Knight					Permits		
52-2-1713	Oakdale 13;	AGD	56	270190	6228420	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	2793
	Contact	Recorders	Mr.Kelvin Officer					Permits		
52-2-3923	EG-S-01	GDA	56	270336	6227016	Open site	Valid	Artefact : 4		
	Contact	Recorders	Artefact Heritage and Environment - Pyrmont,Mr.Leigh Bate					Permits		
52-2-1689	Oakdale 1;	AGD	56	270210	6231450	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	2664
	Contact	Recorders	Kerry Navin					Permits	591	
52-2-1376	Crocodile creek;	AGD	56	271860	6218060	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	Contact	Recorders	Warren Bluff					Permits		
52-2-3620	Oakdale 28	GDA	56	271290	6227090	Closed site	Valid	Artefact : 3		3001

Report generated by AHIMS Web Service on 13/02/2024 for Felicity Smolenaers for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 117

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Kerry Navin,Doctor.Susan (left ahms) Mcintyre-Tamwoy					**Permits**		
52-2-3790	WER-PAD1	GDA	56	282566	6231790	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-3948	CR3a	GDA	56	285340	6229830	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-1-0198	Oakdale 57	AGD	56	269420	6227070	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
45-5-2317	Isolated Find 2;	AGD	56	269250	6236960	Open site	Valid	Artefact : -	Isolated Find	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-3786	WERIF5	GDA	56	281746	6233666	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-3947	CR2a	GDA	56	285530	6229910	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-3950	IF1a	GDA	56	285550	6229850	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
45-4-0908	Oakdale 41	AGD	56	268250	6235500	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
45-4-0906	Oakdale 40	AGD	56	268600	6235610	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-1-0193	Oakdale 52	AGD	56	269020	6227390	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
52-2-2039	Oakdale 49 (Camden)	AGD	56	269850	6228280	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	4075
	Contact	**Recorders**	Ben Evans,R Williams,Tom Knight					**Permits**		
52-2-1703	Oakdale 23;	AGD	56	271200	6229560	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-3783	WERIF2	GDA	56	281473	6232689	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-1-0201	Oakdale 60	AGD	56	269400	6226850	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	

Report generated by AHIMS Web Service on 13/02/2024 for Felicity Smolenaers for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 117

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
52-2-3792	WER-PAD3	GDA	56	281901	6234454	Open site	Valid	Potential Archaeological Deposit (PAD) : -		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
45-4-0907	Oakdale 43	AGD	56	268450	6235700	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
48-2-0055	Oakdale 26	GDA	56	270100	6227700	Open site	Valid	Modified Tree (Carved or Scarred) : 1		3001
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-1-0163	Oakdale 31	AGD	56	267990	6234600	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	3367
	Contact	**Recorders**	Mr.Kelvin Officer,P Saunders					**Permits**		
52-2-3951	IF2a	GDA	56	285280	6229870	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Ms.Fiona Leslie					**Permits**		
52-2-3666	SW01	AGD	56	285749	6230946	Open site	Valid	Artefact : -		101567,101640
	Contact	**Recorders**	Australian Museum - for Repat					**Permits**	3099	
52-2-3787	WEROS1	GDA	56	282259	6233199	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-1699	Oakdale 11;	AGD	56	269210	6232290	Open site	Valid	Artefact : -	Open Camp Site	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
45-5-2313	Oakdale 36;	AGD	56	269300	6236380	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
45-5-2316	Oakdale 37;	AGD	56	269310	6236190	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-3784	WERIF3	GDA	56	281501	6232853	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-3785	WERIF4	GDA	56	281955	6232144	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4933	Camden Campus OScar Tree 1	GDA	56	283782	6232575	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Ms.Rebecca Chalker					**Permits**		
52-2-4635	IF 6 (Camden)	GDA	56	284700	6228980	Open site	Valid	Artefact : -		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Mr.Oliver Brown					**Permits**		
52-2-4531	Ferguson Lane AFT 1	GDA	56	285730	6229213	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)					**Permits**		
52-2-2267	KP1	AGD	56	286557	6220907	Open site	Valid	Artefact : -		103104
	Contact	**Recorders**	Doctor.Julie Dibden					**Permits**		
45-4-0905	Oakdale 44	AGD	56	268800	6236380	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3196
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1694	Oakdale 6;	AGD	56	269150	6232050	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-2040	Oakdale IF 1;Oakdale;	AGD	56	270210	6228900	Open site	Valid	Artefact : -	Isolated Find	
	Contact	**Recorders**	Ben Evans,R Williams,Tom Knight					**Permits**		
52-2-1375	Crocodile creek;	AGD	56	271710	6218320	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1708	Oakdale 18;	AGD	56	271570	6228660	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Art,Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer,Ms.Trish Saunders					**Permits**		
52-2-4930	Cobbitty Campus OCS1	GDA	56	284029	6232540	Closed site	Valid	Artefact : -		
	Contact	**Recorders**	Ms.Rebecca Chalker					**Permits**		
52-2-1711	Oakdale 15;	AGD	56	270690	6229050	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-4931	Cobbitt Campus OCS2	GDA	56	283639	6233308	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Ms.Rebecca Chalker					**Permits**		
52-2-4504	Burragorang Road AS 1	GDA	56	269550	6226487	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats					**Permits**		
52-2-1700	Oakdale 12;	AGD	56	269310	6232050	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1811	Oakdale 29;	AGD	56	269320	6232590	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	3092
	Contact	**Recorders**	P Saunders					**Permits**		
52-2-3789	WEROS3	GDA	56	281753	6233651	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		

Report generated by AHIMS Web Service on 13/02/2024 for Felicity Smolenaers for the following area at Datum :GDA, Zone : 56, Eastings : 266594.0 - 286677.0, Northings : 6217894.0 - 6237943.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 117

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-1-0162	Oakdale 32	AGD	56	268150	6234700	Closed site	Valid	Artefact : -	Shelter with Deposit	3367
	Contact	**Recorders**	Mr.Kelvin Officer,P Saunders					**Permits**		
45-5-2311	Oakdale 45;	AGD	56	268780	6236480	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-1-0192	Oakdale 51	AGD	56	269150	6227480	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
52-2-1712	Oakdale 14;	AGD	56	270200	6228440	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer,Ms.Trish Saunders					**Permits**		
52-2-1691	Oakdale 3;	AGD	56	270120	6231780	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1690	Oakdale 2;	AGD	56	270330	6232780	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	2664
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-0004	The Hermitage;The Oak;	AGD	56	274035	6222788	Open site	Valid	Burial : -, Modified Tree (Carved or Scarred) : -	Burial/s,Carved Tree	103104
	Contact	**Recorders**	David Bell,NPWS - Blackheath Office					**Permits**		
52-2-1709	Oakdale 17;	AGD	56	270820	6229010	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	2793
	Contact	**Recorders**	Mr.Kelvin Officer,Ms.Trish Saunders					**Permits**		
52-2-1706	Oakdale 20;	AGD	56	271160	6229100	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-2-1704	Oakdale 22;	AGD	56	271190	6229270	Closed site	Valid	Artefact : -	Shelter with Deposit	2793
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
45-5-2888	Werriberri axe groove site	AGD	56	274390	6237270	Open site	Valid	Grinding Groove : -		
	Contact	**Recorders**	Tony Kondek					**Permits**		
52-2-3793	WER-PAD4	GDA	56	282953	6234454	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4483	Carrington IF1	GDA	56	285187	6229766	Open site	Destroyed	Artefact : -		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24004

Client Service ID : 863833

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Extent Heritage Pty Ltd - Pyrm					**Permits**	4358	
52-2-4672	WRB-AS-2021	GDA	56	285229	6229760	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Doctor.Tse Siang Lim					**Permits**		
52-2-4482	Carrington AS1	GDA	56	285230	6229781	Open site	Partially Destroyed	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Extent Heritage Pty Ltd - Pyrm					**Permits**	4358	
52-2-3791	WER-PAD2	GDA	56	282039	6233859	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-3788	WEROS2	GDA	56	282140	6233149	Open site	Valid	Artefact : 1		101806
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
45-5-2314	Oakdale 46;	AGD	56	269200	6236470	Closed site	Valid	Artefact : -	Shelter with Deposit	3196
	Contact	**Recorders**	Mr.Kelvin Officer					**Permits**		
52-1-0200	Oakdale 59	AGD	56	269600	6227000	Open site	Valid	Artefact : -	Isolated Find	
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

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