

AREA Environmental & Heritage Consultants ABN: 29 616 529 867

- ✓ Environmental impact assessments and approvals (REF)
- ✓ Ecology, Aboriginal and historic heritage assessments
- ✓ Biodiversity assessment method (BAM) assessments (BDAR) and offsetting (BSSAR)
- ✓ Plans of management (CEMP, BMP, ACHMP)
- ✓ Aboriginal community engagement
- ✓ Stakeholder and community engagement
- ✓ Peer review / project briefs / budgeting assistance / expert witness
- ✓ Commercial external landscape designs for built or natural environments
- ✓ Vegetation Management Plans
- ✓ Stakeholder and community engagement
- ✓ Peer review / project briefs / budgeting assistance



Aboriginal Cultural Heritage Assessment Report and Archaeological
Test Excavation Report

Proposed Residential Subdivision: Vera Vista MAAS GROUP JULY 2025



**AREA Environmental & Heritage Consultants acknowledges
Traditional Owners of the country on which we work**

Document controls

Proponent	Maas Group Properties Veravista Pty Limited	
Client	Maas Group Properties Veravista Pty Limited	
AREA reference	QU#1738	
Client reference	PO number / project number: N/A	
Document description	Proposed Residential Subdivision: Magpie Hollow Archaeological test excavation and Aboriginal Cultural Heritage Assessment Report	
Client representative	Brad Draper	
AREA representative	Phil Cameron (PJC)	
Cover image	View across study area	
DOCUMENT STATUS		
DRAFT: Series V1.X AREA internal edits	Date	Action
V1.0	22/08/2023	First draft submitted for internal edit
V1.1	01/09/2023	Internal edit
V1.2	12/09/2023	Internal technical edit
DRAFT Series V2.X Client / AREA internal edits	Date	Action
V2.0	13/09/2023	AREA to client
V2.1	2023	Updates
V2.2	19/05/2025	Assessment area updates (AD and PJC)
FINAL (Draft approved by client)	Date	Action
V3.0	26/05/2025	Final to client
V3.1	28/07/2025	Edits made to development footprint
Prepared for 	Brad Draper Planning and Projects Manager MAAS A 20L Sheraton Road Dubbo, NSW 2830 E BradDraper@maasgroup.com.au	
Prepared by 	Anna Darby (AD) Senior Archaeologist AREA Environmental & Heritage Consultants Pty Ltd ABN: 29 616 529 867 A 'The Old Macquarie Brewery' c 1876 72 Brisbane Street Dubbo, NSW 2830 E anna@areaenv.com.au W areaenvironmental.com.au	
COPYRIGHT		
This document and its contents are subject to copyright protection under the <i>Copyright Act 1968</i> (Cth) and all rights are reserved. The document is intended solely for the use of:		
1. AREA Environmental & Heritage Consultants Pty Ltd, 2025 and		
2. Maas Group Properties Veravista Pty Limited, 2025		
and may not be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the aforementioned in point 1. and 2.		

Executive summary

MAAS Group Properties Veravista Pty Limited (MAAS; the proponent) is proposing to subdivide Lot 2 DP1229039 at 33 Magpie Hollow Road, South Bowenfels NSW for the purposes of residential construction. The proposal is to be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Two previous surveys of the site were conducted by AREA in 2021 (AREA Environmental & Heritage Consultants (AREA), 2021a, 2021b). These surveys identified one Aboriginal site and three PADs. Two of the three PADs will be impacted by the proposed works. The proponent engaged AREA to conduct Aboriginal test excavations across Magpie Hollow AS1, PAD 1, and PAD 2 in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010b). The *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)* has been followed and is continuing for the proposal.

The test excavation recorded 15 stone artefacts in two sites (Magpie Hollow AS01 and Magpie Hollow AS02). These two Aboriginal sites are within the impact footprint for the proposal.

Based on the assessment, the following recommendations are made:

- Formal consultation in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (ACHCRs; DECCW 2010) should be continued.
- An Aboriginal Heritage Impact Permit (AHIP) would be required to impact two Aboriginal sites (Magpie Hollow AS01 and Magpie Hollow AS02) which cannot be avoided and further consultation to support an AHIP application is needed.
- A condition of consent for the AHIP is likely to express a desire by the Registered Aboriginal Parties that Aboriginal sites which cannot be avoided are collected and reburied in consultation with the Aboriginal community expressing a formal interest in this proposal.
- Should an AHIP be issued, surface collection of Magpie Hollow AS01 should be undertaken in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b).
- The artefacts collected during the test excavations and surface collection to be reburied within a protected area of the subject land in a location agreed to by the RAPs. Reburial should occur after the surface collection.
- The locations of the cultural heritage sites shown on Figure 8-2 and detailed in Section 6.2.5 should be provided to the supervisors responsible for the construction and operation of the proposal. They should be informed cultural heritage sites are protected under the NPW Act and no harm is to come to them. The presence of the cultural heritage sites will be made clear to the workforce as part of an induction.
- If any objects of suspected Aboriginal heritage origin be encountered during the proposal, activity in the area of the find should cease and the unexpected finds protocols (Appendix C) should be implemented.
- If changes are made to the proposal which could impact locations outside of the current assessment area, further archaeological investigation may be required.

Contents

Document controls	i
Executive summary	ii
Contents	iii
Tables	vi
Figures	vi
Glossary	viii
1. Introduction	1
1.1. Background	1
1.2. Locality	1
1.3. Project description	2
1.4. Assessment objectives	2
1.5. Report structure	5
1.7. Project personnel	6
2. Legislative context	7
2.1. The Burra Charter	7
2.2. Environment Protection and Biodiversity Conservation Act 1999	7
2.3. Environmental Planning and Assessment Act 1979	7
2.4. National Parks and Wildlife Act 1974	7
2.5. Native Title Act 1993	8
3. Aboriginal community consultation	9
3.1. Notification of project and registration	9
3.2. Review of assessment methodology	10
3.1. Archaeological test excavation	10
3.2. Project updates	10
3.3. Review of draft cultural heritage assessment report	11
4. Landscape features	12
4.1. Watercourses	12
4.2. Geology and soils	12
4.3. Vegetation	12
4.4. Climate	13
4.5. Land use history	13
5. Archaeological context	17

5.1.	Aboriginal cultural heritage	17
5.1.1.	Regional cultural context	17
5.1.2.	Local Archaeological context	18
5.1.3.	Previous Assessments	22
6.	Archaeological assessment	25
6.1.	Archaeological survey	25
6.1.1.	Methodology.....	25
6.1.2.	Constraints	25
6.1.3.	Results	25
6.1.4.	Archaeological survey discussion and conclusion	28
6.2.	Archaeological Test Excavation	29
6.2.1.	Test excavation aims	29
6.2.2.	Methodology.....	29
6.2.3.	Test pit excavations	32
6.2.4.	Results	34
6.2.5.	Aboriginal sites	57
6.2.6.	Analysis and discussion	60
7.	Significance	64
7.1.	Social or cultural significance	64
7.2.	Aesthetic significance	65
7.3.	Historic significance.....	65
7.4.	Scientific significance	65
8.	Impact management.....	66
8.1.	Unavoidable impacts	66
8.1.	Cumulative Impacts.....	67
8.2.	Ecologically sustainable development	69
8.3.	Management measures.....	69
8.4.	Aboriginal heritage impact permit	70
9.	Recommendations	74
10.	References.....	75
	Appendix A: Aboriginal community consultation.....	77
	Appendix B: Database searches.....	78
	Appendix C: Unanticipated finds protocol.....	79

Tables

Table 1-1: Regional context of the assessment area	1
Table 1-2: Report structure.....	5
Table 1-3: Project personnel contributing to this report.....	6
Table 3-1: Registered Aboriginal parties	9
Table 3-2: Responses to methodology	10
Table 3-3: Summary of comments for the draft ACHAR	11
Table 4-1: Summary climate data (red maximum, blue minimum values).....	13
Table 5-1: Summary of database searches for Aboriginal heritage.....	18
Table 6-1: Test pit excavation participates	32
Table 6-2: Summary of results from Area 1	34
Table 6-3: Summary of results from Area 2, Transect A.....	38
Table 6-4: Summary of results from Area 2, Transect B.....	40
Table 6-5: Summary of results from Area 2, Transect C	43
Table 6-6: Summary of results from Area 2, Transect D	47
Table 6-7: Summary of artefacts recovered from test pit excavations.....	51
Table 7-1: Summary of significance for sites recorded.	64
Table 8-1: Summary of impacts to Aboriginal heritage under current design	66
Table 8-2: List of proposed AHIP points	72

Figures

Figure 1-1: Regional context of the assessment area	3
Figure 1-2: Design of the assessment area (Source: MAAS)	4
Figure 4-1: 1889 Parish map, approximate study area in red (Surveyor General, 1889)	14
Figure 4-2: 1892 Parish map, assessment area in red (surveyor General, 1892).....	14
Figure 4-3: Major waterways within the region	15
Figure 4-4: Drainage lines and elevation within the development footprint	16
Figure 5-1: AHIMS sites within five kilometres of the assessment area	20
Figure 5-2: AHIMS sites recorded within the assessment area and correct location of AHIMS ID 45-5-1198.....	21
Figure 6-1: View of an exposure within MHAS1 toward the waterway	26
Figure 6-2: View of MHAS1 to the east toward the crest.....	26
Figure 6-3: View of the proximal faces of a selection of quartz flakes.....	26
Figure 6-4: View of the dorsal faces of the quartz flakes	26

Figure 6-5: Overview of heritage constraints	27
Figure 6-6: View to the south-east toward PAD 2	28
Figure 6-7: View to the south toward PAD 3.....	28
Figure 6-8: Example of the soil profile nearby to the PADs	29
Figure 6-9: Indicative test pit locations	31
Figure 6-10: Test pits were excavated by hand	33
Figure 6-11: Test pits marked by a 50cm by 50cm frame.....	33
Figure 6-12: Firefighting pump set up near the dam.....	33
Figure 6-13: Wet sieving set up.....	33
Figure 6-14: Excavated test pits and artefact presence.....	50
Figure 6-15: Historic photographs from 1990 showing surface modification in area of PAD 1 (red outline) (NSW Historical Imagery, 1990)	57
Figure 6-16: Historic photographs from 1994 showing surface modification in area of PAD 1 (red outline) (NSW Historical Imagery, 1994)	57
Figure 6-17: Location of MHAS01 (AHIMS ID 45-4-1187) shown with yellow dashed line, view to the west towards gully with Pit 1/B1 in foreground.	58
Figure 6-18: View to the north showing MHAS01 (AHIMS ID 45-4-1187) with Pit 1/A3 in foreground, Pit 1/A2 in top left, and Pit 1/B1 in top right.	59
Figure 6-19: View to the east showing MHAS02 (AHIMS 45-4-1225) with yellow dashed line.....	60
Figure 6-20: North bulk of 1/B3 showing Layer 1 (A Horizon) and Layer 2 (C Horizon)	62
Figure 6-21: Western bulk of 2/B4 showing Layer 1 (A Horizon) and weathered sandstone fragments forming Layer 2 (C Horizon) overlaying sandstone bedrock (R Horizon)	62
Figure 6-22: Northern bulk of 2/A3 showing Layer 1 (A Horizon) and sandstone bedrock (R Horizon)	62
Figure 6-23: Western bulk of 2/D2 showing Layer 1 (A Horizon), Layer 2 (diffusion from A to C Horizon) and Layer 3 (C Horizon)	62
Figure 6-24: Northern bulk of 2/B1 showing burning	63
Figure 6-25: Historic photographs from 1966 showing cleared trees across the assessment area (red outline).....	63
Figure 8-1: Development footprint and Aboriginal sites	68
Figure 8-2: Proposed AHIP boundary.....	71

Glossary

Acronym	Definition
BoM	Bureau of Meteorology
DECCW	Department of Environment, Climate Change and Water
DPIE	Department of Planning, Industry, and the Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GPS	Global positioning system
GSV	Ground Surface Visibility
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
NP&W Act	<i>National Parks and Wildlife Act 1974</i>
NPWS	National Parks and Wildlife Services
NSW	New South Wales
OEH	Office of Environment and Heritage
RAP	Registered Aboriginal Party
Development footprint	Cumulatively all components disturbance areas affected by the proposal

1. Introduction

1.1. Background

MAAS Group Properties Veravista Pty Limited (MAAS; the proponent) is proposing to subdivide Lot 2 DP1229039 at 33 Magpie Hollow Road, South Bowenfels NSW for the purposes of residential construction (Figure 1-1). The proposal is to be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

In 2021 a preliminary constraints assessment and site inspection of 33 and 5 Magpie Hollow Road was conducted by Anna Darby of AREA Environmental & Heritage consultants (AREA) on 14 and 15 April 2021. AREA identified three potential archaeological deposits (PADs) within the study area. It recommended that at a minimum an Aboriginal due diligence should be conducted across the entire study area in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (NSW Department of Environment Climate Change and Water (DECCW), 2010b) with targeted survey across the areas of PAD. The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) was commenced at this stage of the project and has been continuing. A survey of the assessment area was then conducted on 7 October 2021 by Nick Harrop of AREA and Donald Morgan and Matthew Sullivan represented Bathurst Local Aboriginal Land Council (LALC). One Aboriginal site and three PADs were recorded during the survey. AREA recommended test excavations occur under Requirement 15b of the Code of Practice. Two of the Three PADs will be impacted by the proposed works.

In 2022, The proponent engaged AREA to conduct Aboriginal test excavations across Magpie Hollow AS1 and PAD 1, and PAD 2 in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW2010a).

This Aboriginal cultural heritage assessment report (ACHAR) and Archaeological test excavation report (ATER) has been written in accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Heritage in NSW* (NSW Office of Environment and Heritage (OEH), 2011).

1.2. Locality

The assessment area is located within the Lithgow LGA. The regional geographical context of the assessment area is provided in Table 1-1.

Table 1-1: Regional context of the assessment area.

Criteria	Assessment area
Central coordinates (GDA94 z56)	232300 mE 6288800 mN
Cadastre	Lot 2 DP1229039
Interim Biogeographic Regionalisation for Australia (IBRA Region)	South Eastern Highlands bioregion, Bathurst subregion
State	NSW
Topographical map sheet	Hartley 8930-4N 1:25,000
Local Government Area	Lithgow
Parish	Lett
County	Cook
Local Aboriginal Land Council area (LALC)	Bathurst LALC
Schedule of Native Title Determination Applications (Claims, ILUA Future Acts etc.)	An active Registered Native Title claim is made over the assessment area (Warrabinga-Wiradjuri #7 – Tribunal number NC2018/002). In New South Wales, a Registered Native Title Claim

Criteria	Assessment area
	under the Native Title Act 1993 (Cth) does not automatically grant exclusive cultural authority over land, but it does carry legal weight in consultation and procedural rights. The NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010) does not prioritise registered native title claimants over others.
Nearest town / locality	Lithgow
Accessed from nearest town by	Magpie Hollow Road
Land use / disturbance	Grazing, electricity transmission line, residential
Nearest waterway (Name, Strahler Order)	Un-named Strahler first and second-order streams are within the assessment area
Spot point Australian Height Datum (AHD)	900 - 970 m
Surrounding land use	Grazing, road corridor, forest, residential
Expected disturbance footprint land use	Residential subdivision, roads, housing

1.3. Project description

Development Consent has been granted for the subdivision of Lots 2 & 3 at 33 Magpie Hollow Road, South Bowenfels (DP1229039). The proposed subdivision consists of a residential subdivision involving major earthwork, construction of roads, drainage infrastructure, installation of utilities and services, and landscaping (Figure 1-2).

For the purpose of this assessment all land assessed will be referred to as the ‘**assessment area**’ and the area impacted by the current development will be referred to as the ‘**development footprint**’.

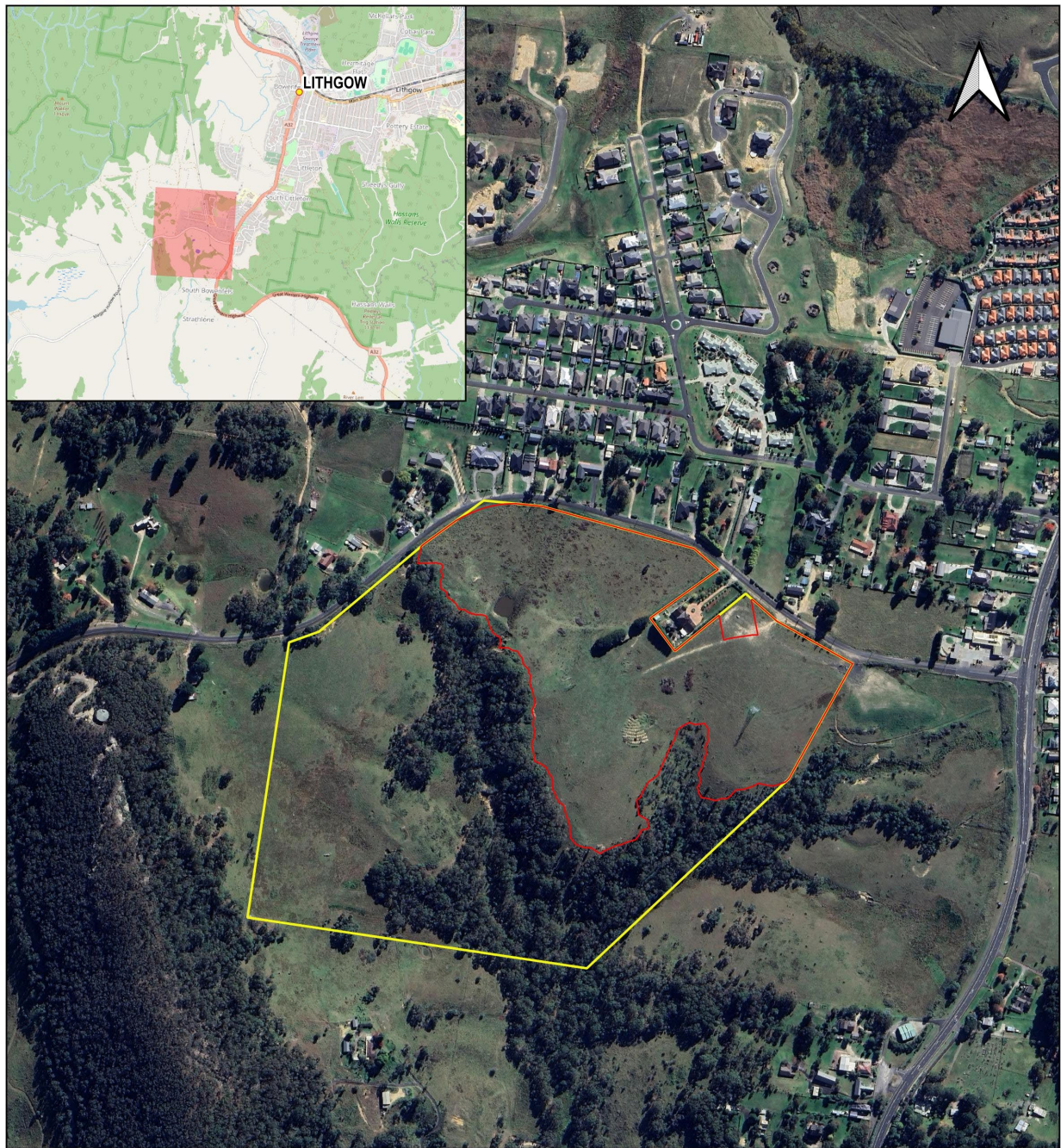
1.4. Assessment objectives

The *National Parks and Wildlife Act 1974* (NPW Act) provides the framework for the protection of Aboriginal objects and places in NSW. Section 86 of the NPW Act prescribes a strict liability offence for harming Aboriginal objects and places.

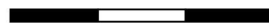
The objectives of the cultural heritage assessment are as follows:

- Identify any recorded Aboriginal archaeological sites using database searches and assess the likelihood for such sites using background information.
- Consult with the Aboriginal community regarding the proposal and seek out any relevant information about the Development Site they may have.
- Undertake a physical inspection of the assessment area to identify any unrecorded sites of Aboriginal heritage and assess the possible need for further investigation.
- Evaluate the significance of any sites of cultural heritage within the assessment area with the advice of the Aboriginal community, as well as the potential impact that the proposal will have on them.
- Provide recommendations for the treatment of any cultural heritage remains within the assessment area.

Figure 1-1: Regional context of the assessment area



0 100 200 300 m

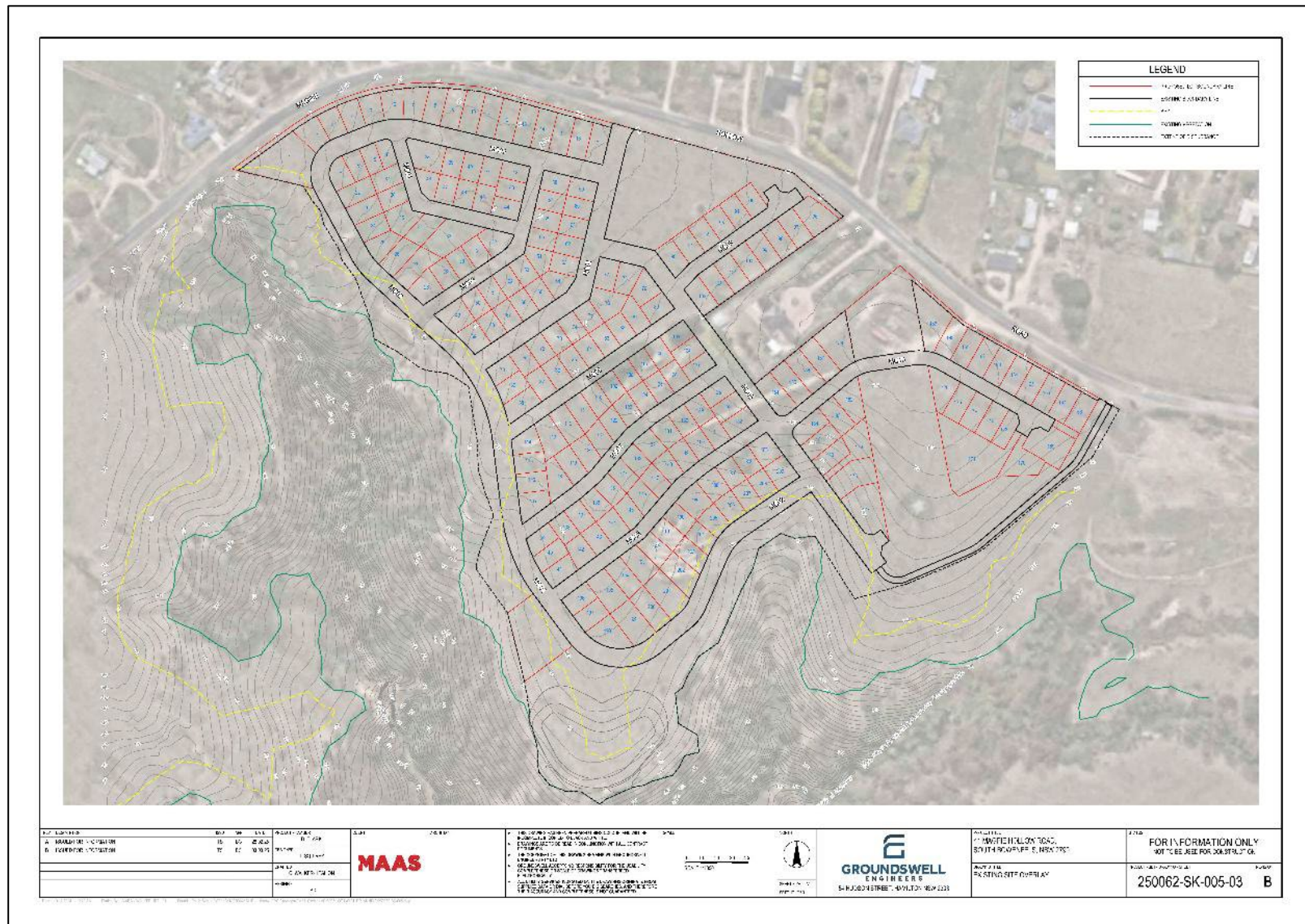


Base layer: Google Satellite

Legend

- Development footprint
- Assessment area

Figure 1-2: Design of the assessment area (Source: MAAS)



1.5. Report structure

This report corresponds with the reporting requirements set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (NSW OEH 2011a) and the *Guide to Investigating, Assessing and Reporting on Aboriginal Heritage in NSW* (NSW OEH 2011b).

The structure of this report is summarised in Table 1-3.

Table 1-2: Report structure

Section reference	Section heading	Description
1	Introduction	background to the project and purpose of the report
2	Legislative context	overview of relevant legislation regarding heritage
3	Aboriginal community consultation	details of consultation with the Aboriginal community regarding the project
4	Landscape features	environmental information that is relevant to the presence and survival of heritage items in the Development Site
5	Archaeological context	local and regional archaeological information that is relevant to assessing the potential for archaeological remains and their significance
6	Archaeological assessment	description of the methodology used for the physical assessment of the Development Site
7	Significance	summary of the results of the fieldwork
8	Impact management	impacts that the proposal will have on any identified heritage items and proposed management
9	Recommendations	suggested steps for the Proponent to take with regards to heritage
10	References	list of reports, books, websites, and other resources used to produce this report

1.7. Project personnel

This assessment was carried out by appropriately experienced or qualified staff (Table 1-4). Anna Darby and Kim Newman of AREA conducted the Aboriginal test excavations and wrote this report. Phillip Cameron of AREA provided project management and reviewed this report.

Table 1-3: Project personnel contributing to this report

Person	Role	Experience and suitability
Kim Newman Archaeologist	Senior Archaeologist; co-authored reports.	• Bachelor of Archaeology (Honours) University of New England. • Master of Science (Archaeology). University of New England. • PhD candidate (Archaeology). Griffith University.
Anna Darby Archaeologist	Senior Archaeologist; co-authored reports.	• Bachelor of Arts and Bachelor of Science (Archaeology, Palaeoanthropology and Forensic Science) University of New England. • Bachelor of Science (Honours). University of New England. • Graduate Certificate in Project Management. Southern Cross University.
Phil Cameron Managing Director	Report review	• BSc. Major in Biology. Macquarie University. • Ass Dip App Sci. University of Queensland. • Certified Environmental Practitioner (EIANZ) and practicing member. • NSW Biodiversity Assessment Method Assessor: accreditation number BAAS17082. • Has undertaken heritage assessments since 2004. •

2. Legislative context

Key points:

- Aboriginal cultural heritage is protected by a legislative framework comprised of Commonwealth and State laws.
- It is a requirement to identify, assess, and attempt to avoid potential impacts of a proposal to Aboriginal cultural heritage.
- In certain circumstances, where harm cannot be avoided, approval may be granted to harm Aboriginal objects.

2.1. The Burra Charter

Australia ICOMOS (International Council on Monuments and Sites) has developed a set of principles and practices for the management of cultural heritage in Australia. Local government authorities including the NSW DPIE have used the Burra Charter to guide their own heritage management documents. The charter promotes the conservation of places of cultural significance (Australia ICOMOS, 2013: 3). It placed an emphasis on understanding significance as the basis for managing the heritage values for a place, as well as the importance of consulting with community groups to achieve this understanding (Australia ICOMOS, 2013: 4, 8).

2.2. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the primary framework of legislation for the protection of nationally significant ecological communities and heritage places. The act also has jurisdiction over environmental impacts other than those of national significance where they occur on commonwealth-owned land. The EPBC Act becomes the primary piece of legislation for the approval of a project when a proposal may significantly impact a matter of national environmental significance. In this case, the assessment is referred to the Department of Agriculture, Water and Environment.

2.3. Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act consists of three main parts of direct relevance to Aboriginal cultural heritage:

- Part 3 which governs the preparation of planning instruments
- Part 4 which relates to development assessment processes for local government (consent) authorities
- Part 5 which relates to activity approvals by governing (determining) authorities.

This ACHAR forms part of the development application being prepared by MAAS in accordance with the requirements of Part 4.

2.4. National Parks and Wildlife Act 1974

Under the *National Parks and Wildlife Act 1974* (NPW Act), the Secretary, Department of Planning and environment (DPE) is responsible for the care and protection of Aboriginal objects and places in NSW. An *Aboriginal object* means any deposit, object or material

evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains. An *Aboriginal place* means any place of special significance with respect to Aboriginal culture as declared by the Minister.

Under Section 86 of the Act, a person must not harm an Aboriginal object or place. However, the Chief Executive may issue an Aboriginal Heritage Impact Permit (AHIP) subject to conditions. Penalties are in place for anyone who breaches these conditions or knowingly defaces or destroys an Aboriginal object or place without a permit.

2.5. Native Title Act 1993

The *Native Title (New South Wales) Act 1994* was introduced to work in conjunction with the *Native Title Act 1993* (Cth). Native title claims, registers and Indigenous land use agreements are administered under the NSW Act.

The study area is within the Warrabinga-Wiradjuri #7 Registered Native Title claim area (Tribunal number NC2018/002). The NSW *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) does not prioritise registered native title claimants over others.

3. Aboriginal community consultation

Key points

- *NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)* has been followed.
- Consultation commenced by public notice on 1 June 2022.
- 13 registered Aboriginal parties (RAPs) involved in the assessment.
- The test excavation methodology was sent out for RAP review on 7 September 2022 with nine RAPs responding, all agreed with the proposed methodology.
- Archaeological test excavation occurred from 25 October to 27 October 2022 with members of Didge Ngunawal Clan, Yurwang Gundana Consultancy Cultural Heritage Services, and Bathurst LALC.

Consultation has been carried out with the local Aboriginal community according to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010). For details of the consultation process, see Appendix A.

3.1. Notification of project and registration

In accordance with Step 4.1.2 of the Consultation Requirements, AREA contacted a range of organisations on 1 June 2022 to request potential Registered Aboriginal Parties (RAPs) for consultation regarding the Project. The following organisations were contacted:

- Native Title Services Corporation Limited (NTS Corp)
- Heritage NSW
- Bathurst Local Aboriginal Land Council (Bathurst LALC)
- Lithgow City Council
- Aboriginal Affairs NSW
- Local Land Services – Central Tablelands (LLS)

In addition, in accordance with Step 4.1.3 an advertisement was placed in the *Lithgow Mercury* on 1 July 2022 requesting expressions of interest for consultation regarding the Project. This process resulted in 25 potential RAPs for the Project. These potential RAPs were contacted with an invitation to consult regarding the Project on 19 June 2022.

After Stage 1 of consultation 13 individuals and organisations registered their interest to become RAPs (Table 3-1). One individual requested that their details be removed from this document.

Table 3-1: Registered Aboriginal parties

Contact	Organisation
Robert Clegg	Wiradjuri Council of Elders
Tim Stubbs	Individual
Merekai Bell	Yurwang Gundana Consultancy Cultural Heritage Services
Dean Bell	Yurwang Gundana Consultancy Cultural Heritage Services
Lilly Carroll & Paul Boyd	Didge Ngunawal Clan
Korri Currell	Koori Digs
Shayne Dickson	Gunjeewong Cultural Heritage Aboriginal Corporation

Contact	Organisation
Marilyn Carroll-Johnson	Corroboree Aboriginal Corp
Phil Kahn	Kamilaroi Yankuntjatjara Working Group
Adrian Williams	Individual
Bathurst Local Aboriginal Land Council	Bathurst Local Aboriginal Land Council
Robert Young	Individual
Steven Johnson	Woka Aboriginal Heritage Corp

3.2. Review of assessment methodology

A copy of the proposed test excavation and assessment methodology, and a request for cultural knowledge was communicated to the RAPs on 7 September 2022 requesting feedback by the 7 October 2022. The following responses were received (Table 3-2).

Table 3-2: Responses to methodology

Contact	Organisation	Comments
Robert Clegg	Wiradjuri Council of Elders	• No issues with the methodology
Merekai Bell	Yurwang Gundana Consultancy Cultural Heritage Services	• No issues with the methodology and would like to be involved in the excavation
Tim Stubbs	Individual	• No issues with the methodology and would like to be involved in the excavation
Dean Bell	Yurwang Gundana Consultancy Cultural Heritage Services	• No issues with the methodology and would like to be involved in the excavation
Lilly Carroll & Paul Boyd	Didge Ngunawal Clan	• No issues with the methodology
Korri Currell	Koori Digs	• Agrees with the methodology
Shayne Dickson	Gunjeewong Cultural Heritage Aboriginal Corporation	• Agrees with the methodology
Marilyn Carroll-Johnson	Corroboree Aboriginal Corp	• No issues with the methodology and would like to be involved in the excavation
Phil Kahn	Kamilaroi Yankuntjatjara Working Group	• No issues with the methodology and would like to be involved in the excavation

3.1. Archaeological test excavation

An expressions of interest (EOI) request to be involved in test excavations was sent to RAPs on the 29 September 2022. Due to limited fieldwork positions this EOI asked interested parties to detail their willingness to participate in all aspects of the test excavation, their connection to country and a copy of their rates and insurance. Responses were received from six RAPs, and fieldwork positions were offered to Bathurst LALC, Didge Ngunawal Clan and Yurwang Gundana Consultancy Cultural Heritage Services.

3.2. Project updates

To maintain continues consultation emails were sent to the RAPs within six month intervals on the following dates informing them of project delays:

- 18 April 2023

- 7 November 2024
- 12 May 2025

3.3. Review of draft cultural heritage assessment report

A draft copy of the ACHAR and ATER was sent to the RAPs for review on 28 July 2025, requesting responses by 26 August 2025. Table 3-3 outlines the comments received.

Table 3-3: Summary of comments for the draft ACHAR

Contact	Organisation	Comments

4. Landscape features

Key points:

- The assessment area is with the South Eastern Highlands bioregion and Bathurst subregion
- Several ephemeral drainage lines are present within the assessment area; these are tributaries of Bowens Creek.

A review of the landscape context of the development site allows for comparison with other areas archaeologically investigated. It also assists in assessing existing and previous disturbances which may have affected the integrity of archaeological remains. Environmental features such as landforms, topography, water sources, geology, soils, and vegetation are also relevant for an archaeological assessment.

The assessment area is located within the South Eastern Highlands bioregion and within the boundaries of the Bathurst subregion. The Sydney Basin bioregion is within 300m of the assessment area and other subregions of the South Eastern Highlands bioregion are nearby as well.

4.1. Watercourses

The assessment area is within the Hawkesbury- Nepean River catchment which includes the coastal reaches from Turimetta Headland to Barrenjoey near its mouth, and catchments for Warragamba, the Upper Nepean and the Mangrove Creek dams, the main water supply reservoirs for the Sydney metropolitan area, including Gosford and Wyong (NSW National Parks and Wildlife Service, 2003).

A major tributary with the Hawkesbury- Nepean River catchment is Coxs River, which flows four kilometre south of the development footprint. Several ephemeral drainage lines are present within the assessment area, these are tributaries of Bowens Creek (Figure 4-3).

4.2. Geology and soils

The South Eastern Highlands Bioregion includes plateaus and ranges of the Great Dividing Range. The contact margin of the Bathurst subregion includes rounded hills with nearby steep slopes (NSW National Parks and Wildlife Service, 2003). The assessment area is hilly and includes moderately steep slopes (Figure 4-4).

The Bathurst subregion contains Carboniferous granite with limited areas of Tertiary basalt caps and Quaternary sands along the Macquarie River. Outcroppings of sandstone bedrock was observed within the assessment area. Sandy loams sit atop red clays in the assessment area with frequent quartz gravels.

4.3. Vegetation

Prior to European settlement much of the Lithgow region was woodland to open forest of; Yellow box (*Eucalyptus melliodora*), Broad-leaved peppermint (*Eucalyptus dives*), Red stringybark (*Eucalyptus macrorhyncha*) and White box (*Eucalyptus albens*) on ridges and slopes. Manna gum (*Eucalyptus viminalis*) and River oak (*Casuarina cunninghamiana*) in valleys. Patches of Black cypress pine (*Callitris endlicheri*) in rocky outcrops, grasslands with patchy Snow gum (*Eucalyptus pauciflora*) woodlands in cold air drainage hollows.

The study area has been mostly cleared of upper story vegetation and is covered in a mixture of native and exotic ground cover, sedges, and bracken fern.

4.4. Climate

Long-term climate statistics relevant to the assessment area is from the Lithgow (Birdwood St) weather station. The statistics encompass over 80 years of data up to the year 2006 (Bureau of Meteorology, 2025). Average climate data from the weather station is provided in Table 4-1. The region has warm summers and cold winters. Rainfall is reliable and peaks in January.

Table 4-1: Summary climate data (red maximum, blue minimum values)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
<u>Mean maximum temperature (°C)</u>	25.5	24.7	22.4	18.4	14.3	11.1	10.4	12.0	15.4	18.7	21.5	24.5	18.2	84 1912 2006
<u>Mean minimum temperature (°C)</u>	11.9	12.1	10.1	6.7	3.9	1.8	0.7	1.3	3.4	6.0	8.1	10.4	6.4	84 1912 2006
Rainfall														
<u>Mean rainfall (mm)</u>	94.3	83.8	83.9	62.7	63.0	67.6	67.6	63.4	58.9	67.7	70.0	76.1	858.5	92 1889 2006
<u>Decile 5 (median) rainfall (mm)</u>	85.1	65.6	65.5	50.3	44.0	52.6	53.4	48.1	53.3	59.5	66.4	67.0		92 n/a n/a
<u>Mean number of days of rain ≥ 1 mm</u>	8.3	7.6	8.4	7.0	7.6	8.8	8.4	8.3	7.9	8.2	7.7	7.6	95.8	92 1889 2006

4.5. Land use history

In 1813 Explorers Blaxland, Wentworth and Lawson crossed the Blue Mountains, followed shortly by settlers and pastoralists. The first settlers arrived in the Lithgow Valley in 1824 and the town named in 1827 by Hamilton Hume in honour of Governor Brisbane's private secretary, William Lithgow. The assessment area is north of the Village of Bowenfels, the first settlement in the valley. The village was established in the early 1830s to serve travellers along the highway to Bathurst (Lithgow Tourism, 1995). The earliest available parish map (Figure 4-1) shows the assessment area belonging to an Alexandar Binning, and Magpie Hollow Road not yet constructed. By 1892 Magpie Hollow Road was constructed (Figure 4-2).

Lithgow boomed during the 1870s with a number of ironwork companies, copper smelters in the area along with the first meat freezing works in NSW, the brick works and Lithgow pottery. As a result, much of the forest in the surrounding region was logged.

Figure 4-1: 1889 Parish map, approximate study area in red (Surveyor General, 1889)

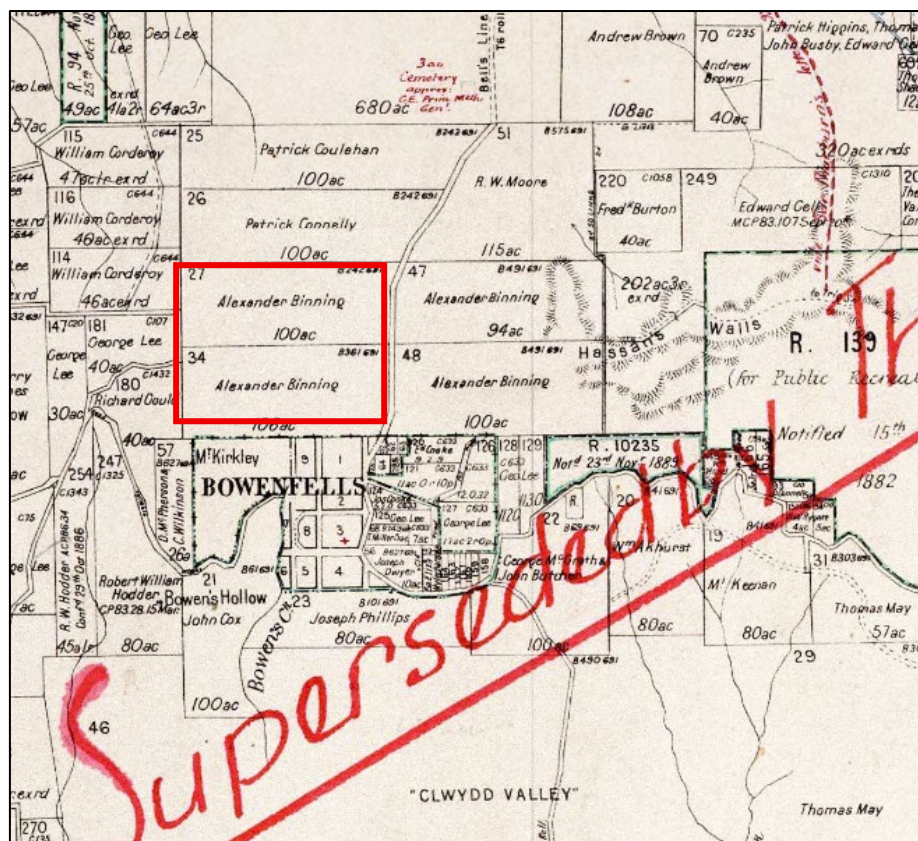


Figure 4-2: 1892 Parish map, assessment area in red (surveyor General, 1892)

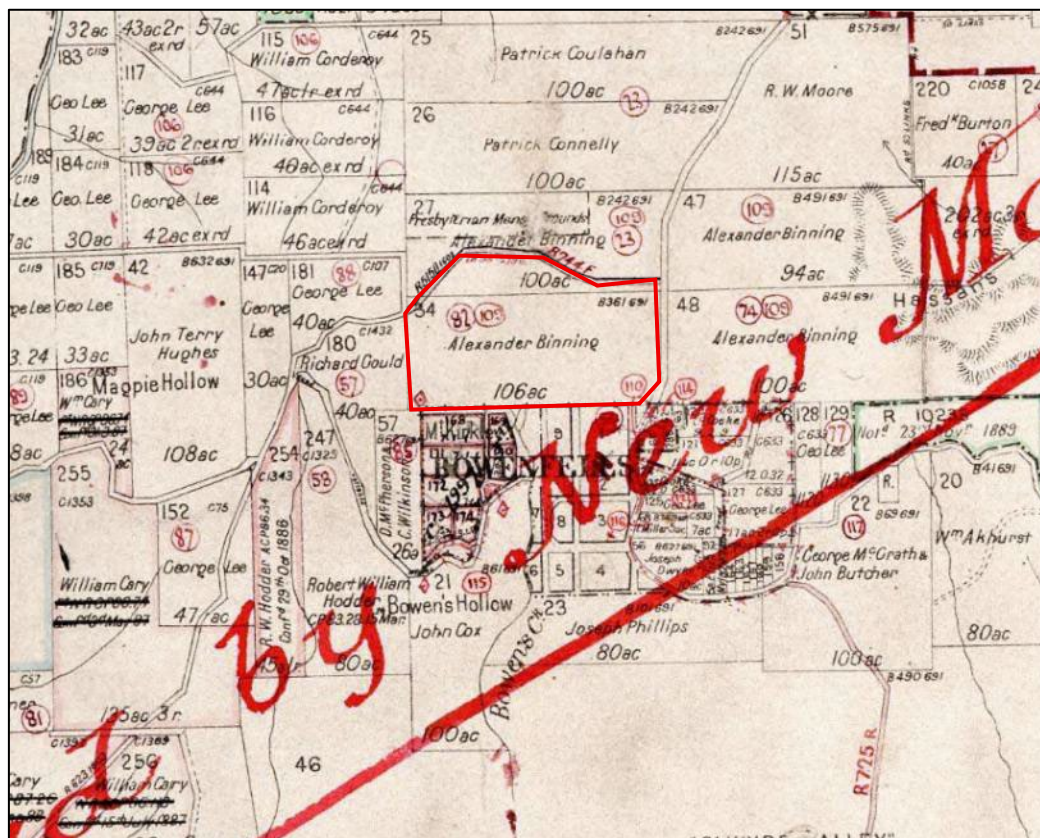


Figure 4-3: Major waterways within the region

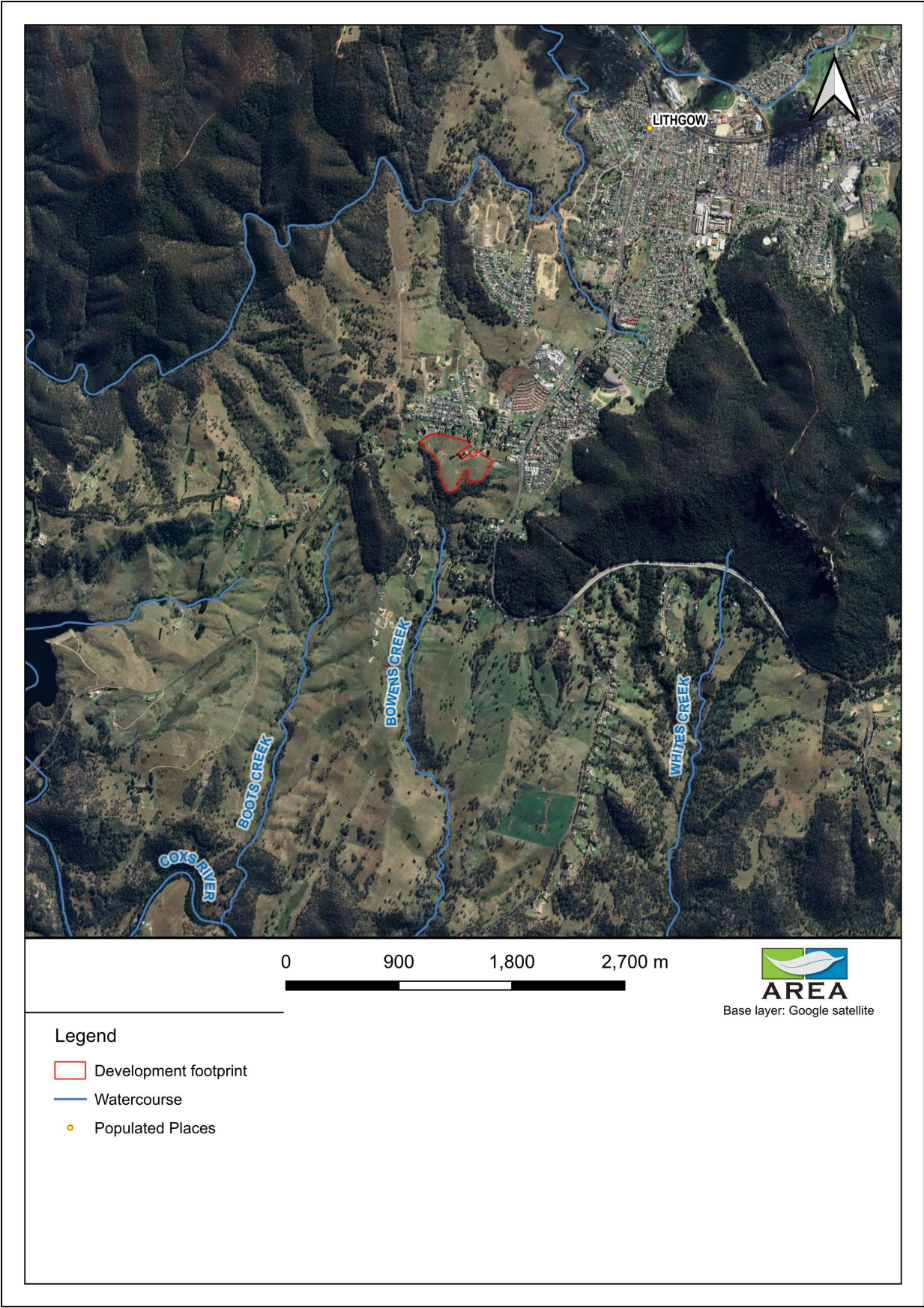
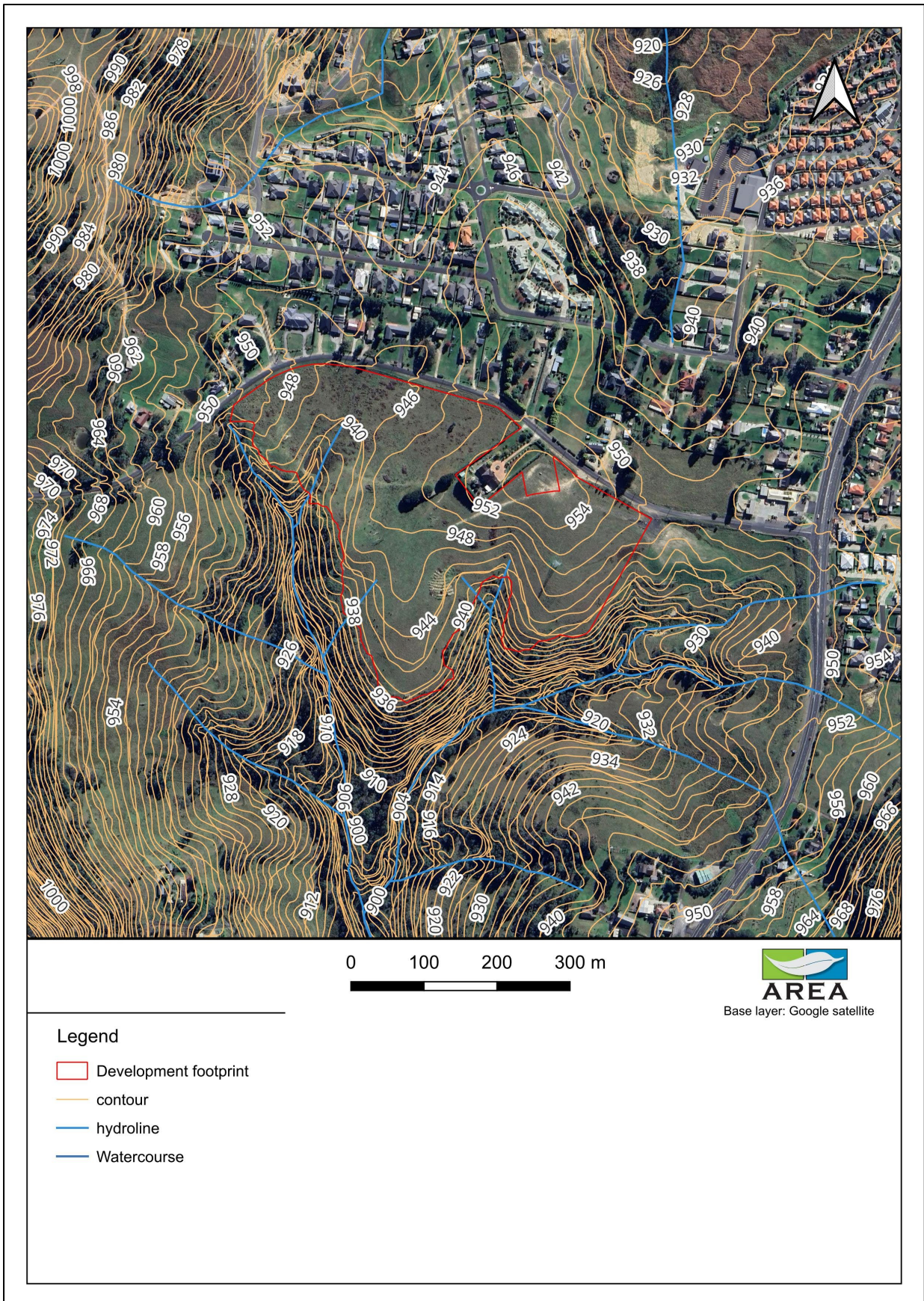


Figure 4-4: Drainage lines and elevation within the development footprint



5. Archaeological context

Key points:

- The assessment area is within the traditional lands of the Wiradjuri people
- The Wiradjuri is one of the largest language groups in Australia with an estimation of between 12,000 and 100,000 people at the time of European arrival.
- 42 Aboriginal sites are recorded within a five-kilometre search area, with two Aboriginal sites within the development footprint.
- One AHIMS site Magpie Hollow Road has been combined with Magpie Hollow AS01 (AHIMS ID 45-4-11998) and plotted incorrectly.
- An active Native Title claim is made over the assessment area (Warrabinga-Wiradjuri #7 – Tribunal number NC2018/002)

5.1. Aboriginal cultural heritage

5.1.1. Regional cultural context

Aboriginal people have been present in Australia for approximately 60,000 years. The archaeological record provides evidence of a dynamic culture coupled with a long occupation of the land. While the boundaries of language groups, as defined by people like Tindale (1974) should be taken as indicative (Attenbrow, 2010), the assessment area is within the traditional lands of the Wiradjuri peoples (Tindale, 1974). The Wiradjuri are the people of the three rivers, inhabiting a widespread area which extended from the Great Dividing Range, west to the Macquarie-Wambuul, Lachlan (Kalare) and the Murrumbidgee (*Murrumbidgee*) rivers (Bamblett, 2013; Coe, 1989).

The Wiradjuri is one of the largest language groups in Australia with an estimation of between 12,000 and 100,000 people at the time of European arrival (Bamblett, 2013). Wiradjuri people maintained connections across the long distances, through ceremonial cycles which moved around the tribal area (Tindale, 1974). The name Wiradjuri is an antonym derived from *wirraay* meaning 'no' and *-thuurray* or *tyuuray* meaning 'having' (Donaldson, 1984). Differences in dialect have been recorded amongst the Wiradjuri, and notably one has been recorded around the Bathurst region (Tindale, 1974) which coincides with a distinctive upper Macquarie clan territory centered around Bathurst (Pearson, 1984, p. 68).

Aboriginal occupation of the Darling Basin (the Wiradjuri occupy the portion of the basin to the west) has been dated to c. 40,000 years BP (Bowler et al., 2003). Within the Blue Mountains region a number of sites have dated from the Last Glacial Maximum (LGM) including the Kings Table site at Wentworth Falls which dated to c. 25,000 years BP (Stockton & Holland, 1974).

Pearson (1981) conducted a comprehensive study of Wiradjuri sites of the upper Macquarie region in relation to his PhD dissertation. Through excavation and extensive research, he determined that the Wiradjuri functioned primarily in small groups of variable size, dependent on the season. These groups were comprised of immediate relations, the smallest being the basic family unit. During feasting and ceremonies these family groups gathered in numbers possibly between 80-150 people. Pearson (1981) also developed a pattern of Aboriginal occupation through the analysis of just over 40 open site within four regions between Bathurst and Dubbo. His findings indicated that archaeological sites can be grouped into two main

types, occupation sites, and non-occupation sites, which can include scarred or carved trees, ceremonial sites, grinding grooves and burial sites.

Through analysis of the location of these sites, Pearson (1981) suggested that occupation sites would range from between 10 to 500m from water sources. However larger sites were generally located closer, at an average of 90m to water. Site locations that provided shelter, were protected from prevailing wind and cold air drainage, with well drained soil, and views of watercourses were favoured. These sites also tended to be situated in open woodlands and were rarely used for longer than three nights. Sites that showed evidence of dense archaeological deposits therefor represent accumulations from multiple occupation events. Non-occupation sites like scarred or carved trees, burial sites and grinding grooves were located in close proximity to these occupation sites. However, grinding grooves were also raw material depended, occurring only where there are suitable sandstone outcrops. Scarred or carved trees were also distinguished by their close proximity to occupation sites and watercourses. While quarry sites were located at places with stone of serviceable stone quality. Unlike these sites, ceremonial sites such as earth rings and stone arrangements were situated away from campsites, in isolated places, generally on small hills or knolls, although they could occur on flat land.

5.1.2. Local Archaeological context

The results of cultural heritage database searches are presented in this section. The objective of these searches is to identify any recorded Aboriginal objects, sites or places within the development footprint and to provide archaeological context for the proposal.

The results of these searches are summarised in Table 5-1 and presented in Appendix B.

Table 5-1: Summary of database searches for Aboriginal heritage

Database	Date of Search	Parameters	Results
Aboriginal Heritage Information Management System (AHIMS) Client ID: 1006093	20/05/2025	GDA, Zone: 56 227349 – 237349 mE 6283895 – 6293895 mN with a Buffer of 0 meters	42 Aboriginal sites are recorded in within the search area. Three Aboriginal sites are recorded in the assessment area
Lithgow LEP 2014	20/05/2025	Schedule 5: Environmental Heritage	No items relative to Aboriginal heritage within the assessment area are listed on the LEPs
Native Title Vision https://nntt.maps.arcgis.com/	20/05/2025	NSW	An active Native Title claim is made over the assessment area (Warrabinga-Wiradjuri #7 – Tribunal number NC2018/002)
State Heritage Register http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx	20/05/2025	Lithgow LGA	No sites of Aboriginal heritage are on the database within the assessment area

The location of Aboriginal sites is considered culturally sensitive information. This information, including the Aboriginal Heritage Information Management System (AHIMS) data appearing on the heritage map for the proposal should be removed from this report if it is to enter the public domain.

A basic search of the Aboriginal Heritage Information Management System (AHIMS) was conducted on 20 May 2025 (Client ID: 1006093). The AHIMS search provides archaeological context for the area and identifies whether any previously recorded Aboriginal sites are located within or near the study area. 42 Aboriginal sites are recorded on the AHIMS database within a five-kilometre search area. The most common recorded site type is 'Artefact' (n=34) with 'Artefact, Potential Archaeological Deposit (PAD)' (n=5) the next most common site type (Figure 5-1).

Three AHIMS sites were plotted within the assessment area (Figure 5-2). Two Aboriginal sites, Magpie Hollow AS1 (AHIMS ID 45-4-1187) and Magpie Hollow Artefact Scatter 02 (AHIMS ID 45-4-1225) were recorded within the assessment area. Magpie Hollow AS1 (AHIMS ID 45-4-1187) was recorded during the 2021 site survey while Magpie Hollow Artefact Scatter 02 (AHIMS ID 45-4-1225) is an artefact scatter and PAD, recorded during AREA's investigations. More information can be found in Section 6.2.5.

The third Aboriginal site also called Magpie Hollow AS01 (AHIMS ID 45-4-1198) was identified by Jacobs (Transport for NSW, 2023) as part of the Great Western Highway Upgrade – Little Hartley to Lithgow (West Section). The AHIMS coordinates for this site are plotted within the assessment area and due to the similar site names and AHIMS IDs site card details from AHIMS ID 45-4-1187 have been merged with AHIMS ID 45-4-1198 however a review of the site card reveals that AHIMS point 45-4-1198 is plotted incorrectly in AHIMS, and the site is correctly located to the east of the assessment area (Figure 5-2). We are in the process of rectifying this issue with Heritage NSW.

Magpie Hollow AS01 (AHIMS ID 45-4-1198) was originally identified as a PAD on the gentle lower slope within 200 metres of ephemeral second order tributary to Bowens Creek. The PAD is adjacent to the Great Western Highway and abutted by Magpie Hollow Road (area within construction corridor). Five test pits were excavated with a total of 132 artefacts recorded. Magpie Hollow AS01 (AHIMS ID 45-4-1198) is outside the assessment area and will not be impacted by the proposed works.

A search of Schedule 5: Environmental Heritage of the Lithgow Local Environmental Plan (LEP) 2014, and the Stage Heritage Register was conducted on 20 May 2025. No items relating to Aboriginal or non-Aboriginal heritage are recorded on the State heritage register or the Lithgow LEP within the assessment area.

Figure 5-1: AHIMS sites within five kilometres of the assessment area

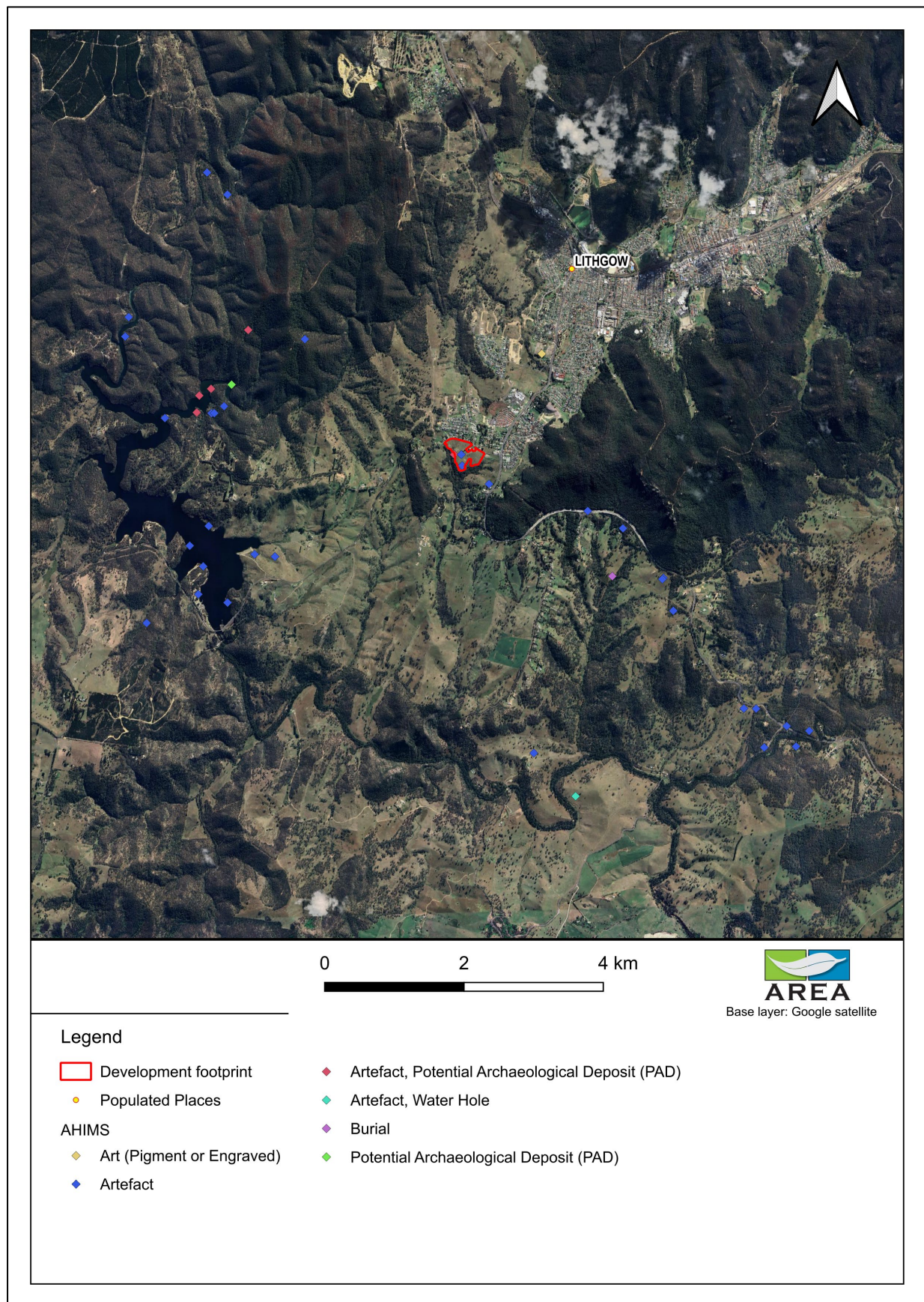
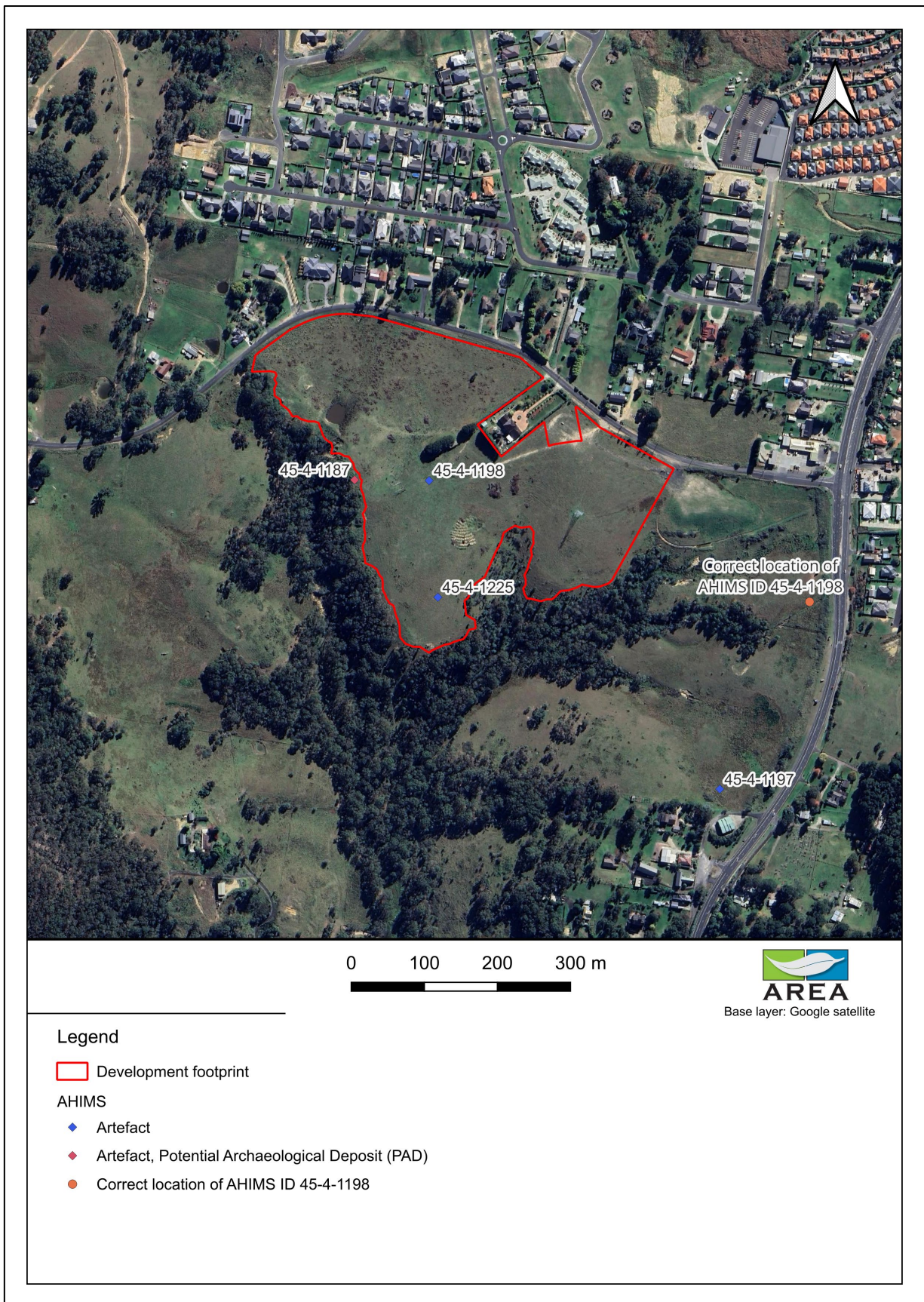


Figure 5-2: AHIMS sites recorded within the assessment area and correct location of AHIMS ID 45-5-1198



5.1.3. Previous Assessments

Archaeological test excavation of PADs 1 and 2 (Site L2: NPWS# 45-1-2573 & 45-1-2574): Proposed corridor of the new Castlereagh Highway 86, Lidsdale, NSW (OzArk, 2003)

Surveys were conducted by Gay (1999, 2000) over a variety of proposed routes for the realign of the Castlereagh Highway east of the Cox's River, Lidsdale. Route 3c was finally settled on as the preferred route with two PADs previously recorded along this route.

Twenty-eight (28) test pits were excavated across these PADs. With test pit located in different landforms including lower and upper alluvial terraces, slopes and spur. A total of 417 stone artefacts were recovered from these test excavations with most artefacts made from Quarts (n=182) and silicified Tuff (n=165) and many pits containing high quantities of the same material which is interpreted as representing individual knapping events. While unmodified flakes or debitage were the most common artefact type recorded, cores, backed artefacts, flaked tools, hammerstones and anvils were also recorded. Given the high quantity of stone artefacts recovered during the test excavation archaeological salvage was recommended for this site.

Salvage excavation of site L2 (DEC AHIMS# 45-1-2573 & 2574). Proposed corridor of the new Castlereagh Highway 86, Lidsdale, NSW (OzArk, 2004b)

Following high numbers of artefacts recovered during test excavations of two PADs near Lidsdale, archaeological salvage was carried out across the new site L2 (AHIMS #45-1-2574). 124, 1 x 1 metre, pits were excavated across this site with stone artefacts recovered from all pits. Almost 6100 stone artefacts were recovered from the salvage excavation with an additional 441 artefacts collected during construction monitoring.

This archaeological salvage attempted to answer a number of scientific questions including:

1. Does site L2 show evidence of use as a transient camping location for a specific activity or was it repeatedly occupied through time?
2. Are there changes through time in the use of various raw materials and stone tool production, and the technological strategies that underpin these factors?
3. Does site L2 exhibit site structure in the form of spatially discrete activity areas (e.g. knapping floors, heat treatment pits, and hearths)?
4. Preliminary evidence for possible stratification was recovered during the test excavations. Is this borne out when a larger sample is available? How have taphonomic factors affected the spatial patterning of artefacts?

Results showed that raw material use varied across the site with Quartz prominent in Area I, Silicified Tuff was dominant in Area II and an undetermined quartzite/silcrete dominate in Area III. 40% of the raw material used across the site was imported including fine-grained siliceous materials, silicified tuff, and silcrete. Backed artefact comprise 2.4% of the assemblage. They are frequently made from imported material like silicified tough and are mostly located within spits 1 and 2 of Area 1.

In Area 1 changing tool technology is evident over time, with spits 3 and 4 containing Pre-Bondaian assemblages, that is dominated by quartz, and contains a higher frequency of quartzite and igneous artefacts than the more recent assemblage. The stone artefacts from spits 1 and 2 contain stone tool technologies typical of Bondaian assemblage, which contains

backed blades with cores and debitage showing asymmetric platforms. Artefact were dominated by quartz and silicified tuff.

Two Optically Stimulated Luminescence (OSL) samples were collected from Area I square 35E 118N. The sample taken at a dept of 30cm below the surface dated to 7400±700 years before present (2000AD) and the sample from 45cm below the surface dated to 13,500±1,000 years before present (2000AD).

Preliminary Environmental Investigation Great Western Highway Upgrade Mt Victoria to Lithgow - Aboriginal Heritage Assessment. Phase 2: Corridor Area Investigation (Comber, 2009).

A working paper developed for the NSW Road and Traffic Authority (Comber, 2009) developed a predictive model for sensitive archaeological landforms across the Blue Mountains to the east of the assessment area. Using landforms and site types of previously recorded sites, their model determined that ridge crests, spur crests and saddles, alluvial terraces and creeklines contain the highest number of previously recorded sites and are therefore predicted to contain the greatest number of sites. Foothills, and steep slopes were predicted to be of medium sensitivity and current towns and villages were predicted to be of low sensitivity.

Great Western Highway Upgrade Mount Victoria to Lithgow Forty Bends Upgrade. Aboriginal Cultural Heritage Assessment Report. Review of Environmental Factors Technical Paper 3 (Comber, 2012).

A survey of the proposed Great Western Highway Upgrade between Mount Victoria and Lithgow (Comber, 2012) identified 45 Aboriginal sites and 20 potential archaeological deposits (PADs). The Aboriginal sites consisted of predominantly artefact scatters (n=25) and isolated stone tools (n=7), followed by rock shelters (n=3) recorded both with and without PADs (n= 5), scar tree (n=4), and ochre source (n=1). The artefact scatters were predominantly located on floodplains/flats (n=12) and undulating mid slopes (n=12). With artefact counts ranging between 1 and greater than 1000 artefacts, however most artefact scatters were estimates to contain less than 50 artefacts. Test excavations were conducted on nine of the 20 identified PAD's, located on undulating mid slopes, foothills, spurs and crests. Three stone artefacts were recovered from one pit located on a ridge crest made from locally available chert.

Austen Quarry Stage 2 Extension Project. Indigenous Heritage Assessment (Niche Environment and Heritage, 2014).

A survey was conducted for the expansion of Austen Quarry, located approximately 7 kilometres south east of the assessment area. At the time of the survey ground surface visibility was high across the ridgeline extraction area (GSV 80%), but low in the ridgeline and slope overburden emplacement area (GSV 5%). Most of the survey area had high ground surface visibility (GSV), and no artefacts were recorded.

This report also included details of a previous assessment that occurred on site by Mills and Wilkinson (1993). This assessment recorded two open artefact scatters and four isolated artefacts. The isolated artefacts were recorded as including a grinding stone (basalt anvil) and three flakes and re recommendation was made that these be collected and displayed in the Heartley NPWS office. The locations of these sites were not registered on AHIMS and it is not known if these artefacts were collected.

The artefact scatters were both located on spurs. Hartley 1 contained 10 stone artefacts, while Hartley 2 contained an unspecified number of artefacts.

Proposed Residential Subdivision: Magpie Hollow - Aboriginal Heritage Due Diligence Assessment (AREA2021a; 2021b).

A site inspection of 33 and 5 Magpie Hollow Road (Lot 1 DP1229039 and Lot 3 DP1229039) was conducted by Anna Darby of AREA on 14 and 15 April 2021 (AREA Environmental & Heritage Consultants (AREA), 2021b). The site inspection was conducted by vehicle and pedestrian survey. Particular attention was paid to areas within 200 meters of the drainage lines, exposures, flat areas and other areas that could contain archaeological potential.

At the time of the site inspection the region had experienced heavy rain and the ground surface visibility was low due to the dense grass. Several areas of potential archaeological deposit (PAD) were observed (Figure 6-5). These areas are located within 200 meters the drainage lines and are on elevated, relatively flat landforms.

Brick and concrete rubble were observed around the dam in the northern portion of the study area. The landholder (Mr Frank Inzitari) believes that these are the remains of the slaughterhouse associated with Thomas Mort, an Australian industrialist who improved the refrigeration of meat.

AREA recommended that at a minimum an Aboriginal due diligence should be conducted across the entire study area in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW2010b) with targeted survey across the areas of PAD. The remains of the slaughterhouse with the possible association with Thomas Mort would need to be further investigated.

6. Archaeological assessment

Key points:

- An archaeological survey of the assessment area was conducted on 7 October 2021 by Nick Harrop of AREA with Donald Morgan and Matthew Sullivan representing Bathurst LALC.
- Three Aboriginal sites were recorded. One Artefact scatter and PAD (MHAS1 and PAD) and two PADs.
- Test excavation on PAD 1 and 2 was conducted from 25 October to 27 October 2022 by Kim Newman and Anna Darby of AREA with members of Didge Ngunawal Clan, Yurwang Gundana Consultancy Cultural Heritage Services, and Bathurst LALC.
- Four test pits were excavated in Area 1 (MHAS1 and PAD 1) with three stone artefacts recovered.
- 11 test pits were excavated in Area 2 (PAD 2) with 15 artefacts recovered and recorded on AHIMS as Magpie Hollow Artefact Scatter 02 (AHIMS ID 45-4-1125).

6.1. Archaeological survey

The following has been extracted from *Proposed Residential Subdivision: Magpie Hollow Aboriginal Heritage Due Diligence Assessment* (AREA2021b).

A survey of the development footprint was conducted on 7 October 2021 by Nick Harrop of AREA and Donald Morgan and Matthew Sullivan represented Bathurst LALC. One Aboriginal site and three PADs were recorded during the survey. The possible remains of the slaughterhouse were found to have no clear historical significance and further research indicates the remains were not likely to belong to Thomas Mort's slaughterhouse.

6.1.1. Methodology

The survey was conducted on foot. The purpose of the archaeological survey was to identify any previously-undetected Aboriginal sites and evaluate the possible need for further investigation (i.e. test-excavation). The areas identified as PADs by AREA in April 2021 (Figure 6-5) were focal points for the survey.

A GPS was used to ensure the survey covered the subject site. The positions of the tracks and location of sites were recorded. Photographic and written records were made of the landscape features relevant to archaeological potential. These features include disturbance levels, Ground Surface Visibility (GSV) and landforms of higher archaeological potential.

6.1.2. Constraints

GSV was very low during the survey. This impeded the ability to detect sites that manifest on the ground surface, such as stone artefact sites. There were no other constraints in completing the survey.

6.1.3. Results

A small stone artefact scatter, Magpie Hollow AS1 (MHAS1), was recorded nearby to one of the waterways within the assessment area (Figure 6-5). The site has an associated PAD. Two other PADs were recorded, neither having an associated Aboriginal site.

MHAS1 and PAD

Site Type: Artefact scatter and PAD

Centroid: GDA94 Zone 56 94232218E 6288890N

MHAS1 (AHIMS ID 45-4-1187) is a small, low density stone artefact scatter approximately 20 metres to the east of an unnamed, Strahler 2nd-order waterway. The artefacts were recorded on a series of small exposures on the upper bank of the waterway, just below the break-of-slope of a crest (Figure 6-1 and Figure 6-2). The site extends to the east to encompass the crest. The site extends approximately 30 x 50 metres in area.

The site includes several quartz flakes (Figure 6-3 and Figure 6-4). One flake had possible retouch on one margin. It is very likely more stone artefacts are present outside of the exposures which only make up approximately 5% to 10% of the area of the site. GSV outside the exposures was very low (approximately 1%).

Figure 6-1: View of an exposure within MHAS1 toward the waterway



Figure 6-2: View of MHAS1 to the east toward the crest



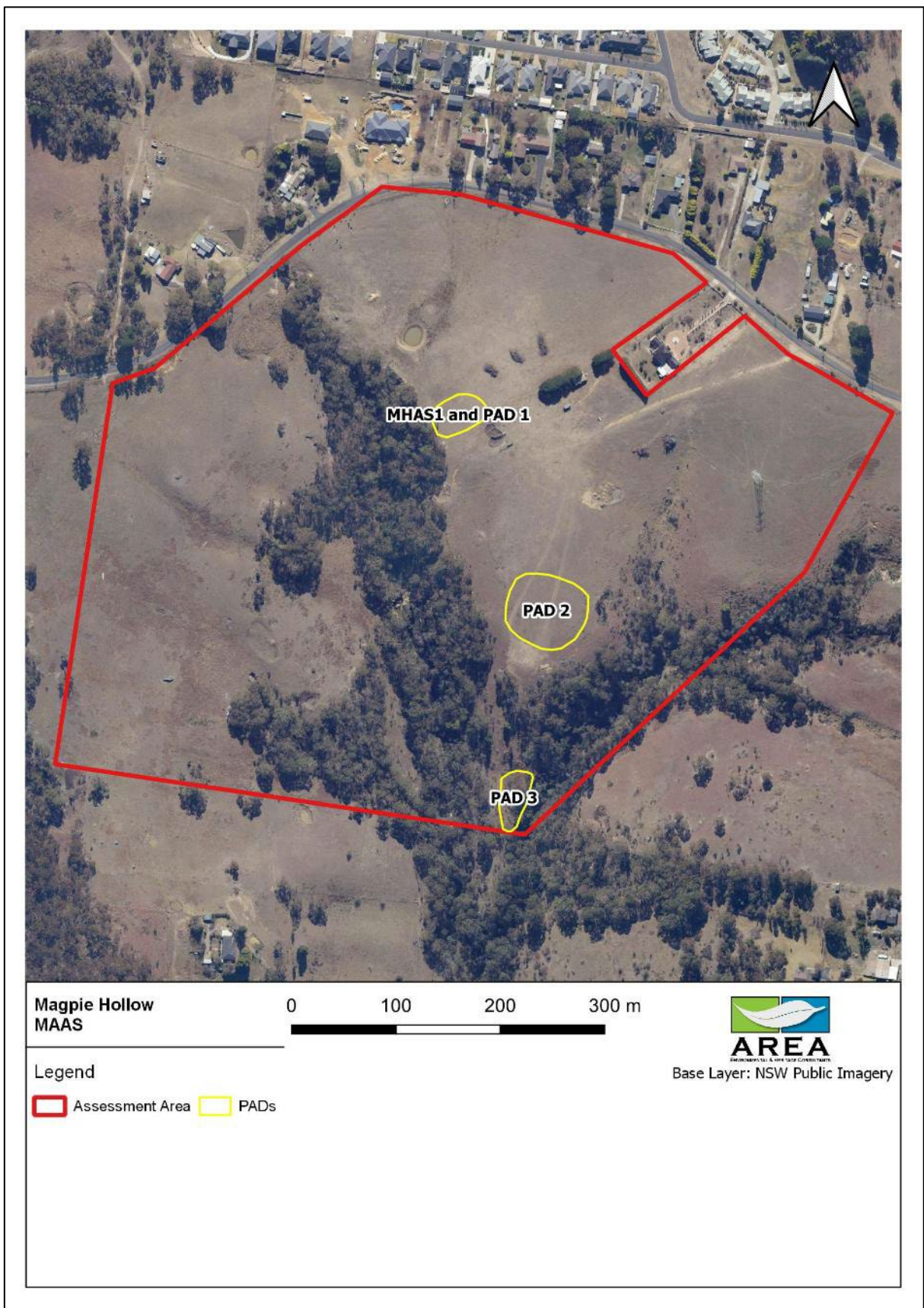
Figure 6-3: View of the proximal faces of a selection of quartz flakes



Figure 6-4: View of the dorsal faces of the quartz flakes



Figure 6-5: Overview of heritage constraints



PAD 2

PAD 2 is on a ridge crest between two ephemeral waterways (Figure 6-5 and Figure 6-6). It occupies an area of approximately 70 x 70 metres. No conclusive site features were recorded in association with the PAD. The archaeological potential is derived from the landscape features (relatively undisturbed elevation nearby to water sources) and the presence of several nearby sites. GSV was very low within the PAD and limited exposures were nearby so the absence of site features such as stone artefacts does not diminish the archaeological potential of the PAD.

Figure 6-6: View to the south-east toward PAD 2



Figure 6-7: View to the south toward PAD 3



PAD 3

PAD 3 is located near the confluence of two ephemeral waterways (Figure 6-5 and Figure 6-7). It covers an area of approximately 60 x 25 metres. No conclusive site features were recorded in association with the PAD. The archaeological potential is derived from the landscape features and the presence of several nearby sites. GSV was very low within the PAD and limited exposures were nearby so the absence of site features such as stone artefacts does not diminish the archaeological potential of the PAD.

6.1.4. Archaeological survey discussion and conclusion

The assessment for the proposal was constrained by ground surface visibility. Three areas of potential archaeological deposit (PAD) have been recorded and require further investigation to ascertain the nature of the archaeological remains in the case of MHAS1 with PAD and the possibility of archaeological remains within PAD 2 and PAD 3. The presence of several sites within the vicinity of the assessment area indicates there is high potential.

Disturbance on the property appears to be largely confined to tree clearance and erosion outside of specific locations of construction-related disturbances. While the land use history likely had an impact on the soil profile, there is a strong possibility that sub-surface stone artefact deposits are present with a reasonable level of intactness. The topsoil was observed to be approximately 40cm to 50cm deep in the vicinity of the PADs (Figure 6-8). This increases the opportunity for intact subsurface archaeological deposits.

Figure 6-8: Example of the soil profile nearby to the PADs



6.2. Archaeological Test Excavation

6.2.1. Test excavation aims

The archaeological survey identified three PADs and one artefact scatter. The proposal will impact two of the PADs and one artefact scatter, MHAS01 and PAD 1, and PAD 2 (Figure 6-5). The test excavation aims to investigate the PADs to establish the extent of archaeological remains in the area. This is largely unknown due to the low ground surface visibility at the time of the survey.

6.2.2. Methodology

The archaeological test excavation was carried out under requirements 14-20 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW2010a). Test excavations are excluded from the definition of harm if they are carried out in accordance with the code. Based on the low density of surface finds within the assessment area, a low-density sampling strategy was defined across two areas. Initially, every second pit would be excavated, the continuation of this sampling strategy and the inclusion or exclusion of pits was determined based on localised disturbances and the ongoing results of excavations.

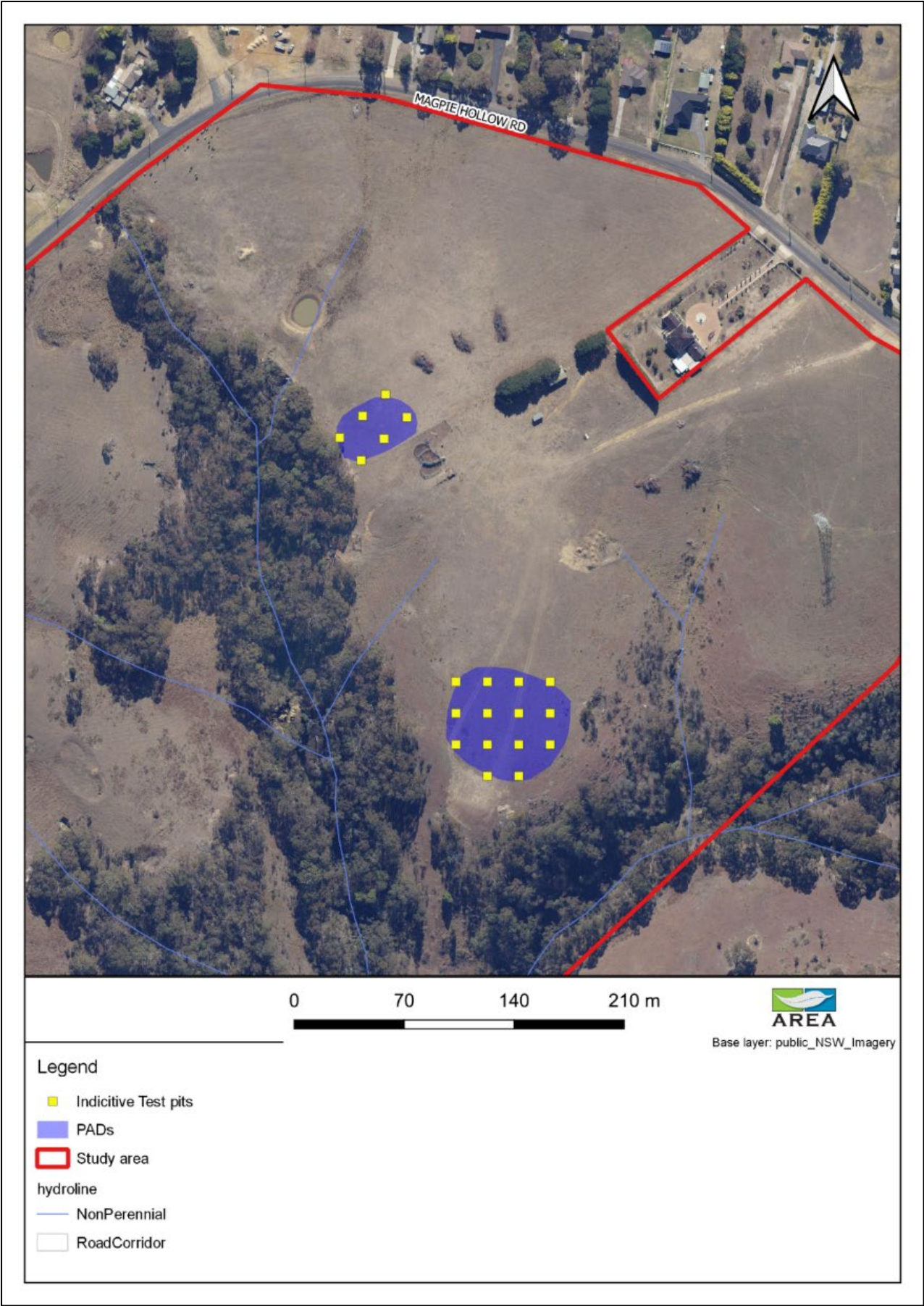
Area 1

Area 1 is comprised of PAD 1 and MHAS01, the test excavation sampling area overlapped the entire PAD. Test pits were positioned along two transects (labelled A and B) aligned northeast-southwest, spaced 20m apart, with test pits spaced at 20m interval, providing a maximum of 6 test pits across the PAD.

Area 2

Area 2 is comprised of PAD 2, the test excavation sampling area overlapped the entire PAD. Test pits were positioned along four transects (labelled A through to D) aligned north-south, spaced 20 m apart, with test pits spaced at 20 m interval, providing a maximum of 14 test pits across the PAD.

Figure 6-9: Indicative test pit locations



6.2.3. Test pit excavations

The Archaeological test excavation was conducted over three days from Tuesday 25 October to Thursday 27 October 2022. Anna Darby and Kim Newman of AREA conducted the test excavations with site officers from Bathurst LALC, Didge Ngunawal Clan, and Yurwang Gundana Consultancy Cultural Heritage Services (Table 6-1). Two Trainees from Bathurst LALC, Amelie Fitzgerald and Mia Dopfer were sitting the Higher School Certificate (HSC) during the time of the excavation and were onsite a total of 1.5 days each.

Table 6-1: Test pit excavation participants

Contact	Organisation	Dates on site
Anna Darby	AREA	25 October to 27 October 2022
Kim Newman	AREA	25 October to 27 October 2022
Paul Boyd	Didge Ngunawal Clan	25 October to 27 October 2022
Merekai Bell	Yurwang Gundana Consultancy Cultural Heritage Services	25 October to 27 October 2022
Mia Dopfer	Bathurst LALC	25 October to 27 October 2022
Amelie Fitzgerald	Bathurst LALC	25 October to 27 October 2022
Tina Scott	Bathurst LALC	27 October 2022

The test pit excavation followed the requirements of the guidance material (DECCW2010a):

- All test pits were excavated by hand (Figure 6-10),
- Test pits were 50cm by 50cm in area (Figure 6-11),
- All excavated material was sieved using a 5mm wire-mesh sieve
- The first pit in each area was excavated in 5cm spits before a judgement would be made to continue at 5cm intervals or move to another interval such as 10cm or by stratigraphic unit that is less than 10cm thick,
- Excavation would continue until culturally sterile soils are reached.
 - Culturally sterile soils were defined as reaching the basal clay layer or three consecutive spits containing no archaeological finds,
- A description of the soils, evidence of disturbance, any intact archaeological features and other information were recorded on for each spit on a pit recording form in the field,
- Muncel soil colour was recorded using a Nix Color Pro to ensure consistency
 - LAB colour values were converted to Munsell values in R using the *aqp* library and the *rgb2munsell* function
- Bulk soil samples were collected from each stratigraphic unit and analysed for pH,
- Photographs and scale drawing of stratigraphic profiles were taken for each pit
- GPS coordinates were recorded for each trench using Backcountry Navigator on a Samsung Z Fold3 phone.
- Test pits were backfilled by the client as soon as practical.

A wet sieving station was set up, uphill from the dam. A firefighting pump located next to the dam was used to extract water from the dam (Figure 6-12). Wet sieving was conducted by placing 330mm diameter gem sieved onto 20L painters buckets (Figure 6-13). Deposits were added to the sieve and then water was scooped over from a holding bucket located next to the sieve (Figure 6-13). All wastewater was then collected in the bucket. When the painters bucket got full the wastewater and sediments were deposited on the grass of the flat river terrace where it would not wash into the creek. To assist in the sieving process clay rich deposits were first soaked in water to create a slurry before being passed through the sieve.

Figure 6-10: Test pits were excavated by hand



Figure 6-11: Test pits marked by a 50cm by 50cm frame.



Figure 6-12: Firefighting pump set up near the dam



Figure 6-13: Wet sieving set up

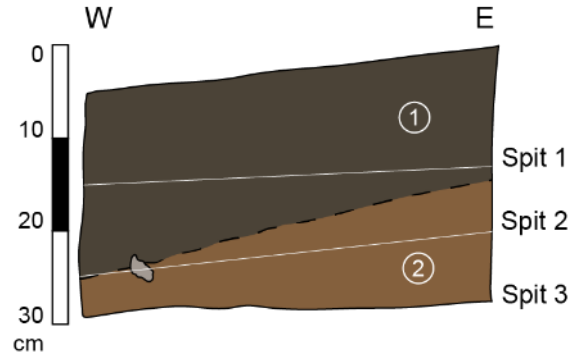


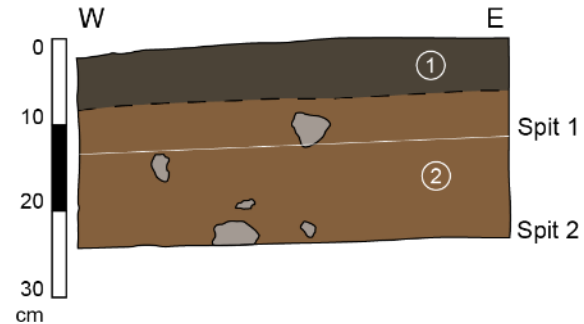
6.2.4. Results

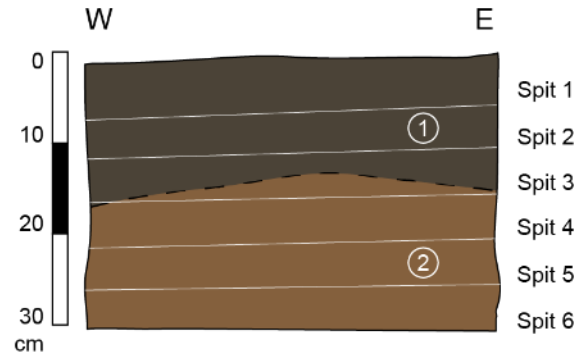
A total of four pits were excavated in Area 1 and 11 test pits excavated in Area 2. Excavating alternating pits enabled a quick overview of the stratigraphic context across the test pit area. In Area 2, every second test was excavated, then the pits surrounding an artefact bearing pit were excavated. A total of three stone artefacts were uncovered in Area 1 and 12 in Area 2 (Table 6-2, to Table 6-6).

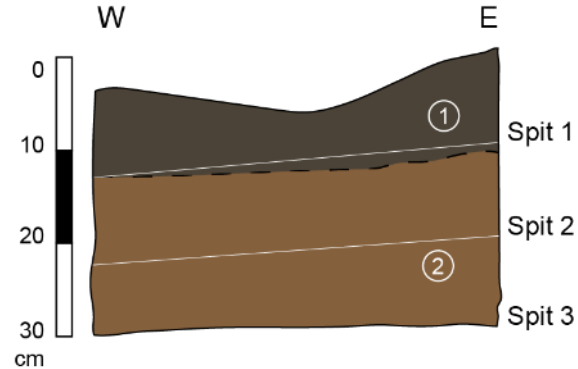
Area 1

Table 6-2: Summary of results from Area 1

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
1/A2	232231 mE 6288909 mN	Test pit 1/A2 is located on a waxing upper slope and is comprised of two distinct stratigraphic layers. Three flakes were recovered from this pit. Excavation stopped at the basal clay layer. 1: Very dark brown (10YR 2.5/2) silty sand with dense, thin grass root inclusions. pH 6. 3 flakes. Defused transition to (Layer 2) 2: Dark orangey yellow (10YR 4/3) sandy clay with well sort pebble inclusions. pH 5.5.	3	260		

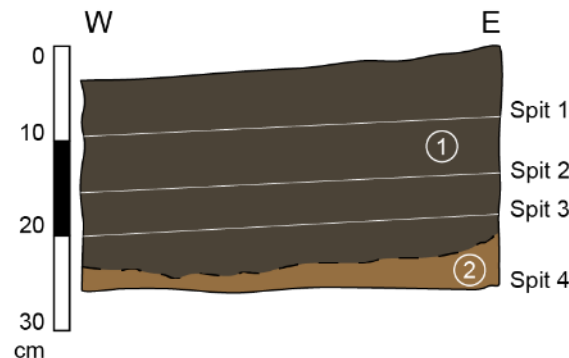
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
1/A3	232209 mE 6288898 mN	Test pit 1/A3 is located on a waxing upper slope slightly north of a farm track. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Very dark brown (2.5Y 2.5/2) silty sand with dense, thin grass root inclusions. pH5.5 Defused transition to (Layer 2) 2: Compacted yellowish red (7.5YR 4/4) sandy clay with well sort pebble inclusions. pH5.5.	0	200		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
1/B1	232262 mE 6288902 mN	The test pit is located on the waxing upper slope and is comprised of two distinct stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Very dark brown (2.5Y 3/2) silty sand with dense, thin grass root inclusions. pH 6.5. Defused transition to (Layer 2) 2: Strong brown (7.5 YR 5/5) friable and course clayey sand. pH6.	0	300		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
1/B3	232229 mE 6288884 mN	The test pit is located on the waxing upper and is comprised of two distinct stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Mottled dark greyish brown (2.5Y 3/2) silty sand with well sorted inclusions (20%). Some charcoal fragments were observed. pH 6.5. Defused transition to (Layer 2) 2: Strong brown (7.5YR 4/4) friable and course clayey sand. pH5.5.	0	300		

Area 2

Table 6-3: Summary of results from Area 2, Transect A

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/A1	232289 mE 6288763 mN	2/A1 is located on the crest and is comprised of two stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: A humic very dark gray (2.5Y 3/1) A1 horizon with small rock (<3cm³) and grass root inclusions (10%). pH 4.5. Defused transition to (Layer 2) 2: Yellow (10YR 4/3) sandy clay with 20% rock inclusions (<5cm³). pH 4.5.	0	220		

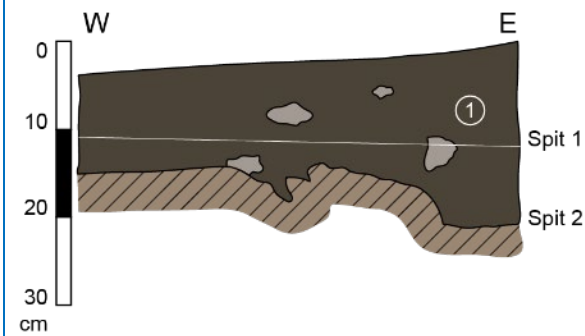
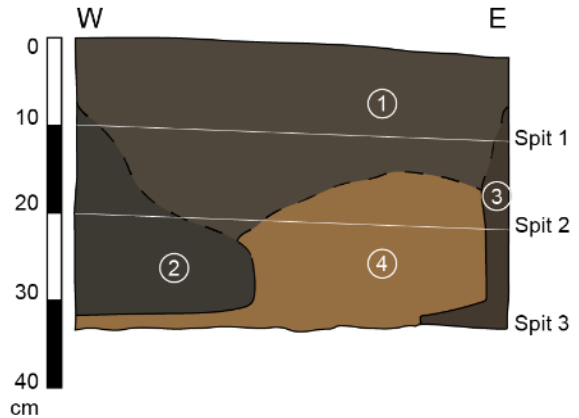
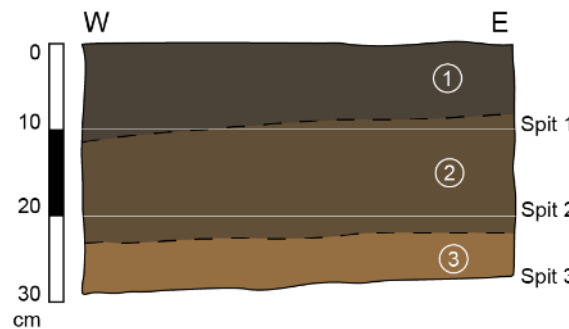
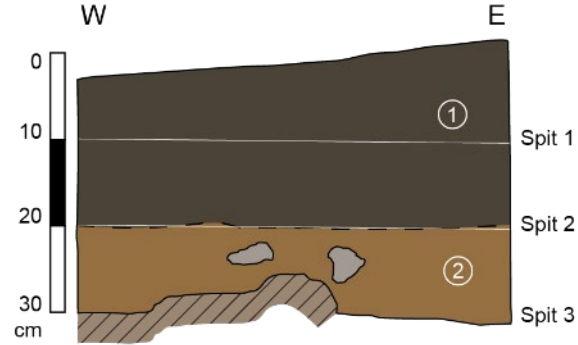
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact count	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/A3	232277 mE 6288726 mN	2/A3 is located on the waxing upper slope and is comprised of one stratigraphic layer overlaying sandstone bedrock. Excavation stopped at sandstone bedrock. No artefacts were encountered in this pit. 1: Humic very dark grey (2.5Y 2.5/1) silty sand with 70% well sorted large sandstone rock inclusions. pH 6.5. 2: Sandstone bedrock (10YR 4/3).	0	150		

Table 6-4: Summary of results from Area 2, Transect B

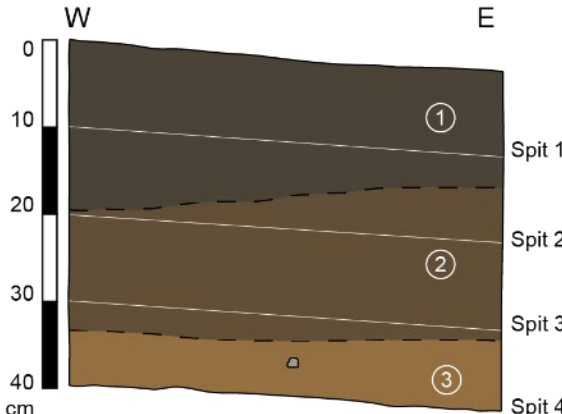
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/B1	232309 mE 6288752 mN	The test pit is located on the crest and is comprised of four stratigraphic units documenting an <i>in situ</i> burning event. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: A humic very dark grey (2.5Y 3/1) silty sand with well sorted small pebbles and sandstone inclusions (10%). pH 5.5. Diffused transition to the top of Layer 2, Layer 3, and Layer 4. 2: A black (7.5YR 2.5/1) charcoal rich deposit with no stone inclusions in the northwestern corner of the pit. Intruding into Layer 1 and Layer 4. pH 5.5. Sharp transition to Layer 4.	0	300		

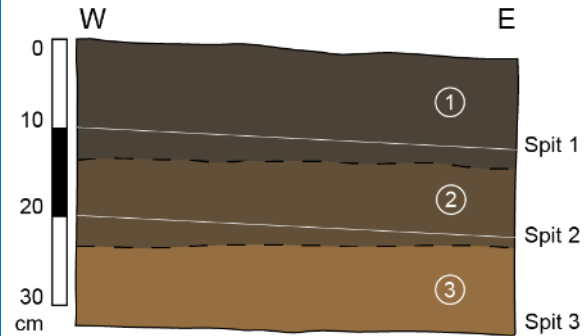
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		3: Dark brown (10YR 3/2) strip approximately 12cm wide that extends down the northeastern corner of the pit and westward into Layer 4. Contained large fragments of charcoal running parallel with the length of the Layer. pH 6.0. Sharp transition to Layer 4. 4: Dark yellowish brown (10YR 4/4) friable and course clayey sand. pH6.				
2/B2	232305 mE 6288738 mN	2/B2 is located on the on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Very dark grayish brown (10YR 3/2) silty sand with dense and thin grass root inclusions. pH6.5.	0	300		

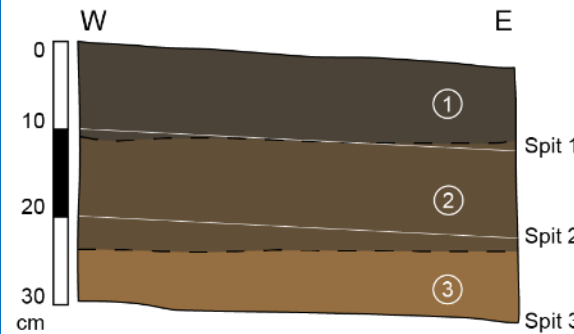
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		Diffused transition to Layer 2 2: Dark brown (2.5Y 3/3) silty sandy clay with 1% well sorted small pebbles (<3cm). Layer is a mixture of Layer 1 and Layer 3. pH 5.5. Diffused transition to Layer 3. 3: Yellowish brown (10YR 5/4) sandy clay with well sorted pebble inclusions (20%).				
2/B4	232290 mE 6288699 mN	The test pit is located on the waxing upper slope comprising two stratigraphic layers overlying a degraded sandstone bedrock. 1: Humic dark brown (2.5Y 2.5/2) silty sand with well sorted rounded rock (3-5cm³) inclusions (30%). pH 6. 2: Dark brown (2.5Y 5/3) sandy clay with 2% well sorted pebbles (5-20mm³). pH 5.5.	0	300		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		Overlies degrading sandstone bedrock, with fragments of the sandstone mixing with Layer 1 to create the Layer 2 deposit.				

Table 6-5: Summary of results from Area 2, Transect C

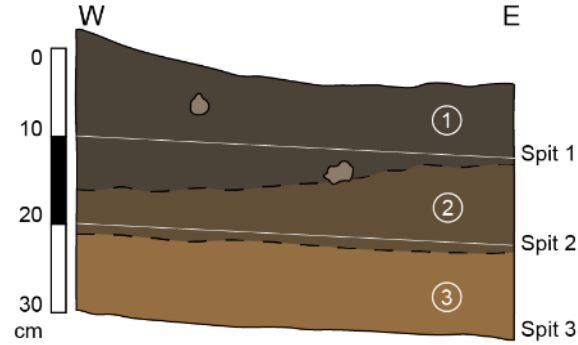
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/C1	232329 mE 6288746 mN	2/C1 is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. Three artefacts were encountered in this pit. 1: Very dark brown (10YR 2.5/1) silty sand with dense and thin grass roots and moderately well sorted small pebbles (1-3mm³) inclusions. pH 6.0. Diffused transition to Layer 2. 6 artefacts. 2: Dark brown (10YR 3/3) silty sandy clay with	8	400		

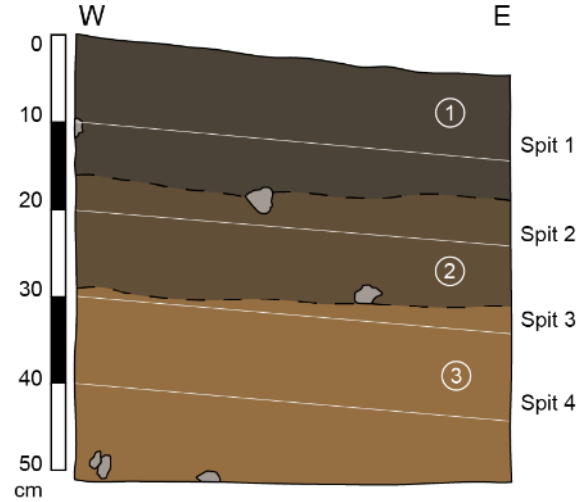
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		5% well sorted small pebbles (<3cm). Layer is a mixture of Layer 1 and Layer 3. pH 6. 2 artefact. Diffused transition to Layer 3. 3: Yellowish brown (10YR 4/5) sandy clay with well sorted pebble (1-3mm³) inclusions (10%). pH 6.				
2/C2	232323 mE 6288727 mN	This pit is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. Three artefacts were encountered in this pit. 1: Dark brown (2.5Y 1/1) silty sand with dense and thin grass roots and moderately well sorted small pebbles (1-5mm³) inclusions (20%). pH 5.5. Diffused transition to Layer 2. 3 artefacts.	3	300		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		2: Dark brown (10YR 4/3) silty sandy clay with 20% well sorted small pebbles (1-4mm³). Layer is a mixture of Layer 1 and Layer 3. pH 6. Diffused transition to Layer 3. 3: Yellowish brown (10YR 4/4) sandy clay with well sorted pebble (1-3mm³) inclusions (10%). pH 6. Clear transition to clay layer				
2/C3	232317 mE 6288707 mN	2/C3 is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Dark brown (2.5Y 2.5/1) silty sand with dense and thin grass roots and moderately well sorted small pebbles (1-5mm³) inclusions (20%). pH	0	300		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		5.5. Diffused transition to Layer 2. 2: Dark brown (10YR 4/3) silty sandy clay with 20% well sorted small pebbles (1-4mm³). Layer is a mixture of Layer 1 and Layer 3. pH 6. Diffused transition to Layer 3. 3: Yellowish brown (10YR 4/4) sandy clay with well sorted pebble (1-3mm³) inclusions (10%). pH 6.				

Table 6-6: Summary of results from Area 2, Transect D

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/D1	232348 mE 6288735 mN	This test pit is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Dark brown (2.5Y 3/2) silty sand with dense and thin grass roots and small pebble inclusions. pH 6. Diffused transition to Layer 2. 2: Dark brown (10YR 3/3) silty sandy clay with thin grass root inclusions. Layer is a mixture of Layer 1 and Layer 3. pH 6. Diffused transition to Layer 3. 3: Yellowish brown (10YR 4/3) sandy clay with well sorted pebble (1-3mm³) inclusions (10%). pH 6.	0	280		

Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
2/D2	232345 mE 6288720 mN	2/D2 is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. Four artefacts were encountered in this pit. 1: Dark brown (2.5Y 2.5/2) silty sand with bioturbation from grasses roots and well sorted sandstone pebble inclusions (40%). pH 5.5. Diffused transition to Layer 2. 2 artefacts. 2: Dark brown (2.5Y 4/3) silty sandy clay with 40% moderately well sorted small pebbles (1-4mm³). Layer is a mixture of Layer 1 and Layer 3. pH 5.5. Diffused transition to Layer 3. 2 artefacts. 3: Strong brown (10YR 5/5) sandy clay with well sorted sandstone	4	400		

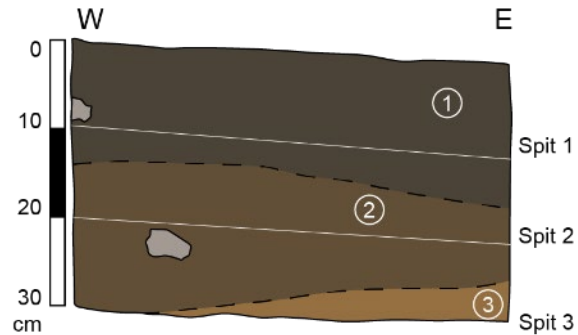
Pit ID	Coordinates (GDA94 Z56)	Description	Artefact counts	Maximum depth (mm)	Pit at end of excavation	Stratigraphic profile (North wall unless specified)
		and ironstone pebble inclusions (1-3mm ³) inclusions (10%). pH 6.				
2/D3	232342 mE 6288698 mN	This test pit is located on the crest and is comprised of three stratigraphic layers. Excavation stopped at the basal clay layer. No artefacts were encountered in this pit. 1: Dark brown (2.5Y 2/2) silty sand dense and thin grass root inclusions. pH 6. Diffused transition to Layer 2. 2: Dark brown (10YR 4/2) sandy silt, mottled with orangey yellow sandy clay. Layer is a mixture of Layer 1 and Layer 3. pH 6. Diffused transition to Layer 3. 3: Orangey yellow (10YR 4/4) sandy clay with well sorted pebble inclusions (20%). pH 5.5.	0	300		

Figure 6-14: Excavated test pits and artefact presence

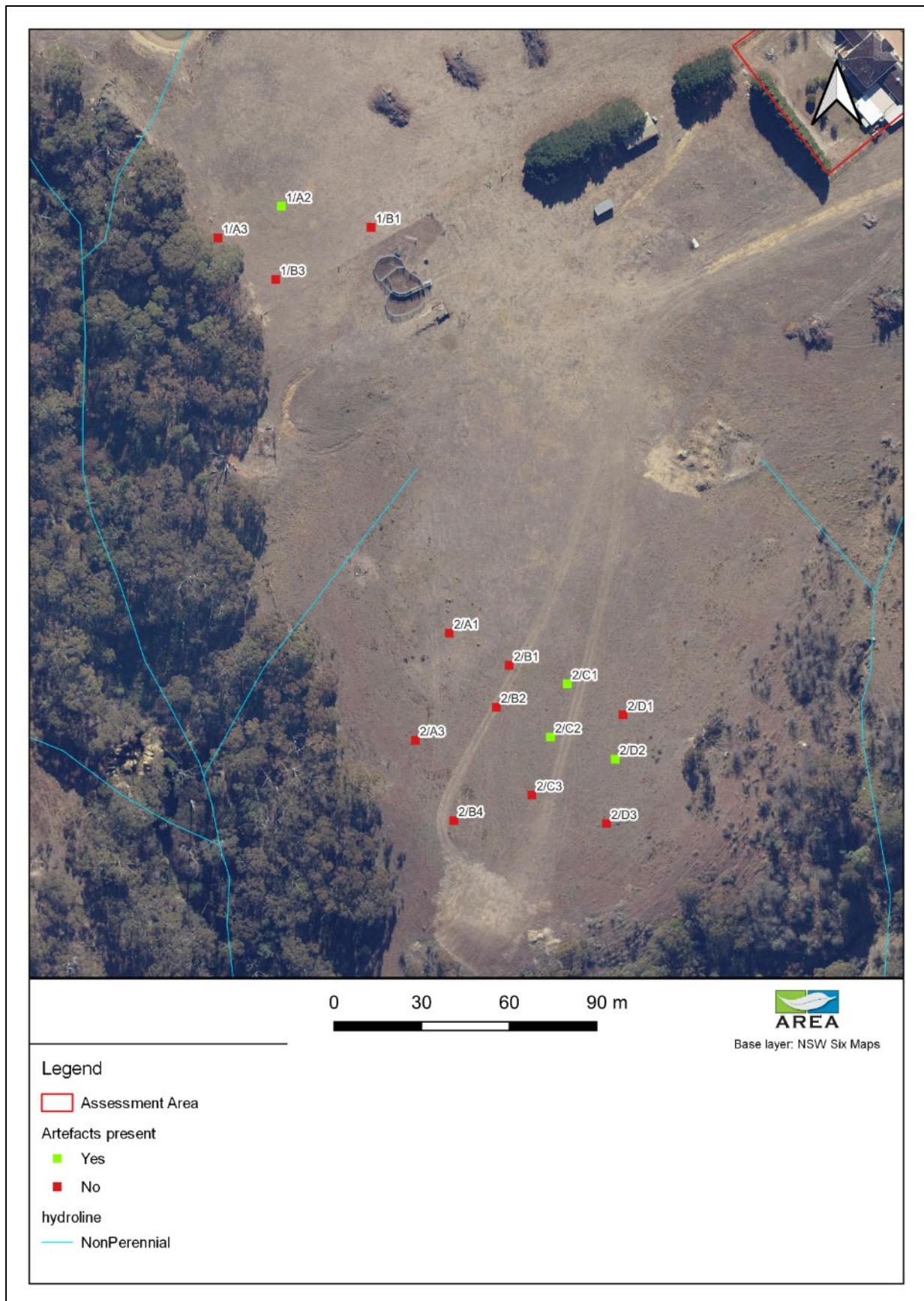


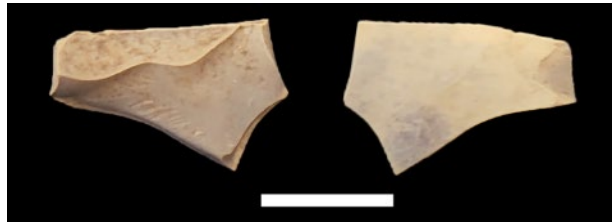
Table 6-7: Summary of artefacts recovered from test pit excavations

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
1/A2	1	1	11	16	7	Bipolar quartz core. No cortex. Three negative scars visible	
1/A2	1	1	13	15	10.5	Bipolar quartz core. No cortex. Seven negative scars visible.	
1/A2	2	1	13	14	4	Siltstone flake with lateral brake, no platform or distal end. No cortex.	

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
2/C1	1	1	11	9	5	Quartz flake fragment. No cortex	
2/C1	1	1	7	14	3	Quartz flake with broken distal tip. No cortex	
2/C1	1	1	10	12	3	Quartz fragment. No cortex.	
2/C1	1	1	11	6	2	Bipolar quartz flake. No cortex	

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
2/C1	1	1	10	5	2	Bipolar quartz flake. No cortex.	
2/C1	1	1	7	6	2	Quartz fragment. No cortex.	
2/C1	2	1/2	13	10	2	Quartz flake with broken proximal tip. No cortex.	

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
2/C1	3	2	17	10	4	Chert flake. No cortex	
2/C2	1	1	18	16	20	Quartz core, No cortex. Six negative scars visible.	
2/C2	1	1	15	7	8	Quartz flake fragment. No cortex.	

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
2/C2	1	1	18	12	3	Chert flake fragment. No cortex.	
2/D2	2	1/2	13	9	8	Chert fragment. No cortex.	
2/D2	2	1/2	9	12	6	Chert flake with broken distal tip. No cortex	

Pit ID	Spit	Layer	Length (mm)	Width (mm)	Thickness (mm)	Description	Photo (Scale=1cm)
2/D2	3	2	9	12	1	Siltstone flake fragment. No cortex	
2/D2	4	2/3 interface	8	15	5	Chert flake. No cortex	

6.2.5. Aboriginal sites

Magpie Hollow Artefact Scatter 01

Site type: Artefact Scatter

Centroid: GDA 94 Zone 56 232320 mE, 628888 mN

Site length: 30 m

Site width: 30 m

Magpie hollow artefact scatter 01 (MHAS01; AHIMS ID 45-4-1187) was initially recorded by AREA (2021b) as an artefact scatter containing several quartz flakes. The site is located on the waxing upper slope above a steep sided gully (Figure 6-18). Test excavations revealed three additional flakes from test pit 1/A2, two quartz cores and one siltstone flake. No conjoins were possible amongst these flakes and no features were observed in the stratigraphic profile or during excavation. Historic photographs from between 1990 and 1994 suggest that this area has been heavily modified by vehicles, possible earth moving, and erosion (Figure 6-15 and Figure 6-16) and the artefacts observed in this location are unlikely to be *in situ*.

Figure 6-15: Historic photographs from 1990 showing surface modification in area of PAD 1 (red outline) (NSW Historical Imagery, 1990)



Figure 6-16: Historic photographs from 1994 showing surface modification in area of PAD 1 (red outline) (NSW Historical Imagery, 1994)



Figure 6-17: Location of MHAS01 (AHIMS ID 45-4-1187) shown with yellow dashed line, view to the west towards gully with Pit 1/B1 in foreground.



Figure 6-18: View to the north showing MHAS01 (AHIMS ID 45-4-1187) with Pit 1/A3 in foreground, Pit 1/A2 in top left, and Pit 1/B1 in top right.



Magpie Hollow Artefact Scatter 02

Site type: Artefact Scatter

Centroid: GDA 94 Z56 232332 mE, 6288729 mN

Site length: 45 m

Site width: 30 m

Magpie Hollow Artefact Scatter 02 (MHAS02) (AHIM ID 45-4-1225) is located on the crest and waxing upper slope between the confluence of two gullies (Figure 6-19), approximately 500 metres to the west of the Great Western Highway and 300 metres to the southwest of Magpie

Hollow Road at South Bowenfels. The site was exposed in three test excavation pits (2/C1, 2/C2, and 2/D2). Fifteen stone tools were recovered from these pits made of quartz (n=9), chert (n=4), and siltstone (n=1) of these fourteen are flakes and one core was identified. No conjoins were possible amongst these flakes and no features were observed in the stratigraphic profile or during excavation.

Figure 6-19: View to the east showing MHAS02 (AHIMS 45-4-1225) with yellow dashed line.



6.2.6. Analysis and discussion

A total of 15 test pits were excavated across MHAS01 and PAD 1, and PAD 2 within the proposed Magpie Hollow development (Figure 6-14). In Area 1 (MHAS01 and PAD 1) the pits were laid out in two transects labelled Transect A, and Transect B. Four test pits were excavated, and three stone artefacts recovered. In Area 2 (PAD 2) the pits were laid out in four transects labelled Transect A, Transect B, Transect C, and Transect D. Eleven test pits were excavated across Area 2, and 15 artefacts recovered.

Across both Areas 1 and 2 a similar stratigraphic sequence was observed. The A Horizon consisted of a dark brown silty sand deposit that contained a few well sorted pebbles. In Area 1 this overlays a C Horizon of orangey yellow to brown sandy clay that contained well sorted pebbles (Figure 6-20). The basal layer derives from the weathered sandstone bedrock was observed in Pits 2/A3 and 2/B4 (Figure 6-21 and Figure 6-22). In Pit 2/A3 the A Horizon directly overlayed the sandstone bedrock (R Horizon) with sandstone fragments observed in Layer 1, however the orangey yellow sandy clay deposit characteristic of the C Horizon was not observed in 2/A3 (Figure 6-22). Pit 2/B4 also encountered the sandstone bedrock (R Horizon). The weakly consolidated sandstone bedrock was observed weathering to form the same orangey yellow basal layer that was observed across the site (Figure 6-21). In Area 2 a mixed dark brown sandy silt mottled with an orangey yellow sandy clay was identified between the A and C Horizons (Figure 6-23). The boundary between this layer and the layers above and below is indistinct and was only observed in profile. It is possible that this layer is a diffusion from the C Horizon to the A Horizon, however this layer was only present at 20-30cm below the surface and may also represent artificial mixing through plough action.

Pit 2/B1 was the only Pit that did not conform to the generally observed stratigraphic sequence (Figure 6-24). This pit had the previously observed A (Layer 1) and C (Layer 4) Horizons as well as two additional charcoal rich Layers, which indicated an *in situ* burning event. The

charcoal rich deposits were located in the north-western and eastern sections of the Pit. Layer 2 was a black predominantly charcoal deposit that extends approximately 25cm deep from below Layer 1 in the north-western corner of the Pit. This Layer flares up to 20cm at its base along both the northern and western side of the pit while only extending approximately 5cm in both direction at the top. Layer 3 was located in the eastern side of the pit and was a dark brown that was slightly darker than the Layer 1 deposit. This layer extended down the north-eastern edge of the Pit and horizontally across the Pit at approximately 30cm depth. Large, undisturbed charcoal fragments were observed running vertically and horizontally within this Layer. The presence of the undisturbed charcoal and the stratigraphic position of this Layer suggest that a tree with embedded roots was burnt in this location. Aerial photographs indicate that extensive clearing had already occurred across the development footprint as early as 1966 (Figure 6-25). Whether the burning event in 2/B1 was a product of planned tree clearing, the use of fire to remove a stump, or following bushfire is unclear, however there is no indication that this burning event is related to Aboriginal occupation of the site and has been interpreted as a natural *in situ* burning event.

Area 1 was a PAD (PAD 1) identified as an extension of the site MHAS01. During the due-diligence assessment two artefacts were observed on the surface along a compacted vehicle track that ran along the top of one of the gullies. No artefacts were identified in pits located immediately adjacent to this track, however three artefacts were recovered from Layer 1 of Pit 1/A2. The surface finds and Pit 1/A2 are located on the waxing upper slope just above a steep gully on the western edge of the site. Aerial photographs from between 1990 and 1994 suggest that this area has been heavily modified by vehicles, possible earth moving, and erosion (Figure 6-15 and Figure 6-16) and the artefacts observed in this location are unlikely to be *in situ*.

Area 2 is located on the crest and waxing upper slope between the confluence of two gullies. Fifteen stone artefacts were recovered in Area 2 from Pits 2/C1 (n=8), 2/C2 (n=3), and 2/D2 (n=4). These artefacts are comprised mostly of quartz flakes and cores, followed by chert flakes. Pit 2/C2 had the highest number of recovered flakes in total from any Pit and the highest from any Layer and Spit. Spit 1 which corresponded with Layer 1, recovered six quartz flakes, and flake fragments, and a seventh quartz flake was recovered from Spit 2. A mixture of unmodified chert flakes and quartz flakes and cores were recovered from Pits 2/C2 and 2/D2.

Across Area 1 and 2 all flakes and cores are small (≤ 20 mm maximum dimension). This is typical of unmodified stone artefacts from this region (McCarthy, 1948; OzArk, 2004a; Stockton & Holland, 1974). The small overall artefact size suggests that the original raw material source was also small. The development footprint is located within a primarily sandstone geological formation with an igneous rock unit exposed within the gullies (Department of Regional New South Wales, 2009). Quartz pebbles naturally occur within this landscape and would be readily sourced from exposed surface lag deposits and creek beds. Quartz followed by chert (also referred to as silicified tuff in reports (OzArk, 2004a)) are the most common raw material types utilised within the region, with artefacts consisting primarily of small unmodified flakes (McCarthy, 1948; OzArk, 2004a; Stockton & Holland, 1974). This is a pattern which is reflected in the artefacts recovered from the study area.

Pit 2/C1 had the highest number of artefacts with seven of the eight stone artefacts being quartz flakes. While none of the flakes can be refit or conjoined, given the relative high density of flakes concentrated in this location, it is likely that these flakes correspond with an isolated

knapping event. Across the development footprint artefact density was low, suggesting that all recorded sites represent an *ad hoc* short-term use of the site rather than long-term or frequently used occupation sites. This is likely a product of the position of the site. Located on the crest of a slope this site is exposed on all sides. While located close to gullies that would have provided access to water and stone resources, the base of ridgelines located between 500-800m to both the east and west of the development footprint would have offered greater shelter from wind and rain events crossing the gorges. While this would have been a slightly greater distance to travel, Tina Scott from Bathurst LALC (pers com 27 October 2022) observed that the additional distance was negligible, and the shelter provided by the ridgeline of greater importance. A nearby subdivision development recently uncovered an intensive occupation site in the swale of the ridgeline which affirms that as a preferred occupation site (Tina Scott pers com 27 October 2022).

Figure 6-20: North bulk of 1/B3 showing Layer 1 (A Horizon) and Layer 2 (C Horizon)



Figure 6-21: Western bulk of 2/B4 showing Layer 1 (A Horizon) and weathered sandstone fragments forming Layer 2 (C Horizon) overlaying sandstone bedrock (R Horizon)



Figure 6-22: Northern bulk of 2/A3 showing Layer 1 (A Horizon) and sandstone bedrock (R Horizon)



Figure 6-23: Western bulk of 2/D2 showing Layer 1 (A Horizon), Layer 2 (diffusion from A to C Horizon) and Layer 3 (C Horizon)

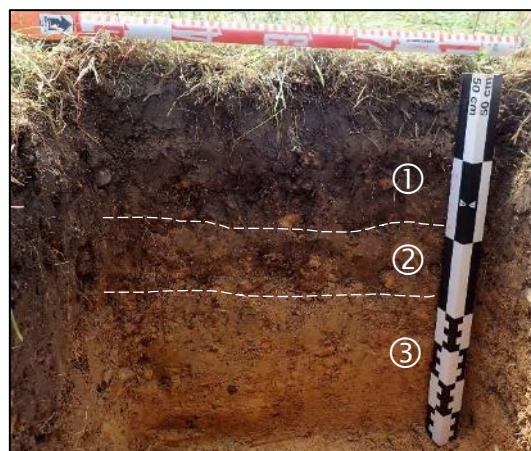


Figure 6-24: Northern bulk of 2/B1 showing burning

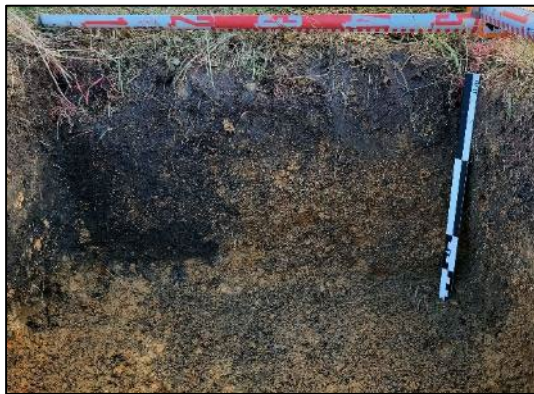


Figure 6-25: Historic photographs from 1966 showing cleared trees across the assessment area (red outline)



7. Significance

Key points:

- The presence of Aboriginal sites provides evidence of connection to country
- The Aboriginal sites are assessed as having moderate social significance, and low aesthetic, historic and scientific significance.

Significance forms the basis for the management of Aboriginal cultural heritage. There are four main criteria for assessing the significance of Aboriginal cultural heritage sites listed in the *Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW (NSW Office of Environment and Heritage (OEH), 2011)*. These are Social or Cultural significance, Aesthetic significance, Historic significance, and Scientific significance.

Each criteria of significance are rated low, moderate, or high. The following questions can be asked to help guide this rating (OEH2011):

- **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 level of significance of each site is summarised in Table 6-1.

Table 7-1: Summary of significance for sites recorded.

Site name	Social Significance	Aesthetic Significance	Historic Significance	Scientific Significance
MHAS01 (AHIMS ID 45-4-1187)	Moderate	Low	Low	Low
MHAS02 (AHIMS 45-4-1225)	Moderate	Low	Low	Low

7.1. Social or cultural significance

Social or cultural value refers to the spiritual, traditional, historical, or contemporary associations and attachments the place or area has for Aboriginal people (OEH2011). It relates to a contemporary connection that Aboriginal people have with events that have taken place in that location or general area.

In general, presence of Aboriginal sites provides evidence of connection to country and therefore is likely to be considered as important and significant regardless of its condition or representativeness. The artefact scatters are located on the crest and waxing upper slope above steep sided gullies, which would have provided a source of water, stone, and food.

The cultural significance level of Aboriginal sites within the study area will be reviewed and updated as part of ongoing Aboriginal community consultation for the proposal.

7.2. Aesthetic significance

This refers to the sensory, scenic, architectural, and creative aspects of the place. It is often closely linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use (Australia ICOMOS, 2013; OEH2011). The artefact scatters have **low** aesthetic value.

The aesthetic significance level of sites within the study area will be reviewed and updated as part of ongoing Aboriginal community consultation for the proposal.

7.3. Historic significance

Historic value refers to the associations of a place with a historically important person, event, phase, or activity in an Aboriginal community. Historic places do not always have physical evidence of their historical importance (OEH2011).

There are no known historical associations between the development footprint and the local Aboriginal community. Therefore, there is **low** historic significance of the development footprint and sites within them.

The historic significance level of sites within the study area will be reviewed and updated as part of ongoing Aboriginal community consultation for the proposal.

7.4. Scientific significance

This refers to the importance of a landscape, area, place or object because of its rarity, representativeness, and the extent to which it may contribute to further understanding and information.

The scientific significance of artefact scatters is dependent on the research potential of the site. This includes both the level of preservation of the site and how representative the site is of these site types in the area. Both MHAS01 (AHIMS ID 45-4-1187) and MHAS02 (AHIMS Pending) offer little research potential both in terms of number of artefacts or novel technology.

Based on the factors, the scientific significance of the sites within the study area is rated as **low**.

8. Impact management

Key points:

- One Aboriginal site

Cultural heritage values require management for any proposal where they have been identified. Whether an impact is direct, indirect, or possible, Aboriginal sites will require some level of intervention to avoid harm where possible. Section 5 of the NPW Act defines harm as:

“an object or place includes any act or omission that--

(a) destroys, defaces or damages the object or place, or

(b) in relation to an object--moves the object from the land on which it had been situated, or

(c) is specified by the regulations, or

(d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c)”.

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) requires that both direct and indirect harm to Aboriginal objects and Aboriginal places be considered. Generally, direct harm is defined as any activity that may physically impact an Aboriginal site or objects. Indirect harm is usually taken to mean harm stemming from secondary consequences of the activity and may affect sites or objects as an indirect consequence of the activity.

8.1. Unavoidable impacts

The proposal will impact Aboriginal objects. The potential harm from construction activities from the proposal will include:

- the construction of a residential subdivision
- major earthworks including an area of cut and fill used to rise the ground surface above the flood plain
- construction of roads
- installation of utilities and services
- landscaping, and
- construction of drainage basins.

A total of one Aboriginal site was recorded during the archaeological survey and one Aboriginal site recorded post-test excavation. Two Aboriginal sites (MHAS01 and MHAS02) are within the development footprint and will be impacted by the proposal (Figure 8-1).

Table 8-1: Summary of impacts to Aboriginal heritage under current design

Site ID	Impact Unless Managed	Effect of proposal on Significance	Actual impact with implementation of the mitigation measures
MHAS01 (AHIMS ID 45-4-1187)	Direct	Partial	Total loss of value
MHAS02 (AHIMS 45-04-1225)	Direct	Total	Total loss of value

8.1. Cumulative Impacts

Two Aboriginal sites have been identified within the development footprint. Both sites will be directly impacted by the development, accounting for 100 per cent of the sites recorded within the current development footprint area. However, the development footprint has been redesigned to avoid a potential archaeological deposit identified to the south of the current development area (PAD3).

The two impacted sites, MHAS1 and MHAS2, are both low density artefact scatters located within disturbed contexts. Both sites have been partially destroyed due to test excavations and existing disturbances.

In the wider five kilometre search area covered by the AHIMS search, 43 Aboriginal sites were recorded with 41 of these sites containing stone artefacts. Of these three were recorded as 'Not a Site' and three as 'Partially Destroyed', with two of the partially destroyed sites being the sites MHAS1 (AHIMS ID 45-4-1187) and MHAS2 (AHIMS ID 45-4-1225), the sites proposed to be impacted by this development.

While this development will impact 100 per cent of the recorded sites within the development footprint, this accounts for a low proportion of sites within the greater region. In addition, given that the artefacts scatters associated with these sites are low density representing an *ad hoc* use of the site the cumulative impacts of impacting these sites will be minimal with respect to the presence or representativeness of sites within the region.

Figure 8-1: Development footprint and Aboriginal sites



8.2. Ecologically sustainable development

In accordance with the Heritage Guidelines (OEH2011) the Ecologically Sustainable Development (ESD) principles should be considered when preparing a cultural assessment. The principles of ESD include options to avoid impacts to Aboriginal cultural heritage, assessment of unavoidable impacts, and identification of mitigation and management measures.

These principles of ESD are detailed in the NSW *Protection of the Environment Administration Act 1991*. The principles relevant to the assessment of the project as it relates to Aboriginal cultural heritage are considered:

- The precautionary principle - Full scientific certainty about the threat of harm should never be used as a reason for not taking measures to prevent harm from occurring.
- The principle of inter-generational equity - The present generation should make every effort to ensure that the health, diversity and productivity of the environment – which includes cultural heritage – is available for the benefit of future generations.

A thorough archaeological survey and test excavation of the proposal was conducted to identify and minimise the harm to Aboriginal objects as guided by the precautionary principle. Two newly recorded Aboriginal sites and a PAD were identified during the survey and test excavation. MAAS subsequently redesigned the development to exclude PAD 3 from the development footprint.

The proposal will directly impact two Aboriginal sites, MHAS01 (AHIMS ID 45-4-1187) and MHAS02 (AHIMS Pending). These sites consist of two low density artefact scatters located on the crest and waxing upper slope between the confluence of two gullies. Across the development footprint artefact density was low, suggesting that all recorded sites represent an ad hoc short-term use of the site rather than long-term or frequently used occupation sites.

The sites are located on land that has been subject to continuous, historical agricultural practices involving land clearing, ploughing, earthworks and construction that are likely to have disturbed most sites. While being located near to waterways, the sites are located in exposed locates that were unlikely to have provided protection from extreme weather traveling along the gorges. The whole development footprint has been exposed to the same disturbances and is situated in a similar exposed position that would have been unfavourable for Aboriginal occupation. Should extensive archaeological sites still exist within the region they are likely to be located at the base of the nearby ridgelines, which would have provided greater shelter with easy access to water, and in areas that have not been impacted by significant land clearing and disturbances. While MHAS01 and MHAS02 will both be impacted by this development these sites do not contain intact deposits nor are they likely to result in a significant impact to the preserved Aboriginal sites within the region.

8.3. Management measures

As a general principal, **avoidance** of impact to sites of Aboriginal cultural heritage is the preferred method of management. This is advocated in the Burra Charter as well as various other guidelines and codes of practice. Total avoidance of all sites of heritage value is not always feasible. In the case avoidance presents a proponent with considerable difficulties, they may apply to damage or destroy a site.

As the impact of Aboriginal sites and objects would be required as part of the proposal, the following mitigation measures are recommended (pending approval):

- The Registered Aboriginal Parties (RAPs) identified during the consultation process should be continued where RAPs are consulted in determining the management of Aboriginal objects.
- An Aboriginal Heritage Impact Permit (AHIP) is required before any impact to Aboriginal sites Magpie Hollow AS01 and Magpie Hollow AS02.
- Any conditions of consent for the removal of Aboriginal objects must be followed.
- Removal includes surface collection of the artefacts recorded within Magpie Hollow AS01 and relocation of said Aboriginal objects to a suitable location in accordance with the *Code of Practice of archaeological Investigation of Aboriginal Objects in NSW* (DECCW2010a).
- The locations of the cultural heritage sites will be provided to the supervisors responsible for the construction and operation of the proposal. They should be informed of the location of cultural heritage sites and informed that they are protected under the NPW Act and no harm is to come to them. The presence of the cultural heritage sites should be made clear to the workforce as part of an induction.

This report is based on the most recent information available to AREA. Any changes to the proposal should be reviewed by an archaeologist in consultation with the RAPs, as they may require further assessment and revision of recommended heritage management measures.

8.4. Aboriginal heritage impact permit

To undertake the proposed works an area based Aboriginal heritage impact permit (AHIP) will be necessary. An AHIP must be obtained before the surface collection occurs within the development footprint.

While the western extent of MHAS01 is located outside of the development footprint. The sections located outside of the development footprint boundary would still be at risk of indirect impacts from erosion, deposition, or vehicle movement. As a result, it is proposed that surface collection occur across the total areas of MHAS01 and MHAS02.

The AHIP boundary is shown in Figure 8-2 and Table 8-2.

Figure 8-2: Proposed AHIP boundary

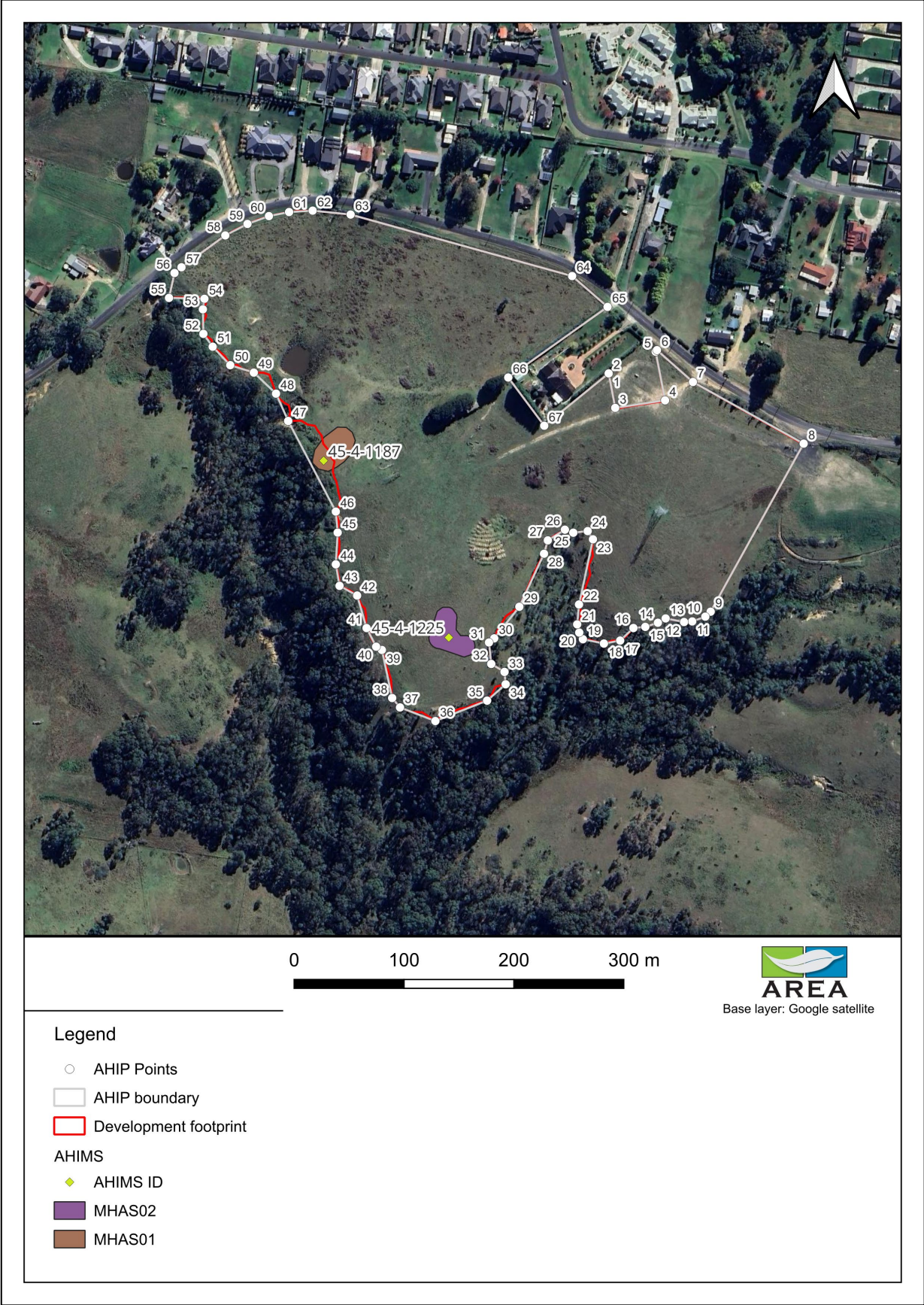


Table 8-2: List of proposed AHIP points

AHIP point	Easting	Northing
1	232477	6288968
2	232477	6288968
3	232483	6288937
4	232528	6288943
5	232520	6288988
6	232521	6288989
7	232554	6288960
8	232655	6288904
9	232570	6288751
10	232565	6288747
11	232553	6288742
12	232546	6288742
13	232529	6288745
14	232522	6288741
15	232510	6288737
16	232500	6288736
17	232488	6288725
18	232473	6288722
19	232454	6288726
20	232450	6288732
21	232448	6288740
22	232450	6288758
23	232463	6288817
24	232458	6288824
25	232445	6288823
26	232437	6288826
27	232422	6288816
28	232418	6288804
29	232396	6288756
30	232373	6288727
31	232368	6288723
32	232370	6288704
33	232382	6288696
34	232383	6288685
35	232366	6288670
36	232319	6288652
37	232287	6288664
38	232280	6288673
39	232271	6288716

40	232265	6288719
41	232257	6288736
42	232248	6288766
43	232232	6288775
44	232229	6288794
45	232230	6288823
46	232229	6288842
47	232185	6288925
48	232174	6288950
49	232154	6288969
50	232132	6288976
51	232116	6288992
52	232108	6289004
53	232108	6289026
54	232109	6289036
55	232077	6289037
56	232082	6289059
57	232088	6289065
58	232128	6289094
59	232148	6289104
60	232168	6289111
61	232186	6289115
62	232207	6289116
63	232242	6289113
64	232444	6289057
65	232476	6289029
66	232386	6288964
67	232418	6288920

9. Recommendations

Cultural heritage values require management for any proposal where they have been identified. Whether an impact is direct, indirect, or possible, Aboriginal sites will require some level of intervention to avoid harm where possible.

The following recommendations are based on the on the consideration of:

- The requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2011a)
- The results of the background research and fieldwork
- The likely impacts of the proposed development footprint.

Two Aboriginal sites (Magpie Hollow AS1 and Magpie Hollow AS2) are within the impact footprint for the proposal.

Based on the assessment, the following recommendations are made:

- Formal consultation in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (ACHCRs; DECCW 2010) should be continued.
- An Aboriginal Heritage Impact Permit (AHIP) would be required to impact two Aboriginal sites (Magpie Hollow AS01 and Magpie Hollow AS02) which cannot be avoided and further consultation to support an AHIP application is needed.
- A condition of consent for the AHIP is likely to express a desire by the Registered Aboriginal Parties that Aboriginal sites which cannot be avoided are collected and reburied in consultation with the Aboriginal community expressing a formal interest in this proposal.
- Should an AHIP be issued, surface collection of Magpie Hollow AS01 (Figure 8-2) should be undertaken in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW2010a).
- The artefacts collected during the test excavations and surface collection to be reburied within a protected area of the subject land in a location agreed to by the RAPs. Reburial should occur after the surface collection.
- The locations of the cultural heritage sites shown on Figure 8-2 and detailed in Section 6.2.5 should be provided to the supervisors responsible for the construction and operation of the proposal. They should be informed cultural heritage sites are protected under the NPW Act and no harm is to come to them. The presence of the cultural heritage sites will be made clear to the workforce as part of an induction.
- If any objects of suspected Aboriginal heritage origin are encountered during the proposal, activity in the area of the find should cease and the unexpected finds protocols (Appendix D) should be implemented.
- If changes are made to the proposal which could impact locations outside of the current assessment area, further archaeological investigation may be required.

10. References

- AREA Environmental & Heritage Consultants (AREA). (2021a). *Preliminary assessment report for the proposed residential subdivision at Magpie Hollow. Report to MAAS Group.*
- AREA Environmental & Heritage Consultants (AREA). (2021b). *Proposed Residential Subdivision: Magpie Hollow - Aboriginal Heritage Due Diligence Assessment. Report to MAAS Group.*
- Attenbrow, V. (2010). *Sydney's Aboriginal Past: Investigating the archaeological and historical records.* UNSW Press.
- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter), (2013).
- Bamblett, L. (2013). *Our Stories are Our Survival.* Aboriginal Studies Press.
https://books.google.com.au/books?id=MuhLAqAAQBAJ&pg=PA40&redir_esc=y#v=onepage&q&f=false
- Bowler, J. M., Johnston, H., Olley, J. M., Prescott, J. R., Roberts, R. G., Shawcross, W., & Spooner, N. A. (2003). New ages for human occupation and climatic change at Lake Mungo, Australia. *Nature*, 421, 837-840.
- Bureau of Meteorology. (2025). *Climate statistics for Australian locations: Lithgow (Birdwood Street).*
http://www.bom.gov.au/climate/averages/tables/cw_063224.shtml
- Coe, M. (1989). *Windradyne: a Wiradjuri Koorie.* Aboriginal Studies Press.
- Comber, J. (2009). *Preliminary Environmental Investigation Great Western Highway Upgrade Mt Victoria to Lithgow - Aboriginal Heritage Assessment. Phase 2: Corridor Area Investigation. Report to Sinclair Knight Merz on behalf of the Roads & Traffic Authority.*
- Comber, J. (2012). *Great Western Highway Upgrade Mount Victoria to Lithgow Forty Bends Upgrade. Aboriginal Cultural Heritage Assessment Report. Review of Environmental Factors Technical Paper 3. Report to Mount Victoria to Lithgow Alliance.*
- Department of Regional New South Wales. (2009). *NSW 1500K Simplified Surface Geology.*
<https://gs.geoscience.nsw.gov.au/geoserver/ows?service=wms&version=1.3.0&request=GetCapabilities>
- Donaldson, T. (1984). What's in a Name? An etymological view of land, language and social identification from central western new south wales. *Aboriginal History*, 8(1).
- Environmental Planning and Assessment Act (NSW), (1979).
- Gay, L. (1999). *Proposed Realignment of the Castlereagh Highway, Lidsdale, NSW: Indigenous Heritage Assessment. Report to the RTA.*
- Gay, L. (2000). *Proposed Realignment of the Castlereagh Highway, Lidsdale, NSW: Supplementary Report on the Indigenous Heritage Assessment. Report to the RTA.*
- Lithgow Tourism. (1995). *Old Bowenfels.* <https://lithgow-tourism.com/old-bowenfels.htm>
- McCarthy, F. D. (1948). The Lapstone Creek excavation: two culture periods revealed in eastern New South Wales. *Records of the Australian Museum*, 22(1), 1-34.
- Mills and Wilkinson Consulting Archaeologists. (1993). *Archaeological survey of site for proposed rhyolite quarry, Hartley. Report for Hartley Pastoral Company.*
- National Parks and Wildlife Act (NSW), (1974).
- Niche Environment and Heritage. (2014). *Austen Quarry Stage 2 Extension Project. Indigenous Heritage Assessment. Specialist Consultant Studies Compendium Volume 2, Part 8. Report to R.W. Corkery & Co on behalf of Hy-Tec Industries.*

- NSW Department of Environment Climate Change and Water (DECCW). (2010a). *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. C. C. a. W. N. Department of Environment.
- NSW Department of Environment Climate Change and Water (DECCW). (2010b). *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. C. C. a. W. N. Department of Environment.
- NSW Historical Imagery. (1990). Historic Aerial Photos: Katoomba, Sheet number 8930 (3724_01_018). In Katoomba (Ed.).
- NSW Historical Imagery. (1994). Historic Aerial Photos: Katoomba, Sheet number 8930 (4247_01_139). In Katoomba (Ed.).
- NSW National Parks and Wildlife Service. (2003). *The Bioregions of New South Wales – their biodiversity, conservation and history*. National Parks and Wildlife Service (NSW).
- NSW Office of Environment and Heritage (OEH). (2011). *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*. D. o. P. a. C. Office of Environment and Heritage.
- OzArk. (2003). *Archaeological test excavation of PADs 1 and 2 (Site L2: NPWS# 45-1-2573 & 45-1-2574): Proposed corridor of the new Castlereagh Highway 86, Lidsdale, NSW. Report to RTA - Western Region*.
- OzArk. (2004a). *Salvage Excavation of Site L2 (DEC AHIMS #45-1-2573 & 2574). Proposed Corridor of the New Castlereagh Highway 86, Lidsdale, NSW*.
- OzArk. (2004b). *Salvage excavation of site L2 (DEC AHIMS# 45-1-2573 & 2574). Proposed corridor of the new Castlereagh Highway 86, Lidsdale, NSW. Report to RTA Western Region*.
- Pearson, M. (1981). *Seen through different eyes: Changing land use and settlement patterns in the Upper Macquarie River Region of N.S.W. from prehistoric times to 1860* ANU]. Canberra.
- Pearson, M. (1984). Bathurst plains and beyond: European colonisation and Aboriginal resistance. *Aboriginal History*, 8(1/2), 63-79.
- Stockton, E. D., & Holland, W. (1974). Cultural Sites and Their Environment in the Blue Mountains. *Archaeology & Physical Anthropology in Oceania*, 9(1), 36-65.
- Surveyor General. (1889). *Parish of Lett County of Cook* Sydney, Government Printing Office.
- surveyor General. (1892). *Parish of Lett Country of Cook Lithgow Land District* Sydney Government Printing Office.
- Tindale, N. B. (1974). *Aboriginal Tribes Of Australia: Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names*. ANU Press.
- Transport for NSW. (2023). *Great Western Highway Upgrade Program – Little Hartley to Lithgow (West Section) Addendum review of environmental factors*.

Appendix A: Aboriginal community consultation

This section will be attached separately at finalisation

Appendix B: Database searches



Appendix C: Unanticipated finds protocol

The protocol to be followed in the event previously unrecorded or unanticipated Aboriginal object(s) are encountered during the proposed works is as follows:

- All ground surface disturbance in the area of the finds should cease immediately the finds are uncovered. With an appropriate buffer zone of at least 20 metres to allow for the assessment and management of the find. All site personal will be informed about the buffer zone with no further works to occur within the buffer zone.
- If the finds are of human remains, the environmental manager or other nominated senior staff member will contact the NSW Police on the non-emergency line (02) 131 444.
- A Heritage specialist will be engaged to assess the Aboriginal place or object encountered, representative(s) from the registered the Aboriginal Stakeholders for the Project may also be engaged to assess the cultural significance of the place or object.
- If the Aboriginal heritage places or objects are found to be covered under the existing approvals to impact Aboriginal heritage within the Project area, works may continue to be conducted in accordance with mitigation measures and approval requirements.
- If the Aboriginal heritage places or objects are found to not be covered under the existing approvals to impact Aboriginal heritage within the Project area, works will not recommence at the heritage place or object until advised to do so by Heritage NSW.
- If the heritage place or object can be managed in situ, works at the heritage location will not recommence until appropriate heritage management controls have been implemented, such as protective fencing.
- For historic relics, work must cease in the affected area and the Heritage Council must be notified in writing (heritagemailbox@environment.nsw.gov.au). This is in accordance with section 146 of the *Heritage Act 1977*.
- Depending on the nature of the discovery, additional assessment may be required prior to the recommencement of work in the area. At a minimum, any find should be recorded by an archaeologist.