



View southeast from the study area.

ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

BLUESTONE HARDROCK QUARRY

SINGLETON LOCAL GOVERNMENT AREA, NSW

APRIL 2026

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Report prepared by
OzArk Environment & Heritage
for Bluestone Hardrock Pty Ltd

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ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT COVER SHEET

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Acknowledgement

OzArk acknowledge the traditional custodians of the area on which this assessment took place and pay respect to their beliefs, cultural heritage, and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the Elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

ABBREVIATIONS AND GLOSSARY

ACHAR	Aboriginal Cultural Heritage Assessment Report. As set out in the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> , all developments where harm to Aboriginal objects is likely must be assessed in an ACHAR.
ACHCRs	<i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> . Guidelines for conducting Aboriginal community consultation for developments where harm to Aboriginal objects is likely.
ACHMP	Aboriginal Cultural Heritage Management Plan
AHIMS	Aboriginal Heritage Information Management System. Administered by the DCCEEW, AHIMS is the central register of all Aboriginal sites within NSW.
AHIP	Aboriginal Heritage Impact Permit
Code of Practice	<i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> under Part 6 NPW Act. Issued by DECCW in 2010, the Code of Practice is a set of guidelines that allows limited test excavation without the need to apply for an AHIP.
DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water. DCCEEW contains the Environment and Heritage Group including Heritage NSW.
DPHI	NSW Department of Planning, Housing and Infrastructure. DPHI contains the Planning agency.
EIS	Environmental Impact Statement. A required document for major projects documenting all potential impacts to the environment, including heritage, that may arise due to the development.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
GSE	Ground surface exposure. A measure of factors that may reveal surface artefacts such as erosion scalds.
GSV	Ground surface visibility. A measure of factors that may obscure the detection of surface artefacts such as leaf litter.
Heritage NSW	Government department tasked with ensuring compliance with the NPW Act. Heritage NSW is advised by the Aboriginal Cultural Heritage Advisory Committee (ACHAC).

NPW Act	<i>National Parks and Wildlife Act 1974</i> . Primary legislation governing Aboriginal cultural heritage within NSW.
PAD	Potential archaeological deposit. Indicates that a particular location has potential to contain subsurface archaeological deposits, although no Aboriginal objects are visible.
RAP	Registered Aboriginal Party. An individual or group who have indicated through the ACHCR process that they wish to be consulted regarding the project.
SEARs	Secretary's Environmental Assessment Requirements issued by DPHI.
SSD	State Significant Development

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Bluestone Hardrock Quarry Pty Ltd (the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report (ACHAR)* at Lot 5 DP1102521, Lot 65 DP752473, and Lot 903 and Lot 904 DP1061259, Glendon Brook, for Aboriginal cultural heritage studies associated with the construction of the proposed Bluestone Hardrock Quarry (the project). The project is in the Singleton Local Government Area.

The project will be assessed as a State Significant Development (SSD- 76210271).

The study area covers approximately 60 (ha) and is the disturbance footprint for the project. The study area is accessible via Springvale Road, approximately 10 kilometres (km) north of the village of Branxton and 16 km east of Singleton.

The project involves the extraction of an identified, easily accessible, hard rock and gravel resources along several ridgelines traversing the study area. The project has the following inclusions:

- Extraction rate maximum of 1,000,000 tonnes per annum
- Sealed access road and associated water management infrastructure
- Progressive rehabilitation of quarried land returning to pasture and native vegetation
- Total project disturbance area of approximately 60 ha, comprising:
 - 38 ha of extraction
 - 4 ha of stockpile and laydown area
 - 13 ha processing area
 - 4 ha of haul roads
 - 1 ha for supporting infrastructure, including site office and weighbridge
- Total Project Area land holding of approximately 186 ha
- Project life up to 30 years (under the current application)
- Potential resource life up to 50 years.

The study area is situated on an undulating ridgeline within the western foothills of the Tangory Mountain, with an elevation ranging from 80 metres (m) in the southern extent to 220 m in the north of the study area. The study area has been historically cleared, with vegetation mostly consisting of regrowth.

The survey of the study area of was completed on 14 August 2025 by OzArk and representatives of the Registered Aboriginal Parties (RAPs). One previously unrecorded Aboriginal site was identified, an isolated find adjacent to an unsealed vehicle track, 37-6-4640 (Lochnagar IF-1).

The site was assessed to have a low scientific value due to low artefact density and poor site condition, which both lead to a limited potential for the site to contribute to key questions concerning the archaeology and Aboriginal use of the Hunter Valley.

The assessment has concluded that 37-6-4640 (Lochnagar IF-1) will be impacted by the project.

Recommendations concerning Aboriginal cultural values within the study area are as follows:

1. Prior to construction, the proponent will develop an Aboriginal Cultural Heritage Management Plan (ACHMP) which is prepared in consultation with the RAPs and Heritage NSW and approved by the Department of Planning, Infrastructure and Housing (DPHI). The ACHMP will also include an unanticipated finds protocol, unanticipated skeletal remains protocol, and long-term management of any Aboriginal objects.
2. Surface artefact/s from 37-6-4640 (Lochnagar IF-1) will be collected prior to construction of the project and moved to a safe location in consultation with the RAPs. The ACHMP will detail the procedures for the surface artefact collection and provide a strategy for the long-term curation of the artefacts.
3. No further archaeological investigation is warranted at 37-6-4640 (Lochnagar IF-1) due to the disturbed, secondary context of the site.
4. A site card update must be submitted to AHIMS to record the correct location of 37-6-3827 (Elderslie 2) to GDA2020 Zone 56, 346426E, 6394443N.
5. All land-disturbing activities must be confined to within the study area. Should the parameters of the proposed work extend beyond this, then further archaeological assessment may be required.
6. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal artefacts. Consultation with RAPs regarding the Aboriginal cultural heritage induction materials should be considered.
7. Consultation with the Aboriginal community regarding the project should be ongoing throughout the life of the project. All RAPs should continue to be consulted in accordance with the ACHCRs (DECCW 2010a) and any future ACHMP. The RAPs should be involved in any cultural heritage works conducted under the ACHMP. Project updates should be sent to the RAPs at six-monthly intervals until the finalisation of the ACHMP to ensure that the consultation remains current. It is the proponent's responsibility that this continuous consultation is maintained.

FOREWORD



Bluestone Hardrock Quarry Pty Ltd is proposing to construct a quarry for the extraction of easily accessible hard rock and gravel resources under a State Significant Development approval pathway (SSD- 76210271). The project includes the construction of the extraction area, access roads, and associated infrastructure such as a site office and carpark.

The study area for this assessment includes the area that would be disturbed by the activities in the project. The study area is situated on an undulating ridgeline within the western foothills of the Tangory Mountain, with an elevation ranging from 80 metres in the southern extent to 220 metres in the north of the study area. The ephemeral Blind Creek and Stewarts Creek are adjacent to the study area, and several unnamed, drainage lines intersect the study area. The study area has been historically cleared, with vegetation mostly consisting of regrowth. The nearest waterway offering a permanent, year-round water supply is the Hunter River, located 2.5 kilometres south of the study area.

The study area was surveyed on 14 August 2025 by OzArk Principal Archaeologist Ben Churcher with Leanne Kirkman (Hunter Valley Aboriginal Corporation) and Les Atkinson (Jarban & Mugrebea). One Aboriginal site was identified consisting of an isolated find, 37-6-4640 (Lochnagar IF-1), was identified within the study area.

The project will impact 37-6-4640 (Lochnagar IF-1), and it has been recommended that this site be salvaged prior to works and the object/s collected be reburied within the Project Area at a location where harm by the project will not occur.

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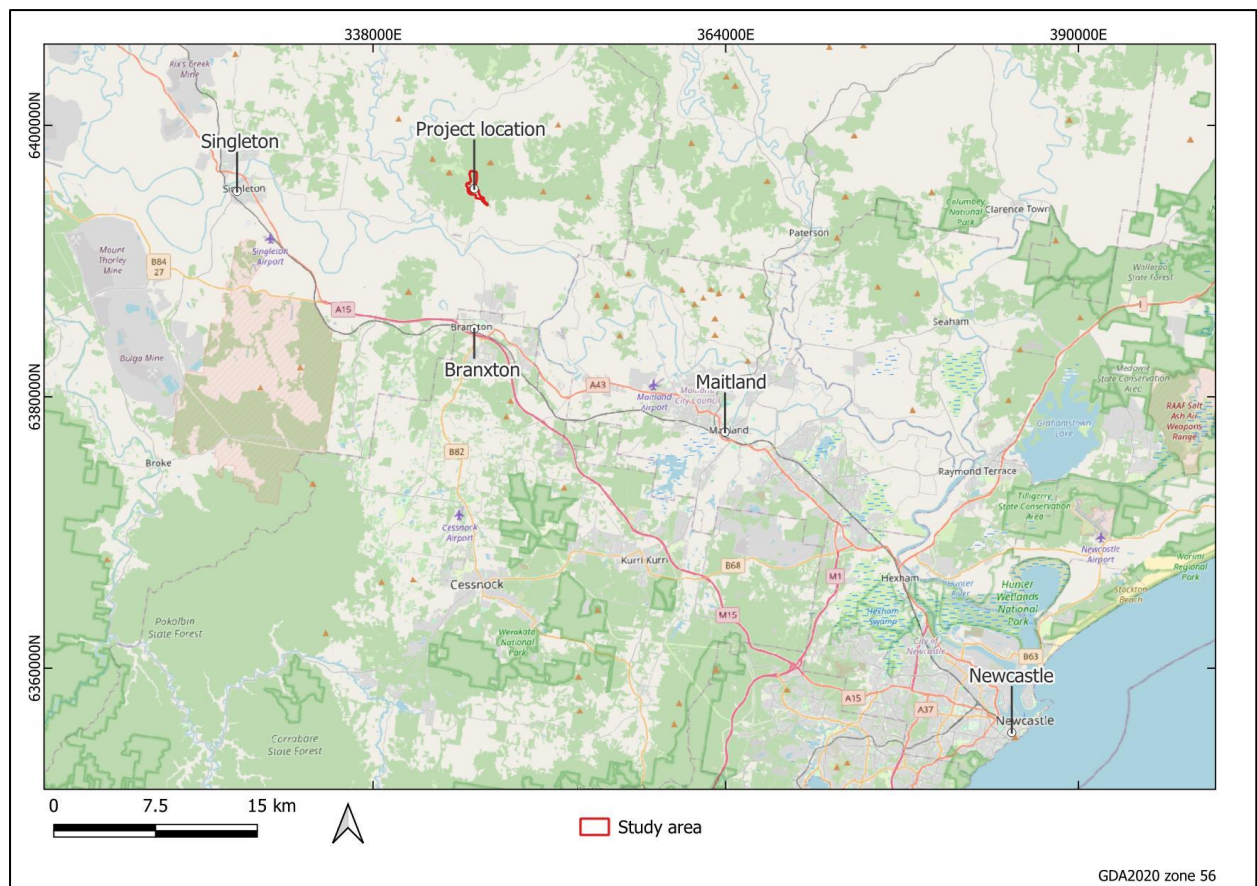
1 INTRODUCTION

1.1 DESCRIPTION OF THE PROJECT

OzArk Environment & Heritage (OzArk) has been engaged by Bluestone Hardrock Quarry Pty Ltd (the proponent) to complete an *Aboriginal Cultural Heritage Assessment Report (ACHAR)* at Lot 5 DP1102521, Lot 65 DP752473, and Lot 903 and Lot 904 DP1061259, Glendon Brook, for Aboriginal cultural heritage studies associated with the construction of the proposed Bluestone Hardrock Quarry (the project). The project is in the Singleton Local Government Area (LGA) (Figure 1-1).

The project will be assessed as a State Significant Development (SSD) (SSD- 76210271).

Figure 1-1: Map showing the location of the project.



1.2 BACKGROUND

Wedgetail Project Consulting Pty prepared a Scoping Report to support a request to the Department of Planning, Housing, and Infrastructure (DPHI) for the Secretary's Environmental Assessment Requirements (SEARs) (Wedgetail 2024). OzArk has been engaged to complete an ACHAR and a Historic Heritage Impact Assessment (HHIA) to inform the Environmental Impact Statement (EIS) for the project.

1.3 PROPOSED WORK

The project involves the extraction of an identified, easily accessible, hard rock and gravel resources along several ridgelines traversing the study area. The project has the following inclusions:

- Extraction rate maximum of 1,000,000 tonnes per annum
- Sealed access road and associated water management infrastructure
- Progressive rehabilitation of quarried land returning to pasture and native vegetation
- Total project disturbance area of approximately 60 ha, comprising:
 - 38 ha of extraction
 - 4 ha of stockpile and laydown area
 - 13 ha processing area
 - 4 ha of haul roads
 - 1 ha for supporting infrastructure, including site office and weighbridge
- Total Project Area land holding of approximately 186 ha
- Project life up to 30 years (under the current application)
- Potential resource life up to 50 years.

1.4 STUDY AREA

The study area describes the area that will be included in the current assessment. An aerial showing the study area in relation to the Project Area is presented on **Figure 1-2**. The study area covers approximately 60 ha being the disturbance footprint for the project. The study area is accessible via Springvale Road, approximately 10 kilometres (km) north of the village of Branxton and 16 km east of Singleton. The project components are shown on **Figure 1-3**.

Figure 1-2. Aerial of the Project Area and the study area.

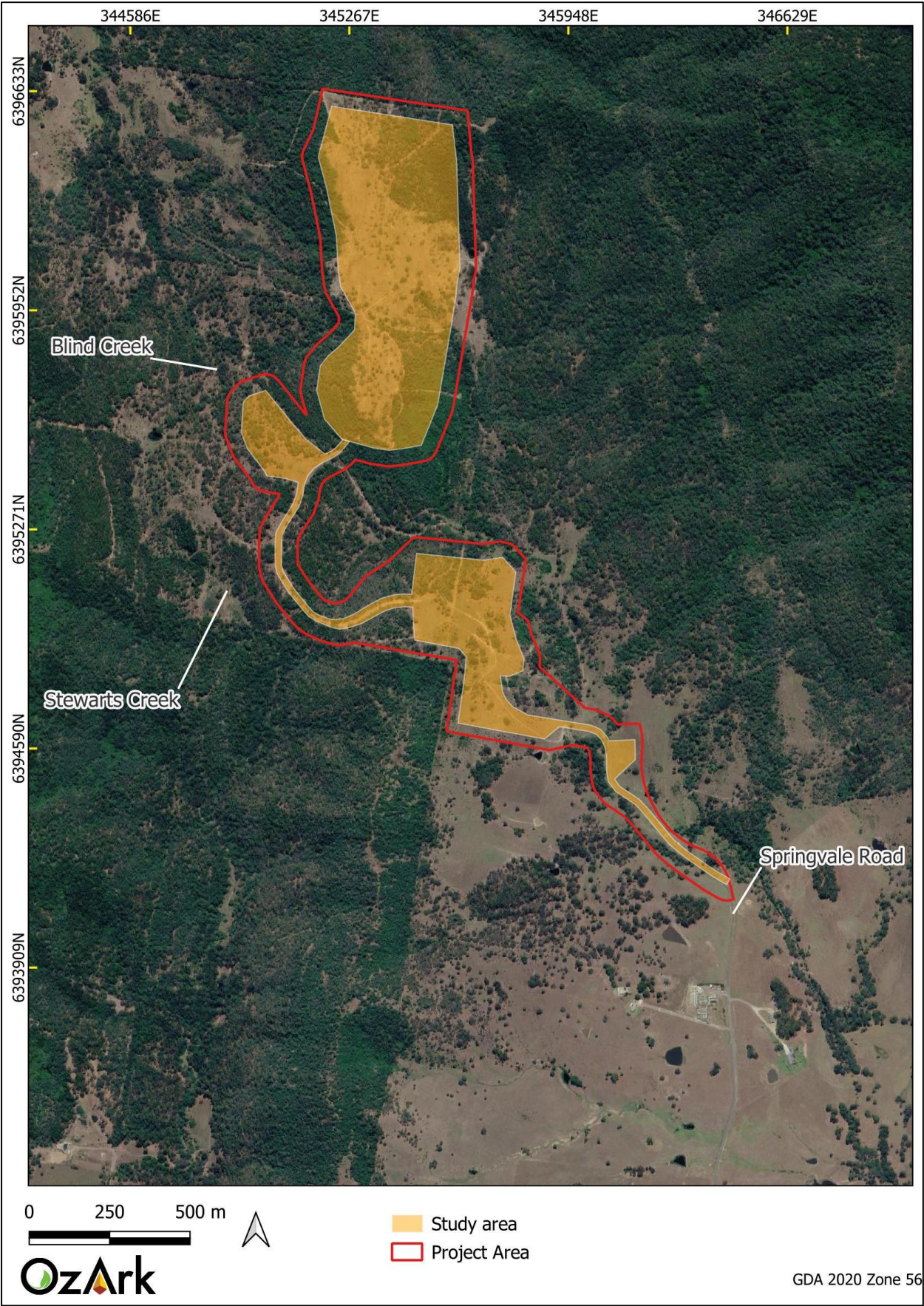
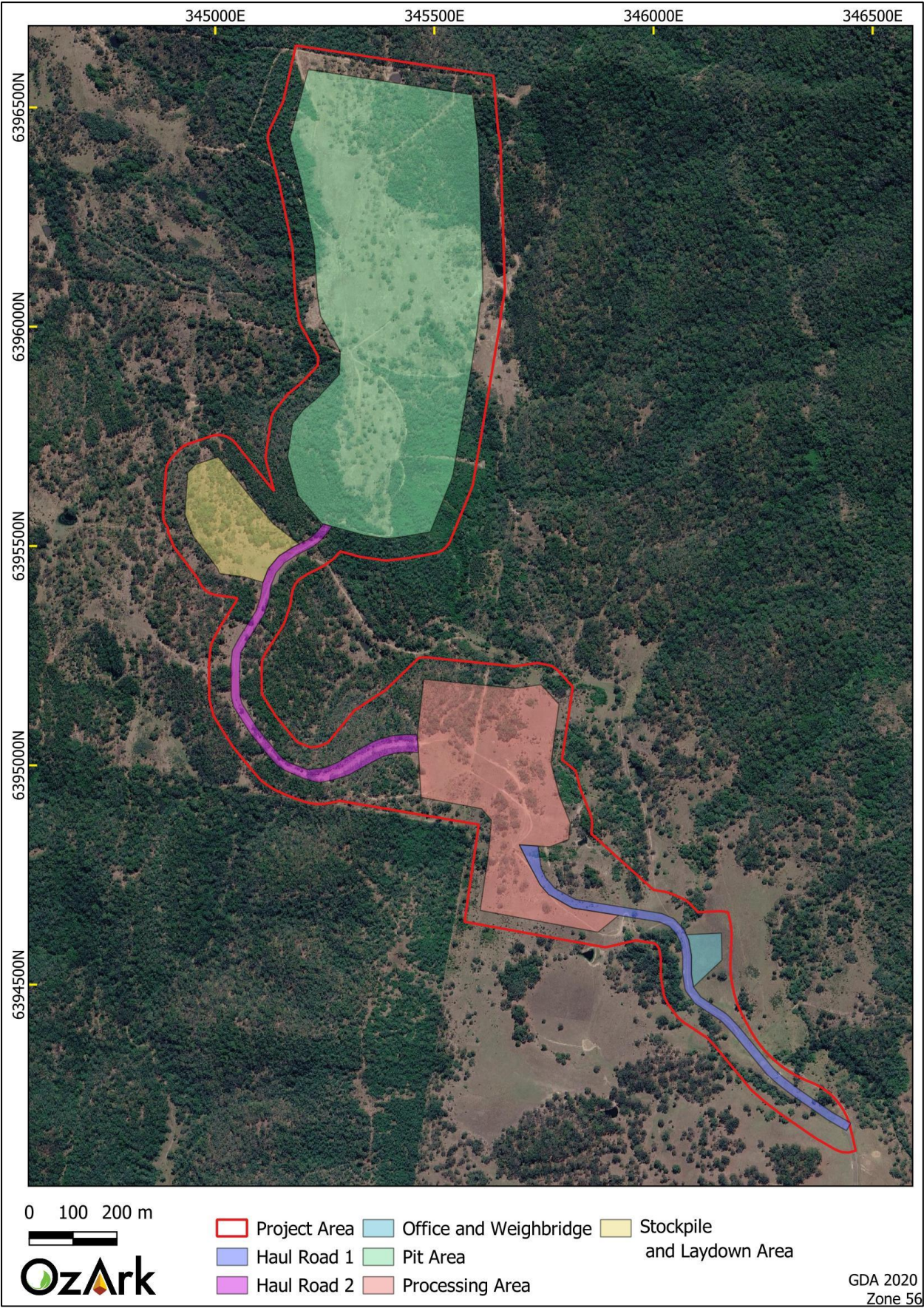


Figure 1-3: Project components within the study area.



2 THE ABORIGINAL CULTURAL HERITAGE ASSESSMENT

2.1 RELEVANT LEGISLATION

Cultural heritage is managed by several state and national Acts. Baseline principles for the conservation of heritage places and relics can be found in the *Burra Charter* (Burra Charter). The *Burra Charter* has become the standard of best practice in the conservation of heritage places in Australia, and heritage organisations and local government authorities have incorporated the inherent principles and logic into guidelines and other conservation planning documents. The *Burra Charter* generally advocates a cautious approach to changing places of heritage significance. This conservative notion embodies the basic premise behind legislation designed to protect our heritage, which operates primarily at a state level.

Several Acts of parliament provide for the protection of heritage at various levels of government.

2.1.1 Commonwealth legislation

2.1.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water, provides a framework to protect nationally significant flora, fauna, ecological communities, and heritage places. The EPBC Act establishes both a National Heritage List and Commonwealth Heritage List of protected places. These lists may include Aboriginal cultural sites or sites in which Aboriginal people have interests. The assessment and permitting processes of the EPBC Act are triggered when a proposed activity or development could potentially have an impact on one of the matters of national environment significance listed by the Act. Ministerial approval is required under the EPBC Act for projects involving significant impacts to national/commonwealth heritage places.

2.1.1.2 *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*

The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* is aimed at the protection from injury and desecration of areas and objects that are of significance to Aboriginal Australians. This legislation has usually been invoked in emergency and conflicted situations.

Applicability to the project

It is noted there are no Commonwealth or National heritage listed places within the study area, and as such, the heritage provisions of the EPBC Act and other Commonwealth Acts do not apply.

2.1.2 State legislation

2.1.2.1 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (EP&A Act) established requirements relating to land use and planning. The main parts of the EP&A Act that relate to development assessment and approval are Part 4 (development assessment) and Part 5 (environmental assessment). The Minister responsible for the Act is the Minister for Planning and Public Spaces.

The EP&A Act currently provides the primary legislative basis for planning and environmental assessment in NSW. The objects of the EP&A Act include encouragement of:

- The proper management, development, and conservation of natural resources
- The provision and coordination of the orderly and economic use and development of land
- Protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats
- Ecologically sustainable development.

The objects also provide for increased opportunity for public involvement and participation in environmental planning and assessment.

The EP&A Act includes provisions to ensure that the potential environmental impacts of a development or activity are rigorously assessed and considered in the decision-making process.

The framework governing environmental and heritage assessment applicable to the project is contained within the following parts of the EP&A Act:

- Part 4: Local government development assessments, including heritage. May include schedules of heritage items
 - Division 4.7: Approvals process for SSDs.

Applicability to the project

The current project will be assessed under Part 4.7 of the EP&A Act.

As the project is a SSD, if approved, Section 4.41 of the EP&A Act would apply and therefore an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the *National Parks and Wildlife Act 1974* (NPW Act) to harm Aboriginal objects would not be required. Instead, all management related to Aboriginal cultural heritage within the study area would be governed by the policies within an approved *Aboriginal Cultural Heritage Management Plan* (ACHMP).

2.1.2.2 *National Parks and Wildlife Act 1974*

The NPW Act provides for the protection of Aboriginal objects (sites, objects, and cultural material) and Aboriginal places. Under the Act (Part 6), an Aboriginal object is defined as: any deposit, object, or material evidence (not being a handicraft for sale) relating to Aboriginal habitation of the area that comprises NSW, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction and includes Aboriginal remains.

An Aboriginal place is defined under the NPW Act as an area which has been declared by the Minister administering the Act as a place of special significance for Aboriginal culture. It may or may not contain physical Aboriginal objects.

It is an offence under section 86 of the NPW Act to 'harm or desecrate an object the person knows is an Aboriginal object'. It is also a strict liability offence to 'harm an Aboriginal object' or to 'harm or desecrate an Aboriginal place', whether knowingly or unknowingly. Section 87 of the Act provides a series of defences against the offences listed in Section 86, such as:

- The harm was authorised by and conducted in accordance with the requirements of an AHIP under section 90 of the Act
- The defendant exercised 'due diligence' to determine whether the action would harm an Aboriginal object
- The harm to the Aboriginal object occurred during the undertaking of a 'low impact activity' (as defined in the regulations).

Under section 89A of the Act, it is a requirement to notify the Secretary of the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) of the location of an Aboriginal object. Identified Aboriginal items and sites are registered on Aboriginal Heritage Information Management System (AHIMS) that is administered by Heritage NSW.

Applicability to the project

Any Aboriginal sites within the study area are afforded legislative protection under the NPW Act.

The Secretary of DCCEEW will be notified of the location of an Aboriginal object recorded by sending the relevant details to the AHIMS register.

2.1.2.3 *Secretary's Environmental Assessment Requirements*

SEARs were issued by the NSW Department of Planning, Housing and Infrastructure on 16 October 2024. In relation to Aboriginal cultural heritage, the SEARs state:

- *An assessment of the potential impacts on Aboriginal heritage (cultural and archaeological), including evidence of appropriate consultation with relevant Aboriginal communities/parties and documentation of the views of these*

stakeholders regarding the likely impact of the development on their cultural heritage

No additional requirements from Heritage NSW are contained in the SEARs.

2.2 ASSESSMENT APPROACH

The archaeological assessment followed the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010b).

The Aboriginal cultural heritage assessment followed the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (the Guide; OEH 2011) and the *Aboriginal cultural heritage consultation requirements for proponents* (ACHCRs) (DECCW 2010a).

2.3 PURPOSE AND OBJECTIVES

The purpose of this study is to identify and assess heritage constraints relevant to the proposed works.

The study will apply the Code of Practice, the Guide, and the ACHCRs in the completion of the Aboriginal cultural heritage assessment to meet the following objectives:

Objective One: Undertake background research on the study area to formulate a predictive model for site location within the study area

Objective Two: Identify and record Aboriginal cultural heritage values within the survey areas. This includes intangible cultural values, Aboriginal objects, and any landforms likely to contain further archaeological deposits

Objective Three: To assess the significance of any recorded Aboriginal cultural values, Aboriginal objects, or sites in consultation with Registered Aboriginal Parties (RAPs)

Objective Four: Assess the likely impacts of the proposed work to Aboriginal cultural heritage values and provide management recommendations.

2.4 REPORT COMPLIANCE WITH THE CODE OF PRACTICE

The Code of Practice establishes requirements that should be followed by all archaeological investigations where harm to Aboriginal objects may be possible. **Table 2-1** tabulates the compliance of this report with the requirements established by the Code of Practice.

Table 2-1: Report compliance with the Code of Practice.

Code of Practice Requirement	Context of the Requirement	Concordance in this report
Requirement 1a	Review previous archaeological work	Section 5.2 and Section 5.3
Requirement 1b	Review AHIMS searches	Section 5.3.1
Requirement 2	Review the landscape context	Section 4

Code of Practice Requirement	Context of the Requirement	Concordance in this report
Requirement 3	Summarise and discuss the local and regional character of Aboriginal land use and its material traces	Section 5.1
Requirement 4a	Develop predictive model	Section 5.4
Requirement 4b	Present predictive model results	Section 5.4.3
Requirement 5a	Archaeological survey sampling strategy	Section 6.1
Requirement 5b	Archaeological survey requirements	This Requirement was fulfilled during the undertaking of the survey
Requirement 5c	Archaeological survey units	Section 4.1.1
Requirement 6	Site definition	Section 5.4.1
Requirement 7a	Site recording information to be recorded	Section 6.4
Requirement 7b	Site recording: scales for photography	All artefact photographs employed a centimetre scale bar.
Requirement 8a	Geospatial information	All artefact locations were logged using a non-differential handheld GPS.
Requirement 8b	Datum and grid coordinates	All coordinates are provided in GDA Zone 56.
Requirement 9	Record survey coverage data	Section 6.1 and Figure 6-1
Requirement 10	Analyse survey coverage	Section 6.7
Requirement 11	Archaeological Report content and format	This report adheres to this Requirement.
Requirement 12	Records	OzArk undertakes to maintain all survey records for at least five years.
Requirement 13a	Notifying Heritage NSW of breaches	Not applicable
Requirement 13b	Providing Heritage NSW with information	Not applicable
Requirements 14–17	Test excavation	Test excavation did not take place as it was not considered warranted.
Requirements 18–20	Artefact recording	The procedures for artefact recording were adhered to during the investigation.

2.5 DATE OF ARCHAEOLOGICAL ASSESSMENT

The field survey was undertaken by OzArk on 14 August 2025.

2.6 OZARK INVOLVEMENT

2.6.1 Field survey

The fieldwork survey was undertaken by:

- Fieldwork Director: Ben Churcher (Principal Archaeologist, BA (Hons) University of Queensland, Dip Ed, University of Sydney).
- Fieldwork Assistant: Dr Bernadette Drabsch (OzArk Senior Heritage Consultant, PhD University of Newcastle).

2.6.2 Reporting

The reporting component of the heritage assessment was undertaken by:

- Report author: Will Marris (Archaeologist, B Archaeological Practice Australian National University).
- Reviewer: Ben Churcher.

3 ABORIGINAL COMMUNITY CONSULTATION

3.1 INTRODUCTION TO CULTURAL VALUES

No matter who you are, we all have culture. Each person's culture is important; it's part of what makes us who we are.

australianstogether.org.au

Many Aboriginal people in Australia have a unique view of the world that's distinct from the mainstream. Land, family, law, ceremony, and language are five key interconnected elements of Aboriginal culture. For example, families are connected to the land through the kinship system, and this connection to land comes with specific roles and responsibilities which are enshrined in the law and observed through ceremony. In this way, the five elements combine to create a way of seeing and being in the world that is distinctly Aboriginal.

Aboriginal and Torres Strait Islander peoples are connected to Country through lines of descent (paternal and maternal), as well as clan and language groups. Territory is defined by spiritual as well as physical links. Landforms have deep meaning, recorded in art, stories, songs, and dance. Songlines or Dreaming Tracks as well as kinship structures link Aboriginal peoples to the territories of other groups. In the past, these links were also used for trade.

Living on this land for more than 50,000 years, Aboriginal and Torres Strait Islanders established effective ways to use and sustain resources. One important aspect is the right of certain people to control the use of resources in a particular area, as well as cultural and spiritual values like totemism that were fundamental in resource management. There was a wide range of traditional methods for gathering food including fish traps, subsistence agriculture, hunting and harvesting a wide range of natural fruits and vegetables. Some groups of people would stay in one place, while others moved around the land according to the seasons, to ensure sustainable and rich food supplies, and to fulfil their spiritual and cultural obligations.

In much of eastern Australia, Aboriginal communities live their lives like most Australians. However, in certain crucial areas, particularly associated with family, leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

3.2 ABORIGINAL COMMUNITY CONSULTATION

A major aim of this assessment is to identify any cultural values within the landscape in which the project is located so that those values can be recognised and incorporated into the project's management recommendations.

The Aboriginal cultural heritage assessment of the project has followed the ACHCRs. A log and copies of correspondence with Aboriginal community stakeholders is presented in **Appendix 1 Figure 1**.

The ACHCRs include four main stages, and these will be detailed in the following sections.

3.2.1 ACHCRs Stage 1

The aim of Stage 1 is to identify the RAPs who wish to be consulted about the project.

An advertisement was placed in the *Singleton Argus* on 22 May 2025 to solicit expressions of interest (**Appendix 1 Figure 2**).

A letter seeking information from various agencies was sent on 22 May 2025 (**Appendix 1 Figure 3**). These agencies were: Heritage NSW; the Wanaruah Local Aboriginal Land Council (LALC); the Office of The Registrar, *Aboriginal Land Rights Act 1983*; the National Native Title Tribunal; Native Title Services Corporation Limited (NTSCORP); the Muswellbrook Regional Council; and Hunter Tablelands Local Land Services. Letters were sent to individuals and groups whose contact details had been provided by the government agencies (**Appendix 1 Figure 4**).

By the closing date for registration concerning this project, 16 groups or individuals registered to be consulted as RAPs:

- A1 Indigenous Services
- Amanda Hickey Cultural Services
- Culturally Aware
- Didge Ngunawal Clan
- Gomery Cultural Consultants
- Hunter Valley Aboriginal Corporation
- Jarban & Mugrebea
- Kawul Pty Ltd trading as Wonn1 Sites
- Metropolitan Local Aboriginal Land Council
- Mura Gadi Aboriginal Corporation
- Murra Bidgee Mullangari Aboriginal Corporation
- Stakeholder 1¹
- Thomas Dahlstrom
- Upper Hunter Wonnarua Council Inc
- Wanaruah Local Aboriginal Land Council
- Widescope Indigenous Group.

¹ Stakeholder 1 requested to remain anonymous.

3.2.2 ACHCRs Stage 2

The aim of Stage 2 is to provide information about the project to the RAPs.

Detailed project information was provided in the assessment methodology that was issued to all RAPs for their consideration on 25 June 2025 (**Appendix 1 Figure 5, Appendix 1 Figure 6, Appendix 2**).

3.2.3 ACHCRs Stage 3

The aim of Stage 3 is to acquire information regarding Aboriginal cultural values associated with the project through RAP consultation and field work.

To inform the RAPs of the assessment, an assessment methodology was issued to all RAPs for their consideration on 25 June 2025 (**Appendix 1 Figure 5, Appendix 1 Figure 6, Appendix 2**). This document provided the archaeological context of the study area, a description of the proposed survey, and asked whether there were any cultural values that should be considered in the assessment.

RAPs were provided the stipulated 28 days in which to review and comment on the assessment methodology as per Stage 3 of the ACHCRs. The closing date for comment was 23 July 2025.

Three responses to the Stage 2/3 survey methodology were received. (**Table 3-1, Appendix 1 Figure 7**). None of the responses required changes to be made to the survey methodology.

Table 3-1: RAP responses to the Stage 2/3 survey methodology.

Date	Individual/Organisation	Response received
25.6.25	Mura Gadi Aboriginal Corporation	CB received email - I agree with the methodology in place and would love to participate in any field work
1.7.25	Murra Bidgee Mullangari Aboriginal Corporation	CB received email - I have read the project information and draft methodology for the above project; I endorse the recommendations
12.7.25	A1 Indigenous Services	CB received email - I have reviewed the document and fully support the Information and Methodology

The field survey as per Stage 3 of the ACHCRs was undertaken with the assistance of RAP representatives on 14 August 2025. The RAP representatives for the survey were Leanne Kirkman (Hunter Valley Aboriginal Corporation) and Les Atkinson (Jarban & Mugrebea).

3.2.4 ACHCRs Stage 4

Stage 4 involves the production of a draft ACHAR that is issued to all RAPs for their consideration. The ACHAR will document the results of the assessment, outline opportunities for the conservation of Aboriginal cultural values, and suggest recommendations for the management of Aboriginal objects should impacts to these objects be unavoidable.

A copy of the draft ACHAR was sent to all RAPs on 5 November 2025 with a closing date for comment of 3 December 2025 (**Appendix 1 Figure 8, Appendix 1 Figure 9**).

At the close of the comment period, two responses from Jarban & Mugrebea and Murra Bidgee Mullangari Aboriginal Corporation acknowledging that they agreed with the ACHAR's conclusions (**Appendix 1 Figure 10**).

3.3 CULTURAL VALUES IDENTIFIED THROUGHOUT THE ACHCR PROCESS

No specific cultural values were identified by the RAPs regarding the study area, however, the strong cultural values of Aboriginal communities towards landscapes and cultural heritage sites are recognised.

4 LANDSCAPE CONTEXT

An understanding of the environmental context of a study area is requisite in any Aboriginal archaeological investigation (DECCW 2010b). It is a particularly important consideration in the development and implementation of survey strategies for the detection of archaeological sites. In addition, natural geomorphic processes of erosion and/or deposition, as well as human-activated landscape processes, influence the degree to which the remains of material culture are retained in the landscape as archaeological sites; and the degree to which they are preserved, revealed and/or conserved in present environmental settings.

4.1 TOPOGRAPHY

The study area is situated on an undulating ridgeline within the western foothills of the Tangory Mountain, with an elevation ranging from 80 metres (m) in the southern extent to 220 m in the north of the study area (**Figure 4-1**). The ephemeral Blind Creek and Stewarts Creek are adjacent to the study area, and several unnamed, drainage lines intersect the study area. The study area has been historically cleared, with vegetation mostly consisting of regrowth. The nearest waterway offering a permanent, year-round water supply is the Hunter River, located 2.5 km south of the study area.

4.1.1 Survey units

Based on the topography and hydrology of the study area, survey units were identified to capture the major topographical features of the study area. The designation of survey units will allow a comparison of the archaeological potential of each major topographical feature within the study area to understand whether certain landform types are more likely to contain Aboriginal objects than others.

Preliminary landform mapping across the study area indicates that there are three identifiable landform units (**Figure 4-2**):

- Survey unit 1: Ephemeral drainage lines with a 50 m buffer
- Survey unit 2: Crests or ridgeline landforms
- Survey unit 3: Moderate gradient slopes.

Views of the survey units are shown on **Figure 4-3**.

Figure 4-1. Elevation and drainage within the environs of the study area.

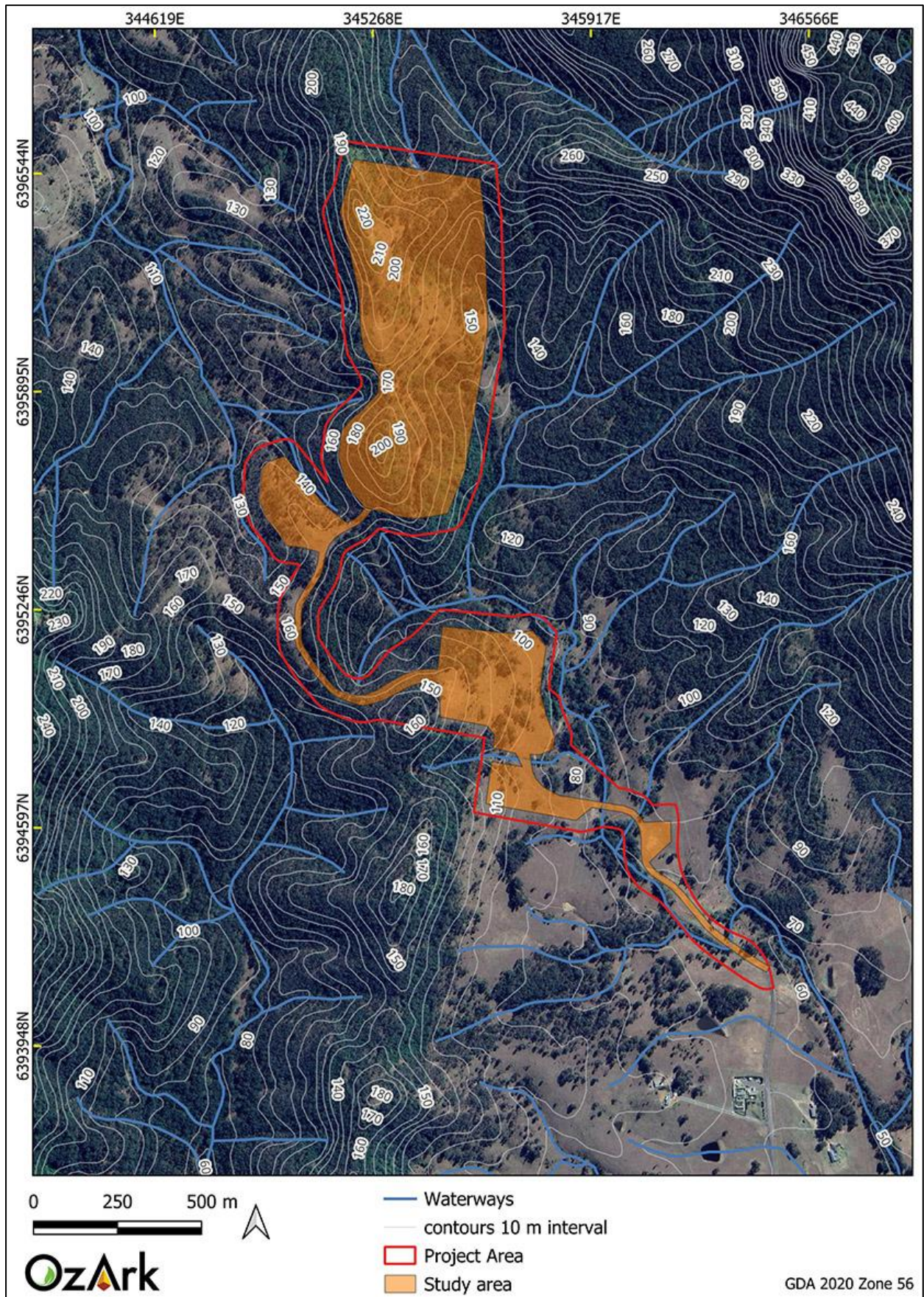


Figure 4-2: Aerial of the study area showing the location of survey units.

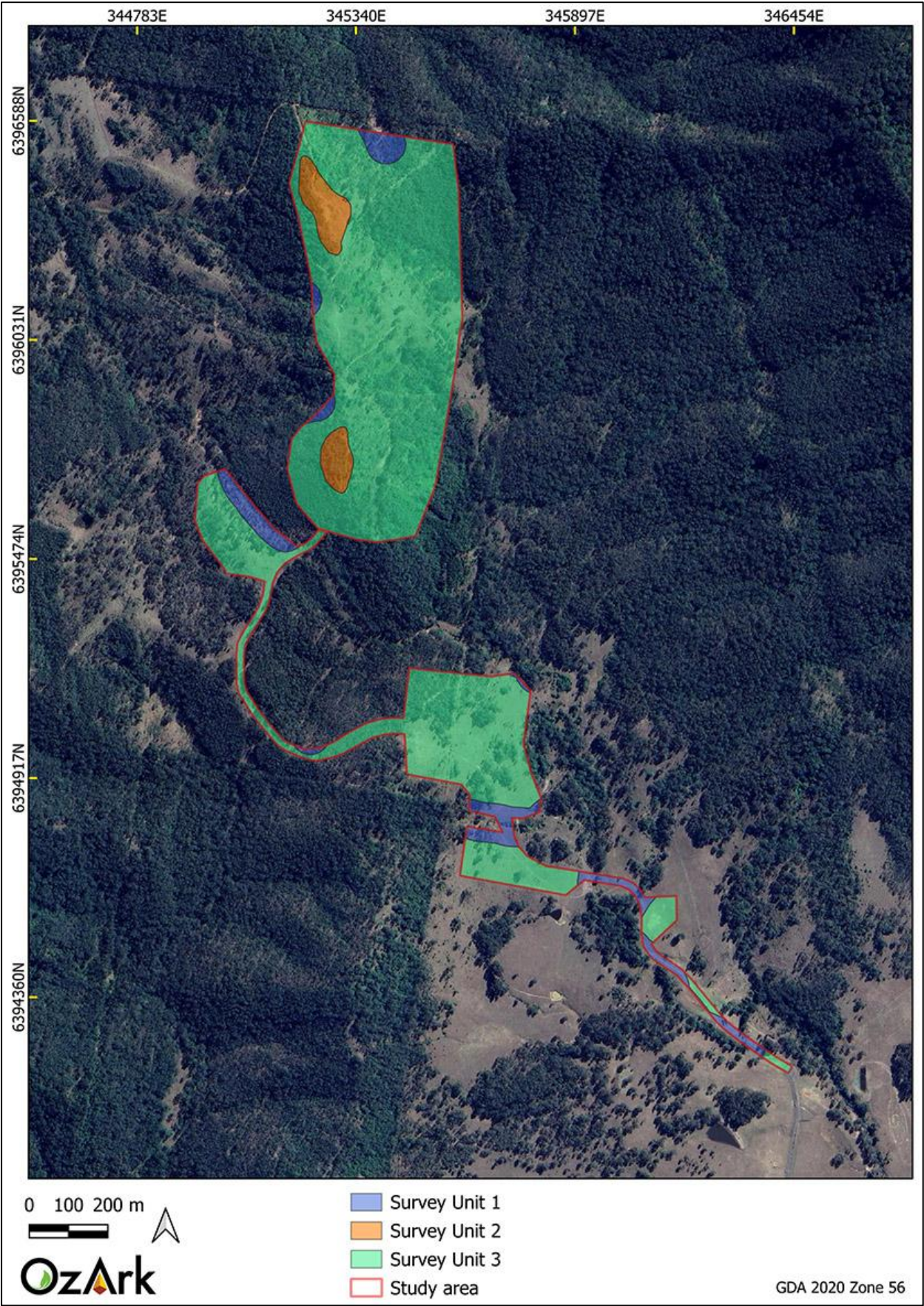


Figure 4-3: Views of survey units within the study area.

	
1. SU1 showing low gradient landforms in the south of the study area associated with an ephemeral drainage.	2. SU1 showing low and moderate gradient landforms in the south of the study area associated with an ephemeral drainage.
	
3. SU2 showing a broad crest in the north of the study area.	4. SU2 showing a localised, rocky crest in the north of the study area.
	
5. SU3 showing a steep, slope in the north of the study area, that has been the subject of historical land use.	6. SU3 showing a rocky, slope in the north of the study area, that has been the subject of historical land use.

4.2 GEOLOGY AND SOILS

Soil analysis has important ramifications for archaeological research through the potential impact of different soils on human activity (such as agricultural exploitation) and the impact of the soils on archaeological evidence (such as post-depositional movement).

The study area extends across three soil landscapes: Stanhope, Lochinvar, and Hunter.

Most of the study area comprising the pit area and laydown area are situated in the Stanhope soil landscape. Soils in this landscape primarily consist of e Brown Podzolic Soils (Db2.21) on mid to lower slopes with Yellow Podzolic Soils (Dy3.11) on the upper slopes (Murphy and Lawrie 1998). These soils are generally well-draining and moderately susceptible to erosion.

The processing area in the south of the study area is in the Lochinvar soil landscape which is predominantly comprised of non-calcic Brown Soils (Db1.12) on the gentle slopes with Brown Podzolic Soils (Db2.11, Db1.41) on the steeper areas (Murphy and Lawrie 1998). There are Yellow Solodic Soils (Dy2.12) on the mid to lower slopes of the steeper hills and in some drainage lines. Erosion is particularly severe in drainage features with Yellow Solodic Soils.

The southern access road is in the Hunter soil landscape. Soils consist of brown alluvial clays and black earths on stream channels and tributary flats (Murphy and Lawrie 1998). These soils are aggrading and often are poor preservers of archaeological material.

The study area is entirely located in the NSW Sydney Basin bioregion and, specifically, within the Central Hunter Foothills subregion. This landscape type is characterised by undulating lowlands, rounded to steep hills with rock outcrop on ridges on Permian lithic sandstone, conglomerate, shale, and coal (Mitchell 2002: 112). According to the Singleton 1:250,000 Geological Map (Rasmus et al. 1969) the study area predominantly contains conglomerate sandstone and shale with occasional thin bands of coal.

4.3 HYDROLOGY

The Hunter River is the closest perennial water course, and it is located approximately 2.5 km south of the study area. Multiple ephemeral drainage lines with the study area, caused by sheet run-off from the surrounding sloping terrain.

In the south of the study area, an unnamed, ephemeral waterway flows in a southerly direction. This drainage is more formed than the other drainage systems in the study area that are better described as 'gullies'.

4.4 VEGETATION

Prior to British settlement, the landscape within the study area would have supported eucalypt woodlands and open forest populated with native species including spotted gum, forest red gum,

ironbark, white box, slaty gum, and rough-barked apple, with kangaroo grass and wallaby grass (Mitchell 2002: 112). In present times, examination of the aerial imagery (**Figure 1-2**) shows that sections of the study area have been subject to vegetation clearance, however, clusters of trees remain throughout, particularly in the north, however, these are likely to be regrowth.

4.5 LAND USE HISTORY AND EXISTING LEVELS OF DISTURBANCE

The study area has been primarily used for low intensity agricultural activities such as grazing. Visible disturbances inside the study area are limited to past vegetation clearance, grazing, and the construction of an unsealed farm track.

4.6 CONCLUSION

The review of the environmental factors associated with the study area allows the following conclusions to be drawn in terms past Aboriginal occupation:

- Topography and hydrology: the moderate slopes which dominate the study area would have been hospitable to Aboriginal people, however, apart from ephemeral drainage lines and crest landforms, there are few areas within the study area which would have encouraged substantial Aboriginal occupation in the form of camping. Furthermore, slopes are a degrading landform and are unlikely to contain intact archaeological deposits. In the south of the study area, the topography consists of less steep gradient slopes in association with an unnamed, ephemeral waterway.
- Geology and soils: while landforms which typically comprise outcropping rock, i.e., hills, are present within the study area, they predominantly consist of bluestone deposits which are not suitable for stone tool manufacture. Soils present on the moderate gradient slopes within the study area are likely to have been affected by water erosion and are poor draining. The erosional qualities of the soils present will have influenced the likelihood for *in situ* archaeological deposits being present. The landforms in the south of the study area consist of alluvial soils in association with an unnamed, ephemeral waterway. These soils are aggrading, and while these gentler gradient landforms would have been more conducive for camping activities, flooding and alluvial deposition are likely to have disturbed any archaeological deposits had they been present.
- Vegetation: the study area would have once supported an open woodland which would have provided some resources for Aboriginal subsistence in the past. However, resources likely to have supported a large population of people would have been present closer to the banks of more permanent water sources including the Hunter River. The broad-scale vegetation clearance which has taken place across the study area for agricultural purposes reduces the likelihood that any culturally modified trees remain present. Most of the vegetation present is likely consist of regrowth. However, should mature native vegetation remain, particularly along ridgelines, culturally modified trees may be present.
- Land use: ground surface disturbances such as vegetation clearance and grazing exist throughout the study area. These activities may have displaced Aboriginal objects and are likely to have reduced the potential for subsurface archaeological material.

However, disturbance at a given location does not necessarily mean that there will be no cultural material present, as often a disturbed context will reveal objects which may have previously been subsurface.

5 ARCHAEOLOGICAL CONTEXT

5.1 ETHNO-HISTORIC SOURCES OF REGIONAL ABORIGINAL CULTURE

The ethnographic studies of Tindale (1974) place the study area within the traditional lands of the Wonnarua people. The Wonnarua language group is understood to have spanned the area between Maitland and the Great Dividing Range, although the boundaries between the Wonnarua and their neighbouring groups, the Gomeroi (west), Worimi and Awabakal (east), and Darkinjung (south) are likely to involved seasonal change and areas which multiple language groups occupied for economic and cultural exchange.

5.2 REGIONAL ARCHAEOLOGICAL CONTEXT

There have been a significant number of Aboriginal archaeological investigations in the Upper Hunter region. An accepted occupation model for the region was developed following extensive archaeological investigation related to the salvage of Aboriginal archaeological sites in relation to the F3 Freeway near Lenegans Drive, Black Hill (Kuskie and Kamminga 2000). Their model applies to the Central Lowlands region of the Hunter Valley in which the study area is situated (see also ERM 2004: 12). The model is shown on **Figure 5-1**.

The landscape of the study area applies to the first three expected occupations patterns: transit, hunting, and small group camps. In terms of the archaeological sites that might be expected to remain from these activities, the archaeological profile of the Central Lowlands region of the Upper Hunter Valley (ERM 2004: 52–4) indicates that:

- Archaeological sites that are not artefact scatters or isolated finds (e.g. quarries, scarred trees, art sites) are rare
- Open artefact sites (over 98% of the compiled data set) are concentrated along major creeks and the Hunter River, contexts which are more likely to contain sites than slopes and ridges
- The predominant materials noted in artefact assemblages are silcrete and indurated mudstone/tuff (IMT) also often identified as simply ‘mudstone’.

Figure 5-1: Occupation model for the Central Lowlands and Lower Hunter Valley.

Occupation pattern	Activity location	Proximity to water	Proximity to food resources	Archaeological expectations
Transitory movement	All landscape zones, but frequently on ridge and spur crests, watercourses and valley flats	Not important	Not important	Assemblages of low density and diversity Evidence of tool maintenance and repair Knapping
Hunting and/or gathering without camping	All landscape zones	Not important	Near food source	Assemblages of low density and diversity Evidence of tool maintenance and repair High frequency of used tools discarded Knapping
Camping by small parties	Frequently associated with permanent or temporary water	Nearby	Near food source	Assemblages of low-moderate density and diversity Evidence of tool maintenance and repair Hearths
Nuclear family base camp	Level or gently undulating ground	Nearby reliable source	Near food source	Assemblages of high density and diversity Evidence of tool manufacture and casual knapping Facilities such as heat treatment pits and stone lined ovens Grindstones present
Community base camp	Level or gently undulating ground	Nearby reliable source	Near food source	Assemblages of high density and diversity Evidence of tool manufacture and casual knapping Facilities such as hearths and stone lined ovens Grindstones and ochre present Evidence of heat treatment unlikely Large area >100 m ² with isolated campsites

Kuskie and Kamminga 2000.

5.3 LOCAL ARCHAEOLOGICAL CONTEXT

5.3.1 Desktop database searches conducted

A desktop search was conducted on the following databases to identify any previously recorded Aboriginal heritage within the study area. The results of this search are summarised in **Table 5-1** with the results of the AHIMS search presented in detail in **Appendix 3**.

Table 5-1: Aboriginal cultural heritage: desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
Commonwealth Heritage Listings	23/9/25	Singleton LGA	No places listed on either the National or Commonwealth heritage lists are located within the study area
National Native Title Claims Search	23/9/25	NSW	No Native Title Claims cover the study area.
AHIMS	15/5/2025 ²	8 x 8 km centred on the study area	79 previously recorded Aboriginal sites within the search area. One site is recorded on the AHIMS register to be in the study area.
Local Environmental Plan (LEP)	23/9/25	Singleton LEP of 2013	None of the Aboriginal places noted occur near the study area.

A search of the Heritage NSW administered AHIMS database on 15 May 2025 returned 79 results for Aboriginal sites within an eight-kilometre square buffer centred on the study area (GDA2020 Zone 56 Eastings: 337470–353470 Northings: 6387532–6403532). **Table 5-2** presents the site types and frequencies of the search results. **Figure 5-2** shows the location of the AHIMS sites that have been recorded near the study area.

According to the AHIMS register, one previously recorded isolated find 37-6-3827 (Elderslie 2) is in the southern extent of the study area, on the bank of an ephemeral waterway. 37-6-3827 is recorded as a red mudstone flake (29x12x10 millimetres [mm]) with evidence of backing. However, on review of the associated site card, the site centroid is plotting incorrectly in the AHIMS register and the site is, in fact, located over 217 m away to the northeast and will not be harmed by the project (**Figure 5-3**). The site was identified during a National Parks and Wildlife Service survey in the neighbouring property, and it is likely that the site was recorded in AGD coordinates but has been registered in the AHIMS register using GDA coordinates. The corrected site location places the site near a farm track that is noted on the site card to be near the site, while there is no track near the current AHIMS location. This provides greater confidence that the site is located outside the Project Area as shown on **Figure 5-3**.

² An updated search undertaken on 8 April 2026 returned an additional 3 sites in the search area including the site recorded as part of this assessment (refer to **Section 6; Appendix 3**). The additional 2 sites are not located within or near the study area.

Figure 5-2: Location of previously recorded AHIMS sites in relation to the study area.

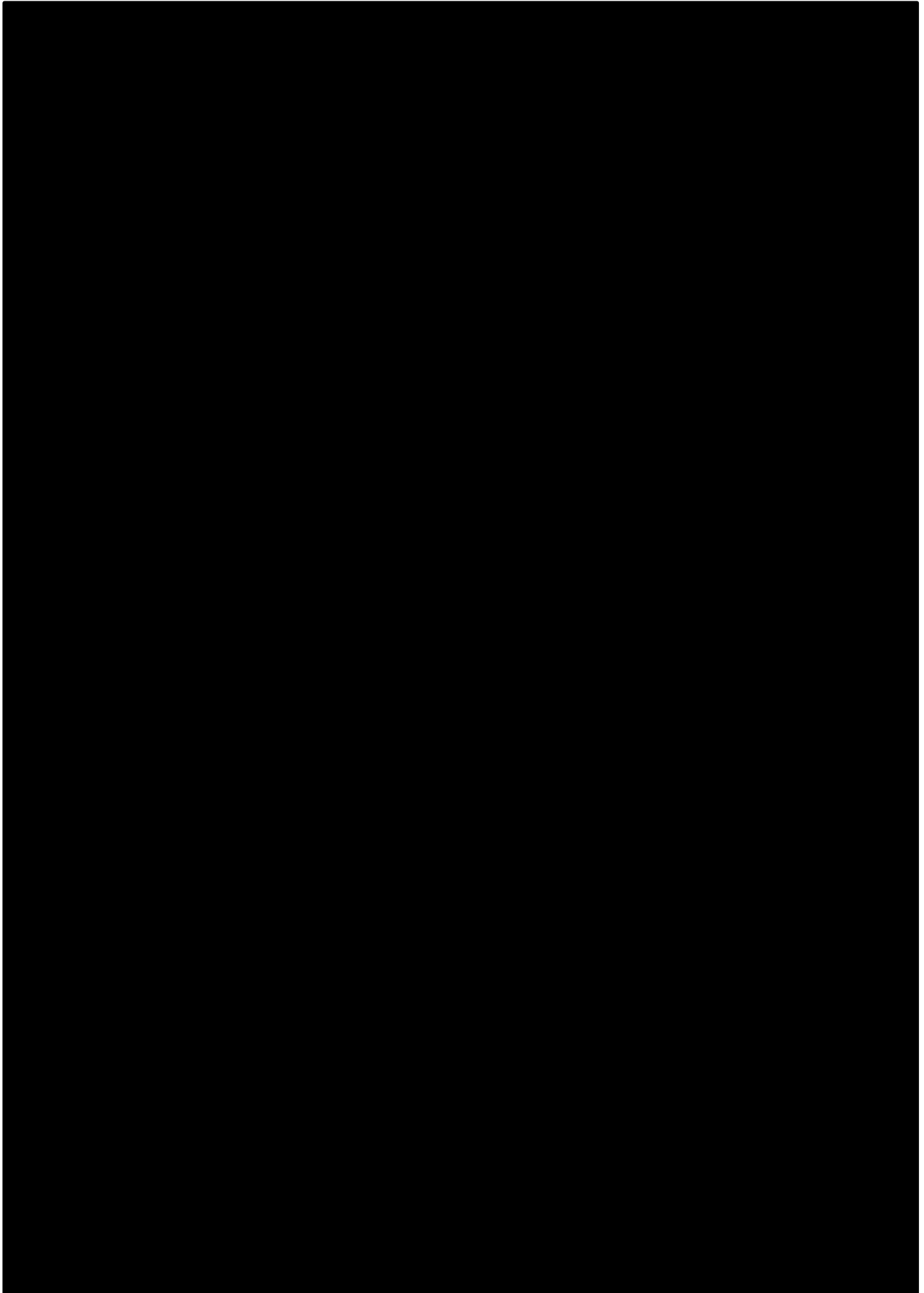
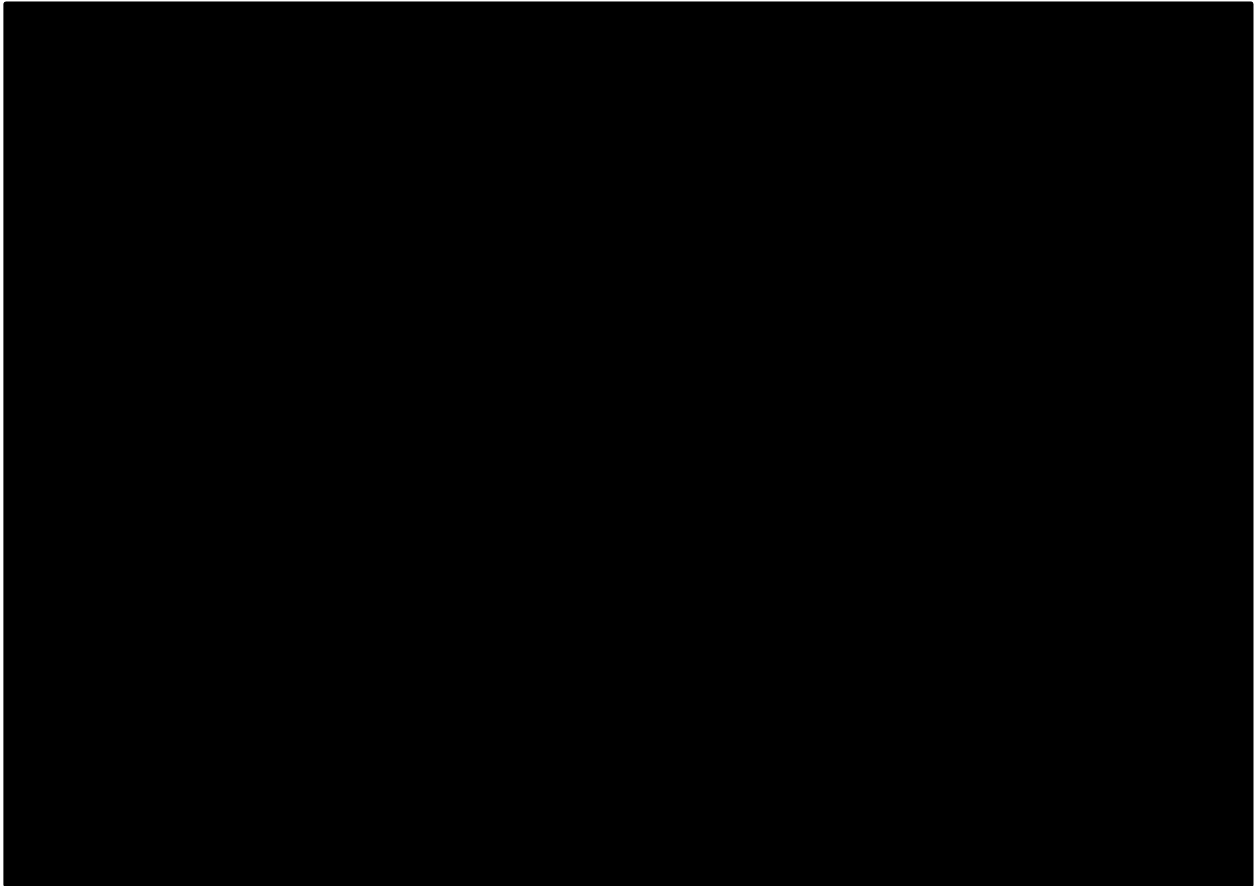


Figure 5-3: Aerial showing the correct location of 37-6-3827 (Elderslie 2).



Additionally, another isolated find (AHIMS ID 37-6-3826) is located 350 m northwest of the study area on a saddle landform. As isolated finds have been recorded near to the study area, there is an increased likelihood that this site type will be identified during survey of the study area. In general, isolated finds have previously been recorded in a wide variety of contexts, including highly disturbed landforms. Within the study area, this site type is most likely to be recorded in association with ephemeral drainage lines and areas that have been modified through erosion or bioturbation.

Artefact scatters generally follow a pattern of close association with major waterways. This is reflected by the AHIMS results with most artefacts scatters recorded in the vicinity of Stanhope Creek, Glendon Brook, West Brook, and the Hunter River. While ridgelines may have encouraged Aboriginal occupation, the distance of the study area from permanent waterways reduces the likelihood that this site type will be present within the study area.

Grinding grooves have potential to be present, if outcropping sandstone is present.

Table 5-2: Site types and frequencies of AHIMS sites near the study area.

Site Type	Number	% Frequency
Artefact (quantity unspecified)	36	45.57
Artefact scatter	26	32.91
Isolated find	15	18.99
Grinding groove	1	1.27
PAD ³	1	1.27
Total	79	100

5.3.2 Previous studies in or near the study area

The land adjacent to the study area has been subject to archaeological assessment in the past. The assessment by Worth (2016) recorded the isolated find 37-6-3827 in the northern extent of her study area as part of an assessment for National Parks and Wildlife Service which is not publicly available.

The isolated find, 37-6-3827 (Elderslie 2), was also recorded during this assessment. The isolated mudstone flake was recorded in association with an existing farm track near an ant mound. This and other sites recorded by Worth (2016) demonstrate a general likelihood for isolated finds and potentially low-density artefact scatters to be present within the study area, especially in association with drainage features such as ephemeral waterways.

Multiple archaeological investigations have taken place in the surrounding landscape of the study area. The most relevant are outlined below:

Haglund (1982) conducted an assessment for Michell Flat underground coal mine, which included areas of Tully Hill 3.6 km northwest of the study area. Haglund (1982) recorded two Aboriginal sites: Site One consisted of two flakes and two flaked pieces and Site Two was an isolated artefact described as a broken flake. Neither site warranted further investigation.

Ruig (1993) undertook an archaeological assessment of the proposed optic fibre cable route Glendonbrook to Westbrook to Singleton for Telecom Australia. Ten Aboriginal sites were recorded over the entire route, three of which are located approximately 5 km north of the study area. All sites were comprised of stone artefacts ranging from isolated finds to high-density artefact scatters. This conformed with predictive modelling presented by Ruig (1993) which suggested that the most likely site type within the area is stone artefactual material. Most sites were recorded within proximity to the perennial Glendon Brook or ephemeral tributaries, evidencing a pattern of artefacts being closely associated with waterways. High-density sites are more likely to be identified near perennial water sources which would have supported prolonged Aboriginal occupation.

³ Potential archaeological deposit.

5.4 PREDICTIVE MODEL FOR SITE LOCATION

Across Australia, numerous archaeological studies in widely varying environmental zones and contexts have demonstrated a high correlation between the permanence of a water source and the permanence and/or complexity of Aboriginal occupation. Site location is also affected by the availability of and/or accessibility to a range of other natural resources including plant and animal foods, stone and ochre resources and rock shelters, as well as by their general proximity to other sites/places of cultural/mythological significance. Consequently, sites tend to be found along permanent and ephemeral water sources, along access or trade routes, or in areas that have good flora/fauna resources and appropriate shelter.

In formulating a predictive model for Aboriginal archaeological site location within any landscape it is also necessary to consider post-depositional influences on Aboriginal material culture. In all but the best preservation conditions very little of the organic material culture remains of ancestral Aboriginal communities survives to the present. Generally, it is the more durable materials such as stone artefacts, stone hearths, shells, and some bones that remain preserved in the current landscape. Even these, however, may not be found in their original depositional context since these may be subject to either (a) the effects of wind and water erosion/transport, both over short- and long-time scales, or (b) the historical impacts associated with the introduction of European farming practices including grazing and cropping, land degradation, and farm related infrastructure. Scarred trees, due to their nature, may survive for up to several hundred years but rarely beyond.

5.4.1 Site types in the region of the study area

The site types listed in **Table 5-3** are present in the region of the study area. The likelihood of these sites being present in the study area is discussed in **Section 5.4.3**.

Table 5-3: Site types recorded in the region of the study area.

Site type	Site description
Isolated finds	May be indicative of random loss or deliberate discard of a single artefact, the remnant of a now dispersed and disturbed artefact scatter, or an otherwise obscured or subsurface artefact scatter. They may occur anywhere within the landscape but are more likely to occur in topographies where open artefact scatters typically occur.
Open artefact scatters	Artefact scatters are defined as two or more artefacts, not located within a rock shelter, and located no more than 50 m away from any other constituent artefact. This site type may occur almost anywhere that Aboriginal people have travelled and may be associated with hunting and gathering activities, short- or long-term camps, and the manufacture and maintenance of stone tools. Artefact scatters typically consist of surface scatters or sub-surface distributions of flaked stone discarded during the manufacture of tools but may also include other artefactual rock types such as hearth and anvil stones. Less commonly, artefact scatters may include archaeological stratigraphic features such as hearths and artefact concentrations which relate to activity areas. Artefact density can vary considerably between and across individual sites. Small ground exposures revealing low density scatters may be indicative of a background scatter rather than a spatially or temporally distinct artefact assemblage. These sites are classed as 'open', that is, occurring on the land surface unprotected by rock overhangs, and are sometimes referred to as 'open camp sites'. Artefact scatters are most likely to occur on level or low gradient contexts, along the crests of ridgelines and spurs, and elevated areas fringing watercourses or wetlands. Larger sites may be expected in association with permanent water sources.

Site type	Site description
	Topographies which afford effective through-access across, and relative to, the surrounding landscape, such as the open basal valley slopes and the valleys of creeks, will tend to contain more and larger sites, mostly camp sites evidenced by open artefact scatters.
Culturally modified trees	Aboriginal scarred trees contain evidence of the removal of bark (and sometimes wood) in the past by Aboriginal people, in the form of a scar. Bark was removed from trees for a wide range of reasons. It was a raw material used in the manufacture of various tools, vessels, and commodities such as string, water containers, roofing for shelters, shields and canoes. Bark was also removed because of gathering food, such as collecting wood boring grubs or creating footholds to climb a tree for possum hunting. Due to the multiplicity of uses and the continuous process of occlusion (or healing) following removal, it is difficult to accurately determine the intended purpose for any example of bark removal. Scarred trees may occur anywhere old growth trees survive. The identification of scars as Aboriginal cultural heritage items can be problematical because some forms of natural trauma and European bark extraction create similar scars. Many remaining scarred trees probably date to the historic period when bark was removed by Aboriginal people for both their own purposes and for roofing on early European houses. Consequently, the distinction between European and Aboriginal scarred trees may not be clear.
Grinding grooves	Grinding grooves are the remnants of ground edge hatchet manufacture and sometimes from food preparation. The site is most likely to occur on flat outcrops of coarse-grained sandstone in the vicinity of water sources, however, grinding grooves have also been recorded on fine-grained granite and quartzite outcrops.

5.4.2 Landform modelling of archaeological potential

The large number of archaeological studies undertaken within the vicinity of the study area provides information to obtain a sound understanding of the nature and distribution of archaeological sites within the area. Although there is some conjecture about the relationship between stream order, site numbers and densities, the general pattern is that most sites are present close to watercourse. While multiple ephemeral drainage lines are present throughout the study area, the Hunter River is approximately 2.5 km from the study area, reducing the likelihood that high-density sites demonstrative of sustained occupation will be present.

Crucial for the preservation of archaeological deposits is the history of past land use in an area. Most of the study area has been previously cleared of native vegetation for agricultural purposes. Most vegetation present today is likely to consist of regrowth. This is likely to have caused significant disturbance to the ground surface through tree removal, ploughing, and grazing. In general, natural erosional processes would be exacerbated by the clearing of vegetation further disturbing potential archaeological deposits. The consequence of this is that artefact scatters can be predicted to be identified within secondary contexts.

5.4.3 Conclusion

Based on knowledge of the environmental contexts of the study area and a desktop review of the known local and regional archaeological record, the following predictions are made concerning the probability of landforms within the study area to contain Aboriginal objects (**Table 5-4**), and what types of sites may be present within the study area (**Table 5-5**).

Table 5-4: Likelihood of landforms within the study area to contain Aboriginal objects.

Survey Unit	Landform type	Likelihood to contain Aboriginal objects
1	Drainage	Landforms immediately adjacent to waterways generally have high archaeological potential as they provide reliable access to water. While the ephemeral waterways of the study area are not expected to have provided consistent access to water in the past, the presence of water in some environmental conditions may have attracted habitation or game for hunting. As Aboriginal sites have been previously recorded in drainage landforms near the study area, there is an increased likelihood that this landform type may contain archaeological material.
2	Crests	Archaeological studies indicate that crest landforms and elevated areas were favoured occupation locations. However, the distance from permanent water may have deterred Aboriginal people from spending extended periods of time on the crests within the study area. Due to tree clearance and other disturbances in the study area, soils in these landforms may be thin and degrading. Should Aboriginal objects be recorded in these landforms, they are most likely to be surface manifestations and may be displaced from their primary depositional context.
3	Slopes	Slopes are a degrading landform, especially in the study area where vegetation removal has accelerated soil loss. These landforms are not suited to large-scale or repeated occupation and Aboriginal objects recorded in such landforms are likely to be in a secondary context. The exception is in localised flat benches or sections of gentle slopes, if they are present, where occupation may have been more suitable.

Table 5-5: Likelihood of certain site types being present in the study area.

Site type	Likelihood of being present in the study area
Isolated finds	As isolated finds can occur anywhere, particularly within disturbed contexts, it is predicted that this site type could be recorded within the study area.
Open artefact scatters	As most of the study area is within sloping landforms distant to permanent water, this site type is not predicted to be common. However, in flat or ridge landforms this site type is possible although the moderate degree of disturbance in the study area will probably mean that the scatter has become displaced. It is likely that any sites associated with such landforms are likely to have a low artefact density and a low complexity of tool types as the sites are either one-off events or only infrequently used.
Culturally modified trees	Due to the near-total clearance of trees from within the study area, this site type is predicted to be very rare. It is also noted that this site type is very rare at a regional level.
Grinding grooves	This site could be recorded in areas of outcropping sandstone frequently exposed to running water, however, distance from permanent watercourses drastically reduces the likelihood that this site type will be present in the study area. It is also noted that this site type is rare at a regional level.

The results of previous surveys across the study area and its immediate surrounds indicate that stone artefact sites are the most likely site type to be present and all other site types are unlikely. Sites are more likely to be present within drainage landforms as evidenced by Ruig (1993) and Worth (2016).

5.5 RESEARCH QUESTIONS

Several research questions can meaningfully be applied to the investigation of the study area. These research questions include:

- What tasks were Aboriginal people undertaking at the sites?
- Is there outcropping rock materials present suitable for stone tool procurement and manufacture?
- Do the findings within the study area (if any) accord with the regional archaeological context examined in **Section 5.2**?
- Do the survey results support the predictive model set out in **Section 5.4**?

6 RESULTS OF ABORIGINAL ARCHAEOLOGICAL ASSESSMENT

6.1 SAMPLING STRATEGY AND FIELD METHODS

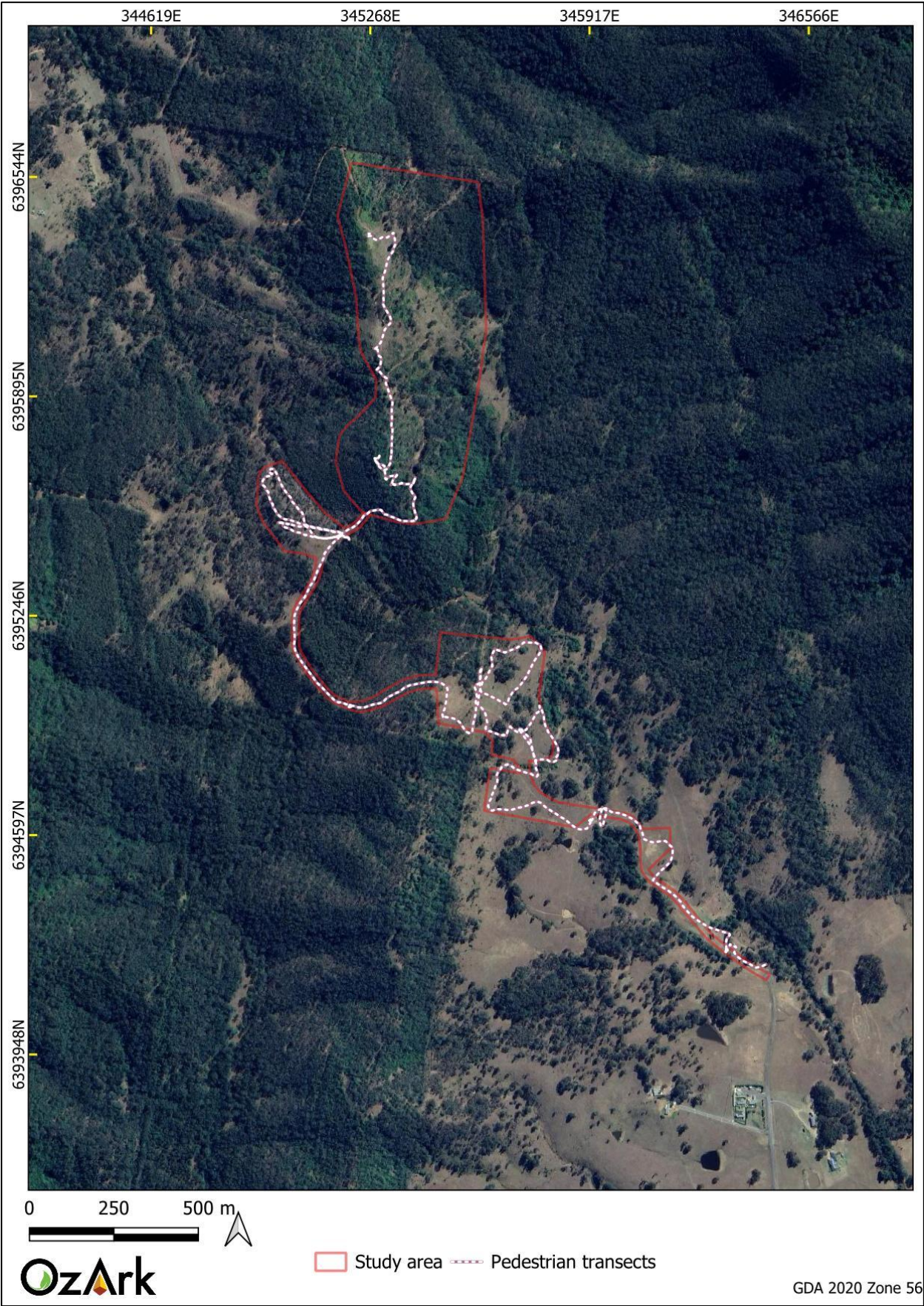
Standard archaeological field survey and recording methods were employed in this study (Burke & Smith 2004).

It should be noted that the aim of any archaeological survey is not to locate each artefact in a landscape but to undertake investigations so that the archaeological potential and archaeological characteristics of all landforms within the survey area are known. Therefore, the aims of the survey were to:

- Inspect all landform types in the study area so that their archaeological potential can be determined
- Evaluate whether the predictive model set out in **Section 5.4** is valid
- Determine if the research questions set out in **Section 5.5** can be answered
- Determine if any landforms of the study area require test excavation to understand the archaeological potential at a particular location
- Undertake sufficient assessment to satisfy Sections 2.2, 2.4, 2.5, 2.6, and 2.7 in the Guide
- Collect sufficient data so that the results can be presented in an ACHAR as set out in Section 3 in the Guide
- Undertake survey and record keeping satisfying Requirements 1–13 of the Code of Practice.

The study area was inspected on foot by OzArk Principal Archaeologist, Ben Churcher, and OzArk Senior Heritage Consultant, Dr Bernadette Drabsch, with the assistance of two RAP representatives. The survey coverage of the study area is shown on **Figure 6-1**. This figure shows the tracks of the Fieldwork Director, and because the survey team consisted of an additional three people, the survey coverage was greater than shown on this figure.

Figure 6-1: Aerial showing survey coverage of the study area.



6.2 PROJECT CONSTRAINTS

The greatest constraint during the fieldwork was very limited areas of exposure in some areas due to the dense ground cover resulting from the large amount of rainfall that the region has experienced throughout 2025. However, conversely, the wet conditions in other areas meant that large areas of land had been exposed and churned by cattle trampling and ground surface visibility (GSV) was increased.

The survey coverage in the north of the study area was restricted by the steeply sloping landform and the thick tangle of regrowth vegetation in these landforms. While the upper slopes had recently been cleared of this vegetation affording good GSV, areas where the mid-storey vegetation remained was impossible to pass through. The archaeologists and the RAPs present agreed that the steeply sloping landform where this impassable vegetation was located was of very low archaeological potential and this lack of access was not seen as a major constraint.

Views of the GSV constraints are shown on **Figure 6-2**.

6.3 EFFECTIVE SURVEY COVERAGE

Two of the key factors influencing the effectiveness of archaeological survey are GSV and ground surface exposure (GSE). These factors are quantified to ensure that the survey data provides adequate evidence for the evaluation of the archaeological materials across the landscape. For the purposes of the current assessment, these terms are used in accordance with the definitions provided in the Code of Practice.

GSV is defined as:

... the amount of bare ground (or visibility) on the exposures which might reveal artefacts or other archaeological materials. It is important to note that visibility, on its own, is not a reliable indicator of the detectability of buried archaeological material. Things like vegetation, plant or leaf litter, loose sand, stone ground or introduced materials will affect the visibility. Put another way, visibility refers to 'what conceals' (DECCW 2010b: 39).

GSE is defined as:

... different to visibility because it estimates the area with a likelihood of revealing buried artefacts or deposits rather than just being an observation of the amount of bare ground. It is the percentage of land for which erosion and exposure was sufficient to reveal archaeological evidence on the surface of the ground. Put another way, exposure refers to 'what reveals' (DECCW 2010b: 37).

Table 6-1 calculates the effective survey coverage within the study area. In general, **Table 6-1** presents an approximation of the amount of ground surface able to be seen at any location within specific landform units.

For example, the effective survey coverage near drainage lines (SU1), was approximately 5% due to dense grass coverage. However, farm tracks and cattle tracks afforded some GSV.

The crest landforms of SU2 contained rock outcrops and numerous exposures and approximately 16% of the area was effectively surveyed.

At any one location within the sloping landforms of the study area (SU3) approximately 3% of the ground surface could be seen. Exposures in these landforms were generally confined to access tracks, however, because large areas of SU3 had been recently cleared, exposures were variable but consistent. Substantial areas of SU3 contained thick mid-storey vegetation where GSV was reduced to zero.

Figure 6-2: Views of ground surface exposure within the study area.

	
1. View of consistent grass cover in an SU1 landform limiting GSV to scattered exposures.	2. View of an SU2 landform showing the high incidence of background rock scatters that limited GSV.
	
3. View across a SU3 landform showing GSV from historical agricultural land use.	4. View of an SU3 landform showing good GSV along the farm track and very little GSV off the track.

	
5. View of an SU3 landform showing impenetrable mid-storey vegetation with no GSV.	6. View of vehicle and animal churning creating GSV in a SU3 landform.

Table 6-1: Effective survey coverage within the study area.

Survey Unit	Landform	Survey Unit Area (sq m)	Visibility %	Exposure %	Effective Coverage Area (sq m)	Effective Coverage %
1	Drainage	4000	50	10	200	5
2	Crests	3000	80	20	480	16
3	Slopes	52000	20	15	1560	3

Table 6-2 demonstrates that although the survey efficacy within sloping landforms was 3 per cent, this did not hamper the recording of sites; generally, because SU3 is substantially larger than the other two survey units and included greater areas of exposures along access tracks. Furthermore, the site was recorded on the edge of SU1, indicating that the artefact may be better described as associated with the adjacent drainage feature.

Table 6-2: Effective survey coverage and incidences of site recording.

Landform	Landform area (sq m)	Area Effectively Surveyed	% of Landform Effectively Surveyed	Number of Sites	Number of Artefacts or Features
1	Drainage	200	5	0	0
2	Crests	480	16	0	0
3	Slopes	1560	3	1	1

6.4 ABORIGINAL SITES RECORDED

One previously unrecorded Aboriginal site was identified during the assessment, an isolated find. The location of this site is shown on **Figure 6-3**. **Table 6-3** summarises the Aboriginal cultural heritage sites recorded during the survey of the study area. Further details concerning the site are detailed below.

AHIMS ID	Site name	Site type	Coordinates (GDA Zone 56) East	Coordinates (GDA Zone 56) North	Survey Unit
37-6-4640	Lochnagar IF-1	Isolated find	██████	██████	3

[REDACTED]

Site type: Isolated find

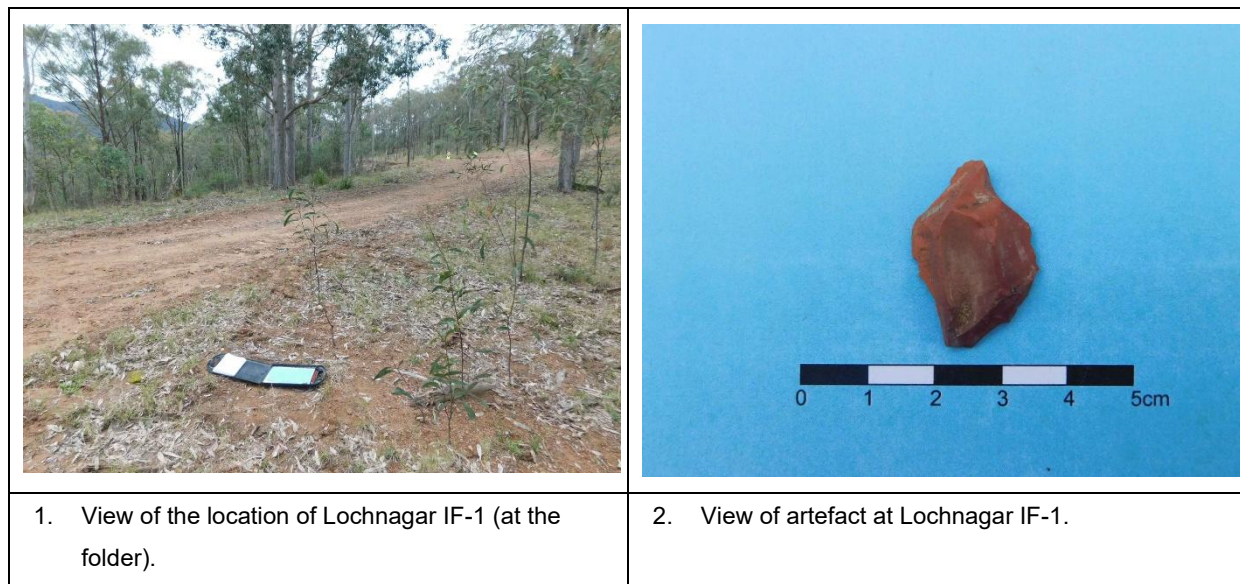
GPS coordinates: GDA 2020 Zone 56

Location of site: [REDACTED]

The surrounding landform was assessed having low potential for surface deposits due to historic and modern disturbances such as vegetation clearance and the construction of the substantial farm track, as well as the distance to a reliable waterway. The details of the artefact at the site are provided **Table 6-4** and **Figure 6-4**.

Table 6-4: Lochnagar IF-1 artefact attributes.

Artefact type	Raw material	Artefact integrity	Stage of reduction	Size (LxWxD) mm
Flake	Mudstone	Complete	Tertiary	30x15x5

Figure 6-4: Lochnagar IF-1. View of site and artefact.

6.5 PREVIOUSLY RECORDED ABORIGINAL SITES LOCATED

Although the AHIMS register records that site 37-6-3827 (Elderslie 2) is within the study area, it is, in fact, located outside the Project Area as discussed in **Section 5.3.1**.

Therefore, there are no previously recorded sites in the study area.

6.6 ABORIGINAL COMMUNITY COMMENTS ON THE SURVEY

No specific comments regarding Aboriginal cultural heritage from the RAPs were noted during the survey. In general, the RAPs commented that the landforms of the study area, especially the slope and crest landforms would not have been favoured camping locations. While the gentler gradient landforms in the south of the study area were noted as being more suitable for camping, the minor nature of the waterway was noted as being unlikely to attract occupation for any length of time.

6.7 SUMMARY OF SURVEY RESULTS

One newly recorded site, 37-6-4640 (Lochnagar IF-1), was identified in the study area. This site is an isolated mudstone flake, located adjacent to an existing unsealed farm track.

6.7.1 Test excavation

The survey team discussed the possibility of test excavation in the low gradient landforms in the south of the study area associated with an unnamed, ephemeral waterway. However, it was decided that test excavation was not required for the following reasons:

- Despite exposures, particularly from a farm track that parallels the waterway, there were no surface artefacts visible
- The landform consists of alluvial soils and would be subject to flooding. These factors reduce the potential for there to be subsurface archaeological deposits of conservation value
- While the waterway had flowing water in it at the time of the survey, it is ephemeral with a limited catchment. The lack of permanent water would not have attracted long-term camping activities that would form subsurface archaeological deposits
- There has been a general disturbance of the landforms from vegetation clearance and long-term grazing including extensive damage to bank areas from cattle movement. This has impacted the potential of landforms closest to the waterway to have intact subsurface archaeological deposits.

6.7.2 Discussion

The results of the survey conform to the well-tested predictive model for the Central Lowlands section of Hunter Valley and the study area, in particular.

The predictive model anticipated that there was a low potential for high density, complex artefact sites to be present within the Project Area due to the relatively high distance from the Hunter River and major creeks. However, it was posited that drainage lines within the study area represent a semi-permanent water supply that would have provided resources only during times of increased rainfall. As such, the archaeological potential is slightly higher when compared to landforms, particularly sloping landforms, distant to water. Furthermore, the crest landforms that are present within the study area may have enticed past visitation to provide an obstructed view of the surrounding landscape, and the distant Hunter River, however, they are rocky with thin soils, and any evidence of past occupation has probably been removed.

37-6-4640 (Lochnagar IF-1) was recorded adjacent to the headwaters of a drainage landform better described as a V-shaped gully. It was identified in a disturbed, secondary context from the construction of the adjacent farm track. This conforms to predictive modelling that isolated finds can be recorded anywhere, including in highly disturbed landforms.

The artefact at 37-6-4640 (Lochnagar IF-1) conforms to the expected regional profile as it is manufactured from mudstone which is locally available and commonly used. The flake was unmodified, which also aligns with the expected profile of artefact assemblages (even if from a small sample) in that it is an unmodified flake without any evidence of use or complexity.

Poor ground surface visibility due to dense grass coverage and thick tangles of mid-storey vegetation impeded the efficacy of the survey. Areas of heightened archaeological potential in level landforms adjacent to an unnamed drainage line were noted in the south of the study area and while there was low GSE, there were exposures, such as a farm track paralleling the waterway that afforded continuous views of the ground surface.

Most of the study area has been disturbed by historical land uses and practices, which was evident from the stockpiles of African olive on the steep slopes of the north of the study area.

Most of the study area has been the subject of historical agriculture

Therefore, the results of the archaeological survey align with the predictive modelling. As reflected by the low-density of artefacts present, the Project Area was likely a transit zone, rather than a place of sustained and focused Aboriginal occupation.

No landforms within the study area were considered to have potential for subsurface archaeological deposits of conservation value.

6.7.3 Responses to the research questions

In **Section 5.5**, several research questions were advanced to guide the survey of the study area. Following the survey, responses to these research questions are set out below.

- What tasks were Aboriginal people undertaking at the sites?
 - The site recorded within the study area, 37-6-4640 (Lochnagar IF-1), has a low artefact density and does not display any complexity, suggestive of transitory occupation. It was likely the case that Aboriginal people were drawn to the study area by water in ephemeral drainage line and other limited resources, stayed for a short period of time (resting, hunting, and knapping stone that they had carried with them) before continuing to more reliable sources of water and food, likely on the Hunter River.
- Is there outcropping rock materials present suitable for stone tool procurement and manufacture?
 - No outcropping rock material suitable for stone tool manufacture was observed during the survey. Copious amounts of local, volcanic bluestone littered the surface of the study area, especially in the north, but no evidence of quarrying or use of this stone source was noted.
- Do the findings within the study area (if any) accord with the regional archaeological context examined in **Section 5.2**?
 - The findings of the study area accord with the regional archaeological context. Previous assessments indicated that sites within the region distant to reliable water sources are likely to consist of low-density stone artefact sites indicative of transitory movement. 37-6-4640 (Lochnagar IF-1) conforms to this paradigm.
- Do the survey results support the predictive model set out in **Section 5.4**?
 - The survey results support the predictive model. While 37-6-4640 (Lochnagar IF-1) was in a SU3 (slopes) landform, it was near the headwaters of a very ephemeral drainage landform. The predictive model indicated that sites, such as isolated finds, may be located near ephemeral waterways and the results of the survey support this.

7 SIGNIFICANCE ASSESSMENT

7.1 INTRODUCTION TO SIGNIFICANCE ASSESSMENT

7.1.1 Identifying cultural significance

The concept of cultural significance is used in Australian heritage practice and legislation to encompass all the cultural values and meanings that might be recognised in a place. The Burra Charter's definition of cultural significance is broad and encompasses places that are significant to Indigenous cultures.

The Burra Charter definition of 'place' is also broad and encompasses Indigenous places of cultural significance. 'Place' includes locations that embody spiritual value (such as Dreaming places, sacred landscapes, and stone arrangements), social and historical value (such as massacre sites), as well as scientific value (such as archaeological sites). In fact, one place may be all these things or may embody all these values at the same time.

In some cases, the find-spot of a single artefact may constitute a 'place'. Equally, a suite of related locations may together comprise a single 'place', such as the many individual elements that make up a Songline. These more complex places are sometimes called a cultural landscape or cultural route.

The Guide notes that cultural significance is comprised of an assessment of social values, scientific values, aesthetic values, and historic values. These values are described below.

7.1.1.1 *Social or cultural value*

Social or cultural value refers to the spiritual, traditional, historical, or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them (Articles 1.1, 1.2, 1.12, 5, and 8–11: Burra Charter).

Places of social or cultural value have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods, or events. Communities can experience a sense of loss should a place of social or cultural value be damaged or destroyed.

There is not always consensus about a place's social or cultural value. Because people experience places and events differently, expressions of social or cultural value do vary and, in some instances, will be in direct conflict. When identifying values, it is not necessary to agree with or acknowledge the validity of each other's values, but it is necessary to document the range of values identified.

Social or cultural value can only be identified through consultation with Aboriginal people. This could involve a range of methodologies, such as cultural mapping, oral histories, archival

documentation, and specific information provided by Aboriginal people specifically for the investigation.

Cultural value involves both traditional links with specific areas, as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of value may not be in accord with interpretations made by the archaeologist: a site may have low archaeological value but high social value, or vice versa.

7.1.1.2 *Scientific (archaeological) value*

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 (Articles 1.2, 5, and 8: Burra Charter).

Assessing a site in this context involves placing it into a broader regional framework, as well as assessing the site's individual merits in view of current archaeological discourse. This type of value relates to the ability of a site to answer current research questions and is also based on a site's condition (integrity), content and representativeness.

The overriding aim of cultural heritage management is to preserve a representative sample of the archaeological resource. This will ensure that future research within the discipline can be based on a valid sample of the past. Establishing whether a site can contribute to current research also involves defining 'research potential'. Questions regularly asked when determining significance are: can this site contribute information that no other site can? Is this site representative of other sites in the region?

Information about scientific values will be gathered through any archaeological investigation undertaken. Archaeological investigations must be carried out according to Heritage NSW's Code of Practice.

Often scientific values are informed by social values that allow a contemporary understanding of the archaeological data to be understood.

7.1.1.3 *Aesthetic value*

This refers to the sensory, scenic, architectural, and creative aspects of the place (Articles 1.12 and 8: Burra Charter). 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.

7.1.1.4 *Historic value*

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 (such as structures, planted vegetation or landscape modifications). They may have 'shared' historic values with other (non-Aboriginal) communities (Articles 1.12–1.16: Burra Charter).

Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage. Consequently, the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives. This means it is often necessary to collect oral histories along with archival or documentary research to gain enough understanding of historic values.

7.2 ASSESSED SIGNIFICANCE OF THE RECORDED SITES

Table 7-1 presents a summary of the significance assessment of the Aboriginal cultural heritage site recorded during this assessment. Further details of each of the assessment criteria are provided below.

Social or Cultural Value

The social and cultural value of Aboriginal sites is determined through consultation with Aboriginal people. Generally, the Aboriginal community regard all sites as having high cultural significance. No specific comments describing the social or cultural value of 37-6-4640 (Lochnagar IF-1) was supplied by the RAPs present during the survey. However, the significance of all sites is understood to be high and that all artefacts contribute to the cultural landscape.

Archaeological/Scientific Value

The archaeological value of the 37-6-4640 (Lochnagar IF-1) has been significantly affected by disturbances to the landscape. Across the Hunter, the condition of most sites is poor due to erosion exacerbated by past vegetation clearance and other agricultural-related disturbances which have compromised the distribution of both artefacts within sites and of sites across the landscape.

The artefact at 37-6-4640 (Lochnagar IF-1) is highly representative of many other sites recorded in the district. The mudstone flake is unmodified, small, and made of a material common to the region.

Aesthetic Value

37-6-4640 (Lochnagar IF-1) does not present elements that meet the threshold for significant aesthetic value. The study area has been modified by pastoral activities and the construction of the farm track. 37-6-4640 (Lochnagar IF-1) has been assessed as having no aesthetic significance as it is located in a modified landform and is difficult for the layperson to appreciate as it does not manifest itself in the landscape.

Historic Value

37-6-4640 (Lochnagar IF-1) does not have known associations with significant historical values.

Table 7-1: Aboriginal cultural heritage: significance assessment.

AHIMS ID	Site Name	Social or Cultural Value	Archaeological / Scientific Value	Aesthetic Value	Historic Value
37-6-4640	Lochnagar IF-1	High	Low	Low	Nil

7.2.1 Statement of significance

The intangible Aboriginal cultural values across the wider Hunter Valley relate to several important places and themes associated with non-archaeological cultural values. These places mainly relate to spiritual and ceremonial connections across the broader landscape that may encompass areas of culturally significant geographical features, such as the Hunter River and prominent peaks along the ranges at the margins of the valley.

There may be places with intangible cultural significance within the Project Area, although no specific locations have so far been identified by the Aboriginal community.

37-6-4640 (Lochnagar IF-1) has a low scientific value due to low artefact density and poor site condition, which both lead to a limited potential for the site to contribute to key questions concerning the archaeology and Aboriginal use of the Hunter Valley. The remainder of the study area has very low scientific value as it is confined to areas away from optimal occupation locations such as near reliable water sources or landforms which provide shelter.

There are no places within the Project Area with significant aesthetic or historical values.

8 ASSESSING HARM

8.1 AVOIDING AND MINIMISING HARM

8.1.1 Conserving significant Aboriginal cultural heritage

An object of the NPW Act is the '*conservation of objects places and features... of cultural value within the landscape, including... places, objects and features of significance to Aboriginal people*' (s.2A(1(b)(i)).

As heritage professionals, OzArk, strives for good conservation outcomes. In particular, OzArk is primarily concerned with the conservation and protection of Aboriginal cultural heritage that is of significance to Aboriginal people.

Two primary objectives when managing harm to an Aboriginal object are:

- Impacts to significant Aboriginal objects and places should always be avoided wherever possible
- Where impacts to Aboriginal objects and places cannot be avoided, projects should be amended to reduce the extent and severity of impacts to significant Aboriginal objects and places using reasonable and feasible measures.

8.1.2 Opportunities to conserve Aboriginal cultural heritage values

There are limited opportunities to avoid harm to known Aboriginal objects although it is noted that most of the study area is within landforms of low archaeological potential where harm to unknown Aboriginal objects will be unlikely.

8.2 LIKELY IMPACTS TO ABORIGINAL HERITAGE FROM THE PROJECT

The proponent has indicated that 37-6-4640 (Lochnagar IF-1) cannot be avoided by the project due to the nature of the terrain at that location. This means that an alternative access road is not feasible, and the existing farm track must be upgraded and used by the project.

Table 8-1 presents a summary of potential impacts to Aboriginal cultural heritage associated with the project.

Table 8-1: Aboriginal cultural heritage: impact assessment.

AHIMS ID	Site Name	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
37-6-4640	Lochnagar IF-1	Direct	Total	Total loss of value

8.3 ECOLOGICALLY SUSTAINABLE DEVELOPMENT PRINCIPLES

Ecologically sustainable development principles (ESD) (defined in s.6 of the *Protection of the Environment Administration Act 1991*) requires the integration of economic and environmental considerations (including cultural heritage) in the decision-making process. Regarding Aboriginal

cultural heritage, ESD can be achieved by applying the principle of intergenerational equity and the precautionary principle.

8.3.1 Intergenerational equity

Intergenerational equity is the principle whereby the present generation should ensure the health, diversity, and productivity of the environment for the benefit of future generations.

In terms of Aboriginal heritage, intergenerational equity can be considered in terms of the cumulative impacts to Aboriginal objects and places in a region. If few Aboriginal objects and places remain in a region (for example, because of impacts under previous permits), fewer opportunities remain for future generations of Aboriginal people to enjoy the cultural benefits of those Aboriginal objects and places.

Information about the integrity, rarity or representativeness of the Aboriginal objects and places proposed to be impacted, and how they illustrate the occupation and use of land by Aboriginal people across the region, will be relevant to the consideration of intergenerational equity and the understanding of the cumulative impacts of the project.

Where there is uncertainty, the precautionary principle should also be followed.

8.3.2 The precautionary principle

The precautionary principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

In relation to Aboriginal cultural heritage values, the precautionary principle should be applied if:

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

8.3.3 Principle of Integration

The Plan of Implementation of the World Summit on Sustainable Development held in Johannesburg, 2002, noted the need to *“promote the integration of the three components of sustainable development- economic development, social development and environmental protection- as interdependent and mutually reinforcing pillars”*.

The principle of integration ensures mutual respect and reciprocity between economic and environmental considerations:

- Environmental considerations are to be integrated into economic and other development plans, programs, and projects

- Development needs are to be considered in applying environmental objectives.

8.3.4 Applicability to the project

There is a very low impact to Aboriginal cultural heritage values as only one Aboriginal site, 37-6-4640 (Lochnagar IF-1), was recorded, and no intangible heritage values have been identified within the study area. The results of the survey indicate that significant Aboriginal cultural heritage values will not be harmed within the study area.

Table 8-2 examines the application of ESD principles to the project.

Table 8-2: Application of ESD principles to the project.

ESD principle	Response
Avoiding and minimising harm	Section 9 sets out mechanisms by which to avoid and minimise harm.
The integration principle	The environmental consequences of the project have been carefully assessed as part of the EIS.
The precautionary principle	The Aboriginal cultural heritage investigation has followed the precautionary principle though undertaking a robust Aboriginal cultural heritage assessment to ensure that harm to Aboriginal objects and values is minimised. The survey adopted a precautionary principle when it came to describing and assessing landforms within the study area.
The intergenerational equity principle	It is assessed that the project will not harm significant Aboriginal cultural heritage values and that there will be a manageable diminution of intergenerational equity should 37-6-4640 (Lochnagar IF-1) recorded here be harmed. Mitigation strategies, such as collecting the known Aboriginal object, will be adopted to ensure that the object is removed from harm.

9 MANAGEMENT OF ABORIGINAL CULTURAL HERITAGE SITES

9.1 GENERAL MANAGEMENT PRINCIPLES

Appropriate management of cultural heritage items is primarily determined based on their assessed significance as well as the likely impacts of the project. **Section 7.2** and **Section 8.2** describe, respectively, the significance / potential of the recorded sites and the likely impacts of the project. The following management options are general principles, in terms of best practice and desired outcomes, rather than mitigation measures against individual site disturbance.

- Avoid impact by altering the project to avoid impact to a recorded Aboriginal site. If this can be done, then a suitable curtilage around the site must be provided to ensure its protection both during the short-term construction phase of development and in the long-term use of the area. If plans are altered, care must be taken to ensure that impacts do not occur to areas not previously assessed.
- If impact is unavoidable then approval to disturb sites under the authority of an ACHMP must be sought from DPIE. Normally the management recommendations contained in the ACHAR become policies of the ACHMP. As the Aboriginal community have been provided the opportunity to view the draft ACHAR, the ACHAR must make it clear that a future ACHMP will manage Aboriginal cultural heritage within the study area so that the Aboriginal community can assess the management recommendations with this knowledge. The ACHMP policies will often stipulate that the Aboriginal community should be involved in any salvage activities and will dictate what the fate of any salvaged Aboriginal objects will be.

9.2 MANAGEMENT AND MITIGATION OF RECORDED ABORIGINAL SITES

One Aboriginal site, 37-6-4640 (Lochnagar IF-1), will be directly impacted by the project. This site consists of an isolated artefact in a modified landform (farm access track) where no further archaeological investigation is warranted.

It is recommended that the surface artefact at 37-6-4640 (Lochnagar IF-1) and any other associated artefacts be collected prior to the construction of the project and moved to a safe location in consultation with the RAPs. The ACHMP will detail the procedures for the surface artefact collection and provide a strategy for the long-term curation of the artefact/s (such as being reburied within the Project Area but outside project impacts).

Apart from 37-6-4640 (Lochnagar IF-1), the proposed works within the study area may proceed without further archaeological investigation.

9.3 UNANTICIPATED FINDS PROTOCOL

Should consent for the project be gained, an ACHMP will be developed in consultation with RAPs, Heritage NSW, and DPHI. The ACHMP will contain procedures should new discovery of Aboriginal artefacts be made during construction and / or operation of the project. The procedure in **Section 9.3.1** is an example of an unanticipated finds protocol that could be incorporated into the ACHMP.

9.3.1 Unanticipated finds protocol example

An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification, i.e., smoothing, use). Human bone (skeletal) remains may also be uncovered while on site.

Cultural heritage significance is assessed by the Aboriginal community and is typically based on traditional and contemporary lore, spiritual values, and oral history, and may also consider scientific and educational value.

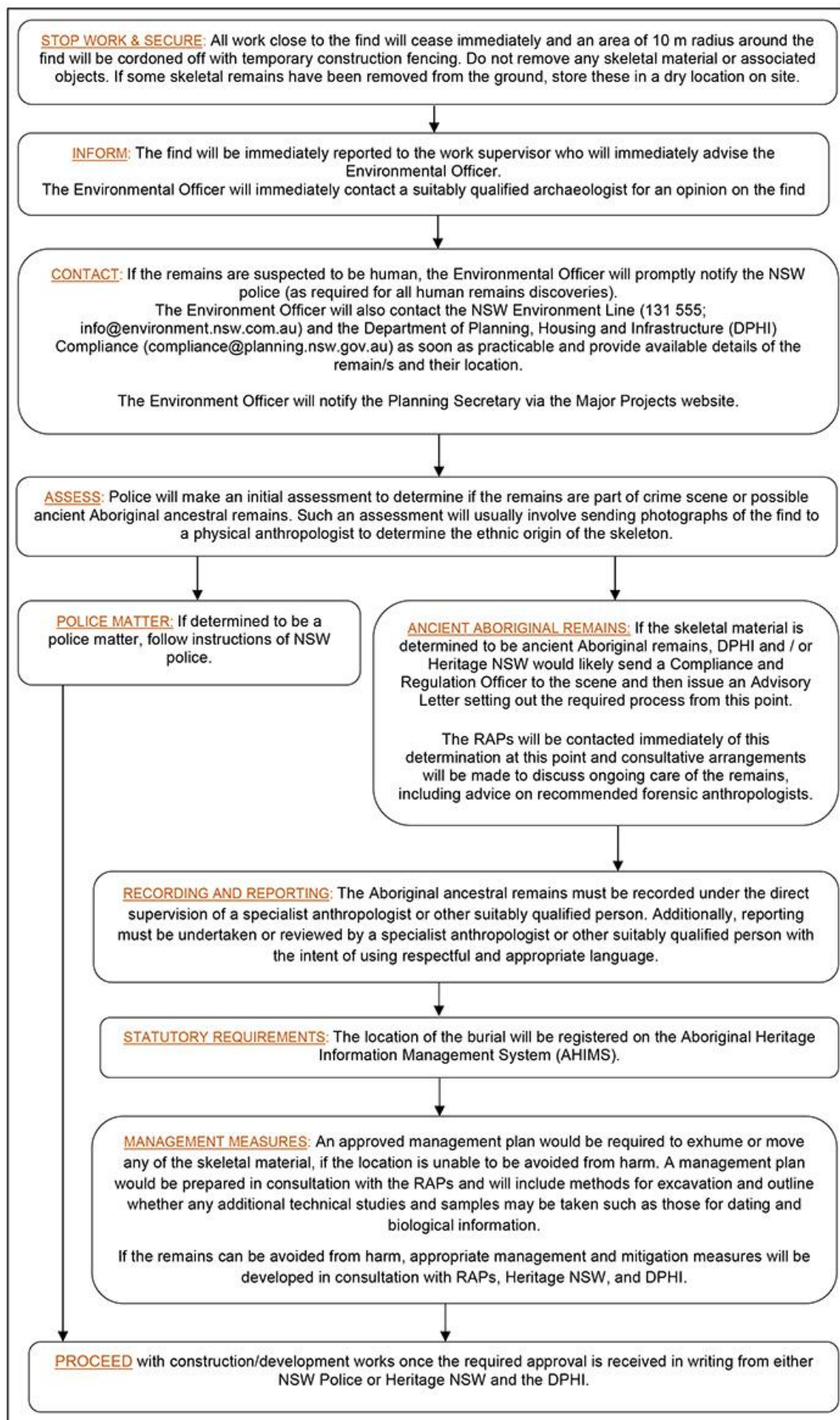
Protocol to be followed if previously unrecorded or unanticipated Aboriginal object(s) are encountered:

1. If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the Applicant must:
 - a. Not further harm the object
 - b. Immediately cease all work at the particular location
 - c. Secure the area so as to avoid further harm to the Aboriginal object
 - d. Notify the NSW Environment Line (131 555 or info@environment.nsw.gov.au) and DPHI Compliance (compliance@planning.nsw.gov.au) as soon as practical, providing any details of the Aboriginal object and its location
 - e. Not recommence any work at the particular location unless authorised in writing by Heritage NSW.
2. If Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and Heritage NSW contacted.
3. Cooperate with the appropriate authorities and relevant Aboriginal community representatives to facilitate:
 - a. The recording and assessment of the find(s)
 - b. The fulfilment of any legal constraints arising from the find(s), including complying with Heritage NSW directions
 - c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s).

4. Where the find(s) are determined to be Aboriginal object(s), recommencement of work in the area of the find(s) can only occur in accordance with any consequential legal requirements and after gaining written approval from Heritage NSW (normally an Aboriginal Heritage Impact Permit).

9.3.2 Unanticipated skeletal remains protocol

Should consent for the project be gained, an ACHMP will be developed in consultation with RAPs and DPHI. The ACHMP will contain procedures should a new discovery of human skeletal remains be made during construction or operation of the project. The procedure shown on **Figure 9-1** is an example of a human skeletal remains protocol that could be incorporated into the ACHMP.

Figure 9-1: Example of a human skeletal remains procedure.

10 RECOMMENDATIONS

Under Section 89A of the NPW Act it is mandatory that all newly recorded Aboriginal sites be registered with AHIMS. As a professional in the field of cultural heritage management it is the responsibility of OzArk to ensure this process is undertaken.

To this end it is noted that one Aboriginal site, 37-6-4640 (Lochnagar IF-1), was recorded during the assessment.

The following recommendations are made based on these impacts and regarding:

- Legal requirements under the terms of the NPW Act whereby it is illegal to damage, deface or destroy an Aboriginal place or object without an approved ACHMP
- The findings of the current investigations undertaken within the study area
- The interests of the Aboriginal community.

Recommendations concerning Aboriginal cultural values within the study area are as follows:

1. Prior to construction, the proponent will develop an ACHMP which is prepared in consultation with the RAPs and Heritage NSW and approved by DPHI. The ACHMP will also include an unanticipated finds protocol, unanticipated skeletal remains protocol, and long-term management of any Aboriginal objects.
2. Surface artefact/s from 37-6-4640 (Lochnagar IF-1) will be collected prior to construction of the project and moved to a safe location in consultation with the RAPs. The ACHMP will detail the procedures for the surface artefact collection and provide a strategy for the long-term curation of the artefacts.
3. No further archaeological investigation is warranted at 37-6-4640 (Lochnagar IF-1) due to the disturbed, secondary context of the site.
4. A site card update must be submitted to AHIMS to record the correct location of 37-6-3827 (Elderslie 2) to GDA2020 Zone 56, 346426E, 6394443N.
5. All land-disturbing activities must be confined to within the study area. Should the parameters of the proposed work extend beyond this, then further archaeological assessment may be required.
6. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal artefacts. Consultation with RAPs regarding the Aboriginal cultural heritage induction materials should be considered.
7. Consultation with the Aboriginal community regarding the project should be ongoing throughout the life of the project. All RAPs should continue to be consulted in accordance

with the ACHCRs (DECCW 2010a) and any future ACHMP. The RAPs should be involved in any cultural heritage works conducted under the ACHMP. Project updates should be sent to the RAPs at six-monthly intervals until the finalisation of the ACHMP to ensure that the consultation remains current. It is the proponent's responsibility that this continuous consultation is maintained.

REFERENCES

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- Kuskie and Kamminga 2000 Kuskie, P. and Kamminga, J. 2000. *Salvage of Aboriginal archaeological sites in relation to the F3 Freeway near Lenegans Drive, Black Hill, New South Wales*. Report to the Roads & Traffic Authority, NSW.
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- Rasmus et al. 1969 Rasmus, P.L, Rose D.M and Rose G. 1969. *Singleton 1:250 000 Geological Sheet SI/56-01*, 1st edition, Geological Survey of New South Wales, Sydney.
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- Tindale 1974 Tindale, N. 1974. *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names*. Australian National University Press, Canberra.
- Wedgetail 2024 Wedgetail Project Consulting. 2024. Scoping Report. Proposed 1,000,000tpa Hardrock Quarry. Report for R & J Pittman.

Worth 2016

Worth, S. 2016. *Aboriginal Cultural Heritage Due Diligence Report: Tangory Mountain, Elderslie*. Report to National Parks and Wildlife Service.

APPENDIX 1: ABORIGINAL COMMUNITY CONSULTATION

Appendix 1 Figure 1: Aboriginal Consultation Log.

Date	Organisation	Comment	Method
16.5.25	Singleton Argus	"Catherine Burrowes (CB) Emailed - newspaper is printed on a Thursday will be published on Thursday 22 May with a Closing Date 5 June 25"	Phone/email
22.5.25	Singelton Argus	Public advertisement published by the Singleton Argus. Closing date 5.6.25	Newspaper
22.5.25	Heritage NSW	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	Wanaruah Local Aboriginal Land Council	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	Office of The Registrar, ALRA	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	National Native Title Tribunal	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	NTSCORP	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	Muswellbrook Shire Council	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
22.5.25	Hunter Local Land Services	CB sent stage 1 agency letter requesting potential stakeholders. Closing Date 5 June 25	Email
23.5.25	Wanaruah Local Aboriginal Land Council	CB received email registering for this project	Email
23.5.25	Upper Hunter Wonnarua Council Inc	CB received phone call registering for this project	Phone
27.5.25	Wanaruah Local Aboriginal Land Council	CB replied with thanks	Email
30.5.25	Hunter Valley Aboriginal Corporation	CB received email registering for this project	Email
2.6.25	Hunter Valley Aboriginal Corporation	CB replied with thanks	Email
5.6.25	A1 Indigenous Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Aboriginal Native Title Consultants	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	AGA Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Alera French Trading	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Awabakal Traditional Owners Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Bathurst Local Aboriginal Land Council	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Cacatua Culture Consultants	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Cindy Foley	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Corroboree Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Culturally Aware	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	D F T V Enterprises	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Deslee Talbott Consultants	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Didge Ngunawal Clan	CB sent stage 1 Community letter Closing Date 20 June 25	Email

Date	Organisation	Comment	Method
5.6.25	Gidawaa Walang & Barkuma Neighbourhood Centre Inc.	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Glen Morris	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Gomery Cultural Consultants	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Hunter Traditional Owner	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Hunter Valley Cultural Surveying	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Hunters & Collectors	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Indigenous Learning	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Jarban & Mugrebea	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Jumbunna Traffic Management Group Pty Ltd	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Kamilaroi Yankuntjatjara Working Group	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Karuah Local Aboriginal Land Council	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Kauma Pondee Inc.	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Kawul Pty Ltd trading as Wonn1 Sites	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Konanggo Aboriginal Cultural Heritage Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Lower Hunter Aboriginal Incorporated	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Lower Hunter Wonnarua Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Mayaroo	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Metropolitan Local Aboriginal Land Council	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Mindaribba Local Aboriginal Land Council	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Murra Bidgee Mullangari Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Myland Cultural & Heritage Group	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Nunawanna Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Robert Syron	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Steve Talbott	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	The Men's Shack Indigenous Corporations	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Thomas Dahlstrom	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Scott Franks on the behalf of the Wonnarua PBC	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Yarrowalk Pty Ltd	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Ungooroo Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Wallagan Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Warragil Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	WATTAKA Pty Ltd	CB sent stage 1 Community letter Closing Date 20 June 25	Email

Date	Organisation	Comment	Method
5.6.25	Widescope Indigenous Group	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Wonnarua Nation Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Wurrumay Culture Heritage Consultants	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Yinarr Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Bariyan Cultural Connections	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Girragirra Murun Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Wingarra Wilay Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Long Gully Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Guthers Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Bill Trewlynn	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Mura Gadi Aboriginal Corporation	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Ngagga Ngagga	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	George Flick Cultural Services	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Cole Perry	CB sent stage 1 Community letter Closing Date 20 June 25	Email
5.6.25	Carol Ridgeway-Bissett	CB sent stage 1 Community letter Closing Date 20 June 25	Post
5.6.25	Crimson-Rosie	CB sent stage 1 Community letter Closing Date 20 June 25	Post
5.6.25	Lower Wonnarua Tribal Consultancy Pty Ltd	CB sent stage 1 Community letter Closing Date 20 June 25	Post
5.6.25	Wonnarua Culture Heritage	CB sent stage 1 Community letter Closing Date 20 June 25	Post
5.6.25	Wonnarua Elders Council	CB sent stage 1 Community letter Closing Date 20 June 25	Post
5.6.25	Culturally Aware	CB received email registering for this project	Email
5.6.25	Jarban & Mugrebea	CB received email registering for this project	Email
5.6.25	Gomery Cultural Consultants	CB received email registering for this project	Email
5.6.25	Didge Ngunawal Clan	CB received email registering for this project	Email
5.6.25	Kawul Pty Ltd trading as Wonn1 Sites	CB received email registering for this project	Email
6.6.25	Culturally Aware	CB replied with thanks	Email
6.6.25	Jarban & Mugrebea	CB replied with thanks	Email
6.6.25	Gomery Cultural Consultants	CB replied with thanks	Email
6.6.25	Didge Ngunawal Clan	CB replied with thanks	Email
6.6.25	Kawul Pty Ltd trading as Wonn1 Sites	CB replied with thanks	Email
6.6.25	Mura Gadi Aboriginal Corporation	CB received email registering for this project	Email
6.6.25	Amanda Hickey Cultural Services	CB received email registering for this project	Email
6.6.25	A1 Indigenous Services	CB received email registering for this project	Email
6.6.25	Widescope Indigenous Group	CB received email registering for this project	Email

Date	Organisation	Comment	Method
6.6.25	Mura Gadi Aboriginal Corporation	CB replied with thanks	Email
6.6.25	Amanda Hickey Cultural Services	CB replied with thanks	Email
6.6.25	A1 Indigenous Services	CB replied with thanks	Email
6.6.25	Widescope Indigenous Group	CB replied with thanks	Email
10.6.25	Thomas Dahlstrom	CB received email registering for this project	Email
11.6.25	Thomas Dahlstrom	CB replied with thanks	Email
11.6.25	Metropolitan Local Aboriginal Land Council	CB received email registering for this project	Email
11.6.25	Metropolitan Local Aboriginal Land Council	CB replied with thanks	Email
17.6.25	Murra Bidgee Mullangari Aboriginal Corporation	CB received email registering for this project	Email
17.6.25	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks	Email
23.6.25	Heritage NSW	CB emailed notification of RAPs	Email
23.6.25	Wanaruah Local Aboriginal Land Council	CB emailed notification of RAPs	Email
25.6.25	Wanaruah Local Aboriginal Land Council	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Upper Hunter Wonnarua Council Inc	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Hunter Valley Aboriginal Corporation	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Culturally Aware	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Jarban & Mugrebea	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Gomery Cultural Consultants	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Didge Ngunawal Clan	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Kawul Pty Ltd trading as Wonn1 Sites	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Mura Gadi Aboriginal Corporation	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Amanda Hickey Cultural Services	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	A1 Indigenous Services	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Widescope Indigenous Group	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Thomas Dahlstrom	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Metropolitan Local Aboriginal Land Council	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Murra Bidgee Mullangari Aboriginal Corporation	CB emailed draft methodology. Closing date 23.7.25	Email
25.6.25	Mura Gadi Aboriginal Corporation	CB received email - I agree with the methodology in place and would love to participate in any field work	Email
25.6.25	Mura Gadi Aboriginal Corporation	CB replied with thanks	Email
1.7.25	Murra Bidgee Mullangari Aboriginal Corporation	CB received email -I have read the project information and draft methodology for the above project, I endorse the recommendations	Email
1.7.25	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks	Email

Date	Organisation	Comment	Method
3.7.25	Stakeholder 1	CB received late registration	Email
4.7.25	Stakeholder 1	CB replied with thanks	Email
4.7.25	Heritage NSW	CB emailed updated notification of RAPs	Email
4.7.25	Wanaruah Local Aboriginal Land Council	CB emailed updated notification of RAPs	Email
4.7.25	Stakeholder 1	CB emailed draft methodology. Closing date 23.7.25	Email
12.7.25	A1 Indigenous Services	CB received email - I have reviewed the document and fully support the Information and Methodology	Email
14.7.25	A1 Indigenous Services	CB replied with thanks	Email
5.11.25	Wanaruah Local Aboriginal Land Council	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Upper Hunter Wonnarua Council Inc	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Hunter Valley Aboriginal Corporation	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Culturally Aware	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Jarban & Mugrebea	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Gomery Cultural Consultants	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Didge Ngunawal Clan	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Kawul Pty Ltd trading as Wonn1 Sites	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Mura Gadi Aboriginal Corporation	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Amanda Hickey Cultural Services	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	A1 Indigenous Services	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Widescope Indigenous Group	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Thomas Dahlstrom	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Metropolitan Local Aboriginal Land Council	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Murra Bidgee Mullangari Aboriginal Corporation	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Stakeholder 1	CB emailed draft ACHAR. Closing date 3.12.25	email
5.11.25	Jarban & Mugrebea	CB received email - Thank you for the draft ACHAR. I agree with the draft	email
6.11.25	Murra Bidgee Mullangari Aboriginal Corporation	CB received email - I have read the project information and draft ACHAR for the above project; I endorse the recommendations.	email
6.11.25	A1 Indigenous Services	CB received email - I have reviewed the document and fully support the Information and Methodology	email
11.11.25	A1 Indigenous Services	CB replied with thanks	email
11.11.25	Murra Bidgee Mullangari Aboriginal Corporation	CB replied with thanks	email
11.11.25	Jarban & Mugrebea	CB replied with thanks	email

Appendix 1 Figure 2: Advertisement placed in the Singleton Argus.

**Expression of Interest
Cultural Heritage Management**

OzArk Environment & Heritage has been engaged Bluestone Hardrock Pty Ltd (the proponent) to complete an Aboriginal cultural heritage assessment for the Bluestone Hardrock Quarry (formerly known as Pittman Quarry). The proposed development is located across Lot 65 DP 752473, Lots 903 & 904 DP1061259, and Lot 5 DP1102521 at Springvale Road, Elderslie, and Blind Creek Road, Glendon Brook, NSW. The project is approximately 6 kilometres (km) north of Branxton and 20 km east of the township of Singleton in the Singleton Local Government Area.

OzArk is seeking Aboriginal persons and / or groups who wish to be consulted about the project. This consultation group will assist OzArk and the proponent in the preparation of an Aboriginal Cultural Heritage Assessment Report and assist the Department of Planning, Housing and Infrastructure in their consideration and determination of the project.

If you hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects or places in the project area, please register your interest to be consulted.

Registrations can be made by post: OzArk PO Box 2069 Dubbo NSW 2830; email: catherine.ozarkehm.com.au or by phoning OzArk on 02 6882 0118. All submissions should be received no later than 5 June 2025.

Note: Those registering an interest will be contacted to discuss the project further. Those who do register are advised that their details will be provided to Heritage NSW and the relevant Local Aboriginal Land Council, unless specifically advised in writing that details are not to be forwarded.

Appendix 1 Figure 3: Stage 1 letter to agencies (sample).

	OzArk Environment & Heritage Dubbo Queanbeyan T: 02 6882 0118 Wollongong Newcastle enquiry@ozarkehm.com.au Katoomba www.ozarkehm.com.au	ABN 29 675 720 564 145 Wingewarra St PO Box 2069 DUBBO NSW 2830
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14 May 2025

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

FOR THE BLUESTONE HARDROCK QUARRY (FORMERLY KNOWN AS PITTMAN QUARRY)

Dear Sir/Madam,

OzArk Environment & Heritage (OzArk) has been engaged Bluestone Hardrock Pty Ltd (the proponent) to undertake Aboriginal community consultation as per the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010).

The proponent is proposing the development of the Bluestone Hardrock Quarry (formerly known as Pittman Quarry). The proposed development is located across Lot 65 DP 752473, Lots 903 & 904 DP1061259, and Lot 5 DP1102521 at Springvale Road, Elderslie, and Blind Creek Road, Glendon Brook, NSW. The project is approximately 6 kilometres (km) north of Branxton and 20 km east of the township of Singleton in the Singleton Local Government Area.

We are therefore seeking Expressions of Interest from relevant Aboriginal stakeholder groups and individuals in the area who hold cultural knowledge relevant to determining the significance of Aboriginal objects or places within the Singleton area.

This consultation group will assist OzArk in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) and assist the Department of Planning, Housing and Infrastructure in their consideration and determination of the project.

If your organisation can recommend and provide contact details for any known Aboriginal groups or individuals with cultural knowledge relevant to determining the impacts to the cultural significance of the above-mentioned project, please advise our office.

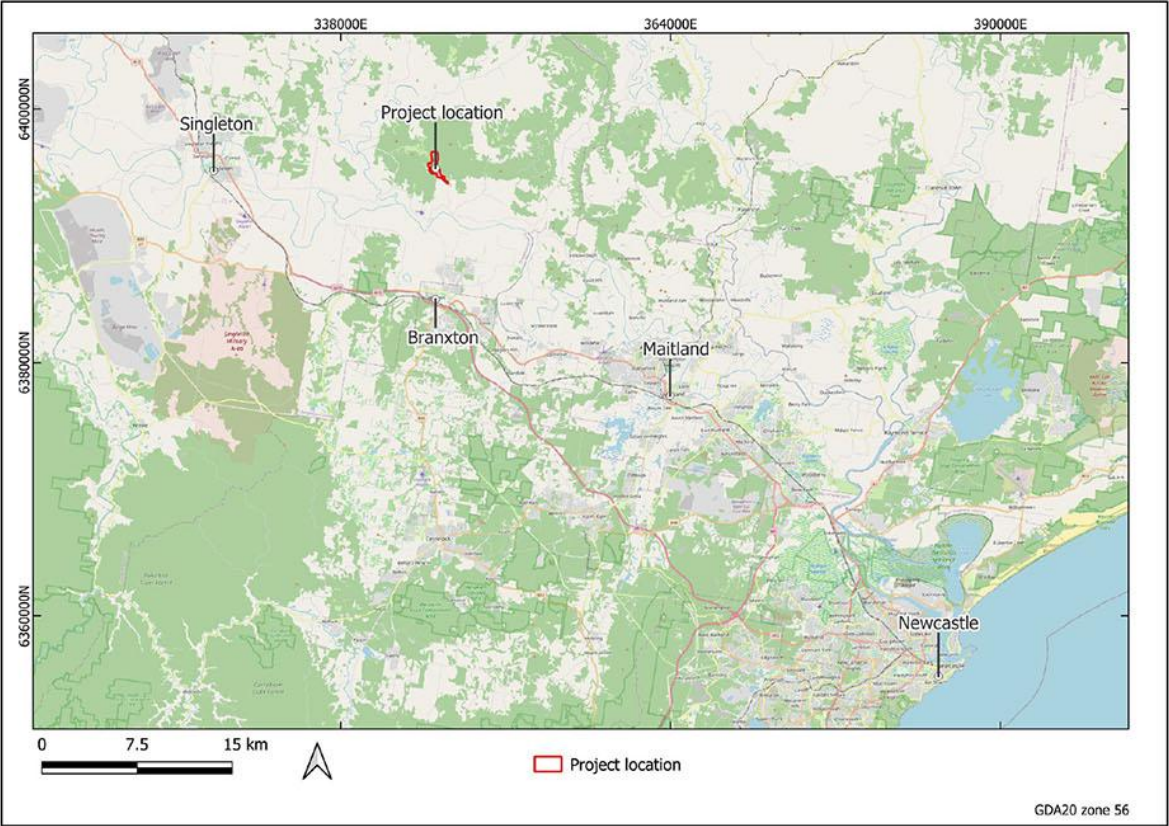
We would appreciate it if you could provide any feedback, by responding to this email catherine@ozarkehm.com.au, regarding these Aboriginal stakeholder groups by **(two weeks from date sent)**, or sooner if possible.

Kind regards,



Catherine Burrowes
Office Manager/ Community Liaison

Figure 1: Location map.



Appendix 1 Figure 4: Stage 1 example letter sent to Aboriginal community groups.

	OzArk Environment & Heritage Dubbo Queanbeyan T: 02 6882 0118 Wollongong Newcastle enquiry@ozarkehm.com.au Katoomba www.ozarkehm.com.au	ABN 29 675 720 564 145 Wingewarra St PO Box 2069 DUBBO NSW 2830
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5 June 2025

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

FOR THE BLUESTONE HARDROCK QUARRY (FORMERLY KNOWN AS PITTMAN QUARRY)

Dear Sir/Madam,

OzArk Environment & Heritage (OzArk) has been engaged Bluestone Hardrock Pty Ltd (the proponent) to undertake Aboriginal community consultation as per the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010).

The proponent is proposing the development of the Bluestone Hardrock Quarry (formerly known as Pittman Quarry). The proposed development is located across Lot 65 DP 752473, Lots 903 & 904 DP1061259, and Lot 5 DP1102521 at Springvale Road, Elderslie, and Blind Creek Road, Glendon Brook, NSW. The project is approximately 6 kilometres (km) north of Braxton and 20 km east of the township of Singleton in the Singleton Local Government Area.

Accordingly, we are seeking Expressions of Interest from relevant Aboriginal groups and individuals in the Singleton area, to form a consultation group. This consultation group will assist OzArk in preparing the Aboriginal Cultural Heritage Assessment Report (ACHAR) to assist Heritage NSW and the Department of Planning, Housing and Infrastructure in their consideration and determination of the project.

If you hold cultural knowledge relevant to determining the impacts to the cultural significance of this project area, should you wish to register for the project please provide the following information:

- Group or individual name
- Contact name (if registering as a group)
- Email or postal address
- Contact number

Please do this by contacting our office on (02) 6882 0118 or responding to this email catherine@ozarkehm.com.au. The closing date for expressions of interest is Friday 20 June 2025.

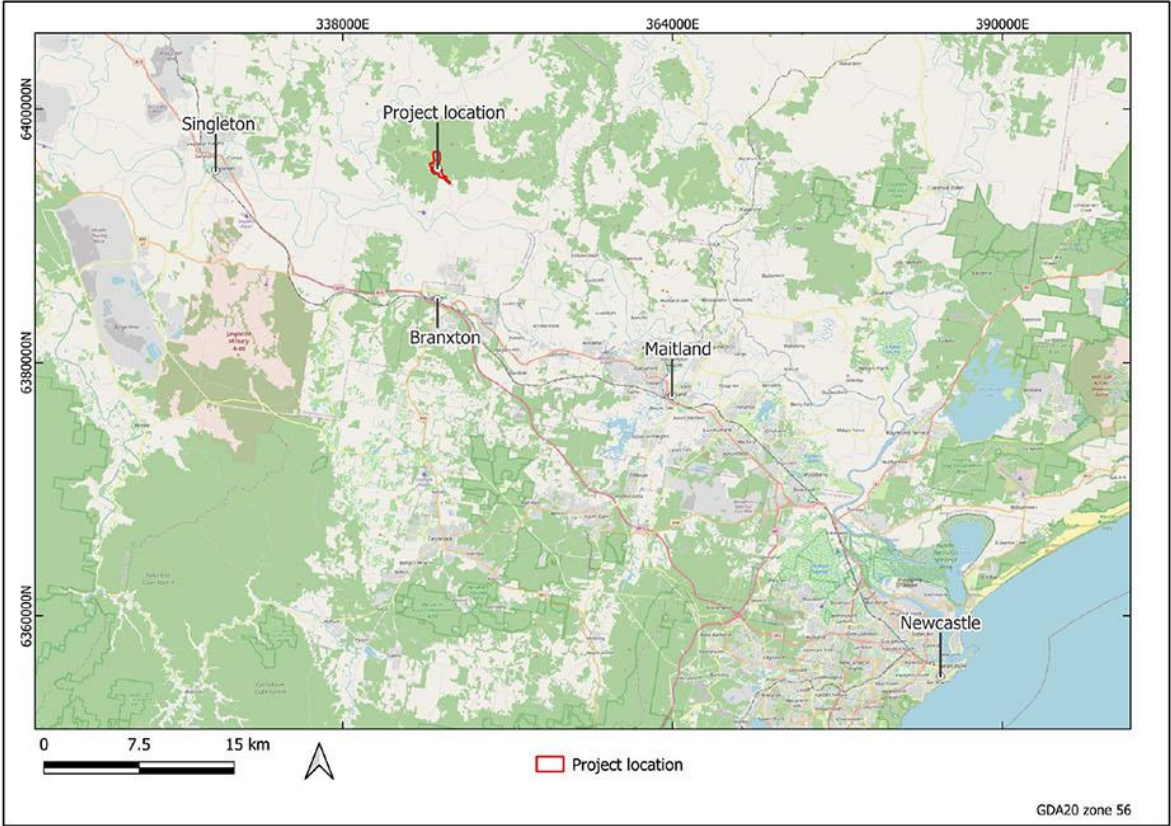
If you wish to register interest it is noteworthy that as per the Heritage NSW guidelines, we are required to provide your details to Heritage NSW and the Local Aboriginal Lands Council unless we are advised that you do not wish your details to be released.

Kind regards,

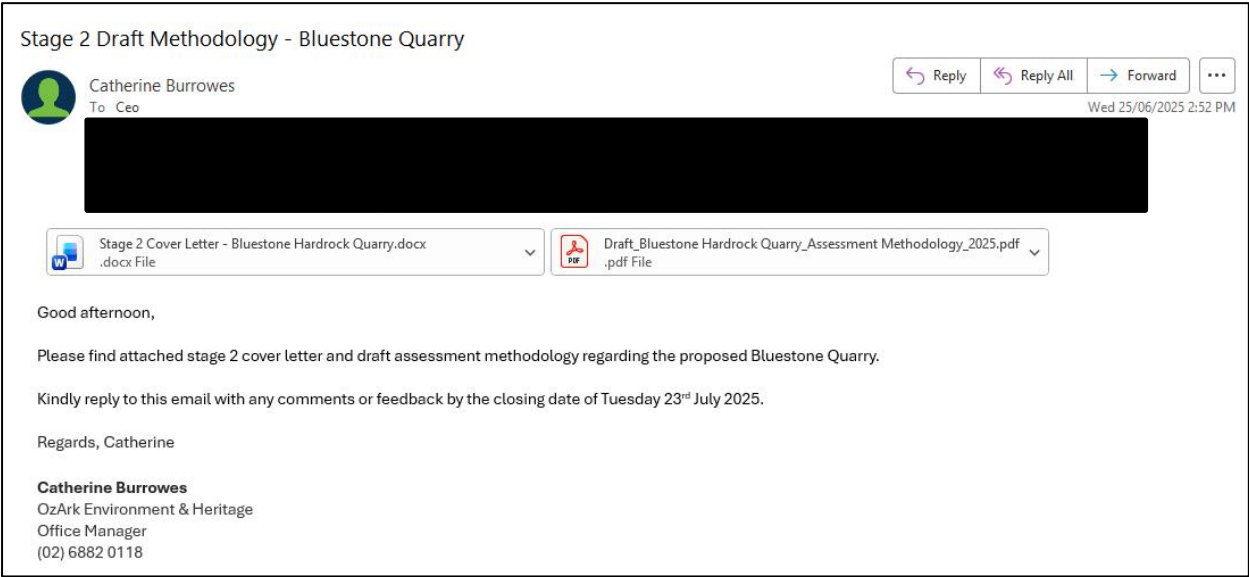


Catherine Burrowes
Office Manager/ Community Liaison

Figure 1: Location map.



Appendix 1 Figure 5: Stage 3/3 email to the RAPs.



Appendix 1 Figure 6: Stage 2/3: Cover letter sent to RAPs.

	OzArk Environment & Heritage Dubbo Queanbeyan T: 02 6882 0118 Wollongong Newcastle enquiry@ozarkehm.com.au Katoomba www.ozarkehm.com.au	ABN 29 675 720 564 145 Wingewarra St PO Box 2069 DUBBO NSW 2830
---	---	--

25 June 2025

***Aboriginal Cultural Heritage Assessment Methodology:
Proposed Bluestone Hardrock Quarry***

Dear Members,

Thank-you for your registration of interest to become a Registered Aboriginal Party (RAP) to be consulted regarding the proposed Bluestone Hardrock Quarry. The proposed development is located across Lot 65 DP 752473, Lots 903 & 904 DP1061259, and Lot 5 DP1102521 at Springvale Road, Elderslie, and Blind Creek Road, Glendon Brook, NSW. The project is approximately 6 kilometres (km) north of Branxton and 20 km east of the township of Singleton in the Singleton Local Government Area.

The purpose of this letter is to invite you to comment on the enclosed draft methodology for the Aboriginal cultural heritage assessment.

In addition to comments on the draft methodology, if you can share any Aboriginal cultural heritage knowledge relevant to the assessment areas, we welcome this input so as to improve our assessment outcomes and to ensure Aboriginal cultural values are considered.

OzArk Environment & Heritage is required to give you 28 days to supply feedback on the attached documents. This period closes 5pm on 23 July 2025.

If you need any help supplying feedback or have any queries in relation to the enclosed information, please do not hesitate to contact our office.

Kind regards,



Catherine Burrowes
Customer Liaison

Appendix 1 Figure 7: RAP responses to draft assessment methodology.

A1 Indigenous Services

Re: Stage 2 Draft Methodology - Bluestone Quarry

C

Carolyn .H

To

Catherine Burrowes

↩

Reply

↩

Reply All

➡

Forward

⋮

Sat 12/07/2025 6:21 PM

A1.WC.2026.pdf

.pdf File

A1.PL.2026.pdf

.pdf File

A1

INDIGENOUS SERVICES

Contact: Carolyn Hickey

ABN: 20 616 970 327

Hi Catherine,

I have reviewed the document and fully support the Information and Methodology.

I would like to be included in all meetings, reports, sharing of cultural information, and fieldwork.

About Carolyn Hickey
I am a Traditional Owner with over 25 years of experience in preserving Aboriginal cultural heritage. My extensive cultural knowledge is essential in determining the significance of Aboriginal objects and values within the project area.

I have attached A1 Indigenous Services Insurances.

Mura Gadi Aboriginal Corporation

Re: Stage 2 Draft Methodology - Bluestone Quarry

TB

To

Catherine Burrowes

ⓘ

You replied to this message on 25/06/2025 4:44 PM.

↩

Reply

↩

Reply All

➡

Forward

⋮

Wed 25/06/2025 3:21 PM

Hi Catherine, I agree with the methodology in place and would love to participate in any field work. Thanks

Director
Mura Gadi Aboriginal Corporation

Murra Bidgee Mullangari Aboriginal Corporation

Re: Stage 2 Draft Methodology - Bluestone Quarry

DJ

To

Catherine Burrowes

↩

Reply

↩

Reply All

➡

Forward

⋮

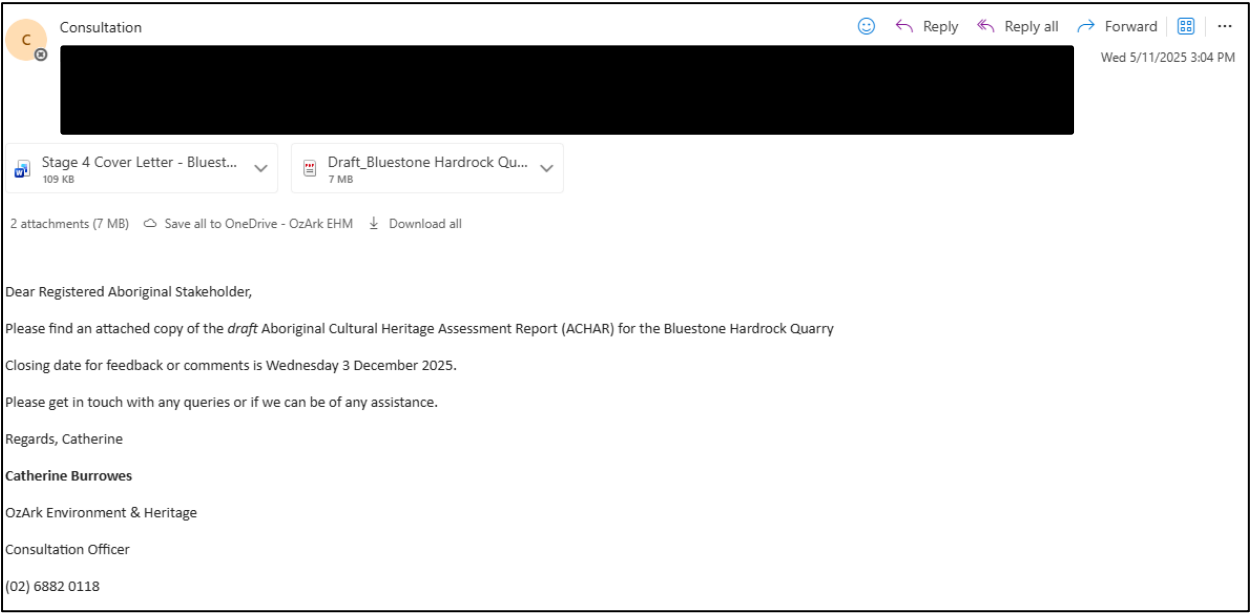
Tue 1/07/2025 9:02 AM

Hi Catherine

I have read the project information and draft methodology for the above project, I endorse the recommendations

Thanks

Appendix 1 Figure 8: Stage 4 email to RAPs.



Appendix 1 Figure 9: Stage 4 cover letter to RAPs.



OzArk Environment & Heritage

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Wollongong | Newcastle

Hazelbrook | Stroud

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ABN 29 675 720 564

145 Wingewarra St

PO Box 2069

DUBBO NSW 2830

5 November 2025

ABORIGINAL CULTURAL HERITAGE ASSESSMENT FOR THE BLUESTONE HARDROCK QUARRY

Dear Members,

Thank-you for your continued participation as a Registered Aboriginal Party (RAP) and involvement in the above-mentioned project.

Bluestone Hardrock Pty Ltd (the Proponent) would like to offer you the opportunity to provide feedback on the draft Aboriginal Cultural Heritage assessment Report (ACHAR) that has been undertaken in accordance with stage four (4) of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCR).

As per the ACHCRs we are required to give you twenty-eight (28) days to supply feedback on the attached draft ACHAR. This period closes on the **Wednesday 3 December 2025**. Should you or your community have any additional cultural values relevant to the study area that you would like to see included, please let us know and we can discuss this further. If our office is not contacted within this time frame, we will presume that you are satisfied with the contents of the ACHAR as it stands.

If you need any help supplying feedback or have any queries, please do not hesitate to contact our office.

Kind regards,

A handwritten signature in black ink, appearing to read 'Catherine Burrowes'.

Catherine Burrowes
Community Liaison

Appendix 1 Figure 10: RAP responses to draft ACHAR.

Jarban & Mugrebea

Re: Stage 4 draft ACHAR - Bluestone Hardrock Quarry

LA

To Consultation

⏮️ Reply

⏮️ Reply All

➡️ Forward

⋮

Wed 5/11/2025 4:00 PM

ⓘ

You replied to this message on 11/11/2025 2:37 PM.

Thank you
for the draft ACHAR ..
I agree with the draft ,
[REDACTED]

Murra Bidgee Mullangari Aboriginal Corporation

Re: Stage 4 draft ACHAR - Bluestone Hardrock Quarry

DJ

To Consultation

⏮️ Reply

⏮️ Reply All

➡️ Forward

⋮

Thu 6/11/2025 8:20 AM

Hi Catherine,
I have read the project information and draft ACHAR for the above project, I endorse the recommendations.
Thanks
[REDACTED]

APPENDIX 2: ASSESSMENT METHODOLOGY



ABORIGINAL CULTURAL HERITAGE ASSESSMENT METHODOLOGY

BLUESTONE HARDROCK QUARRY

(FORMERLY KNOWN AS PITTMAN QUARRY)

SINGLETON LOCAL GOVERNMENT AREA, NSW

JULY 2025

Report prepared by
OzArk Environment & Heritage
for Bluestone Hardrock Pty Ltd

OzArk

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Environment & Heritage**

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DOCUMENT CONTROLS

Proponent	Bluestone Hardrock Pty Ltd	
Document Description	Aboriginal Cultural Heritage Assessment Methodology: Bluestone Hardrock Quarry	
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Document Status: V3.0 FINAL		Date: 25 July 2025
Draft V1: OzArk internal edits		V1.0 WM author 9/5/2025
Draft V2: OzArk and client edits		V2.0: BC edit 10/6/25
Final V3: Final document		V3.0: BC finalises 25/7/25
Prepared for		Prepared by
Jamie Pittman Bluestone Hardrock Pty Ltd 253 Stanhope Road Elderslie NSW 2335 jamie@pittmanbuilding.com.au		Will Marris Archaeologist OzArk Environment & Heritage 145 Wingewarra Street (PO Box 2069) Dubbo NSW 2830 P: 02 6882 0118 will@ozarkehm.com.au
COPYRIGHT		
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Enquiries should be addressed to OzArk Environment & Heritage.		

Acknowledgement

OzArk acknowledge the traditional custodians of the area on which this assessment will take place and pay respect to their beliefs, cultural heritage, and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the Elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

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1 INTRODUCTION

OzArk Environment & Heritage (OzArk) has been engaged by Bluestone Hardrock Pty Ltd (the proponent) to prepare an assessment methodology for the proposed development of the Bluestone Hardrock Quarry (the proposal).

The proposal is located at Blind Creek Road, Glendon Brook (Lot 65 DP752473, Lots 903 & 904 DP1061259, and Lot 5 DP1102521) near Branxton in the Hunter Valley within the Singleton Local Government Area. (**Figure 1-1**).

This methodology is in accordance with Stage 3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs; DECCW 2010a). The project information provided here also complies with Stage 2 of the ACHCRs.

This methodology outlines the proposed assessment to identify Aboriginal cultural values, both tangible and intangible, that exist in the study area. The results of this investigation will be presented in an *Aboriginal Cultural Heritage Assessment Report* (ACHAR).

1.1 BACKGROUND

Wedgetail Project Consulting Pty Ltd was commissioned by R & J Pittman to prepare a Scoping Report to support a request to the Department of Planning, Housing, and Infrastructure (DPHI) for Secretary's Environmental Assessment Requirements (SEARs) (Wedgetail 2024). OzArk has been engaged to complete an ACHAR and a Historic Heritage Impact Assessment (HHIA) to inform the Environmental Impact Assessment (EIS) for the proposal.

1.2 PROJECT OVERVIEW

The proposal involves the extraction of an identified, easily accessible, hard rock and gravel resources along several ridgelines traversing the study area. The proposal has the following inclusions:

- Extraction rate maximum of 1,000,000 tonnes per annum
- Sealed access road and associated water management infrastructure
- Progressive rehabilitation of quarried land returning to pasture and native vegetation
- Total project disturbance area of approximately 61 hectares (ha), comprising:
 - 51.6 ha of extraction area (including 2.1 ha for the workshop and stockpile area)
 - 7.3 ha of haul roads
 - 2.1 ha for supporting infrastructure, including site office, weighbridge and carpark
- Total Project Area land holding of approximately 240 ha
- Project life up to 30 years (under the current application)

- Potential resource life up to 50 years.

1.2.1 Proponent's contact details

Bluestone Hardrock Pty Ltd

Jamie Pittman

253 Stanhope Road. Elderslie NSW 2335

jamie@pittmanbuilding.com.au

1.3 STUDY AREA

The study area describes the area that will be included in the current assessment. An aerial showing the study area in relation to the Project Area is presented on **Figure 1-2**.

The study area covers approximately 61 ha being the disturbance footprint for the project. The study area is situated on an undulating ridgeline within the western foothills of the Tangory Mountain (**Figure 1-3**). The ephemeral Blind Creek and Stewarts Creek are adjacent to the study area, and several unnamed, drainage lines intersect the study area. The study area has been historically cleared, with vegetation mostly consisting of regrowth. The study area is accessible via Springvale Road.

Map of the Newcastle region showing the study area. The map includes geographical features like Singleton, Braxton, Maitland, and Newcastle. A red outline indicates the 'Study area' near the 'Project location'. A scale bar shows 0, 7.5, and 15 km. A north arrow is present. The map is labeled with coordinates: 338000E, 364000E, 390000E and 640000N, 638000N, 636000N.

Figure 1-2. Aerial of the Project and study area.

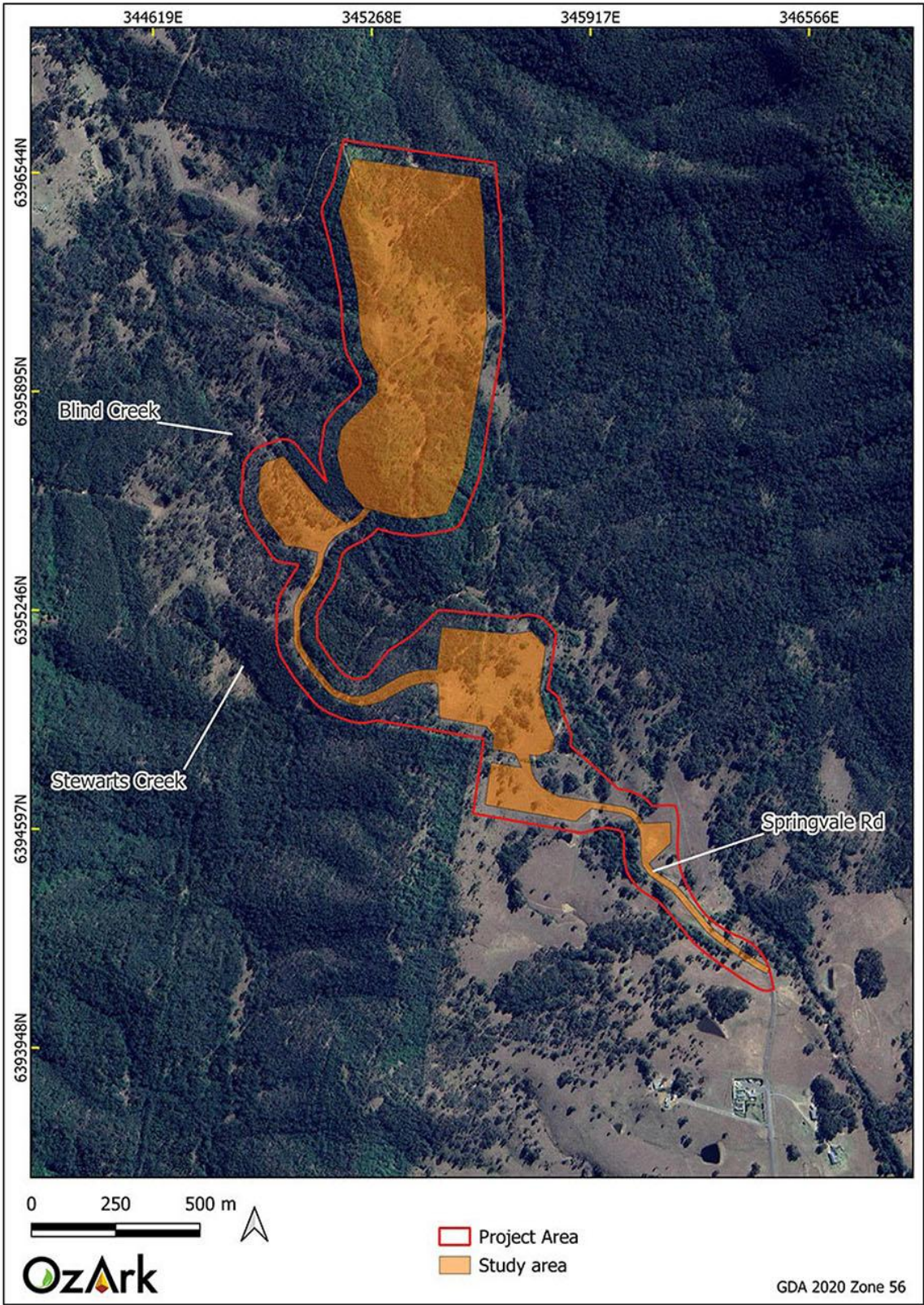
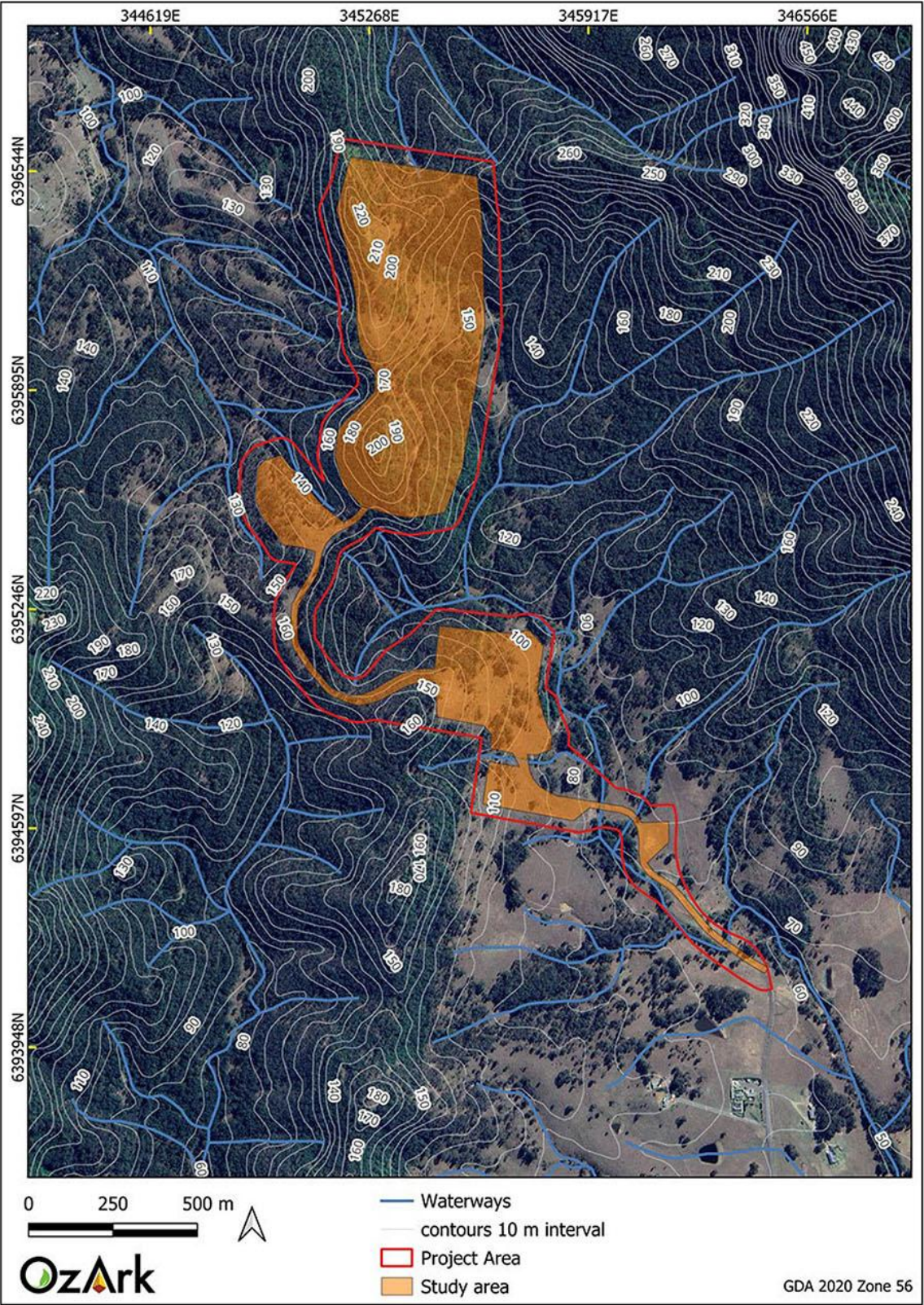


Figure 1-3. Elevation and drainage within the environs of the study area.



2 CULTURAL VALUES

2.1 INTRODUCTION TO CULTURAL VALUES

Fundamentally, culture is living and is not static:

- Culture is acquired - we learn about culture from others in our community, including our parents
- Culture is shared - culture does not exist in a vacuum, it is shared amongst a group of people
- Culture defines core values - because we have been taught our culture and share it with our cultural group, we tend to form the same core values
- Cultures resist change but are not static - culture does and can change, but change is usually slow and gradual.

2.1.1 Connection to Country

Aboriginal and Torres Strait Islander peoples are connected to Country through lines of descent (paternal and maternal), as well as clan and language groups.

Territory is defined by spiritual as well as physical links. Landforms have deep meaning, recorded in art, stories, songs, and dance. Songlines or Dreaming Tracks as well as kinship structures link Aboriginal peoples to the territories of other groups. In the past, these links were also used for trade.

"When we say Country we might mean homeland, or tribal or clan area and in saying so we may mean something more than just a place; somewhere on the map. We are not necessarily referring to place in a geographical sense. But we are talking about the whole of the landscape, not just the places on it."

Professor Mick Dodson AM, August 2007

2.1.2 Managing Country

Living on this land for around 50,000 years, Aboriginal and Torres Strait Islanders established effective ways to use and sustain resources. One important aspect is the right of certain people to control the use of resources in a particular area. Aboriginal and Torres Strait Islander people don't see themselves as 'owning' land, animals, plants, or nature, but rather belonging with these things as equal parts of creation.

The rights of different groups to live in and manage certain areas of land are clear and recorded through art, stories, songs, and dance.

2.1.3 Recognising lore

In much of eastern Australia, Aboriginal communities live their lives like most Australians. However, in certain crucial areas, particularly associated with family, leadership roles and caring for Country, Aboriginal lore continues, even in the most urbanised communities.

2.2 IDENTIFYING CULTURAL VALUES

A major aim of this assessment is to identify any cultural values within the landscape in which the Project is located so that those values can be recognised and incorporated into the ACHAR's management recommendations.

Any cultural values relating to the study area will be captured by the OzArk archaeologists (if such information is provided by Registered Aboriginal Parties [RAPs] during the survey) and included in the ACHAR.

Understanding cultural landscapes can only come from the views of a particular community, in this case, the Aboriginal community. Unless informed, OzArk will not know of the community's feelings towards the cultural landscape in which the Project will be located. Should any RAPs have knowledge of cultural values regarding the study area that they wish to share or that may affect the survey methodology set out in **Section 5**, OzArk invites them to contact us so that these values can be recorded and/or responded to in the methodology.

2.2.1 Use of information collected

An ACHAR will be prepared for the project which articulates Aboriginal cultural values and associated conservation methods across the study area, as identified during the consultations. The ACHAR will be circulated to all RAPs for comment as is set out in the ACHCRs. The ACHAR will be available to Heritage NSW for their consideration of the proposal and the report will be publicly available.

2.2.2 Public / confidential information

Information will be treated in accordance with instructions received by whoever provides the information. Information described as confidential (culturally sensitive) will not be detailed in the publicly available report. Confidential information should be made available to the proponent, its heritage consultants, and Heritage NSW so that significant cultural values can be conserved. On advice from the provider of the information, a redacted ACHAR would be made available to the wider public where any sensitive cultural information is removed.

2.2.3 Copyright

Information collected for this assessment remains the property of the person who provided the information. Without written permission from the provider, information may not be used for purposes other than those outlined above.

2.3 CONSULTATION ON THIS METHODOLOGY

Consultation for this Project has followed the guidelines established in the ACHCRs (DECCW 2010b) whereby an advertisement was placed in the local press and relevant agencies were contacted to ascertain if they were aware of groups or individuals who may have cultural knowledge of the region containing the project.

On 22 May 2025 an advertisement was placed in the *Singleton Argus* requesting expressions of interest in being consulted about the Project. In addition, the following agencies were contacted to identify potential stakeholders for the area: Heritage NSW; the Wanaruah Local Aboriginal Land Council (LALC); the Office of The Registrar, *Aboriginal Land Rights Act 1983*; the National Native Title Tribunal; Native Title Services Corporation Limited (NTSCORP); the Muswellbrook Regional Council; and Hunter Tablelands Local Land Services.

As a result, the following individuals/groups registered to be consulted about the Project:

- A1 Indigenous Services
- Amanda Hickey Cultural Services
- Culturally Aware
- Didge Ngunawal Clan
- Gomery Cultural Consultants
- Hunter Valley Aboriginal Corporation
- Jarban & Mugrebea
- Kawul Pty Ltd trading as Wonn1 Sites
- Metropolitan Local Aboriginal Land Council
- Mura Gadi Aboriginal Corporation
- Murra Bidgee Mullangari Aboriginal Corporation
- Thomas Dahlstrom
- Upper Hunter Wonnarua Council Inc
- Wanaruah Local Aboriginal Land Council
- Widescope Indigenous Group.

These individuals/groups constitute the RAPs for the Project.

3 ARCHAEOLOGICAL CONTEXT

3.1 ABORIGINAL PEOPLE OF THE STUDY AREA

The ethnographic studies of Tindale (1974) place the study area within the traditional lands of the Wonnarua people. The Wonnarua language group is understood to have spanned the area between Maitland and the Great Dividing Range, although the boundaries between the Wonnarua and their neighbouring groups, the Gomeroi (west), Worimi and Awabakal (east), and Darkinjung (south) are likely to involved seasonal change and areas which multiple language groups occupied for economic and cultural exchange.

3.2 REGIONAL ARCHAEOLOGICAL CONTEXT

There have been a significant number of Aboriginal archaeological investigations in the Upper Hunter region. An accepted occupation model for the region was developed following extensive archaeological investigation related to the salvage of Aboriginal archaeological sites in relation to the F3 Freeway near Lenegans Drive, Black Hill (Kuskie and Kamminga 2000). Their model applies to the Central Lowlands region of the Hunter Valley in which the study area is situated (see also ERM 2004:12). The model is shown on **Figure 3-1**.

The landscape of the study area applies to the first three expected occupations patterns: transit, hunting, and small group camps. In terms of the archaeological sites that might be expected to remain from these activities, the archaeological profile of the Central Lowlands region of the Upper Hunter Valley (ERM 2004: 52–4) indicates that:

- Archaeological sites that are not artefact scatters or isolated finds (e.g. quarries, sacred trees, art sites) are rare
- Open artefact sites (over 98% of the compiled data set) are concentrated along major creeks and the Hunter River, contexts which are more likely to contain sites than slopes and ridges
- The predominant materials noted in artefact assemblages are silcrete and indurated mudstone/tuff (IMT).

Figure 3-1: Occupation model for the Central Lowlands and Lower Hunter Valley.

Occupation pattern	Activity location	Proximity to water	Proximity to food resources	Archaeological expectations
Transitory movement	All landscape zones, but frequently on ridge and spur crests, watercourses and valley flats	Not important	Not important	Assemblages of low density and diversity Evidence of tool maintenance and repair Knapping
Hunting and/or gathering without camping	All landscape zones	Not important	Near food source	Assemblages of low density and diversity Evidence of tool maintenance and repair High frequency of used tools discarded Knapping
Camping by small parties	Frequently associated with permanent or temporary water	Nearby	Near food source	Assemblages of low-moderate density and diversity Evidence of tool maintenance and repair Hearths
Nuclear family base camp	Level or gently undulating ground	Nearby reliable source	Near food source	Assemblages of high density and diversity Evidence of tool manufacture and casual knapping Facilities such as heat treatment pits and stone lined ovens Grindstones present
Community base camp	Level or gently undulating ground	Nearby reliable source	Near food source	Assemblages of high density and diversity Evidence of tool manufacture and casual knapping Facilities such as hearths and stone lined ovens Grindstones and ochre present Evidence of heat treatment unlikely Large area >100 m ² with isolated campsites

Kuskie and Kamminga 2000

3.3 LOCAL ARCHAEOLOGICAL CONTEXT

A search of the Heritage NSW administered Aboriginal Heritage Information Management System (AHIMS) database on 15 May 2025 returned 79 results for Aboriginal sites within an eight kilometre square buffer centred on the study area (GDA2020 Zone 56 Eastings: 337470–353470 Northings: 6387532–6403532). **Table 3-1** presents the site types and frequencies of the search results. **Figure 3-2** shows the distribution of all sites in relation to the search area.

One previously recorded isolated find (AHIMS ID 37-6-3827) is located in the southern end of the study area, on the edge of the existing, ungraded vehicle track that extends from the cul-de-sac termination of Springvale Road. The site was identified in proximity to an ant hill within a drainage landform, demonstrating how bioturbation and erosional processes play a role in the movement of stone artefacts within the landscape. 37-6-3827 is recorded as a red mudstone flake (29x12x10 millimetres) with evidence of backing. 37-6-3827 is listed as 'valid' on the AHIMS register and the location of 37-6-3827 is shown on **Figure 3-3**.

Additionally, another isolated find (AHIMS ID 37-6-3826) is located 350 metre (m) northwest of the study area on a saddle landform **Figure 2-3**. As isolated finds have been recorded within and near to the study area, there is an increased likelihood that this site type will be identified during further site inspection. In general, isolated finds have previously been recorded in a wide variety of contexts, including highly disturbed landforms. Within the study area, this site type is most likely to be recorded in association with ephemeral drainage lines and areas that have been modified through erosion or bioturbation.

Artefact scatters generally follow a pattern of close association with major waterways. This is reflected by the AHIMS results with most artefacts scatters recorded in the vicinity of Stanhope Creek, Glendon Brook, West Brook, and the Hunter River. While ridgelines may have encouraged Aboriginal occupation, the distance of the study area from permanent waterways reduces the likelihood that this site type will be present within the study area.

Grinding grooves have potential to be present, if outcropping sandstone is present.

Table 3-1: AHIMS site types and frequencies

Site Type	Number	% Frequency
Artefact (quantity unspecified)	36	45.57
Artefact scatter	26	32.91
Isolated find	15	18.99
Grinding groove	1	1.27
PAD ¹	1	1.27
Total	79	100

¹ Potential archaeological deposit

Figure 3-2. AHIMS sites in relation to the study area.

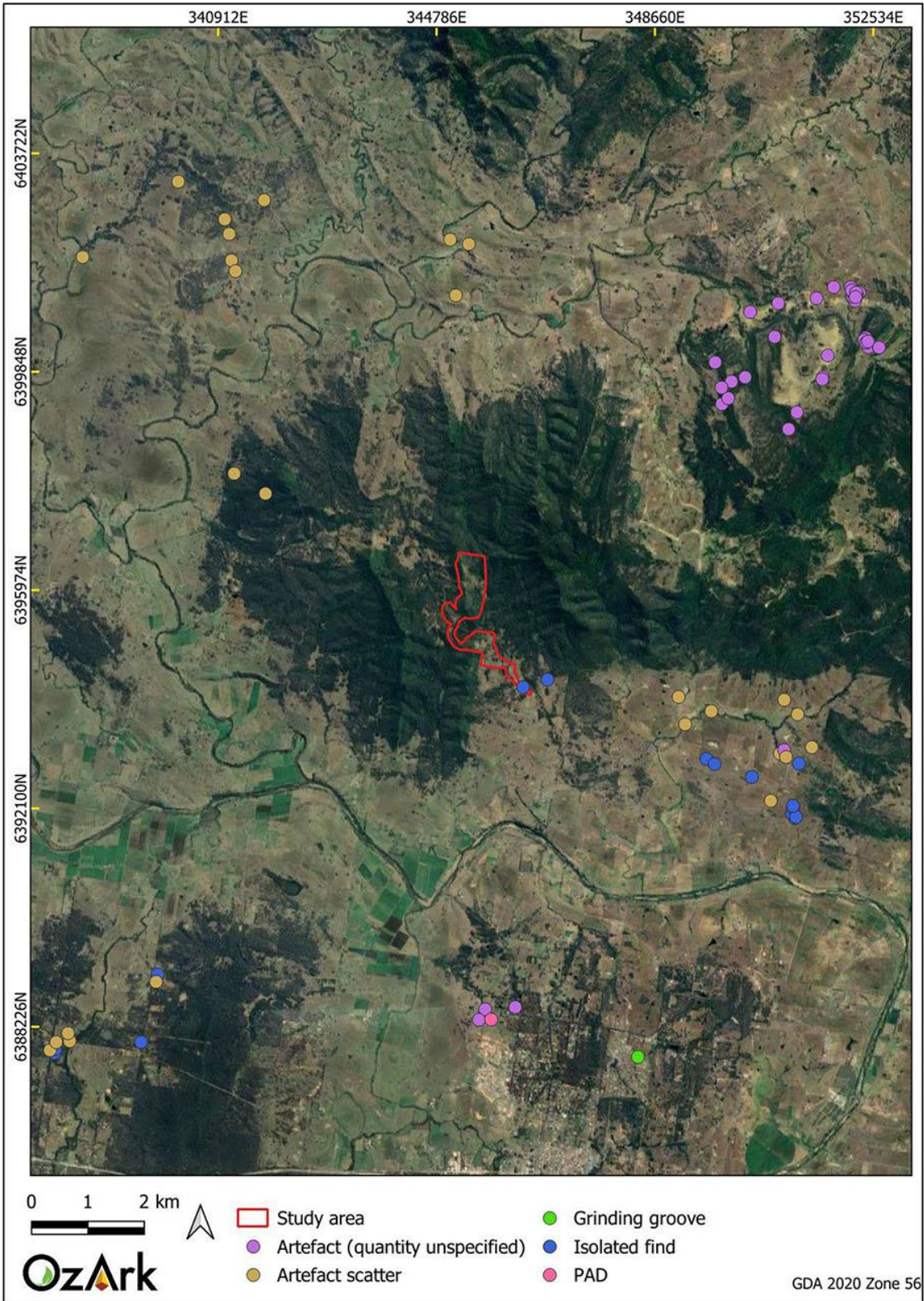
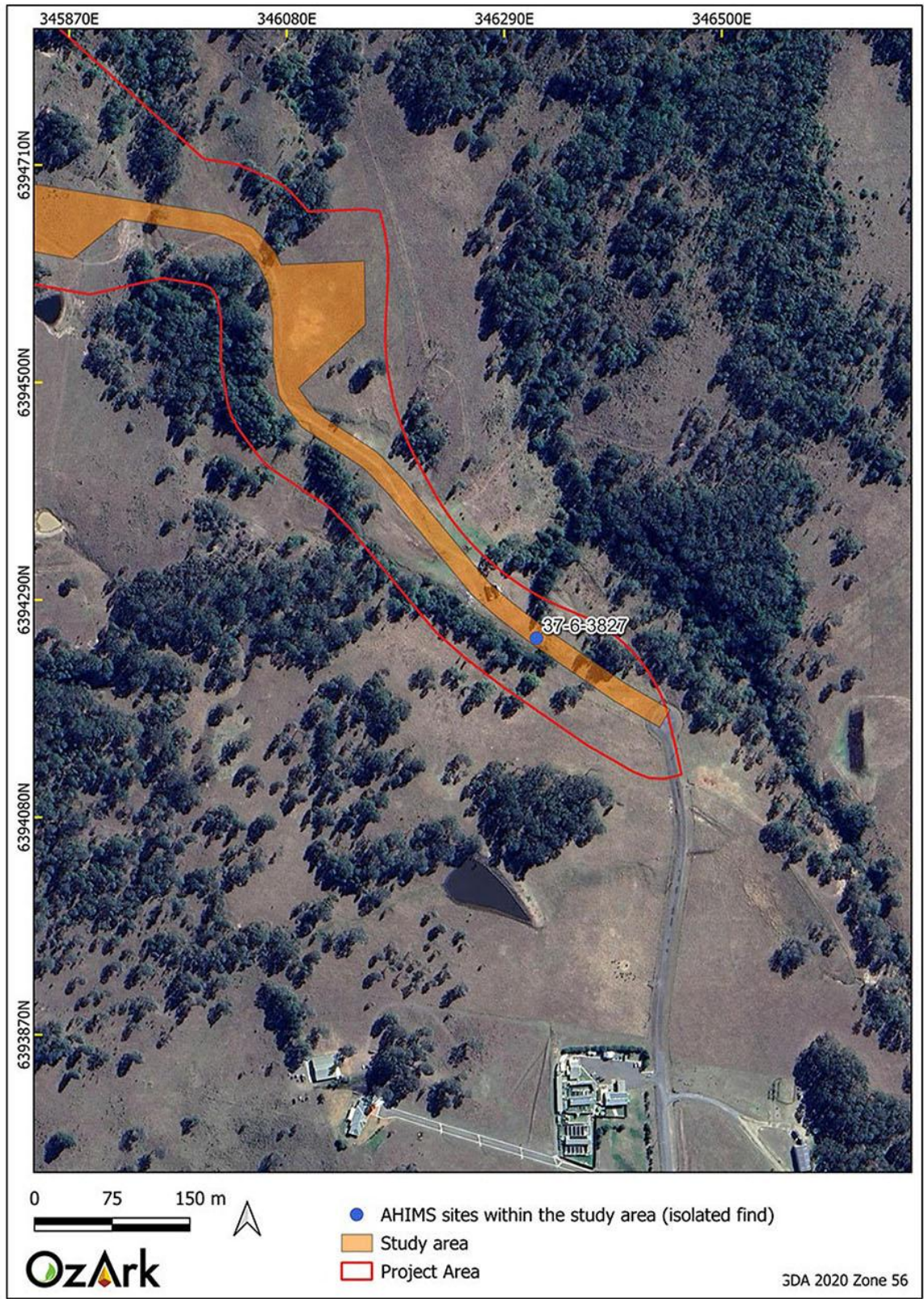


Figure 3-3. AHIMS sites within the study area.



3.3.1 Archaeological investigations within and near the study area

The study area has been partially subject to archaeological assessment in the past. The assessment by Worth (2016) recorded the isolated find 37-6-3827 in the northern extent of her study area as part of an assessment for National Parks and Wildlife Service which is not publicly available.

The isolated find, 37-6-3826, was recorded during this assessment. The isolated mudstone flake was recorded in association with an existing dam. This and other sites recorded by Worth (2016) demonstrate a general likelihood for isolated finds and potentially low-density artefact scatters to be present within the study area, especially in association with drainage features such as dams or ephemeral waterways.

Multiple archaeological investigations have taken place in the surrounding landscape of the study area. The most relevant are outlined below:

Haglund (1982) conducted an assessment for Michell Flat underground coal mine, which included areas of Tulky Hill 3.6 kilometres (km) northwest of the study area. Haglund (1982) recorded two Aboriginal sites: Site One consisted of two flakes and two flaked pieces and Site Two was an isolated artefact described as a broken flake. Neither site warranted further investigation.

Ruig (1993) undertook an archaeological assessment of the proposed optic fibre cable route Glendonbrook to Westbrook to Singleton for Telecom Australia. Ten Aboriginal sites were recorded over the entire route, three of which are located approximately 5 km north of the study area. All sites were comprised of stone artefacts ranging from isolated finds to high-density artefact scatters. This conformed with predictive modelling presented by Ruig (1993) which suggested that the most likely site type within the area is stone artefactual material. Most sites were recorded within proximity to the perennial Glendon Brook or ephemeral tributaries, evidencing a pattern of artefacts being closely associated with waterways. High-density sites are more likely to be identified near perennial water sources which would have supported prolonged Aboriginal occupation.

4 PREDICTIVE MODEL

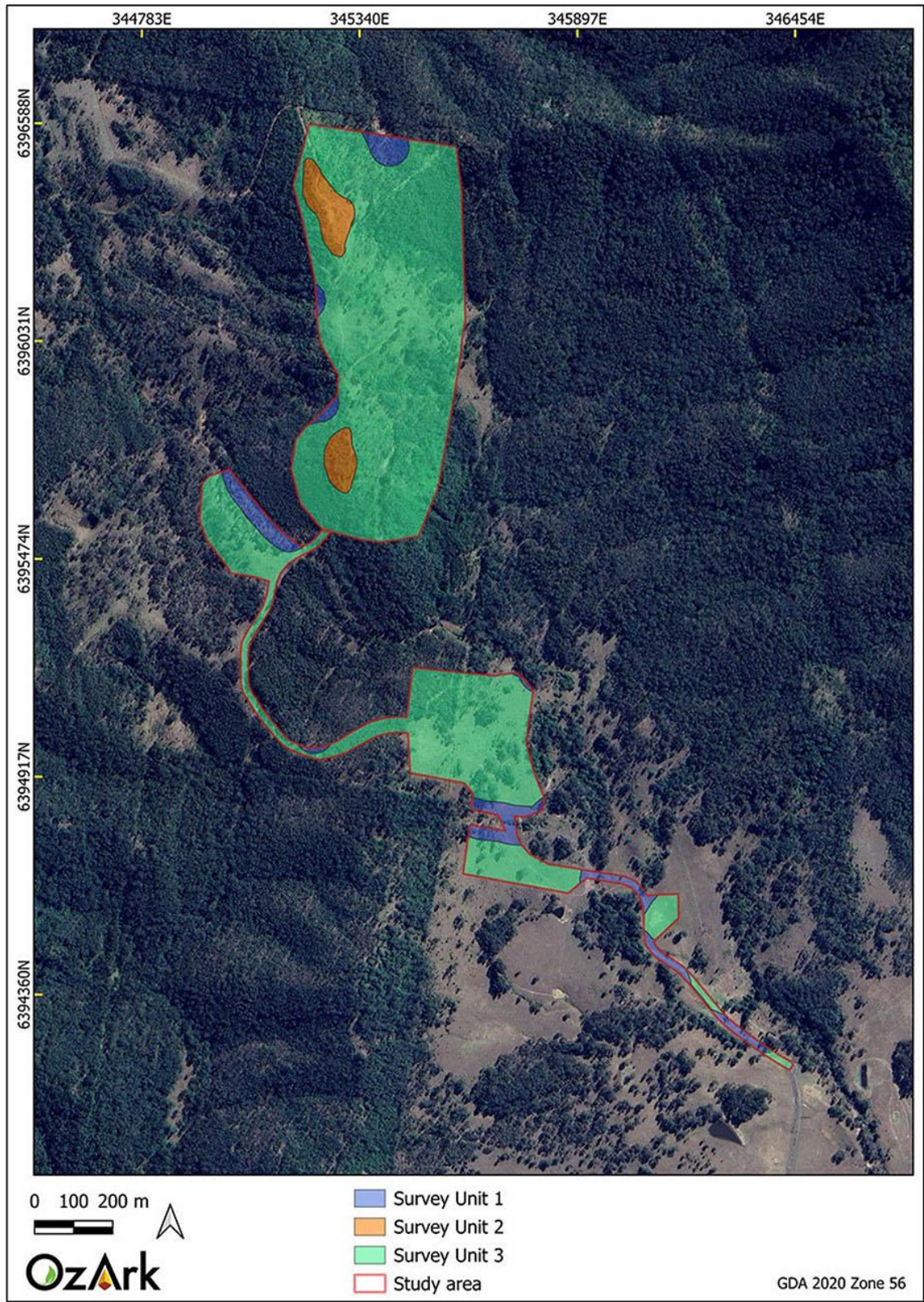
4.1 LANDFORM MODELLING

The topography of the study area is mostly undulating slopes of a moderate gradient, with several hillcrests (**Figure 1-3**). Steeper slopes exist on the western face, with gradients of up to 60 degrees, while shallower slopes exist along the eastern faces. The study area includes prominent ridgelines and saddles with peak elevations of 220 m Australian Height Datum (AHD).

Preliminary landform mapping within the study area indicates there are three main landform types (**Figure 4-1**):

- Landforms within 50 m of the ephemeral drainage lines (Survey Unit 1)
- Crest landforms (Survey Unit 2)
- Sloping landforms (Survey Unit 3) that cover most of the study area.

Figure 4-1: Survey units within the study area.



4.2 PREDICTIVE MODEL FOR THE STUDY AREA

Based on knowledge of the environmental contexts of the study area and a desktop review of the known local and regional archaeological record, the following predictions are made concerning the probability of landforms within the study area to contain Aboriginal objects (**Table 4-1**), and what types of sites may be present within the study area (**Table 4-1**).

Table 4-1: Likelihood of landforms within the study area to contain Aboriginal objects.

Survey Unit	Landform type	Likelihood to contain Aboriginal objects
1	Drainage	Landforms immediately adjacent to waterways generally have high archaeological potential as they provide reliable access to water. While the ephemeral waterways of the study area are not expected to have provided consistent access to water in the past, the presence of water in some environmental conditions may have attracted habitation or game for hunting. As an Aboriginal site has been previously recorded in a drainage landform within the study area, there is an increased likelihood that this landform may contain archaeological material.
2	Crests	Archaeological studies indicate that crest landforms and elevated areas were favoured occupation locations. However, distance from permanent water may have deterred Aboriginal people from spending extended periods of time on the crests within the study area. Due to tree clearance and other disturbances in the study area, soils in these landforms may be thin and degrading. Should Aboriginal objects be recorded in these landforms, they are most likely to be surface manifestations and may be displaced from their primary depositional context.
3	Slopes	Slopes are a degrading landform, especially in the study area where vegetation removal has accelerated soil loss. These landforms are not suited to large-scale or repeated occupation and Aboriginal objects recorded in such landforms are likely to be in a secondary context. The exception is in localised flat benches or sections of gentle slopes, if they are present, where occupation may have been more suitable.

The results of previous surveys across the study area and its immediate surrounds indicate that stone artefact sites are the most likely site type to be present and all other site types are unlikely. Sites are more likely to be present within drainage landforms as evidenced by Ruig (1993) and Worth (2016).

4.3 RESEARCH QUESTIONS

A number of research questions can meaningfully be applied to the investigation of the study area. These research questions include:

- What tasks were Aboriginal people undertaking at the sites?
- Is there archaeological material associated with site 37-6-3826 present within the study area?
- Is there outcropping rock materials present suitable for stone tool procurement and manufacture?
- Do the findings within the study area (if any) accord with the regional archaeological context examined in **Section 3.2**?
- Do the survey results support the predictive model set out in **Section 4**?

The survey methodology set out in **Section 5** will be framed to help answer these questions; should sites of sufficient archaeological significance be encountered.

5 SURVEY METHODOLOGY

5.1 ASSESSMENT APPROACH

The Aboriginal cultural heritage assessment of the study area will follow the *Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010b). The field inspection will follow the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (The Guide, OEH 2011).

Survey for Aboriginal cultural heritage values will concentrate on the study area where project impacts will be located.

5.2 SURVEY AIMS

The aim of any archaeological survey is not to locate each artefact in a landscape but to undertake investigations so that the archaeological potential and archaeological characteristics of all landforms within the study area are known. Therefore, the aims of the survey will be to:

- Inspect all landform types in the study area so that their archaeological potential can be determined
- Evaluate whether the predictive model set out in **Section 4.2** is valid
- Determine if the research questions set out in **Section 4.3** can be answered
- Determine if any landforms of the study area require test excavation to understand the archaeological potential at a particular location
- Undertake sufficient assessment to satisfy Sections 2.2, 2.4, 2.5, 2.6, and 2.7 in the Guide
- Collect sufficient data so that the results can be presented in an ACHAR as set out in Section 3 in the Guide
- Undertake survey and record keeping satisfying Requirements 1–13 of the Code of Practice.

5.3 SURVEY METHODOLOGY

Standard archaeological field survey and recording methods will be employed in this assessment (Burke & Smith 2004) and will follow the Code of Practice.

Given the modest size of the study area, the field assessment will complete full pedestrian survey across the survey units, where viable. Survey across landforms of heightened sensitivity including crests and drainage (Survey Units 1 and 2) will be a priority. The location of site 37-6-3826 will be inspected for evidence of Aboriginal cultural material. Areas of high disturbance, if present, will not be surveyed, unless areas are identified to have archaeological potential by the field team. All trees deemed to be of sufficient maturity to contain cultural modification will be inspected, as well as any areas with outcropping rock. Some areas may not be physically surveyed if the RAPs

and OzArk staff agree they are too disturbed or possess a very low likelihood of Aboriginal objects.

In the field, OzArk staff will identify, record and evaluate physical (i.e. archaeological) evidence. Site recording will capture all the information required to complete current AHIMS site recording forms (e.g., site location, site boundary, site plan, representative photographs, artefact recording, and feature recording). RAPs will participate in the survey, identifying Aboriginal objects, determining the cultural significance of Aboriginal objects, and identifying cultural places or non-physical site types within the study area. OzArk staff understand that cultural knowledge may not be provided in some instances due to cultural sensitivities (e.g., men's and/or women's places). Under these circumstances, to assess the potential impacts, OzArk staff will need to be told, only in general terms, why a particular place is important, and what the significance of the impact will be. OzArk staff will liaise with RAPs on a case-by-case basis to determine how to record the location in a culturally sensitive manner.

5.4 TEST EXCAVATION

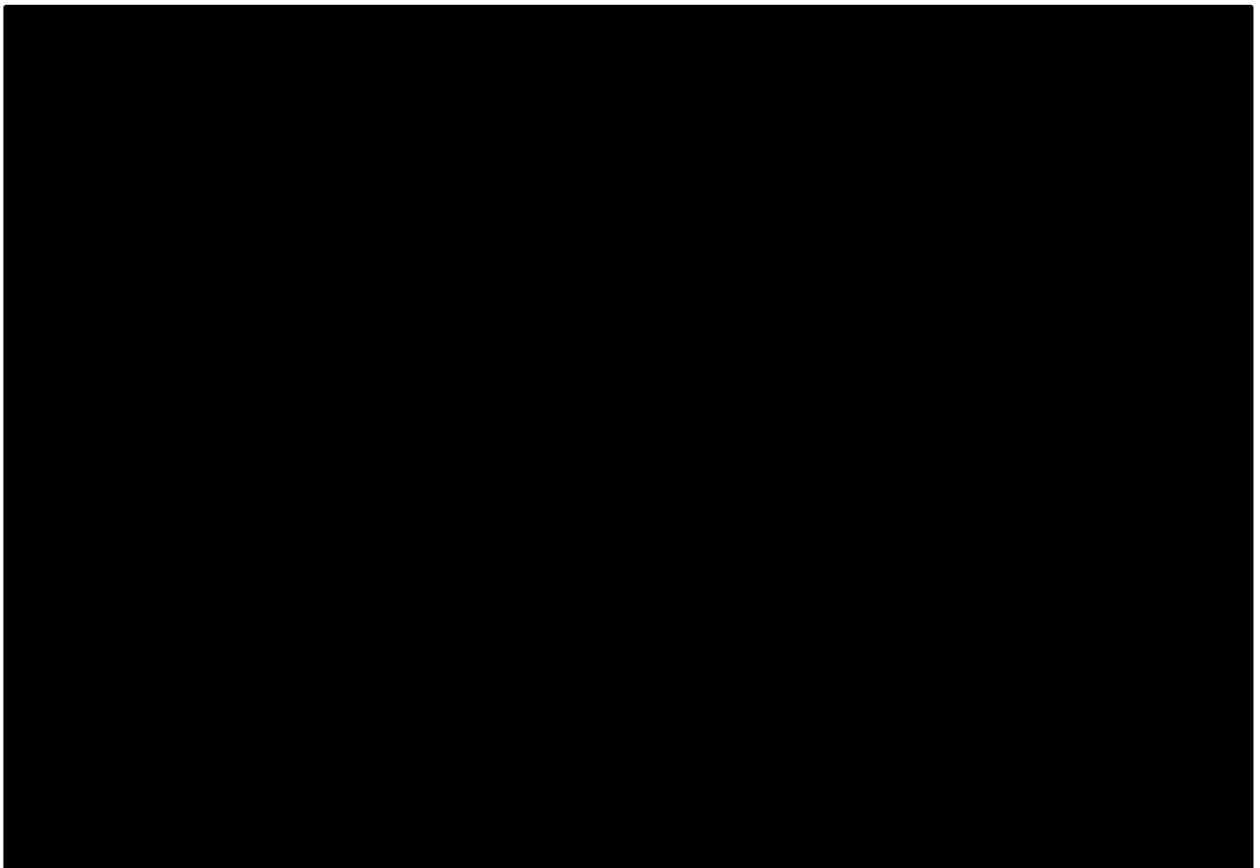
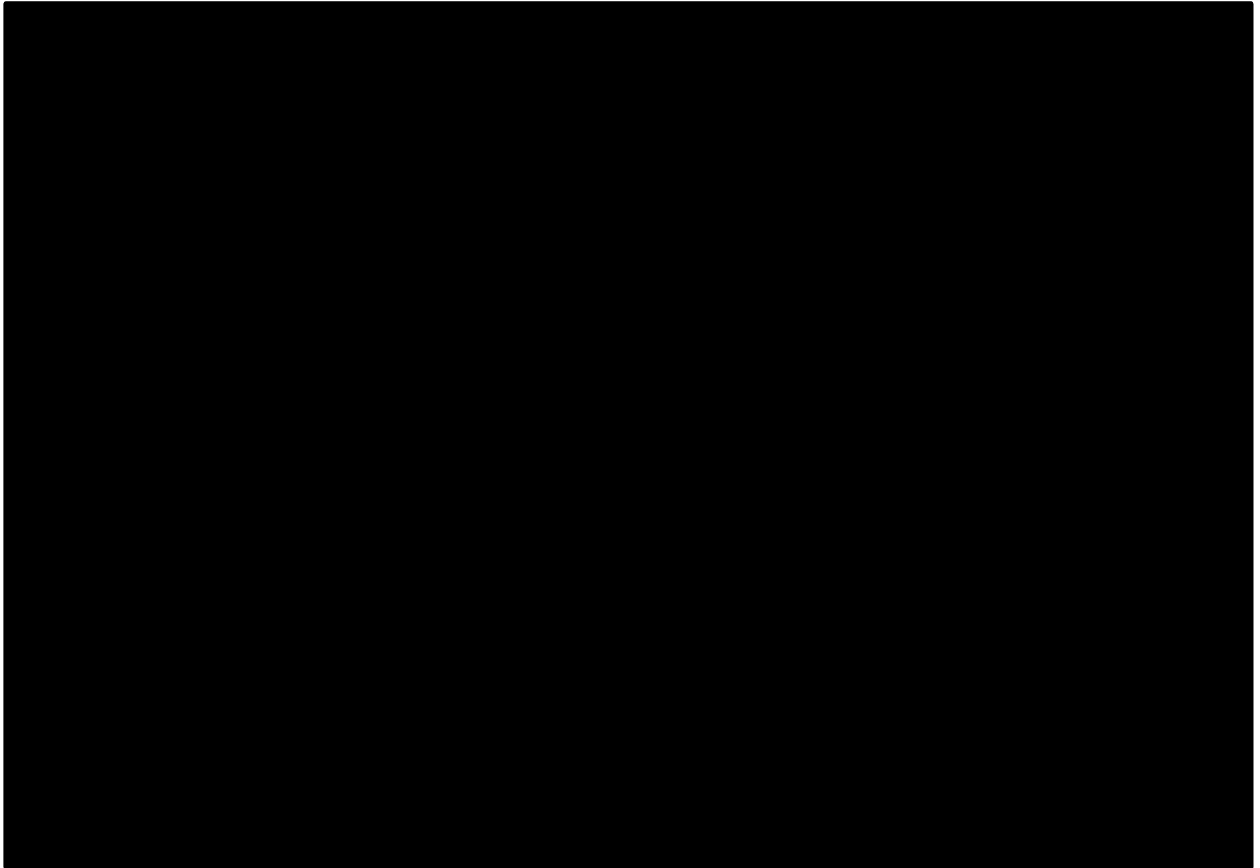
It is possible that the survey may identify landforms where test excavation under the Code of Practice (Requirements 14–17) is required. Should such landforms be identified during the survey, the test excavation methodology will be prepared as a separate document that will be circulated to all RAPs for review and comment.

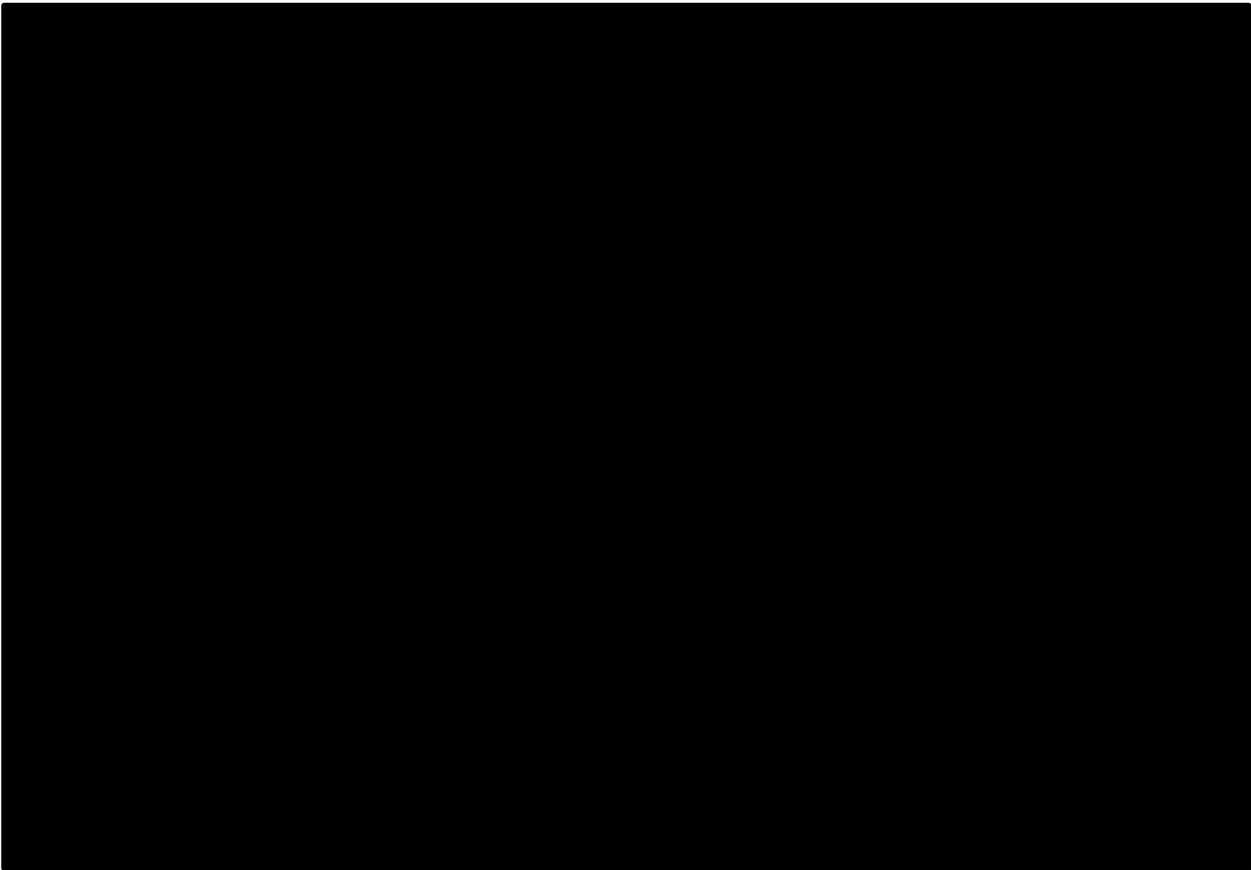
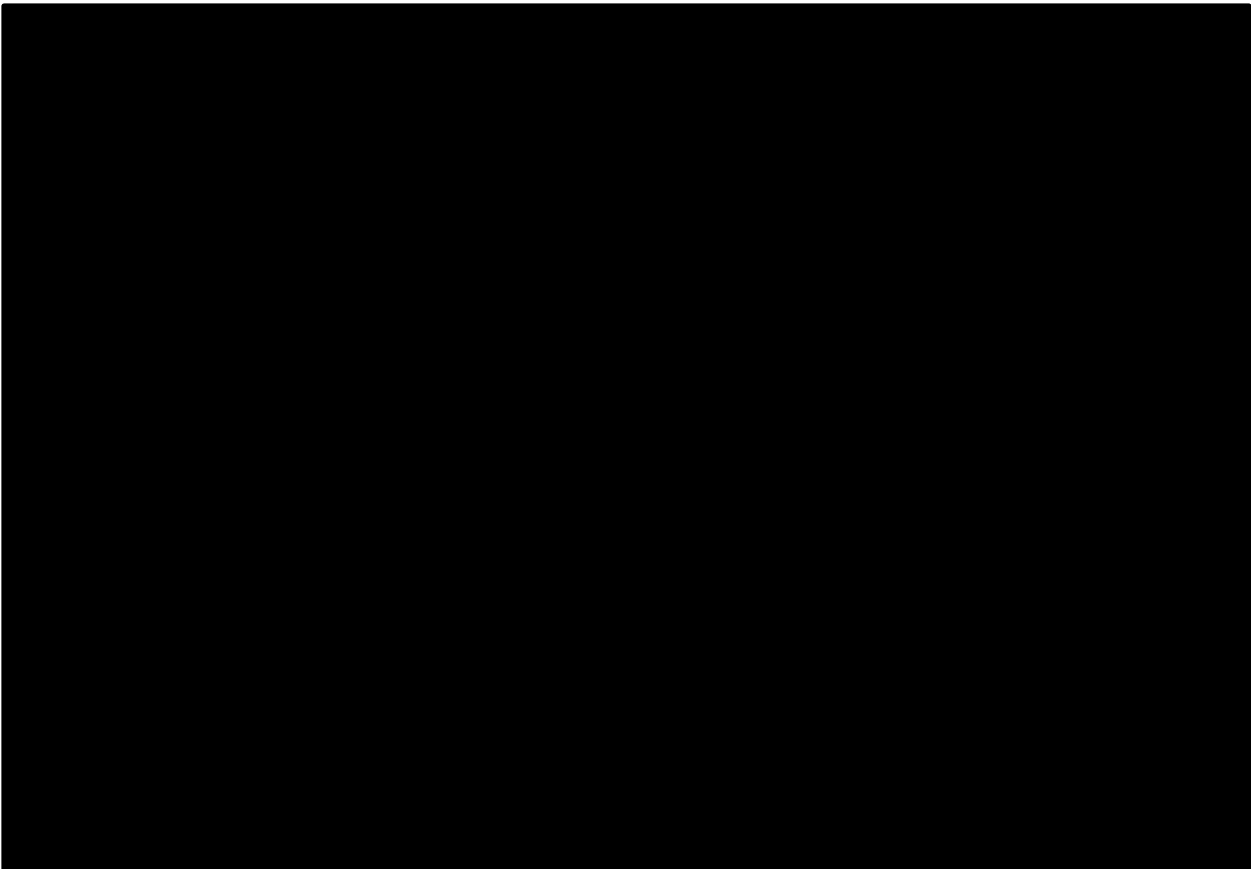
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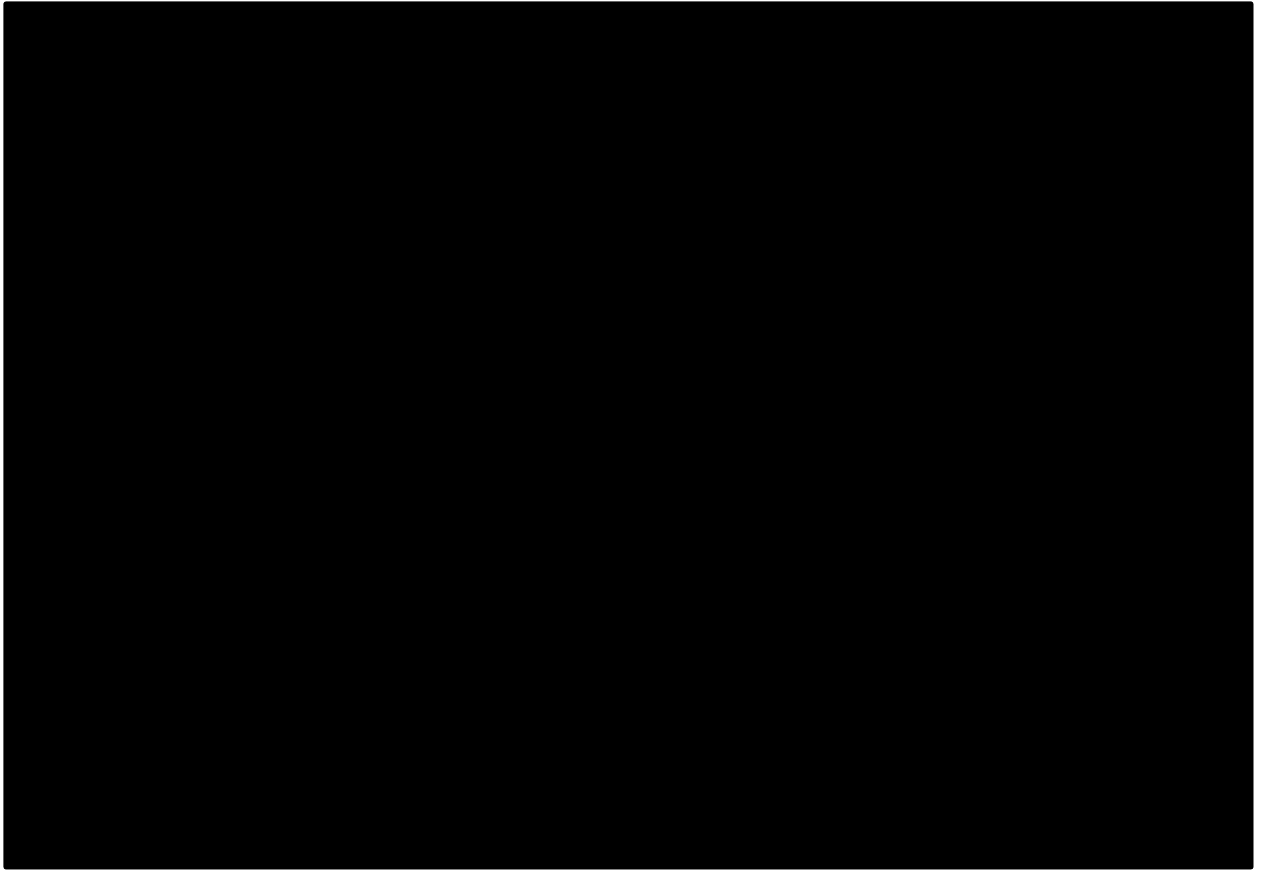
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APPENDIX 3: AHIMS SEARCH

2025 search result







2026 search result

