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Western Parkland City Authority Cultural Heritage Study

Preliminary Aboriginal Cultural Heritage Assessment Report

Prepared for Western Parkland City Authority

November 2021 – Draft 4

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Executive Summary

Western Parkland City Authority propose to undertake development on approximately 115 ha of land at the Bradfield City Centre (formerly known as Stage 1 Aerotropolis Core Precinct) (Figure 1) (hereafter, referred to as the study area).

The Bradfield City Centre will be the nation's newest city centre, a 24-hour global metropolis with facilities for research, innovation and advanced manufacturing, education and training, and world-class technology industries and businesses. These businesses and facilities will be oriented around a new Sydney Metro station. Bradfield will complement the existing city centres of Penrith, Liverpool and Campbelltown, but with a unique focus on advanced manufacturing and training that will drive ideas from conception to commercialisation and from manufacturing to markets.

Extent Heritage Pty Ltd (Extent Heritage) have been engaged by the Western Parkland City Authority to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) to identify any Aboriginal object or places within the proposed study area. The results of this assessment will be used to inform the development of the master plan for the Bradfield City Centre.

A search of the Aboriginal Heritage Information Management Systems (AHIMS) database was completed on 16 June 2020 for an area of land which encompasses the study area. The search resulted in the identification of eight registered sites within the study area:

- B 22 (AHIMS ID 45-5-2640)
- B17 (AHIMS ID 45-5-2779)
- B 18 (AHIMS ID 45-5-2620)
- B 19 (AHIMS ID 45-5-2621)
- B 20 (AHIMS ID 45-5-2622)
- B 21 (AHIMS ID 45-5-2639)
- B 23 (AHIMS ID 45-5-2641)
- B 38 (AHIMS ID 45-5-2628)

A full coverage survey of the study area was completed on 7 December 2020, with representatives of Registered Aboriginal Parties (RAPs). The survey resulted in the identification of two previously unrecorded Aboriginal sites—an isolated find and associated area of Potential Archaeological Deposit (PAD) in the western edge of the site (ACIF01 / AHIMS ID 45-5-5480) and a low-density artefact scatter containing four artefacts (ACAS01 / AHIMS ID 45-5-5481). In addition, five Aboriginal objects were identified at the location of B 23 (AHIMS ID 45-5-2641). No Aboriginal objects were identified at the recorded location of the remaining seven AHIMS registered sites.

At the time this report was prepared, detailed design plans had only been finalised for the First Building site. As a result, the recommendations of this report have been developed based on the assumption that the entire study area will be subject to ground disturbing activities. Based on this assumption, the following recommendations have been made:

- Where possible, impacts to identified Aboriginal sites should be avoided.
- An archaeological test excavation should be completed according to the approved methodology to investigate the nature and extent of potential subsurface artefacts across ACIF01 (AHIMS ID 45-5-5480), Moore Gully (AHIMS ID 45-5-5492), and Thompsons Creek (AHIMS ID 45-5-5491).
- Test excavation at the site of the First Building subject area should be completed to test the assumption of low archaeological potential to confirm the conclusions of the predictive modelling.
- The results of the test excavation program should be documented in a standalone Aboriginal Test Excavation Report (ATER) that identifies any requirements for an update to this ACHAR (Appendix B).
- Consultation with RAPs should be completed in accordance with the Consultation Requirements to inform the development of the test excavation methodology.
- If changes are made to the proposed works which result in impact to locations outside of the current study area, further archaeological investigation and survey may be required.
- If suspected human remains are located during any stage of the proposed works, work should stop immediately, and the NSW police and Coroner's Office should be notified. Heritage NSW – DPC should be notified if the remains are found to be those of an Aboriginal person.

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1. Introduction

1.1 Project overview

Western Parkland City Authority propose to undertake development on approximately 115 ha of land at the Bradfield City Centre (formerly known as Stage 1 Aerotropolis Core Precinct) (Figure 1) (hereafter, referred to as the study area). The Bradfield City Centre will be the nation's newest city centre, a 24-hour global metropolis with facilities for research, innovation and advanced manufacturing, education and training, and world-class technology industries and businesses oriented. These facilities will be oriented around a new Sydney Metro station. Bradfield will complement the existing city centres of Penrith, Liverpool and Campbelltown, but with a unique focus on advanced manufacturing and training that will drive ideas from conception to commercialisation and from manufacturing to markets.

The Bradfield City Centre Masterplan will incorporate a series of desired urban and environmental outcomes that will have a direct impact on the well-being of people in terms of liveability and sustainability. Heritage, both Aboriginal and non-Aboriginal (European), will form one of the key environmental influences that will lead the design outcomes.

Extent Heritage Pty Ltd (Extent Heritage) have been engaged by Western Parkland City Authority to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) to identify any Aboriginal object, places or cultural heritage values within the proposed Bradfield City Centre. The results of this assessment will be used to inform the development of a master plan for the Bradfield City Centre

1.2 The study area

The study area is defined as Lot 10, DP 1235662 and is located at 215 Badgerys Creek Road, Bringelly. The study area is surrounded by private properties and is currently comprised of rural residential and rural lots.

The study area lies within the boundaries of the Liverpool Local Government Areas (LGAs) and Gandangara Local Aboriginal Land Council (LALC). The study area is entirely within the county of Cumberland and Cabramatta parish, and is on land traditionally associated with the Darug people.

1.3 Proposed works

The proposed development would involve construction works associated with mixed use development, including bulk earthworks, construction of infrastructure (roads, footpaths, stormwater, etc.), buildings, environmental controls, and landscaping.

1.4 Approach and methodology

This ACHAR has been prepared in accordance with the:

- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales 2010 (the Code of Practice) (Department of Environment Climate Change and Water [DECCW] 2010a).
- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW [the Guide] (OEH 2011).
- Aboriginal cultural heritage consultation requirements for proponents 2010 [the Consultation Requirements] (DECCW 2010b).
- The Burra Charter 2013 (Australia ICOMOS 2013).

The objectives of this report are to:

- Identify the Aboriginal cultural heritage values of the study area, including archaeological and cultural values.
- Assess the significance of any identified values.
- Identify Aboriginal cultural heritage values that may be impacted by the proposed works, including consideration of cumulative impacts, and measures to avoid significant impacts.
- Ensure appropriate Aboriginal community consultation in the assessment process.
- Identify any recommended further investigations, mitigation and management measures required.

To satisfy the objectives of this report, the following tasks will be completed:

- Review of existing archaeological data, including assessments previously completed within the vicinity of the study area and relevant heritage databases.
- Investigate the environmental context of the study area.
- Synthesise background information into a predictive model to inform an assessment of archaeological potential across the study area.
- Complete a full coverage survey of the study area to test the results of the predictive model and further inform an assessment of archaeological potential.

1.5 Investigators and contributors

This report was authored by Ryan Taddeucci (Senior Heritage Advisor, Extent Heritage), Hannah Morris (Senior Heritage Advisor, Extent Heritage) and Andrew Costello (Senior Associate, Extent Heritage), with review by Dr Madeline Shanahan (Senior Associate, Extent Heritage). Table 1 below outlines the full list of contributors and their role in the completion of this report.

Table 1: List of contributors.

Contributor	Task	Qualification	Position	Experience
Ryan Taddeucci	<ul style="list-style-type: none"> Preparation of this report Supervision of archaeological survey 	<ul style="list-style-type: none"> Bachelor of Arts (Hons) Archaeology Master of Museum Studies Graduate Certificate in Maritime Archaeology 	Senior Heritage Advisor	9 years
Cameron Neal	<ul style="list-style-type: none"> Archaeological survey 	<ul style="list-style-type: none"> Bachelor of Archaeology (Hons) 	Research Assistant	3 years
Dr Madeline Shanahan	<ul style="list-style-type: none"> Management input and technical review of this document 	<ul style="list-style-type: none"> Bachelor of Arts (Hons) Archaeology PhD, Archaeology 	Senior Associate, Archaeology Manager	15 years
Hannah Morris	<ul style="list-style-type: none"> Preparation of this report Technical review 	<ul style="list-style-type: none"> Masters of Comparative Art and Archaeology Bachelor of Arts, Art Theory and Archaeology 	Senior Heritage Advisor	5 years
Andrew Costello	<ul style="list-style-type: none"> Preparation of this report Technical review 	<ul style="list-style-type: none"> Bachelor of Arts (Hons) Archaeology Masters of Business Admin 	Senior Associate	15 years

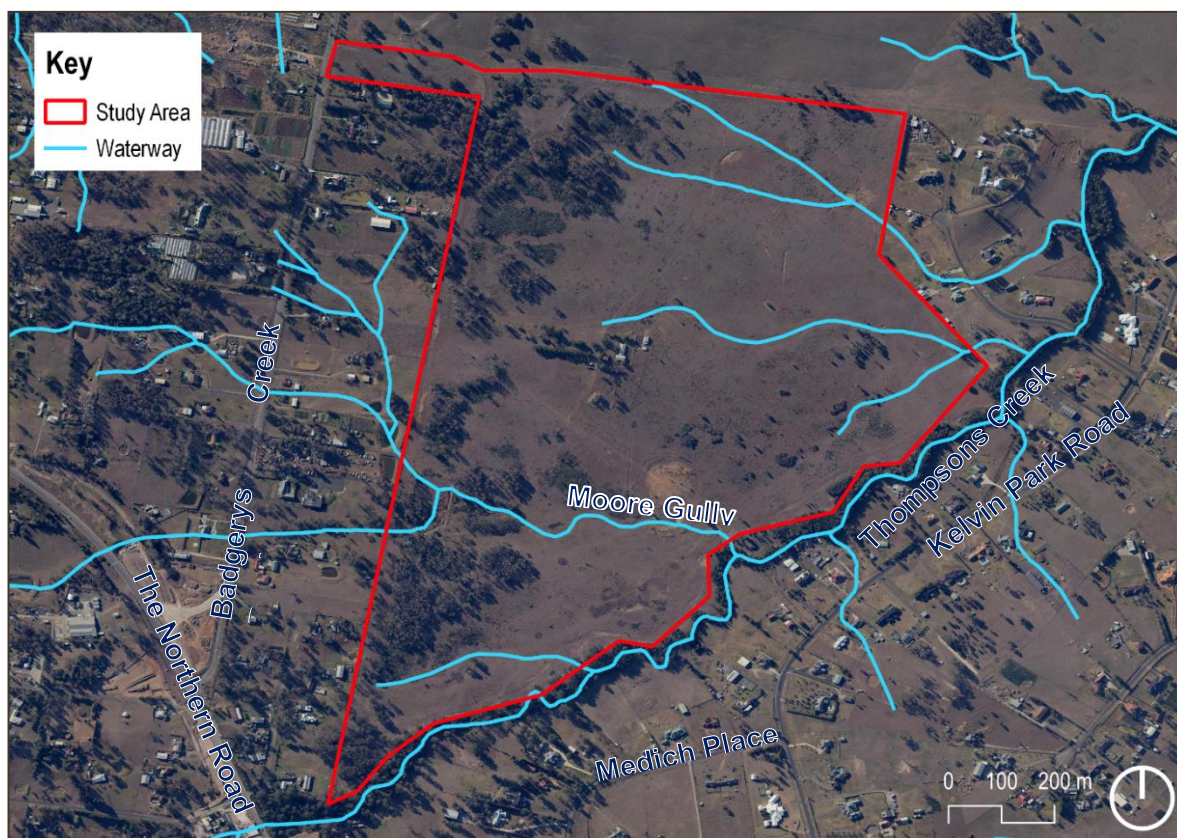


Figure 1. Study area.

2. Planning Context

The study area is subject to several legislative acts and statutory controls that govern the management of environmental heritage. An overview of the legislation relevant to heritage matters is provided below.

2.1 Commonwealth legislation

2.1.1 Native Title Act 1993 (Cth)

The Native Title Act 1993 (Cth) (NTA) recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs. Section 24KA of the Native Title Act 1993, requires that native title claimants are notified of any 'future act' which may result in a change in land use for Crown lands affected by claims. 'Future act' is defined in section 233 of the Act as a proposed activity or development on land and/or waters that may affect native title, by extinguishing (removing) it or creating interests that are inconsistent with the existence or exercise of native title. If after one month there was no response, then the proponent will be deemed to have fulfilled their obligations under the Act.

A search of the National Native Title Tribunal database was completed on 10 December 2020. There are no Native Title claims currently registered in the study area.

2.1.2 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) took effect on 16 July 2000. Subsequently, the *Environment and Heritage Legislation Amendment Act (No. 1) 2003* amends the EPBC Act to include 'national heritage' as a matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

Under Part 9 of the EPBC Act, any action that is likely to have a significant impact on a matter of National Environmental Significance (known as a controlled action under the Act), may only progress with approval of the Commonwealth Minister for the Department of the Environment (DoE). An action is defined as a project, development, undertaking, activity (or series of activities), or alteration. An action will also require approval if:

- It is undertaken on Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land; and,
- It is undertaken by the Commonwealth and will have or is likely to have a significant impact.

The EPBC Act defines 'environment' as both natural and cultural environments and therefore includes Aboriginal and historic cultural heritage items. Under the Act protected heritage items are listed on the World Heritage List (WHL), NHL (items of significance to the nation) or the CHL (items belonging to the Commonwealth or its agencies). These last two lists replaced the Register of the National Estate (RNE). The RNE is no longer a statutory list; however, it remains available as an archive.

A search of the heritage databases was completed on 10 December 2020. A summary of register searches is outlined below:

- WHL: No listed items are located within the study area.
- NHL: No listed items are located within the study area.
- CHL: No listed items are located within the study area.
- RNE: No listed items are located within the study area.

2.2 State legislation

2.2.1 National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974* (NSW) (NPW Act), administered by Heritage NSW, provides protection to all Aboriginal places and objects in NSW. The NPW Act gives the Director

General of Heritage NSW responsibility for the proper care, preservation and protection of 'Aboriginal objects' and 'Aboriginal places', defined under Section 5 of the Act as follows:

- an *Aboriginal object* is any deposit, object or material evidence (that is not a handicraft made for sale) relating to Aboriginal habitation of NSW, before or during the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.
- an *Aboriginal place* is a place declared so by the Minister administering the NPW Act because the place is or was of special significance to Aboriginal culture. It may or may not contain Aboriginal objects.

Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them and includes a 'strict liability offence' for such harm. A 'strict liability offence' does not require someone to know that it is an Aboriginal object or place they are causing harm to be prosecuted. Defences against the 'strict liability offence' in the NPW Act include the carrying out of certain 'Low Impact Activities', prescribed in section 58 of the *National Parks and Wildlife Regulation 2019* (NPW Regulation), and the demonstration of due diligence.

An Aboriginal Heritage Impact Permit (AHIP) issued under Section 90 of the NPW Act is required if impacts to Aboriginal objects and/or places cannot be avoided. An AHIP is a defence to a prosecution for harming Aboriginal objects and places if the harm was authorised by the AHIP and the conditions of that AHIP were not contravened. Consultation with Aboriginal communities is required under Heritage NSW – Department of Premier Cabinet (DPC) policy when an application for an AHIP is considered and is an integral part of the process. AHIPs may be issued in relation to a specified Aboriginal object, Aboriginal place, land, activity or person or specified types or classes of Aboriginal objects, Aboriginal places, land, activities or persons. Section 89A of the NPW Act requires notification of the location of Aboriginal sites within a reasonable time, with penalties for non-notification.

2.2.2 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (NSW) (EPA Act) requires that consideration is given to environmental impacts as part of the land use planning process. In NSW, environmental impacts are interpreted as including cultural heritage impact. Proposed activities and development are considered under different parts of the EP&A Act, including:

- Major projects (State Significant Development under Part 4.1 and State Significant Infrastructure under Part 5.1), requiring the approval of the Minister for Planning.
- Minor or routine development requiring local council consent, are usually undertaken under Part 4. In limited circumstances, projects may require the Minister's consent.
- Part 5 activities which do not require development consent. These are often infrastructure projects approved by local councils or the State agency undertaking the project.

The EP&A Act also controls the making of environmental planning instruments (EPIs) such as Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs). LEPs commonly identify, and have provisions for the protection of, local heritage items and heritage

conservation areas. The LEP relevant to this project is the Liverpool Local Environmental Plan 2008.

The objectives of the LEP with respect to heritage conservation is provided in Clause 5.10 which (amongst other objectives) aims to conserve identified local heritage places, including archaeological sites, and requires development consent for any works that affect that item. Schedule 5 of the LEP lists items of environmental heritage within the LGA, including archaeological sites, buildings, and conservation areas. These items may be of national, state, or local heritage significance.

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3. Aboriginal Stakeholder Consultation

3.1 Consultation process in NSW

Aboriginal stakeholder consultation for the project has been undertaken in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW 2010b) (the Consultation Requirements).

3.2 Identification of RAPs

In accordance with Stage 4.1.2 of the Consultation Requirements, Extent Heritage corresponded with the following organisations to obtain the names of Aboriginal people who may hold cultural knowledge of the study area:

- Greater Sydney Local Land Services
- Liverpool City Council
- Native Title Service Corporation (NTSCorp)
- Gandangara LALC
- Heritage NSW – DPC
- National Native Title Tribunal
- Office of the Registrar, *Aboriginal Land Rights Act 1983*.

In accordance with Step 4.1.3 of the Consultation Requirements, an advertisement was placed on buysearchsell.com.au on 24 October 2020 inviting Aboriginal individuals or organisations to register an interest in the project by 5 November 2020. In addition, correspondence was sent to all Aboriginal individuals and organisations identified through the completion of Step 4.1.2 on 21 October 2020, inviting them to register an interest in the project by 5 November 2020.

The consultation process has resulted in the identification of 64 Registered Aboriginal Parties (RAPs) (Table 2).

Table 2: List of Registered Aboriginal Parties.

Contact	Organisation
Carolyn Hickey	A1 Indigenous Services
Amanda DeZwart	Amanda Hickey Cultural Services
Jamie Eastwood	Aragung Aboriginal Cultural Heritage Site Assessments
Karia Lea Bond	Badu
Mrs Jody Kulakowski	Barking Owl Aboriginal Corporation

Contact	Organisation
Lee Field	Barraby Cultural Services
Daisy Stewart	Bidawal
Simalene Carriage	Bilinga
Louis Hockey	Birrungal
Lisa Dixon	Bullawaya
Whane Carberry	Bulling Gang
Jennifer Beale	Butucarbin Aboriginal Corporation
Marilyn Carroll-Johnson	Corroboree Aboriginal Corporation
Glenda Chalker	Cubbitch Barta
Donald Smith	Curwur Murre
Andrew Bond	Dharug
Stephen Fields	Dhinawan Culture & Heritage Pty Ltd
Stacey Higgins	Dhurga
Lilly Carroll and Paul Boyd	Didge Ngunawal Clan
Jay Stevenson	Djanaba Gaxabara
Adam Johnson	Djiringanj
Lionel Brown	Elouera
Kahu Brennan	Eora
Clive Freeman	Freeman and Marx
Kathy Burns	Gadung
Melissa Williams	Gandangara Local Aboriginal Land Council
Kim Carriage	Gangangarra
Donna Wray	Garranga Bumarri
Krystle Carroll	Ginninderra Aboriginal Corporation
Sam Peters	Golangaya
Caine Carroll	Goodradigbee Cultural & Heritage Aboriginal Corporation
Clayton Moore	Gulla Gunar
Cherie Carroll Turrise	Gunjeewong CHC
Kylie Ann Bell and Mundarra Drew	Gunyuu
Phil Khan	Kamilaroi Yankuntjatjara Working Group
Toni Banda	Kurringgai

Contact	Organisation
Aaron Broad	Minnamunnung
Kaya Dawn Bell and Jason Booth	Munyunga
Shane Saunders	Murrumbul
Kaarina Slater	Ngambaa Cultural Connections
Steven Pittman	Ngario
Edward Stewart	Ngunawal Aboriginal Corporation
Thomas Tighe	Nundagurri
Tarlarra Te Kowhai	Tarlarra Te Kowhai
John Stewart	Tharawal
Jeffery Daves	Thauaira
Greg Kerry	Thawa
Ray Moffat	Thurumba
Rodney Gunther	Waawaar Awaa Aboriginal Corporation
Philip Boney	Wailwan Aboriginal Group
Hika Te Kowhai	Walbunja
Ronald Stewart	Walgalu
William Bond	Wandandian
Aaron Slater	Warragil Cultural Services
Steven Hickey and Donna Hickey	Widescope Indigenous Group
Mary Parsons	Wimbalaya Nura
Travis Dixon	Wingikara
Vivian Lacey	Wirambie
Daniel Chalker	Wori Woilywa
Kerrie Slater and Vicky Slater	Wurrumay Pty Ltd
Violet Banda	Yaxa Burra
Nathan Walker-Davis	Yerramurra
Arika Jalomaki	Yulay Cultural Services
Bo Field	Yurrandaali

3.3 Assessment methodology

A copy of the proposed ACHAR methodology was provided to the RAPs for a 28-day review on 11 November 2020. At the end of this period, 15 groups provided a comment on the proposed methodology. See Table 3 for a summary of comments.

Table 3: Summary of comments of the ACHAR methodology and preliminary test excavation.

Organisation	Contact	Comments
A1 Indigenous Services	Carolyn Hickey	Agrees with the proposed methodology and would like to be involved in any future works within the project.
Barraby Cultural Services	Lee Field	Agrees with the proposed methodology.
DNC	Lilly Carroll	Agrees with the proposed methodology.
Freeman and Marx	Clive Freeman	Would like to be updated on the project and would like to participate in work.
Goobah	Basil Smith	Supports the proposed methodology, would like to be updated on future developments.
Kamilaroi Yankuntjatjara Working Group	Phil Khan	Supports the methodology and notes that the study area is significant to Aboriginal people of the past and present.
Ngambaa Cultural Connections	Kaarina Slater	Agrees with the proposed methodology.
Wailwan Aboriginal Group	Philip Boney	Agrees with the proposed methodology.
Walbunja	Hika Te Kowhai	Requested additional information regarding the survey and noted that the RAPs should be provided an opportunity to participate in the fieldwork program in addition to the LALC. Hika noted that the South Coast Groups have knowledge of the study area and would provide details in a written response to the ACHAR methodology.
Warragil	Aaron Slater	Agrees with the proposed methodology.
Widescope Indigenous Group	Steven Hickey	Agrees with the proposed methodology and would like to be involved in any future works within the project.
Wori Woilywa	Daniel Chalker	The study area is considered to be sacred land, as is all Aboriginal land. Notes that it is difficult to investigate Aboriginal land use and history, as the post-contact modification of the study area has removed archaeological material. Any works taking place within the study area should be cultural appropriate. A full coverage survey and test excavation program is recommended.
Wurrumay	Vicky Slater	Vicky noted that she holds ancestral knowledge of the study area and is a traditional owner. Vicky asked to be included in all fieldwork.

Organisation	Contact	Comments
Yulay Cultural Services	Arika Jalomaki	Agrees with the proposed methodology and would like to be involved in upcoming fieldwork.
Yurrandaali	Bo Field	Agrees with the proposed methodology and would like to be involved in any upcoming fieldwork.

3.4 Cultural values engagement

3.4.1 Wider Western Sydney Aerotropolis Cultural Values Workshop

A preliminary cultural values mapping workshop was undertaken during the Pre-Planning phase of the wider Western Sydney Aerotropolis project. The area explored in the workshop included Bradfield City Centre but covered all precincts within the project boundary. The workshop was undertaken through a separate Aboriginal community consultation process. It was convened on Tuesday 23rd June 2020 at Liverpool City Council, Liverpool.

The aims of the meeting were to identify and understand key social, cultural, and intangible values associated with the Western Sydney Aerotropolis region and to identify how the RAPs would like these values to be conserved, remembered and managed throughout this project and into the future.

A focus group of Elders and knowledge holders were identified early in the planning process, comprising the primary traditional owner representatives of Darug and Dharawal descendants as well as the Local Aboriginal Land Councils whose land includes portions of the Bradfield City Centre study area. The organisations and representatives who were invited to be a part of the focus group and those who were able to participate are shown below (see Table 2).

Table 4. Aboriginal community organisation workshop attendees

Organisation	Contact name	Attendance
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	Yes, attended workshop
Darug Custodians Aboriginal Corporation	Tylah Blunden	Yes, attended workshop
Deerubbin Local Aboriginal Land Council	Steve Randall	Yes, attended workshop
Gandangara Local Aboriginal Land Council	Darren Duncan and Dr Ruth Sheridan	Yes, attended workshop
Darug Land Observations	Jamie Workman and Anna Workman	No, did not attend Workshop
Darug Aboriginal Cultural Heritage Assessments	Gordon Morton and Celestine Everingham	No, did not attend Workshop

Consultant attendees at the workshop were:

- Extent Heritage: Laressa Barry, Megan Sheppard Brennand, Tom Sapienza (via Zoom), James Wheeler (via Zoom)
- GHD/Zion: Elle Davidson (via Zoom)
- Western Sydney Planning Partnership: Ben Gresham

The following key conclusions were drawn from the cultural values workshop:

- The stakeholders stated that it is too early to comment with certainty on cultural values because the archaeological investigations have not taken place, and large parts of the landscape have not been extensively investigated during prior studies. Traditional owner and Land Council access to walk Country will be needed for subsequent stages of investigation.
- The cumulative impact of the project is a key issue of cultural concern. When the stakeholders were asked what they would most like to see if they were to return to the study area in fifty years, the consensus answer was a large, conserved portion of the Cumberland Plain. The consensus was also that this conservation area would not just include conserved creek corridors, but also a representative range of remnant terrain. The stakeholders expressed a strong preference for natural vegetation patterns as opposed to human-designed plantings (e.g., not 'trees planted in rows').
- Unusual and well-preserved landforms such as exposed sandstone outcrops, areas of remnant old growth vegetation, and well-preserved creek corridors should be protected where possible.
- There is a need to investigate the results of archaeological assessments undertaken across the Badgerys Creek airport site, as they may shed important light on site and settlement patterns in the region.
- The stakeholders present said that it is critical that the traditional owners and LALCs play a key role in future consultation and are given the opportunity to participate in further studies. The stakeholders stated that it is offensive when Aboriginal groups with no connection to country are engaged to do archaeological work.
- Any interpretation and story-telling needs to be reviewed by the traditional owners and LALCs to ensure it is culturally appropriate.
- There are some family connections to this country and nearby, and those should be recognised through further consultation with the key traditional owner and land council stakeholders.
- Section 9 of this report outlines the cultural values consultation in more detail.

3.4.2 Bradfield City Centre Cultural Values Engagement

Following the work completed for the Western Sydney Planning Partnership, Extent Heritage were subsequently engaged by the Western Parkland City Authority to undertake cultural values assessment relating specifically to the Bradfield City Centre (referred to at the time as Stage 1 Aerotropolis Core Precinct). The details of the work have been included here as the findings are an important body of evidence to help assess the cultural and intangible values of the study area.

Methodology

GHD/Zion Engagement and Planning were commissioned by the proponent to provide advice on the selection stakeholders for this more targeted engagement work. Extent Heritage were advised by GHD/Zion that the following groups should be invited to participate:

Organisation	Attendance
[Redacted Table Content]	

The following summary conclusions can be made regarding the cultural values identified for the Bradfield City Centre precinct:

- The Cumberland Plain landscape needs to be protected and conserved.
- Intergenerational equity is critical, and younger generations will not be able to learn if there is nothing left of the Cumberland Plain.
- Culturally modified trees are highly important. Many have been destroyed throughout the region and those left need to be protected.
- The connections between trees need to be maintained. If they are left in isolation they will not be protected.
- [Redacted]
- Kangaroo grass is culturally important and was used to make damper.

- The waterways are very important. Development should stay away from the waterways and focus should be given to improving water quality and flow.
- The wildlife and animals here are important and require healthy waterways and Country for their protection.
- The connections across all of Country and between all things need to be understood. The land, trees, water and animals cannot, be seen in isolation. It needs to be understood and protected as a whole.
- Country is the direct link to spirituality, culture, language, family, lore and identity. Darug people are connected to Country and Country is connected to them.
- Key priorities for the development should be to use sustainable materials and to plant native plants that are from the area.
- Information and signage should use correct terminology, should not use the past tense and should ensure that it is clear throughout the development that this is always has been and always will be Aboriginal land.
- Section 9 of this report outlines the cultural values consultation in more detail.

3.5 Participation in field survey

On 20 November 2020, invitations to participate in the archaeological survey were issues to a limited number of RAPs. Four site officers representing the RAPs participated in the archaeological survey (Table 5).

Table 5: Aboriginal site officers participating in the archaeological survey.

Contact	Organisation
Darren Duncan	Gandangara Local Aboriginal Land Council
Tylah Blunden	Darug Custodian Aboriginal Corporation
Rodney Gunther	Waawaar Awaa Aboriginal Corporation
Mollie Saunders	Wurrumay Pty Ltd

3.6 Test excavation methodology

A copy of the proposed test excavation methodology was provided to the RAPs for a 28-day review on 15 June 2021. At the end of this period, six groups provided a comment on the proposed methodology. Comments and suggestions about improvements to the methodology were made and additional background research was undertaken. As a result, the original methodology was significantly modified to present a more extensive testing program.

Organisation	Contact	Comments	Follow-Up
Warragil Cultural Services	Aaron Slater	Agrees with the test excavation methodology.	
Didge Ngunawal Clan	Lilly Carroll	Agrees with the test excavation methodology.	
Gandangara	Ruth Sheridan	Agreed with the test excavation methodology. Would like to be present during the test excavation program. Would like to speak to Extent Heritage about a site identified in the rural grasslands around Bringelly and Luddenham.	Extent reached out several times to have further discussions but have been unable to reach Ms Sheridan.
Wailwan Aboriginal Group	Philip Boney	Agrees with the test excavation methodology. Would like to be involved in the test excavation.	
Cubbitch Barta Native Title	Glena Chalker	<p>Believes the 30m interval between test trenches was too far apart and that the minimum should be 20m.</p> <p>Questioned why the western section of ACIF01 PAD was not being investigated and wanted to see the entire PAD tested unless it was not being impacted by the proposed development.</p> <p>Requested topographical information to be included in the methodology to understand the landscape.</p> <p>Suggested testing in an area to prove a lack of artefactual material presence in areas of low archaeological potential.</p> <p>Specified that all material should be wet sieved using a 3mm sieve rather than 5mm.</p>	Extent Heritage staff called Ms Chalker to discuss concerns and provide assurance that the updated methodology has addressed all issues. The spacing between trenches was reduced to 20m intervals, additional trenches were added in the area of ACIF01, clearer mapping was provided, an additional area (the Northern Transect) was added to investigate an area of low archaeological potential, clarification was made that wet sieving would be used, and that the sieving mesh will be 3mm.
Walbunja	Hika Te Kowhai	Mr Te Kowhai expressed concern that the remainder of the study area outside the identified areas of PAD are not being subject to test excavation. Mr Te Kowhai would like to see the maximum area of test excavation permissible by the Code of Practice (0.5%) of the investigation area.	Extent Heritage staff explained that the study area was subject to major historical disturbances and previous excavations by AECOM recovered no artefacts. It was also discussed that the purpose was to keep testing limited in order to minimise harm without an AHIP. Extent Heritage confirmed that the feedback was considered and that three additional areas to be tested

Organisation	Contact	Comments	Follow-Up
			were added to the program to further investigate the landscape.

The comments received focused around the placement of test pits. Extent Heritage amended the methodology to incorporate the feedback. During this period, Extent Heritage was also able to access new additional information regarding historical disturbance within the site. The revised methodology clarifies these disturbances.

3.7 Review of the ACHAR and preliminary test excavation results

Review of the ACHAR is ongoing for the broader Aerocore study area. The Aboriginal archaeological report (Appendix B) was sent to the RAPs for review and comment on the outcomes on 14 October 2021. Three comments were received, none of which had any issues with the process, outcomes or recommendations. They are summarised in Table 6.

Table 6 Summary of Aboriginal consultation

Individual	RAP affiliation	Date received	Comment
Rodney Gunther	Waawaar Awaa Aboriginal Corporation	4 November 2021	<p>Waawaar Awaa Aboriginal Corporation supports the attached report for the archaeological assessment for the First Building of the Bradfield City Centre for the following reasons:</p> <p>There are no registered Aboriginal objects and/or places located within or in close proximity of the First Building subject area.</p> <p>The subject area is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low potential to contain Aboriginal objects.</p> <p>No Aboriginal objects were recovered from the test excavation.</p>
Glenda Chalker	Cubbitch Barta Native Title Claimants	3 November 2021	<p>The results of the test excavation that has been carried out in that area on the 5th and 6th October, 2021 have demonstrated that there is no further archaeological work required within this proposed area.</p> <p>The excavations within the greater area are continuing to be carried out as I write this response.</p> <p>I have no further recommendations for this proposed project, that could impact on this project from not proceeding as planned.</p>



As the consultation for the broader Aerocore project is ongoing, prior to finalisation, the RAPs will be provided a draft copy of the updated ATER and this report to provide comment in accordance with Section 4.4. of the Consultation Requirements.

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4. Landscape Context

4.1 Geology and topography

The study area is located on the Cumberland Plain, an extensive low-lying sub-region within the wider Sydney Basin bioregion (DAWE n.d.). The surface geology underlying the study area is largely characterised by sandstone, siltstone and shale rocks of the Wianamatta Group (Geoscience Australia and Australian Stratigraphy Commission [GAASC] 2017). With a maximum thickness of 300 m, the Wianamatta Group was deposited during the Triassic period (c. 251.9–201.3 Mya) and includes three major geological units: Ashfield Shale (consisting of laminate and dark grey siltstones), Bringelly Shale (consisting of shale with occasional calcareous claystone, laminate and infrequent coal) and Minchinbury Sandstone (consisting of fine to medium-grained quartz lithic sandstone) (GAASC 2017; Office of Environment and Heritage [OEH] 2019). Over the course of the Holocene epoch (c. 11,650 cal. BP–present), channel and floodplain alluvium comprising of gravel, sand, silt and clay has also been deposited along the bank of Thompsons Creek, located along the eastern and western boundary of the study area (GAASC 2017). Arising from this geological background within the study area are two distinctive natural soil landscapes (OEH 2019): South Creek and Blacktown (Figure 3).

The South Creek soil landscape is located along the channels and floodplains of Badgerys, Cosgroves, Kemps, South and Thompsons creeks, as well as that of a minor unnamed watercourse at the northern boundary of the study area (OEH 2019). This landscape comprises flat to gently sloping floodplains and valley flats, drainage depressions and incised channels, with occasional terraces or levees providing low, local reliefs (Figure 2). Its soil generally consists of shallow to deep sediment layers with an A horizon topsoil of brown loam over a B horizon of brown clay. The South Creek soil landscape is an active floodplain that is presently reworked by fluvial processes, resulting in streambank and gully erosion during periods of concentrated flows.

The Blacktown soil landscape is located on higher elevations adjacent to the South Creek soil landscape and characterises most of the study area (OEH 2019). This landscape consists of gently undulating rises with broad crests and ridges that are rounded with convex upper slopes grading into concave lower slopes. Its soil generally consists of shallow to deep layered sediments with an A horizon topsoil of brownish black loam or clay loam over a B horizon subsoil of brown or grey mottled clay. In contrast to the South Creek soil landscape, the erosion hazard for the Blacktown soil landscape is generally slight to moderate which can increase to moderate or high during periods of concentrated flows.

4.2 Hydrology

The Hawkesbury-Nepean catchment consists of 30 sub-catchments, and the study area lies within the South Creek sub-catchment (HNCMA 2007a, 19; HNCMA 2007b, 7-102). The South Creek sub-catchment is presently the most degraded sub-catchment due to the dramatic alteration of hydrological and sediment regimes from historical vegetation clearance and increasing urbanisation (HNCMA 2007b, 69). Increasing impervious surfaces in the catchment

are causing changes to the hydrology of the sub-catchment which has, in turn, greatly altered the geomorphology and ecology of its watercourses (HNCMA 2007b, 69).

Thompsons Creek, a fourth order creek, runs along the southern and eastern boundary of the study area, and five ephemeral tributaries of Thompson Creek run east-west across the study area. Thompsons Creek is a branch of the Wianamatta-South Creek precinct, which is largely defined by the courses of both the South and Kemps Creek. These run almost parallel to each other on a broadly north-south axis, with two smaller 'arms' of the precinct following the course of Badgerys and Thompsons Creek.

Moore Gully, a third order waterway, runs west to east in the southern portion of the site. It joins Thompsons Creek just outside the study area boundary. An associated swampy, waterlogged area sits in the low-lying land along Moore Gully.

The non-perennial waterway has been affected by modern agricultural activities including ploughing and the construction of dams along its route. The 1947, 1965, and 1986 aerials of the site show the waterway clearly, with a pool toward its western extent (Figure 7-Figure 10). This catchment was artificially modified to form a clearer dam feature after this point, as is clearly visible by the marking seen in the present aerials of the site.

4.3 Past vegetation

The native vegetation in the study area and the rest of the Cumberland Plain has been extensively cleared since British colonisation. As the Blacktown soil landscape covers most of the land within the study area, the vegetation landscape of the study area is largely characterised by almost completely cleared open-forest and open woodland (dry sclerophyll forest), with individual trees or small stands of Mugga Ironbark (*Eucalyptus sideroxylon*) found occasionally on crests (OEH 2019).

Vegetation on the channels and floodplains of the South Creek soil landscape reflects its frequent inundation (OEH 2019). Common tree species present in this soil landscape include the Broad-Leaved Apple (*Angophora subvelutina*), Cabbage Gum (*Eucalyptus amplifolia*), and Swamp Oak (*Casuarina glauca*), while tall shrublands of paperbarks and tea trees may occur on more elevated streambanks. Exotic species such as the Blackberry (*Rubus vulgaris*) and other weeds are also observed to dominate areas where significant land clearance have occurred.

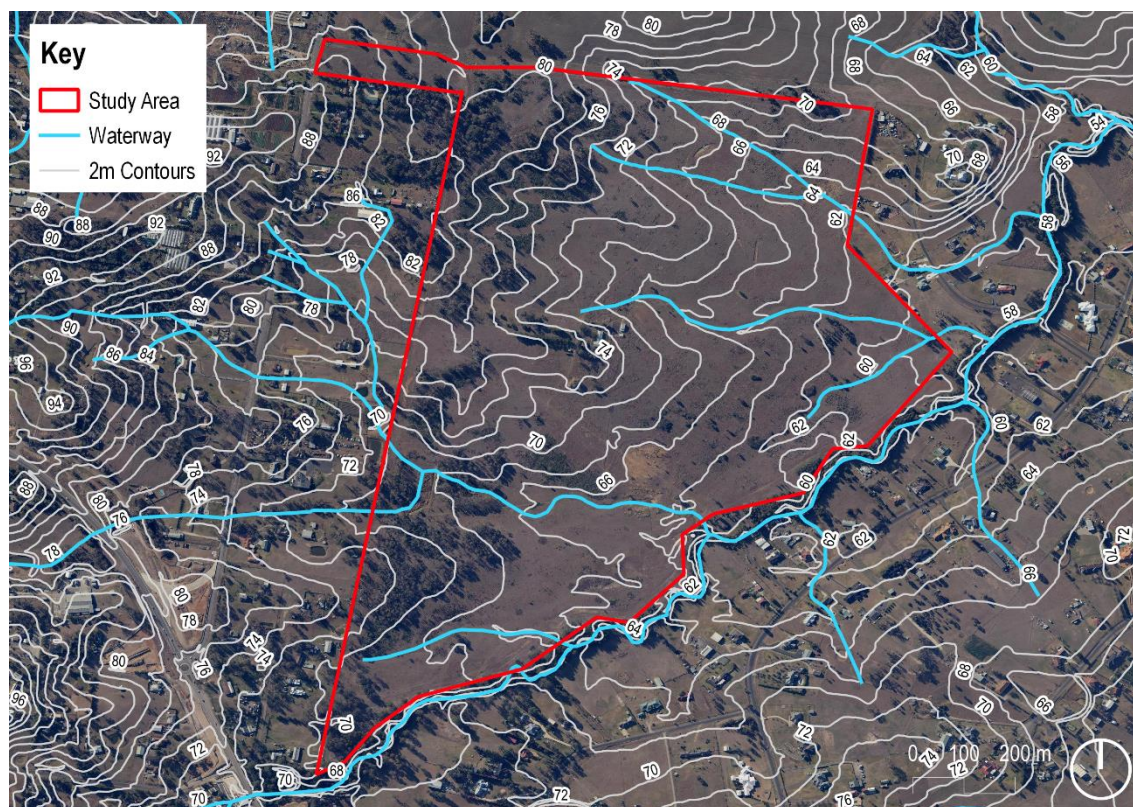


Figure 2. Contours (2m) of the landscape (source: NSW Planning and Environment)

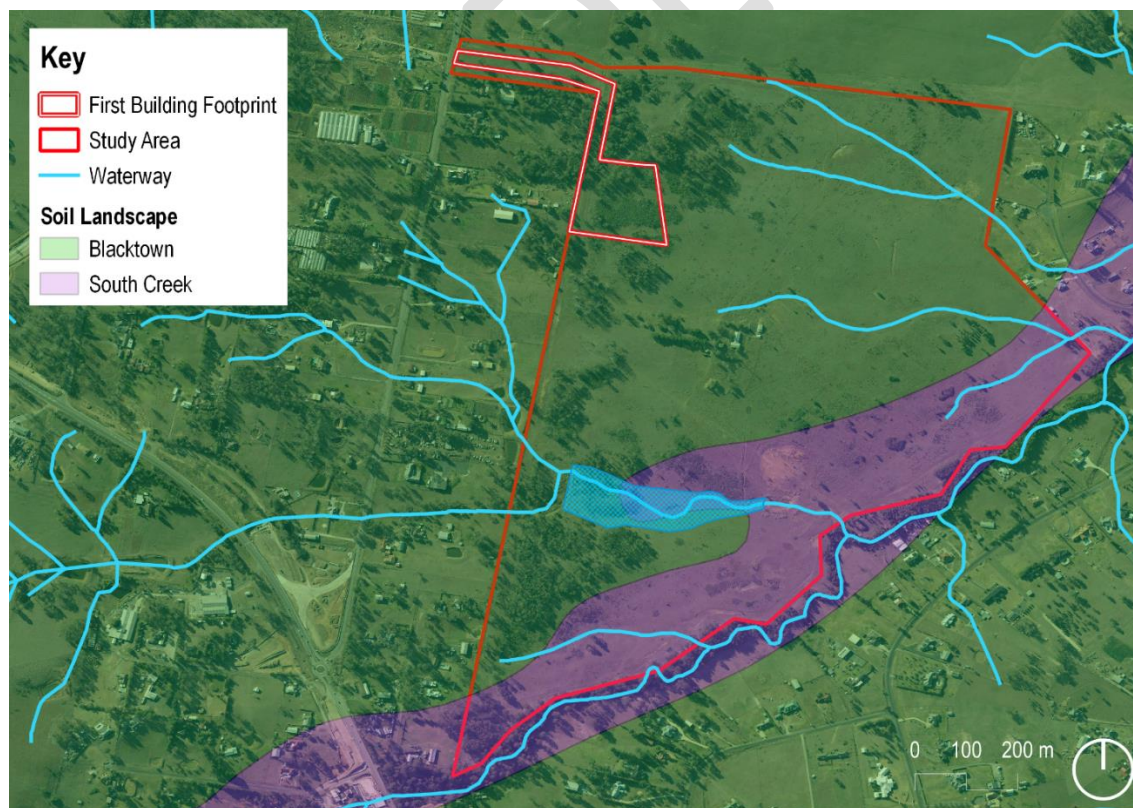


Figure 3. Soil landscapes within the study area, showing the First Building subject area (source: NSW Planning and Environment with Extent Heritage additions 2021).

5. Research Background

5.1 Aboriginal histories

5.1.1 Pre-contact Aboriginal history in the Sydney region

Aboriginal people have lived in the area known as NSW for at least 45,000 years (NPWS 2003, 14). To date, more than thirty-eight Aboriginal language groups (previously referred to as 'tribes') have been identified within NSW (NPWS 2003, 14). Examples of these broader cultural-linguistic groups in NSW include the Darug (alternative spellings include 'Dharug,' 'Dharuk' and 'Dharook'), Darkinjung, Gandangara (also spelled as 'Gundungarra'), Tharawal (also referred to as 'Dharawal'), Kuringai and Awabakal (Attenbrow 2010, 23, 32). Since the 1970s, archaeologists and anthropologists working in the Sydney region have largely adopted the nomenclature for cultural-linguistic groups compiled by Capell (1970) and amended by Eades (1976) (Attenbrow 2010). On the basis of this research, the study area is considered to have been occupied by Darug-speaking clans.

The Darug people are generally thought to have lived in clan-based bands of around fifty members each. Each clan retained its own hunting district and moved through Country seasonally (Murray and White 1988). The inland clans, in particular, are also thought to have moved more often according to the season, with summer attracting large numbers of clans to the land around the Nepean and Hawkesbury Rivers, and winter dispersing these clans over the plain and into the mountains (Kohen and Lampert 1987, 357).

Typical dwellings were two-sided bark tents (known as 'gunyahs' throughout NSW), while sandstone rock shelters were used in harsh weather if they were available (NPWS 2003, 189). In the map of NSW drawn by William Dawes in March 1791, some 'native hunting huts' were observed to be present on an area of 'tolerably good country' somewhere in Camden near present-day Catherine Field. Collins (1798) described how shelters were made of pieces of bark laid together over a framework of timber to form a low-lying, hut-like shelter that was large enough to hold eight people. According to Tench each hut was:

'... nothing more than a large piece of bark, bent in the middle and open at both ends, exactly resembling two cards set up to form an acute angle.' (Tench 1996, 112)

In addition to providing bark for dwellings, trees were an important source of bark and timber for a range of material culture including tools, weapons and vessels. Canoes were also used for accessing the major waterways of the Cumberland Plain for hunting and fishing activities. Tench (1996, 112) observed that the canoes used by the inland clans 'differed in no wise from those found on the seacoast'.

The typical Aboriginal tool kit on the Cumberland Plain was observed to comprise stone flakes, ground stone axes, hatchets, spears, clubs and bowls (Tench 1961). Stone tool technology on the Cumberland Plain appears to be dominated by the edge-ground hatchet made of Basalt pebbles recovered from the bed of the Nepean, ground on sandstone outcrops and hafted to a wooden handle with grass-tree resin or native beeswax (Kohen and Lampert 1987, 358). These

hatchets were used to cut footholds in trees for climbing hunters, and to enlarge the base of a hollow tree so that fires could be lit to drive possums from their nests (Kohen and Lampert 1987, 358). Unlike the spears used by the coastal clans, however, the inland clans barbed their spears with stone instead of shell (Kohen and Lampert 1987, 356-357). Flaked chert from gravels at the Nepean River were also hafted on the end of spear throwers to be used as chisels (Kohen and Lampert 1987, 360). 'Red' and 'yellow' silcretes along South and Eastern Creeks, in particular, were used as the material for both barbs and chisels by the inland clans (Kohen and Lampert 1987, 360).

A range of animals were a critical source of food and materials. Skin cloaks were made using possum and kangaroo fur (Kohen and Lampert 1987, 357). Darug men were generally responsible for hunting possums, fish, birds and kangaroo, and often collaborated with other bands to hunt and eat the larger animals. The Darug were also known to have set traps and snares for quail and possums as well as dug pit traps for other small mammals (Kohen and Lampert 1987, 358). Fish traps were also built along rivers and creeks so that mullet and bass could be speared easily with a multipronged fishing spear similar to that used on the coast (Kohen and Lampert 1987, 358). Other animals that were hunted by the Darug included the platypus, bats, yabbies, freshwater mussels, tortoises and various water birds (Kohen and Lampert 1987, 358).

Nonetheless, the staple diet of the Darug clans consisted largely of yams gathered by the women and children with digging sticks, as well as roots, fruits and other small game (Kohen and Lampert 1987, 357-358; NPWS 2003, 189). The wild yam was so significant to the Darug that they adopted it as a name for themselves (Attenbrow 2002, 31; Pascoe 2014, 26). The banks along the Nepean River were often submerged by floodwaters which produced a rich soil that allowed these yams to grow in abundance (Kohen and Lampert 1987, 357-358). Another plant food, the 'burrawang' (*Macrozamia communis*) and a smaller species of macrozamia were also gathered by the Darug (Kohen and Lampert 1987, 357).

Fire was also an important part of managing Country and was central to Darug food procurement strategies. Fire was used to reduce undergrowth and to catch game (NPWS 2003, 189); an expedition mounted by George Caley (1801, 47) recorded their encounters with Aboriginal huts, walking tracks and the effects of burning the local environment between Prospect, South Creek and Cowpastures, observing that fires had left the area like an 'English Park... with large trees separated by a grassy understorey' (Keating 1996). The use of fire in this way helped to manage Country, but also encouraged growth and game.

5.1.2 British colonisation

Life changed irreversibly for the Darug after the invasion of their lands following the arrival of the First Fleet in 1788. Theft of Country, dispossession, alienation from resources, disease and violence became a reality of life for Aboriginal people in the Sydney Region, shaping this next chapter of history profoundly.

The Aboriginal people of the broader Sydney basin who survived the disease and violence wrought by colonisation were increasingly forced to live on the fringes of colonial society. With access to resources limited, they also became necessarily dependent on the state (see NSW

Legislative Council 1845), and thus subjected to increasing levels of government control. Government allocations of blankets and slop clothing, and the bartering of fish and game for sugar, flour and alcohol also reflect the changes that occurred in Aboriginal economies, lifeways at this time.

Many of the sources that shed light on this period reveal only the voice of colonisers, but some allow us to also see and hear the perspectives of the Aboriginal people. In the words of Mahroot, an Aboriginal man identified by contemporaneous Europeans to be the last of his tribe in the Botany Bay area (that was originally four hundred-strong) sometime in 1845,

'Well mither [sic]... all black-fella gone! All this my country! Pretty place Botany! Little Pickaninny, I run about here. Plenty black-fellow then; corrobory; great fight; all canoe about. Only me left now, Mitter – Poor gin mine tumble down. All gone! Bury her like a lady, Mitter -; all put in coffin, English fashion. I feel lump in throat when I talk about her but – I buried her all very genteel, Mitter' (Troy 1990, 132-133).

5.1.3 Aboriginal resistance

Notwithstanding the devastation caused in this period, it is critical to note that while many of their kin had either perished or been forced away from their traditional lands, there are records of Aboriginal people who remained on Country throughout the nineteenth century. Campaigns of resistance were central to this survival and records of them across the broader Western Sydney region illustrate Aboriginal people's experiences of this period.

Two years after the arrival of the First Fleet, the Aboriginal warrior Pemulwuy (or 'Bembilwuyam', c. 1750–1802) was forced to resist British incursions on the lands of his people (NMA 2020). Pemulwuy began participating in several raids across the Sydney region from 1792 onwards. The first raid was conducted at Prospect (c. 20km from the study area) in May 1792 (NMA 2020).

Pemulwuy continued his campaign of resistance until 1802, when he was killed in an ambush (Kass et al. 1996, 49). Upon his death, Pemulwuy's head was documented to have been subsequently cut off and sent to Sir Joseph Banks in England for his collection in 1802 (NMA 2020). Thereafter, Pemulwuy's son, Tedbury, continued his father's campaign in the Sydney and Parramatta districts. Tedbury was captured in 1805 but freed later that year. Active Aboriginal resistance in Parramatta largely came to an end following Tedbury's death in 1810 (Kass et al. 1996).

The rapid expansion of British settlement in the Cumberland Plains from the early nineteenth century, led to increasing violence between colonists and Aboriginal people in the region. Between 1814 and 1816, tensions rose dramatically as a result of drought and the increasing numbers of Europeans moving to the area. This encroachment restricted Aboriginal people's access to Country and resources. The violence escalated during this period, culminating on 17 April 1816 in what is referred to as the Appin Massacre (35 km south of the study area). These events of conflict did not occur within the study area. However, considering the broader context of this period is critical to understanding important historical narratives and the experiences of Aboriginal people in the region.

Records attest to frequent conflicts and retaliations close to the study area. On May 1814, the *Sydney Gazette* reported several attacks on a property owned by George Cox at Mulgoa (c. 5 km northwest of the Northern Gateway precinct) by an unknown Aboriginal group (DPC n.d.a; *Sydney Gazette* 1814a). Following the clash on the Cox property, the *Sydney Gazette* reported that ‘nearly 400’ ‘mountain natives’ attacked the Shancomore property owned by J.T. Campbell (c. 6 km southwest of the study area) whereupon,

‘... the overseer was speared through the shoulder, several pigs were killed, one of which, a very large one, was taken away, together with a quantity of corn, and other provisions; the overseer’s wearing apparel, and cooling utensils’ (*Sydney Gazette* 1814a).

With each raid, European farmers became increasingly scared that their properties would be attacked. This heightened state of fear meant they began to guard their farms more aggressively. Moreover, as Europeans were often unable to distinguish between groups, they frequently blamed the wrong Aboriginal people and clans for attacks. As a result, retaliatory attacks often targeted innocent individuals.

The following month, the *Sydney Gazette* reported ‘another unhappy instance of the dreadful effects of a warfare with the natives of the interior’, whereby two children on the Daly property (c. 4 km west of the study area) were killed by another raid by an unidentified Aboriginal group from the Blue Mountains to the west (*Sydney Gazette* 1814b). A year later, another unidentified ‘body of natives between 30 and 40’ attacked the overseer of Westwood property owned by H. MacArthur (also c. 6 km southwest of the study area), and his wife and thereafter, ‘plundered the hut of five or six bushels of wheat, a steel mill, a sieve, musket and other property,’ after stealing a blanket from one of the stockmen on the property a few days earlier (*Sydney Gazette* 1815).

In 1816, another Aboriginal uprising was reported to have occurred in the Bringelly district where around 20–30 Aboriginal people ‘plundered’ the servant dwellings on the Pemberton property owned by G. T. Palmer (c. 4 km west of the study area) (*Sydney Gazette* 1816; RPS Manidis Roberts 2015, 20). The following day, a party of seven European men crossed the Nepean River in the hope of recovering the stolen property from the raid but were promptly ‘perceived and immediately encircled by a large body of natives’, resulting in a clash where four Europeans were killed, one was wounded and two escaped (*Sydney Gazette* 1816).

Some members of this unidentified Aboriginal group pursued the survivors of this party across the river and into the property of S. Fowler (adjacent to Pemberton farm to its south) ‘up to the farm residence’ (*Sydney Gazette* 1816). The next day, a group of 60 Aboriginal people attacked the Fowler property and plundered the residence, carrying away a ‘great quantity’ of standing corn and ‘all provisions whatever’ (*Sydney Gazette* 1816).

Conflict south of the study area, towards the Campbelltown area, was particularly devastating. Twice, in 1814 and 1816, Governor Macquarie ordered British men to take up arms and apprehend perceived trouble making Aboriginal men. The men who were captured were sent to Parramatta and Windsor Gaol (Liston 1988, 51). Eighteen captured children were also sent to the Native Institute at Parramatta. The military was also told to shoot anyone who resisted. When a stockman who worked for the Macarthur family at their property near Menangle led

soldiers to a group of Dharawal people, the Aboriginal people fled. In response, the soldiers opened fire, killing an unknown number and capturing a fourteen-year-old boy (Liston 1988, 52).

These records refer to just some instances of the violence brought about by British colonisation, and they highlight the important resistance that Darug people mounted throughout the period.

5.1.4 Survival and continuing connection

By 1821, all of the land within the study area had become the subject of government land grants, with most of the area falling within a 6,710-acre grant made to John Blaxland in 1813 (Robinson 1953). To maintain their connection to Country, the Darug needed to find opportunities within the new economy. According to colonial observer Peter Cunningham, by 1827 groups of Aboriginal people on the Cumberland Plain were already beginning to live and work among the British, assisting on farms and with the harvest (Cunningham 1827, 25).

Historical sources also record traditional Aboriginal practices continuing throughout the first half of the nineteenth century, with various corroborees documented to have occurred on the property owned by John Macarthur (Liston 1988) and the Denbigh homestead in Camden (Hassell 1902; Kohen 1985). A corroboree that occurred at the Denbigh homestead in the mid-1820s, in particular, was recorded to have involved over 400 individuals (Hassell 1902).

After the upheaval caused by colonisation, there was a necessary degree of social restructuring, as groups came together to form new ones, which are recorded in historical sources left by observers. Of particular relevance to the study area was the 'South Creek' tribe, documented by William Walker in 1821 (Kohen 1993, 19). Another Aboriginal group was also documented in the 1828 Census at Mulgoa and other places near the present study area. The 'South Creek' tribe was recorded again in the 'Return of Natives' taken between 1832 and 1843 to provided information on names, numbers, 'tribes' and location of various Aboriginal groups in the wider Sydney region (Kohen 1993, 19). According to Backhouse (1843), the South Creek people lived on a property named 'Mamre' in Orchard Hills (c. 10km north of the study area) in 1835. Owned by Reverend Samuel Marsden and his son, Charles Marsden, Mamre farm was established as a site for early sheep breeding experiments, specifically in the importing and breeding of Merino sheep in Australia (DPC n.d.b; n.d.c). Backhouse (1843) observed that the South Creek people often stayed at the junction of South and Eastern Creeks on the property, and that they 'often assist in the agricultural operations of the settlers' (Keating 1996; Martin 1988, 80).

Oral history records also indicate that there were Aboriginal people living on the property of James Badgery named 'Exeter Farm' between Badgerys and South Creeks (AHIMS #45-5-215, 27 January 1978; Commonwealth 2016, 410; Hardy 1989, 19). Within the collective memories of his descendants and that of other farming families associated with this district, there appears to be a long-standing tradition of Aboriginal interactions with the site of Exeter Farm- not far from the present study area.

It is important to note that these connections to the region were maintained throughout the nineteenth century and to the present. Contemporary Aboriginal people in the district who claim descent from these ancestors continue to have an association with Badgerys Creek (pers. comm. Ms Sharyn Halls, 24 April 2015; Commonwealth 2016, 410). Accounts discuss contributions to agriculture and other industries, and oral histories recall rabbiting expeditions

as late as the 1960s (letter from Colin Gale (DTAC) to Kerry Navin, 17 February 1997; Commonwealth 2016, 410). Today's Aboriginal community in the region includes Darug descendants, as well as a range of groups who have memories and histories connected to the area.

5.2 Regional archaeological context

The archaeological record on the Cumberland Plain is well documented by many academic studies, regional management studies and compliance-based cultural heritage assessments over the past 30 years. More than 7,000 sites have been recorded and registered on the Aboriginal Heritage Information Management System (AHIMS) database on the Cumberland Plain, reflecting both the wealth of the archaeological record and the number of archaeological investigations undertaken in this region. Consequently, the Cumberland Plain is the most intensively investigated archaeological landscape in Australia.

The most common site types (see Appendix D.1) in the greater Sydney region are artefact scatters and isolated finds (Attenbrow 2010). The next most common site types are Potential Archaeological Deposits (PADs), rock shelters, middens, art sites, grinding grooves and culturally modified trees. The landscape of the study area strongly restricts the types of sites that are likely to be found, and it is unlikely that further research will discover any currently unknown rock shelters, art sites (engraved or carved) or middens. Instead, it is likely that further archaeological investigations within the study area will reveal the location of additional artefact scatters, PADs, culturally modified trees and possibly additional grinding grooves.

The distribution, density and size of sites largely depends on their environmental contexts. For example, middens are typically found near marine, estuarine and sometimes freshwater bodies. On the other hand, rock shelters are only found in areas of exposed sandstone escarpment, whereas grinding grooves are in areas of exposed flat bedded sandstone near water sources.

5.2.1 Early Aboriginal occupation and the Last Glacial Maximum (c. 30,000–18,000 BP)

Aboriginal occupation of NSW spans at least 45,000 years (Stockton and Holland 1974; Nanson et al. 1987; JMCHM 2005b, 107-125), although older dates have been claimed for artefacts and human remains found within the barrier sands of Lake Mungo in the Willandra Lakes Region (Bowler et al. 2003; Shawcross 1998). Within the Cumberland Plain, Aboriginal occupation dates back into the Pleistocene period (c. 2.58 million years ago to 11,700 years before present [BP]) as well. This evidence comes from radiocarbon dating of charcoal retrieved from excavated sites at Cranebrook Terrace, Penrith (41,700 years BP [ANU-4016]), Shaw's Creek K2 (14,700 BP [Beta 12423]) and RTA-G1, Parramatta (30,735 BP [Wk-17435]).

The climate gradually became warmer and wetter while sea levels rose at the end of the Last Glacial Maximum (LGM) and Last Glacial Period (LGP) around 15,000 BP (Severinghaus and Brook 1999) which marks the transition from the Pleistocene to Holocene epoch. From this period onwards, there is a more continuous archaeological record for the Sydney region (Attenbrow 2010, 153). A number of early occupation sites dating to the late Pleistocene/early Holocene have been found in deep stratified rock shelter deposits and within alluvial deposits,

particularly on the margins of large rivers such as the Hawkesbury-Nepean and Parramatta Rivers (McDonald 2008, 39-40).

5.2.2 Intensification during the Holocene (c. 12,000 BP–Present)

The archaeological record indicates that significant and widespread changes occurred among Aboriginal cultures during the Holocene (Hiscock 2008). During this period, there appears to have been a decline in the use of silicified tuff as the preferred raw material and a greater use of other local materials. There also appears to have been a substantial growth, then decline, in the production and use of backed artefacts, as well as the introduction of ground-edged implements (with the peak period being approximately 4,000-1,000 BP). In addition, there appears to have been a considerable increase in archaeological evidence of human occupation as well (e.g., McDonald 2008, 36).

It is also likely that the technological changes and possible population increase were accompanied by broad social changes. Hiscock and Attenbrow (2005) have suggested that changing climate conditions after c. 3,000 BP stimulated a change in foraging practice that may have incorporated a shift towards higher mobility. On the other hand, McDonald (2008, 40) suggests that by about 4,000 BP, people occupied smaller territories and used residential bases on a more permanent basis, as well as defined foraging ranges using annual and extended cycles.

5.3 AHIMS search results

The AHIMS database is presently managed by Heritage NSW – DPC and includes spatial and compositional information of Aboriginal sites (i.e., objects, places and declared Aboriginal Places) previously recorded through academic and compliance-based cultural resource management projects associated with modern various developments.

To cover the full extent of the study area, two extensive searches of the AHIMS database were undertaken on 16 June 2020. Land surrounding the study area was included within the search parameters to gain information on the regional archaeological context and inform predictive statements regarding the archaeological potential of the study area. AHIMS search area 1 included an area of land at datum GDA, zone 56, eastings 284800 – 298050, northings 6243390 – 6246890 with a buffer of 0 meters. AHIMS search area 2 included an area of land at datum GDA, zone 56, eastings 284800 – 298050, northings 6241150 – 6243400 with a buffer of 0 meters.

The AHIMS search results identified 191 registered sites. There are 20 standard AHIMS site features and a site can include more than one feature. The frequency of AHIMS site features is included in Table 7 below.

Table 7: Summary of AHIMS features.

Site Feature	Number	Percentage
Artefact	158	82.72%
Grinding Groove	1	0.52%

Site Feature	Number	Percentage
Art (Pigment or Engraved)	3	1.57%
Potential Archaeological Deposit (PAD)	11	5.76%
Artefact, Potential Archaeological Deposit (PAD)	12	6.28%
Modified Tree (Carved or Scarred)	6	3.14%
Total	191	100.00%

A large number of sites were identified across the landscape and concentrated within areas where relatively low amount of land disturbances has occurred (Figure 4). The wide distribution of artefact sites across various terrains in the landscape is indicative of their nature as part of the wider 'background scatter' of artefacts across the landscape within the Aboriginal archaeological record.

Culturally modified trees have been identified within areas where remnant vegetation remains extant (e.g., along creek lines and away from urban areas). Grinding groove sites have been identified close to creek lines due to the need for water in the grinding process.

There a total of eight AHIMS registered sites located within the study area (Figure 5):

- B17 (AHIMS ID 45-5-2779)
- B 18 (AHIMS ID 45-5-2620)
- B 19 (AHIMS ID 45-5-2621)
- B 20 (AHIMS ID 45-5-2622)
- B 21 (AHIMS ID 45-5-2639)
- B 22 (AHIMS ID 45-5-2640)
- B 23 (AHIMS ID 45-5-2641)
- B 38 (AHIMS ID 45-5-2628)

B17 (AHIMS ID 45-5-2779)

The site was recorded in 1996 as an open artefact scatter, measuring 50 m x 15 m. The site was located across a spur line, extending down to the upper slope. The was comprised of two complete flakes of silcrete and two flaked pieces of quartz and silcrete. B 17 was identified within an exposure associated with a vehicle track and animal digging. As a result, the site was assessed as being in poor condition.

B 18 (AHIMS ID 45-5-2620)

The site was recorded in 1996 as an isolated artefact. Limited information was included on the site and associated record. As a result, the landform context, extent and nature of the site is unknown.

B 19 (AHIMS ID 45-5-2621)

The site was recorded in 1996 as an open camp site. Limited information was included on the site and associated record. As a result, the landform context, extent and nature of the site is unknown.

B 20 (AHIMS ID 45-5-2622)

The site was recorded in 1996 as an open camp site. Limited information was included on the site and associated record. As a result, the landform context, extent and nature of the site is unknown.

B 21 (AHIMS ID 45-5-2639)

The site was recorded in 1996 as an open artefact scatter, measuring 50 m x 15 m. The site was located on a valley floor, associated with a vehicle track and animal digging. The assemblage was predominantly comprised of silcrete (n=7) with lesser numbers of quartzite (n=2), quartz (n=1), and mudstone (n=1). Artefact types were predominantly complete flakes (n=9) with lesser numbers of flaked pieces (n=2). One of the complete flakes was found to be a product of bi-polar flaking. It was assessed by Navin Officer (1996) that the site was likely to contain additional sub-surface resources. Any additional artefacts in the area will be captured as part of the Thompsons Creek PAD (AHIMS ID 45-5-5491).

B 22 (AHIMS ID 45-5-2640)

The site was recorded in 1996 as an open artefact scatter. The site is comprised of three complete flakes, two of silcrete and one of mudstone. B 22 was located on a vehicle track on a mid-slope.

B 23 (AHIMS ID 45-5-2641)

The site was recorded in 1996 as an open artefact scatter, located on a valley side slope. The site assemblage was comprised of two complete flakes of silcrete, one bi-polar flake of silcrete and one flaked piece of quartz.

B 38 (AHIMS ID 45-5-2628)

The site was recorded in 1996 as an artefact site. Limited information was included on the site and associated record. As a result, the landform context, extent and nature of the site is unknown.

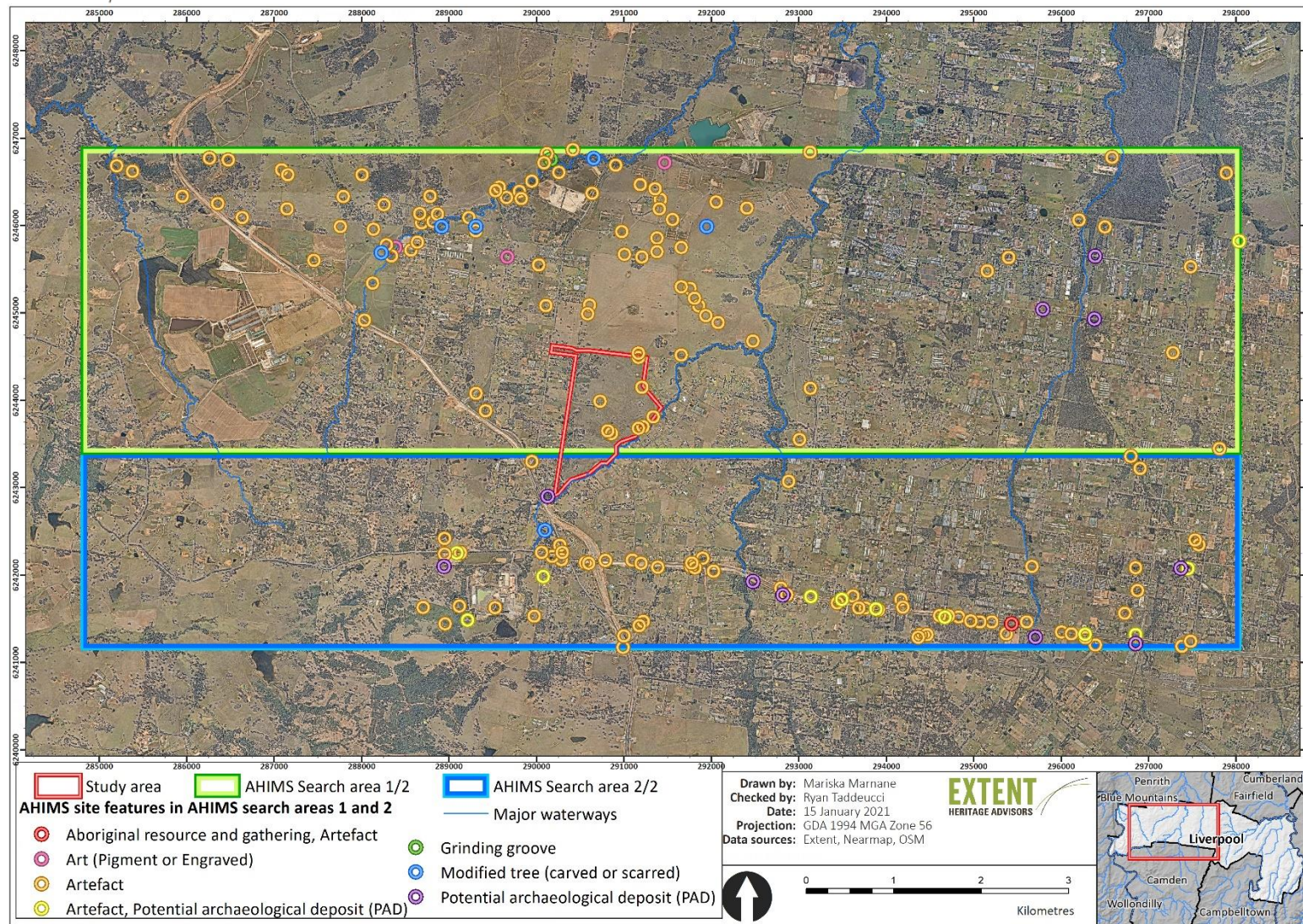


Figure 4: Results of extensive AHIMS search.

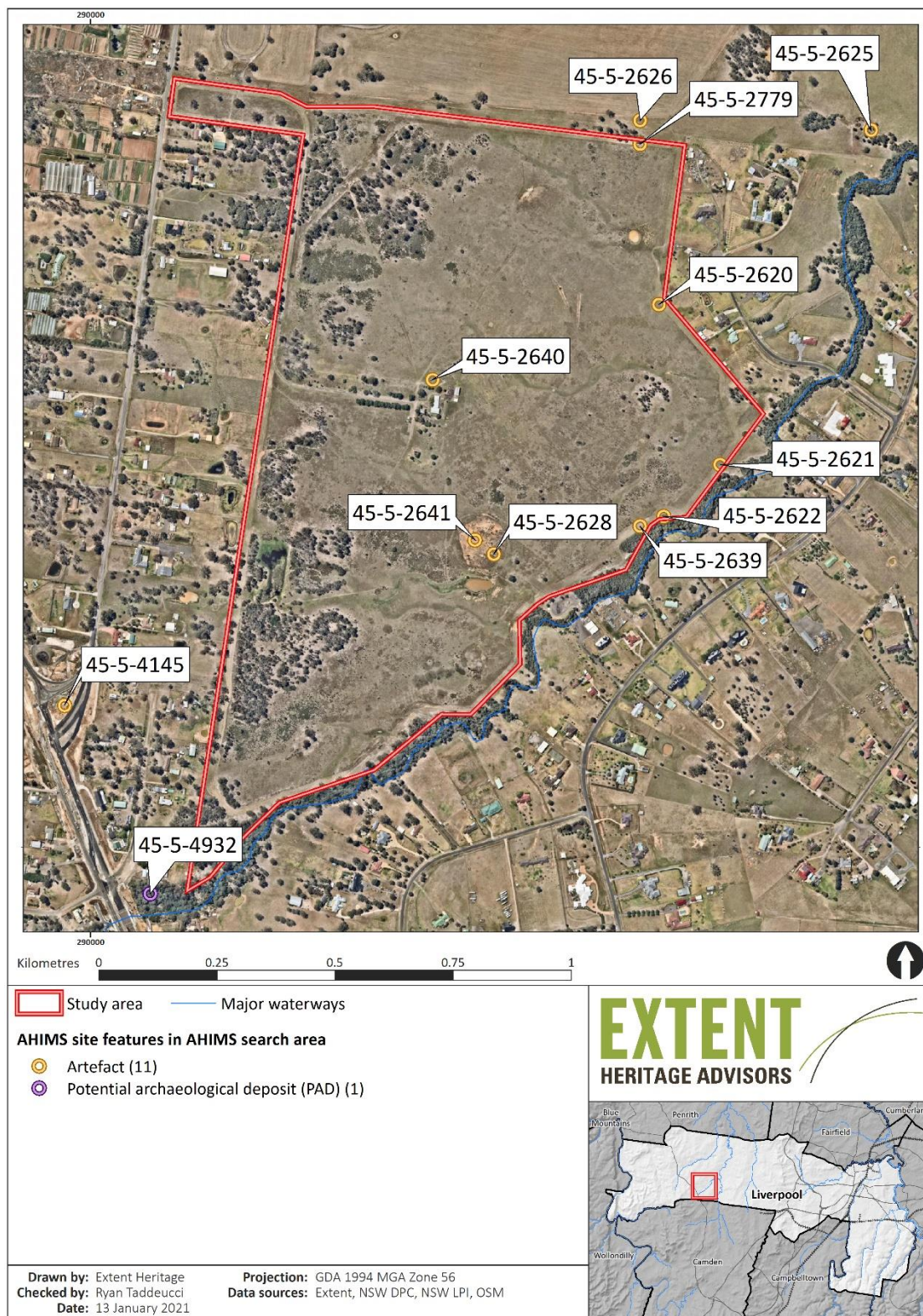


Figure 5. Location of AHIMS sites already registered within the study area.

5.4 Review of previous studies

The previously completed assessments (outlined below) have identified the presence of ‘open camp’ or ‘shelter’ and art sites, areas of rich natural resources for subsistence and raw material sources for stone tool manufacture. In general, the raw material utilized in the manufacture of stone tools appear to be predominantly silcrete, with lesser utilisation of chert, quartz, quartzite, sandstone, petrified wood and mudstone/tuff. Edge-ground artefacts and grinding grooves were found along South Creek as it passes near Badgerys Creek (Haglund 1978), while another edge-ground axe was recently recovered with other stone flakes during another survey at Mamre Road near Kemps Creek (Artefact 2019b). A fragment of a possible ‘microblade’ was also identified during a survey of a locality at Badgerys Creek by Kohen (1991, 14). Two ‘backed implements’ were also identified during another survey on a spur above South Creek near Ramsay Road (Brayshaw McDonald 1992, 9), whereas an indurated mudstone scraper was recovered during test excavations at the Twin Creeks Estate near South Creek (Dominic Steele 2007).

Liverpool Rural Lands Study. Aboriginal Archaeology: Prediction and Management (Brayshaw McDonald 1994)

As part of a wider rural lands study conducted by Liverpool Council, Brayshaw McDonald (1994) was commissioned by Don Fox Planning Pty Limited to determine and predict the state of the Aboriginal archaeological resource in the rural lands west of Liverpool. In doing so, Brayshaw McDonald (1994) determined that ‘an extensive distribution of archaeological traces of their [Aboriginal] occupation still exists there’ despite the significant attrition of these traces from historical land clearance and agricultural activities.

Brayshaw McDonald predicted that ‘there will be some potential for the deeper portions of these [archaeological deposits] to have escaped disturbance, especially in alluvial areas where archaeological deposits may be relatively deep.’ Conversely, archaeological deposits on hillslopes and ridges are likely to be relatively ‘more shallow’ and hence, the impact to deposits at these locations are ‘likely to be severe since the artefact-bearing layer there is more likely to be wholly within the plough zone’ (Brayshaw McDonald 1994). They concluded that alluvial terraces in rural Liverpool (i.e. the southern portion of the present study area) are likely to have the best potential for containing intact open sites.

Archaeological Investigations at Twin Creeks Estate (Dominic Steele 1999; 2001; 2004; 2007)

Dominic Steele (1999) undertook a series of archaeological investigations of an approximately 350 ha parcel of land situated between Luddenham and Mamre Roads at South Creek, Luddenham (i.e. the north-eastern portion of the present study area) in preparation of proposed plans for the Twin Creeks Estate recreational and residential development in the area.

Based on the distribution of these sites in this locality, Dominic Steele observed that sites along Cosgroves Creek and its surrounding flats appears to be ‘well dispersed along the watercourse and generally possess low artefact densities,’ and that it is ‘unlikely that archaeological deposits either substantial in extent, significant in composition or undisturbed in context will be encountered’ along this creek. Hence, Dominic Steele concluded that the confluence of various

creek lines at the South Creek locality 'represented an important focus of repeated Aboriginal use and occupation' due to 'the concentrations of archaeological material in this area.

Subsequent test excavations conducted in this locality did not recover any significant undisturbed archaeological remains as only low-density distributions of artefacts were recovered (Dominic Steele 2001; 2004). These results were interpreted to reflect 'casual Aboriginal use of the local landscape and associated loss or discard of flaked stone items, whilst occasional knapping may also have been undertaken in the past' (Dominic Steele 2001; 2004). This interpretation was confirmed by further test excavations conducted at a PAD (LEC 10/ TCE PAD 1) located within the estate (Zones F and G) in 2004 (Dominic Steele 2007).

Dominic Steele (2004) concluded that 'the principal focus of past Aboriginal visitation and use of the landscape' is 'sited at the confluence of South, Badgerys and Kemps Creeks' and the associated slopes that extend away from these watercourses (i.e., the north-eastern portion of the present study area). According to Dominic Steele (2004), this locality bears extensive evidence for Aboriginal silcrete extraction, utilisation (e.g., de-cortication and heat treatment), and flaked stone tool manufacture and maintenance.

South West Growth Centre. Preliminary Aboriginal and Historical Heritage – Gap Analysis (AHMS 2015a)

In 2015, AHMS (presently Extent Heritage) was commissioned to undertake an Aboriginal and Historic Heritage Gap Analysis of the South West Growth Centre (SWGC) as part of an update to the SWGC structure plan. In doing so, AHMS (2015, 39) concluded that the archaeological record of the SWGC (incorporating the western portions of the present study area) is dominated by surface and sub-surface artefactual material generally found within 200 m of the larger river systems in the region. In particular, the distribution of these sites is more variable in areas where creek lines are in their upper reaches and the geomorphology is more undulating. Furthermore, elevated areas up to 500m from major creek banks have been shown to bear archaeological materials as well.

In addition, the predictive modelling developed by AHMS concluded that there is high potential for Aboriginal objects/sites to occur along the banks of South, Kemps, Badgerys, Lowes, Thompson and Rileys Creeks. In particular, the areas to the north of South and Kemps creeks, along the northern stretches of Thompson Creek and at the confluence of South, Rileys and Lowes creeks are all considered by the model to have the highest potential for significant cultural material. This is because these areas have a higher frequency of elevations (e.g., hills, ridgelines, terraces, etc) and there has been 'a general absence of development' (AHMS 2015, 39).

Mamre Road Precinct Aboriginal Heritage Study (EMM 2020)

EMM Consulting (2020) was engaged to undertake an Aboriginal Heritage Study of the Mamre Road Precinct (i.e., the north-eastern portion of the present study area adjacent to Twins Creek Estate) as part of a broader masterplan to guide the industrial development in this locality.

Desktop and field survey investigation of this precinct by EMM demonstrated that the area is comparable with the wider cultural landscape of the Cumberland Plain. Significantly, all the sites

identified within the Mamre Road Precinct are observed to be mainly located on the edges of main creek systems and/or on a ridge line to its north. All of the sites are also characterised by isolated objects and/or low density artefact scatters (usually consisting of <10 artefacts), and excavations at some of these sites indicate that they are primarily found in shallow duplex and/or fabric contrast soil profiles (c. <30 cm deep), with rare examples extending to depths of 60-80cm.

EMM (2020) identified areas of archaeological potential in buffer zones along the banks of Kemps Creek (100 m buffer), South Creek (100 m buffer) and Ropes Creek (200 m buffer). Elevated areas within the buffer zones along these creeks (e.g., levees, terraces and ridgelines) were considered in the study to have a greater potential for significant cultural material to be present.

Sydney Metro – Western Sydney Airport (AECOM 2021)

AECOM (2021) completed an archaeological report for the Western Sydney Airport, which extends into the current study area. The assessment included an archaeological survey of a portion of the current study area in February 2020. An objective of the survey was to re-identify an artefact scatter, AHIMS ID 45-5-2640 (B 22), previously identified within the study area. During the survey, however, no artefacts were detected. AECOM noted that the artefacts were likely obscured by dense vegetation and that the site was still likely to be valid. No additional surface artefacts were identified during the survey, but the land surrounding AHIMS ID 45-5-2640 was assessed as demonstrating potential to contain subsurface artefacts.

A total of 26 test pits (measuring 500 mm x 500 mm) were excavated by AECOM in the centre of the study area, surrounding the main house complex (Figure 6). No Aboriginal objects were recovered from the test excavation program. As result, the land surrounding AHIMS ID 45-5-2640 was assessed by AECOM as demonstrating low archaeological potential.

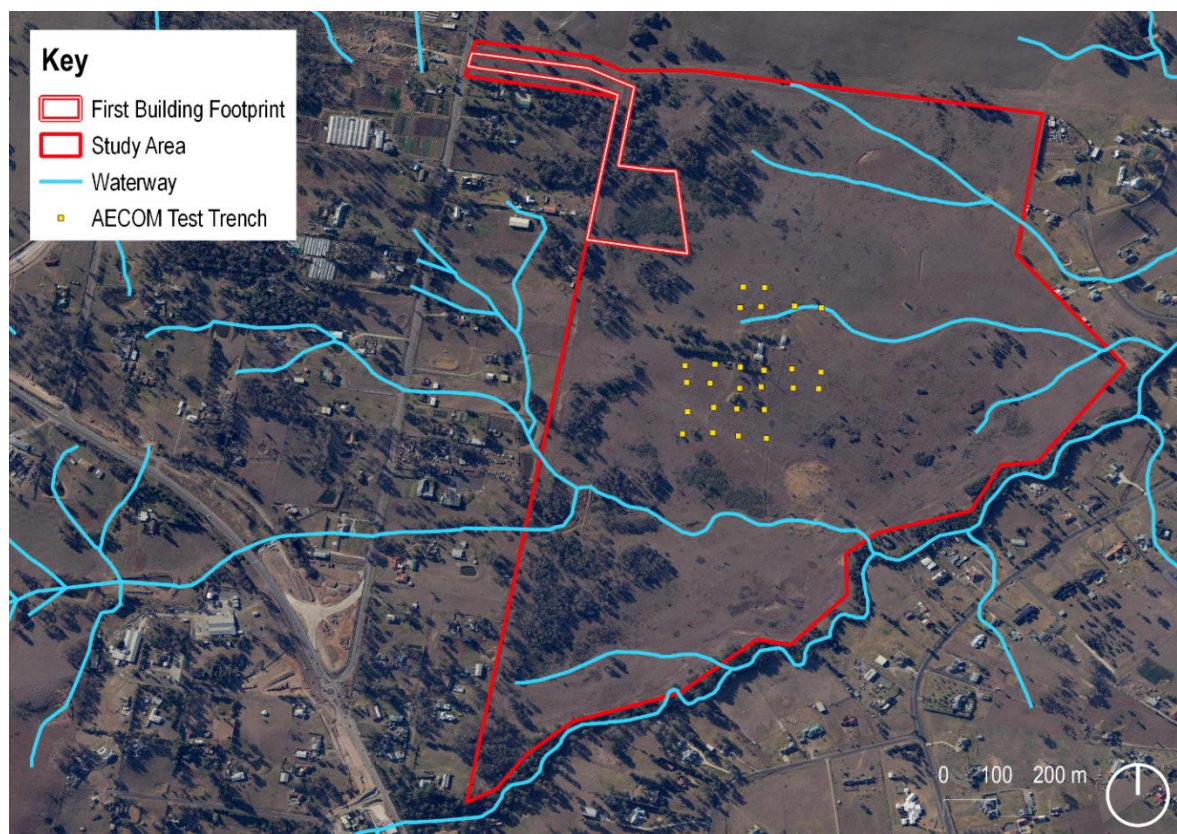


Figure 6 Location of study area where test excavations were undertaken by AECOM as part of the Sydney Metro – Western Sydney Airport project (source: AECOM 2021, figure 4-1d)

5.5 Historical land use and disturbance

Early land grants covering the study area were given to Thomas Laycock Junior, who was given a 600-acre lot known as Cottage Vale in 1818. The study area was utilised for agricultural activities undertaken by Laycock Junior and subsequent landowners including John Thomas Campbell and Alfred Kennerley. These activities most likely revolved around cattle breeding. For example, Campbell was a successful farmer and pastoralist who bred cattle and horses. The property was also leased by the Australian Agricultural Company from 1825, Australia's oldest agricultural and pastoral development company, established in 1824.

Across the twentieth century, the site remained in private hands and with limited developments. It continued to be utilised for agricultural pursuits, including heavy ploughing (Figure 7). Between 1952 and 1955, the Royal Australian Air Force (RAAF) Radio Receiving Station was constructed within the study area (Figure 8-Figure 9). The site, also known as RAAF Bringelly, remained in use until the late 1990s (Figure 10).

The RAAF station comprised several structures. A main receiving tower and receiving station buildings were constructed in the centre of the site. Staff houses were built along the entryway into the complex (Figure 11). Additional structures built included lampposts, water tank and water tower, an incinerator, rain garage, vehicle garages, and two antennas with buried radial lines located within octagonal paddocks. In addition, an array of concrete pads that anchored light aerals were set up across the entirety of the site (Figure 12). Each anchor possessed at

least three underground guy-wires. Several of the pads have been mapped but not all (Figure 13). Finally, several roads and tracks through the study area, seen in the 1965, 1986 and present aerals (Figure 7-Figure 10).



Figure 7 1947 aerial of the study area (source: Neapmaps with Extent Heritage additions 2021).



Figure 8 1965 aerial of the study area (source: Nearmaps with Extent Heritage additions 2021).

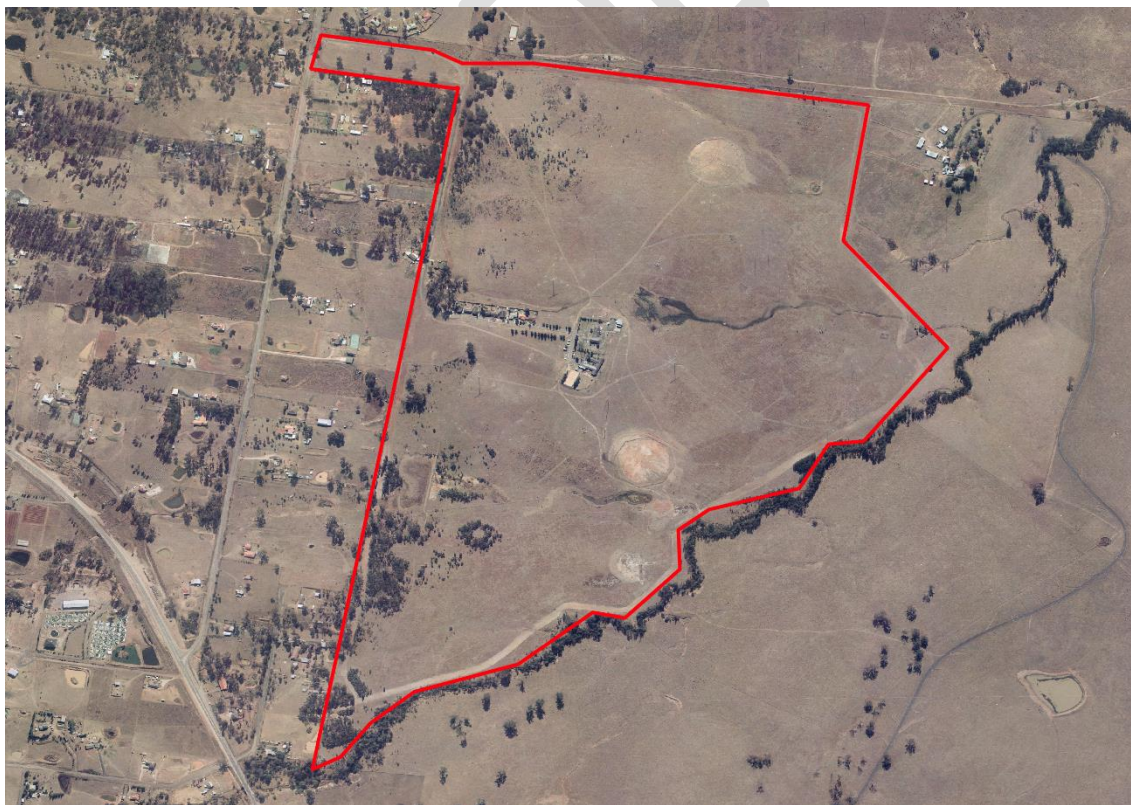


Figure 9 1986 aerial of the study area (source: Neapmaps with Extent Heritage additions 2021).

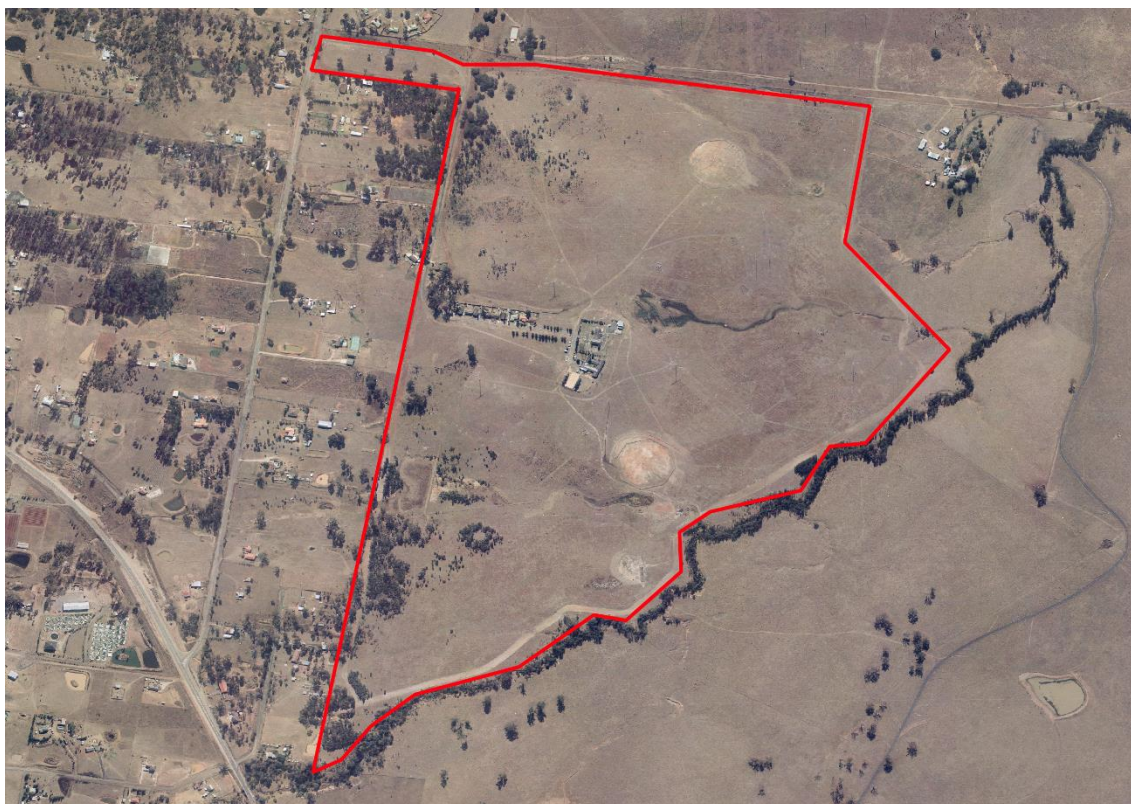


Figure 10 2021 aerial of the study area (source: Neapmaps with Extent Heritage additions 2021).

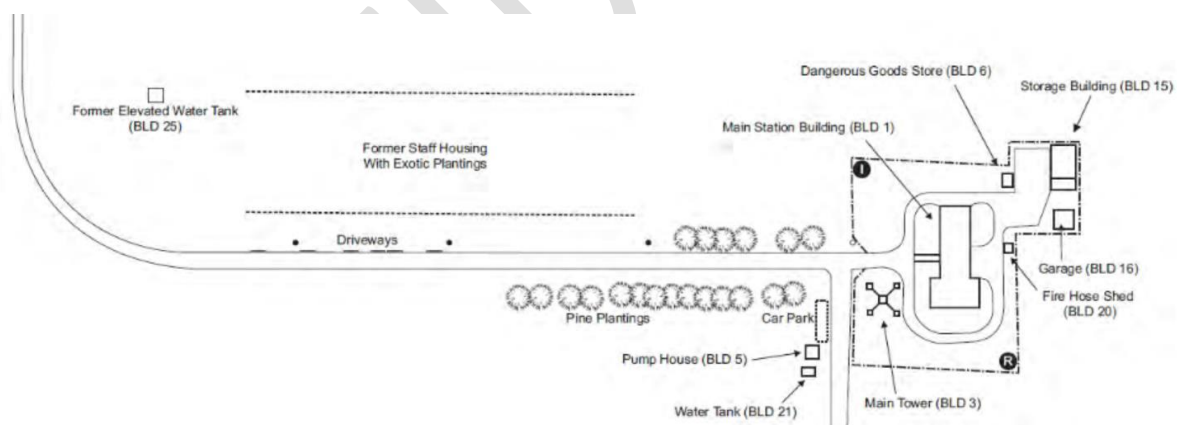


Figure 3.5 RAAF Bringelly Site Layout (ERM 2010)

Figure 11 Layout of structures built as part of the RAAF Bringelly site (source: ERM 2010, figure 3.5)



Figure 12 Example of some concrete pads as seen on the 1986 aerial, located to the east of the southern antenna (source: Nearmaps with Extent Heritage additions 2021).

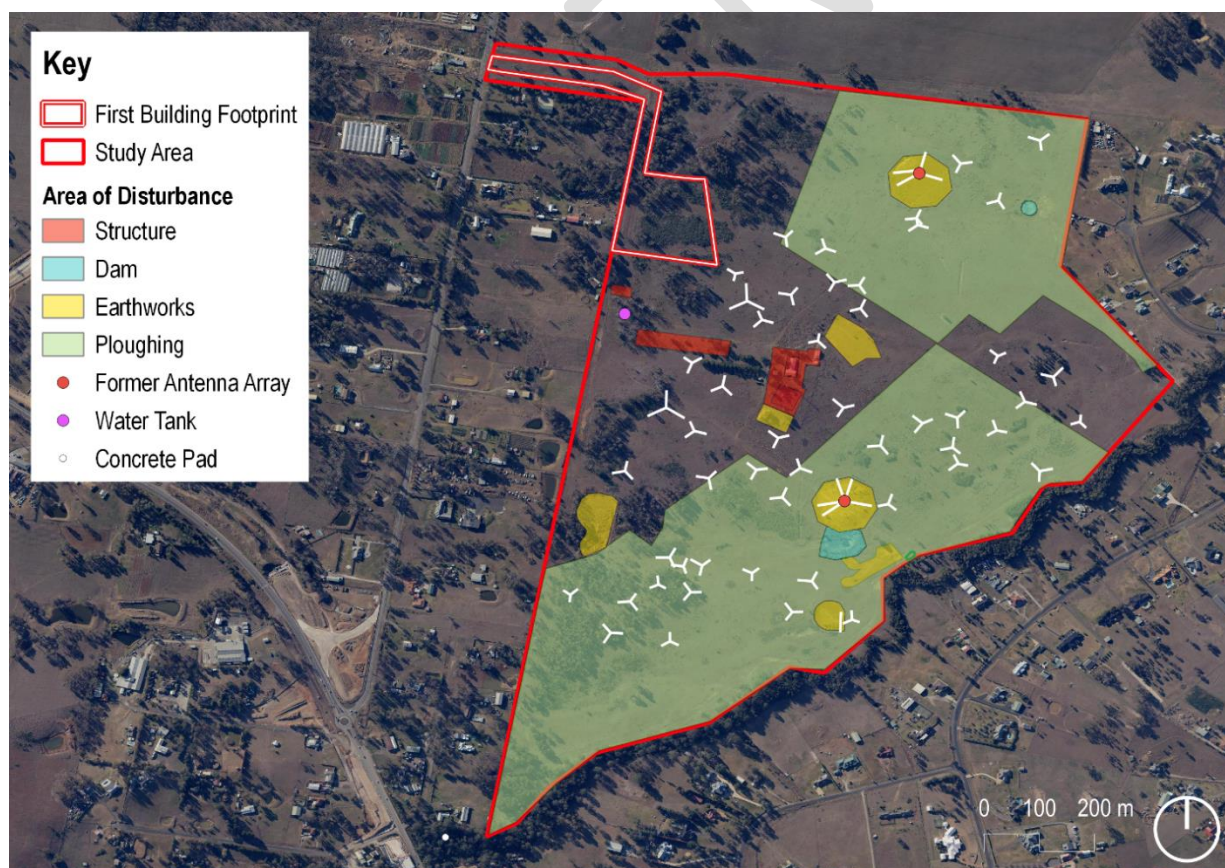


Figure 13 Disturbance mapping of historical impacts and location of structures built across the broader Bradfield study area during its use as Bringelly RAAF base, including concrete pads for light aerials and

associated guy-wires. Note that not all the concrete pads have been identified and marked on this map (source: Extent Heritage 2021).

5.6 Predictive model

Using the above Cumberland Plain Predictive Model (McDonald and White 2010; McDonald 1997), archaeological evidence of transient movement across the landscape is likely to be present across the site in the form of low-density background scatters and isolated artefacts. Isolated artefacts and scatters identified during surface surveys across the site are likely more easily identified in areas with high visibility and limited vegetation overgrowth. These areas include roads/tracks and cleared areas. In areas of disturbance such as these, the presence of artefacts is not necessarily indicative of further subsurface archaeological sites.

Several waterways run through the study area. The waterways in the northern half of the site comprise non-perennial first and second order creeks. These waterways do not represent permanent supplies of fresh water. Indeed, several of the channels are subtle and shallow. As a result, they are not likely to have supported permanent or repeat-occupation sites.

Two more significant waterways are associated with the study area. Moore Gully, running east to west across the southern portion of the study area, is a more significant third order waterway. However, modern development across the site, associated with agriculture, damming, and the RAAF site, may have significantly altered the natural watercourse. Secondly, Thompsons Creek, is a fourth order waterway that bounds the eastern edge of the study area although it is outside the project boundary.

Based on the stream order model within the Cumberland Plain Predictive Model, a focus on test excavations should revolve around Moore Gully and Thompsons Creek. Notably, the model suggests that lower slopes associated with higher order streams produce the highest artefact densities. The buffer around Moore Gully has been increased to capture the periphery of the waterlogged area. The alluvial nature of the south creek soil landscape provides further opportunity for recovering deep stratified deposits.

Moreover, the model suggests that the highest potential for artefacts associated with fourth order landscapes occur within 51 to 100 m from the watercourse. These flat terraces overlook the waterway and are not likely affected by flooding making them ideal site locations. As most of the eastern boundary of the study area is located at 50 m or less from the watercourse, the predictive model puts this high-density area within the project boundary. In addition, the confluence between Moore Gully and Thompsons Creek also falls just outside the study area and may present evidence of an occupation site (McDonald 1997, 56-57).

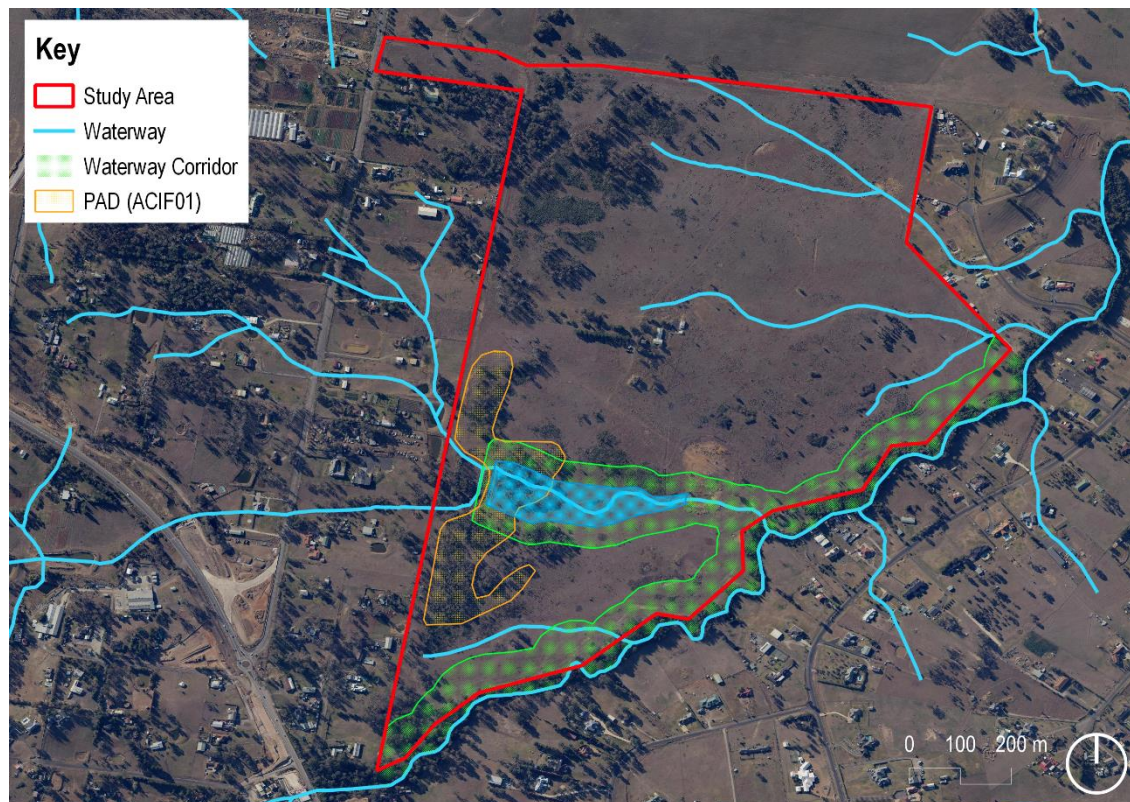


Figure 14 Areas of potential identified along Moore Gully and Thompsons Creek.

6. Survey Methodology

6.1 Aims

The aims of the archaeological survey were to:

- Record a representative sample of all material traces and evidence of Aboriginal land use visible on the ground surface or visible as features.
- Identify those areas where it can be inferred that material traces or evidence of Aboriginal land use have a likelihood of being present under the ground surface (PADs).

6.2 Survey personnel

The archaeological survey was completed on 7 December 2020. The survey was directed and supervised by Ryan Taddeucci (Senior Heritage Advisor, Extent Heritage) with assistance from Cameron Neal (Research Assistant, Extent Heritage). See Table 8 for a full list of survey participants.

Table 8: Participants in archaeological survey.

Name	Organisation	Role
Ryan Taddeucci	Extent Heritage	Survey supervisor
Cameron Neal	Extent Heritage	Survey assistant
Darren Duncan	Gandangara Local Aboriginal Land Council	Site officer
Tylah Blunden	Darug Custodian Aboriginal Corporation	Site officer
Rodney Gunther	Waawaar Awaa Aboriginal Corporation	Site officer
Mollie Saunders	Wurrumay Pty Ltd	Site officer

6.3 Survey sampling strategy

Pedestrian survey of the study area was completed by a survey team of six, in accordance with the Code of Practice. The study area was divided into six Survey Units (SUs), based on landform and access, these units were numbered SU1 – SU6 (Figure 15). The overall strategy was to complete a full coverage survey, where possible. A handheld Global Positioning System (GPS) was used to track the path of the survey team and record the coordinates of survey transects, as well as the location of key features (disturbances, areas of archaeological sensitivity/potential). The coordinate system projection used for all site recording was GDA94 MGA 56.

A photographic record was kept during the survey. Photographs were taken to record aspects of survey units including vegetation and disturbance. Scales were used for photographs where appropriate. Full details of each SU are provided in Section 7.1.

All ground exposures were examined for Aboriginal objects (stone artefacts, imported shell, or other traces of Aboriginal occupation). An attempt was made to identify and examine stone outcrops.

6.4 Survey procedure

Survey unit 1

An attempt was made to complete a full coverage survey of SU1 by a team of six people, utilising 24 parallel transects spaced 30 m apart. However, a full coverage survey of SU1 could not be completed due to dense, impenetrable vegetation located in the northwest portion of SU1 and a large soak located in the southern portion of SU1.

Survey unit 2

A full coverage survey of SU2 was attempted by a team of four people, utilising four parallel transects spaced 30 m apart. However, dense impenetrable vegetation was present across the northeast portion of SU2 which restricted access.

Survey unit 3

A full coverage survey of SU3 was completed by a team of two people, utilising four parallel transects spaced 30 m apart.

Survey unit 4

A full coverage survey of SU4 was completed by a team of six people, utilising six parallel transects spaced 30 m apart.

Survey unit 5

A full coverage survey of SU5 was completed by a team of six people, utilising six parallel transects spaced 30 m apart. Due to the small size of SU5, one of the transects completed as part of the SU4 survey was repeated.

Survey unit 6

A full coverage survey of SU6 was completed by a team of six people, six transects spaced 30 m apart. Due to the irregular shape of SU6, the transects were not parallel, and converged at the southernmost part of SU6.

6.5 Site definitions and recording

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object is the material evidence of Aboriginal land use, such as stone tools, scarred trees, or rock art. Some sites, or Aboriginal places can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people.

The Heritage NSW – DPC guidelines state that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of the visible objects, or direct evidence of their location.
- Obvious physical boundaries where present, e.g. mound site and middens (if visibility is good), a ceremonial ground.
- Identification by the Aboriginal community on the basis of cultural information.

For the purposes of this study an Aboriginal site would be defined by recording the spatial extent of visible traces or the direct evidence of their location.

Where areas of PAD are identified towards the margins of each survey unit, efforts must be made by the survey team to delineate each area of potential beyond the survey unit. Where the extent of the PAD extends beyond the survey unit, efforts must be made to map the extent of that feature up to approximately 70 m outside the survey unit. If it is likely that these PADs continue beyond that point, the survey team must justify that the distance is adequate to provide an accurate representation of the PAD with regard to future planning and design for the project.

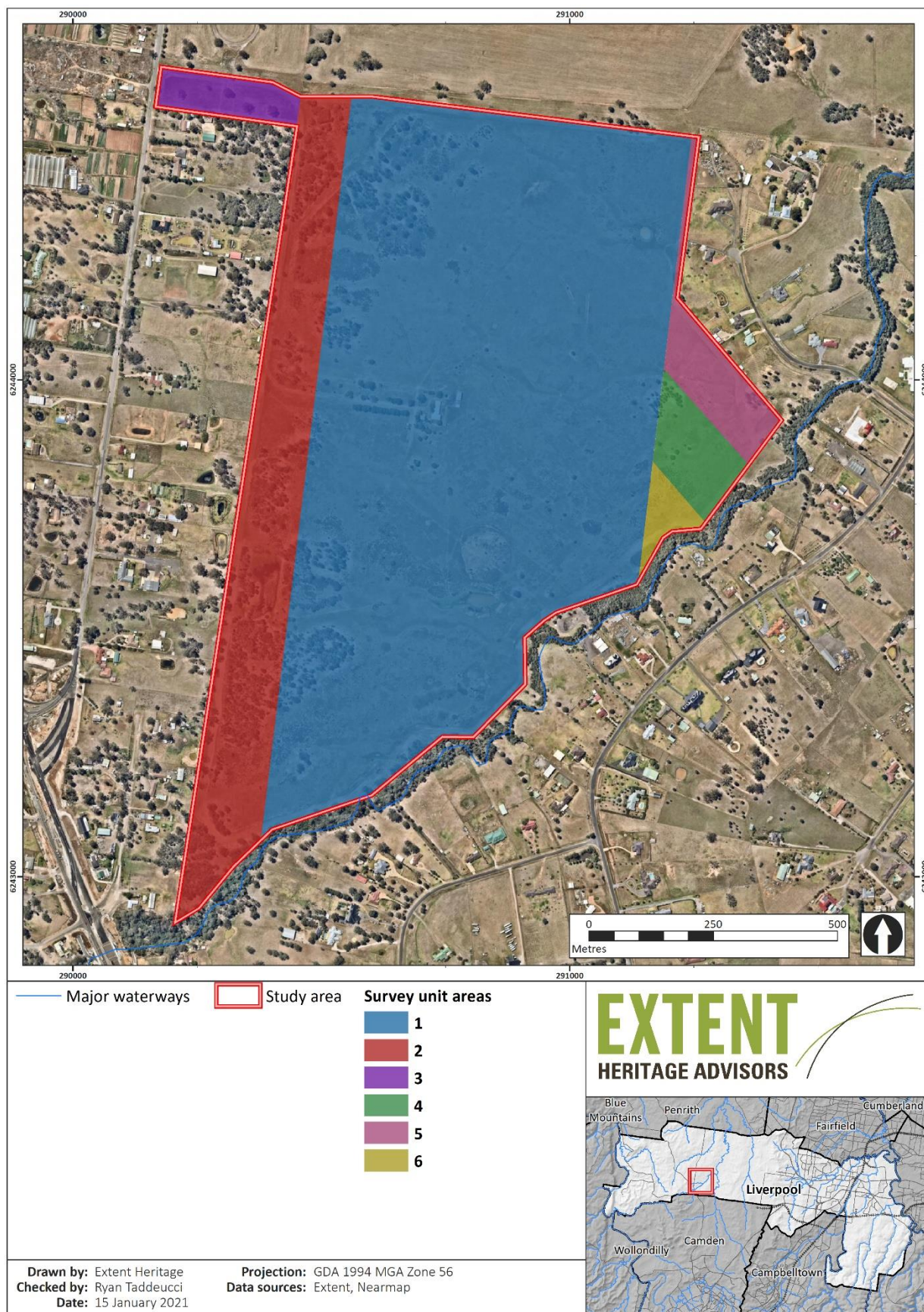


Figure 15: Location of survey units.

7. Survey Results

7.1 Descriptions of survey units

Survey unit 1

SU1 covers the majority of the study area and is comprised of 85.89 ha of land. SU1 is dominated by dense grassland, with occasional exposures associated with utilities and vehicle tracks. The land slopes gently upwards towards a spur line in the north and downwards towards Thompsons Creek in the south.

The survey unit has been subject to historic land clearance which has removed native vegetation. At the time the survey was completed, the majority of SU1 was covered in dense seasonal grasses (Figure 16). The grasses along the eastern portion of SU1 had been cut to establish a vehicle access track. The northwest portion of the survey unit was covered in dense, impenetrable shrubbery. Dense vegetation restricted surface visibility. The vehicle tracks showed some erosion.

A concrete footing was identified in the western portion of SU1 and was interpreted as a remnant part of the underground storage facility (Figure 17). A large dam was identified in the southern portion of the study area, immediately east of an ephemeral drainage line (Figure 18). Recent inundation of the study area had resulted in the creation of a large swamp area, along the drainage line, to the west of the dam. A structure and transmission tower had been established in the centre of SU1, 200 m north of the dam and soak (Figure 19).

One previously unregistered Aboriginal site, ACAS01 (AHIMS ID 45-5-5481), was identified in the southern portion of SU1, associated with an area of erosion from a vehicle track. Five registered AHIMS sites are located within SU1. Nine previously unrecorded Aboriginal objects were identified at the location of B 23 (AHIMS ID 45-5-2641). The remaining four AHIMS registered sites could not be relocated (see section 7.3).



Figure 16. View west from the northeast corner of SU1.



Figure 17. View of concrete block on western portion of SU1. Interpreted as a component of underground storage facility.



Figure 18. View south of dam and associated soak.



Figure 19. View west of overseas telecommunications radio station complex located in the centre of SU1.

Survey unit 2

SU2 was located along the western edge of the study area and was predominantly comprised of dense shrubbery and a north-south oriented track along the western edge (Figure 20). The dense vegetation restricted surface visible to the vehicle track, where one isolated artefact was identified. The underlying soil in places was found to be a plastic clay, and is unlikely to contain additional, subsurface archaeological material (Figure 21). Across most of the survey unit, however, the soil was a thick clay loam typical of the Blacktown soil landscape. The northern portion of SU2 included a sealed road constructed to facilitate access to the overseas telecommunications radio station complex. It is likely that the identified artefacts were washed into SU2 from the east, and this area is considered to be an area of PAD.



Figure 20. View north of SU2 from the south.



Figure 21. View east of exposure in the centre of SU2.

Survey unit 3

SU3 was located in the northwest portion of the study area and covered in manicured grass which reduced surface visible. A concrete footing was identified in SU3 and was interpreted as remains of the underground storage facility (Figure 22). SU3 has been utilised as the primary

entry and exit for the study area, and as a result has been disturbed by vehicle usage and the establishment of a sealed road (Figure 23). No Aboriginal objects were identified within SU3.



Figure 22. View of concrete block on western portion of SU3. Interpreted as a component of underground storage facility.



Figure 23. View of sealed road which runs along the northern portion of the study area, facilitating access to the study area.

Survey unit 4

SU4 was located in the eastern portion of the study area, between SU5 (north) and SU6 (south). SU4 was covered in manicured grass (Figure 24 and Figure 25) and featured a vehicle track along the eastern border, associated with Thompsons Creek. One AHIMS registered site is located within SU4 but could not be located during the survey due to thick grass coverage. No Aboriginal objects were identified within SU4.



Figure 24. View north of SU4 from the south.



Figure 25. View south towards Thompsons Creek.

Survey unit 5

SU5 was located in the eastern portion of the study, north of SU4. SU5 was covered in manicured grass and featured a vehicle track along the eastern border (Figure 26), associated with Thompsons Creek. Occasional trees were identified along the southeast border of SU5 associated with Thompsons Creek (Figure 27). No Aboriginal objects were identified within SU5.



Figure 26. View southeast of SU5 from the south.



Figure 27. View southwest from easternmost portion of SU5.

Survey unit 6

SU6 was located in the eastern portion of the study, south of SU4. SU6 was covered in manicured grass and featured a vehicle track along the southern border, associated with Thompsons Creek. No Aboriginal objects were identified within SU6.



Figure 28. View southwest of SU6 from the easternmost portion.



Figure 29. View north from easternmost portion of SU6.

7.2 Survey coverage

A summary of survey coverage, in accordance with the Code of Practice, is outlined in Table 9 and Table 10 below.

Table 9: Survey coverage summary.

Survey unit	Landform	Survey unit area (sq m)	Visibility (%)	Exposure (%)	Effective coverage Area (sq m)	Effective coverage (%)
1	Slope	858,873.33	1	90	77298.6	0.9

Survey unit	Landform	Survey unit area (sq m)	Visibility (%)	Exposure (%)	Effective coverage Area (sq m)	Effective coverage (%)
2	Slope	200,887.92	1	90	1807.99	0.9
3	Spur line	23,078.02	1	90	207.70	0.9
4	Slope	30,930.07	10	90	2783.71	9
5	Slope	31,097.49	1	90	279.88	0.9
6	Saddle	11,710.40	1	90	105.39	0.9

Table 10: Landform coverage.

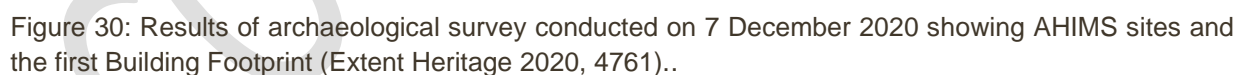
Landform	Landform area (sq m)	Area effectively surveyed (sq m)	% of landform effectively surveyed	Number of sites
Slope	1,121,788.81	82170.18	7.32	8
Spur line	23,078.02	207.70	0.9	0
Saddle	11,710.40	105.39	0.9	2

7.3 Aboriginal sites

A total of 10 Aboriginal sites were identified within the study area (Figure 30). Eight of the sites had been previously registered on the AHIMS database and two sites were newly identified during the completion of the survey. See Table 11 for a summary of results.

Table 11: Results summary.

Site number	Feature(s)	Survey unit	Landform
B17 (AHIMS ID 45-5-2779)	Artefact	1	Slope
B 18 (AHIMS ID 45-5-2620)	Artefact	1	Slope
B 19 (AHIMS ID 45-5-2621)	Artefact	4	Slope
B 20 (AHIMS ID 45-5-2622)	Artefact	6	Saddle
B 21 (AHIMS ID 45-5-2639)	Artefact	6	Saddle
B 22 (AHIMS ID 45-5-2640)	Artefact	1	Slope
B 23 (AHIMS ID 45-5-2641)	Artefact	1	Slope



B 22 (45-5-2640)

Site type: Isolated find

Centroid: MGA94 Zone 56 Zone 56 290725 mE 6243990 mN

Site dimensions: 3 m x 3 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. The location of B 22 (45-5-2640) was

found to be covered in dense vegetation, which limited surface visible. As a result, no Aboriginal objects were identified at the AHIMS registered location of B 22 (45-5-2640).



Figure 31. View north across B 22 (AHIMS ID 45-5-2640).



Figure 32. View west across B 22 (AHIMS ID 45-5-2640).

B17 (AHIMS ID 45-5-2779)

Site type: Artefact Scatter

Centroid: MGA94 Zone 56 Zone 56 291165 mE 6244490 mN

Site dimensions: 50 m x 15 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. An exposure was identified at the recorded location of the site, but no Aboriginal objects were identified. The site was found to be located on a vehicle track, and it is likely that disturbance from vehicle usage has impacted the artefacts that were previously recorded at the site.



Figure 33. View north across B17 (AHIMS ID 45-5-2779).

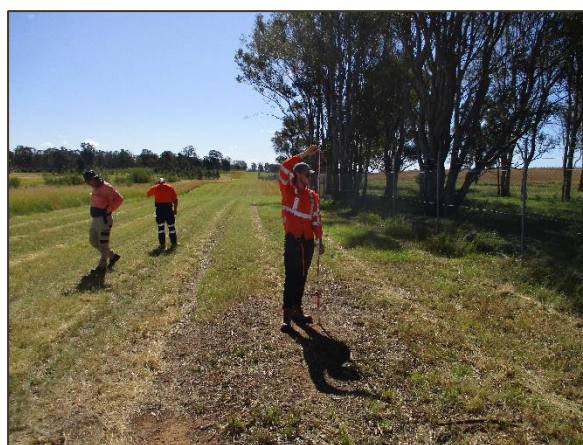


Figure 34. View west across B17 (AHIMS ID 45-5-2779).

B 18 (AHIMS ID 45-5-2620)

Site type: Isolated find

Centroid: MGA94 Zone 56 Zone 56 291205 mE 6244150 mN

Site dimensions: 3 m x 3 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. An exposure was identified at the recorded location of the site, but no Aboriginal objects were identified. The site was found to be located on a vehicle track, and it is likely that disturbance from vehicle usage has impacted the artefacts that were previously recorded at the site.



Figure 35. View north across B 18 (AHIMS ID 45-5-2620).



Figure 36. View west across B17 (AHIMS ID 45-5-2779).

B 19 (AHIMS ID 45-5-2621)

Site type: Open Camp Site

Centroid: MGA94 Zone 56 Zone 56 291335 mE 6243810 mN

Site dimensions: 3 m x 3 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. The location of B 19 (AHIMS ID 45-5-2621) was found to be covered in manicure grass, which limited surface visible. As a result, no Aboriginal objects were identified at the AHIMS registered location of B 19 (AHIMS ID 45-5-2621).



Figure 37. View north across B 19 (AHIMS ID 45-5-2621).



Figure 38. View west across B 19 (AHIMS ID 45-5-2621).

B 20 (AHIMS ID 45-5-2622)

Site type: Open Camp Site

Centroid: MGA94 Zone 56 Zone 56 291215 mE 6243700 mN

Site dimensions: 3 m x 3 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. The location of B 20 was found to be covered in manicure grass, which limited surface visible. As a result, no Aboriginal objects were identified at the AHIMS registered location of B 20 (AHIMS ID 45-5-2622).



Figure 39. View north across B 20 (AHIMS ID 45-5-2622).



Figure 40. View west across B 20 (AHIMS ID 45-5-2622).

B 21 (AHIMS ID 45-5-2639)

Site type: Artefact Scatter

Centroid: MGA94 Zone 56 Zone 56 291165 mE 6243680 mN

Site dimensions: 50 m x 15 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. The location of B 21 (AHIMS ID 45-5-2639) was found to be covered in manicure grass, which limited surface visible. As a result, no Aboriginal objects were identified at the AHIMS registered location of B 21 (AHIMS ID 45-5-2639). No surface artefacts were identified during the present survey, the area may have been subject to disturbances which have reduced archaeological potential since the initial recording of the site in 1996.



Figure 41. View north across B 21 (AHIMS ID 45-5-2639).



Figure 42. View west across B 21 (AHIMS ID 45-5-2639).

B 23 (AHIMS ID 45-5-2641)

Site type: Artefact Scatter

Centroid: MGA94 Zone 56 Zone 56 290846 mE 6243691 mN

Site dimensions: 107 m x 130 m

The survey team completed expanding radial transects from the AHIMS registered GPS location of the site to relocate the previously recorded artefacts. The site was recorded in 1996 as containing a total of four artefact. The survey resulted in the identification of nine artefacts were identified, none of which matched the description of any of the four artefacts recorded in 1996. Based on the landform, it is likely that the artefacts were washed down from an area of higher elevation to the northeast. Moreover, ground disturbance caused by the construction of a large aerial in that location likely caused artefacts to be moved around. The ground surface where the surface artefacts were identified was found to be comprised of a plastic clay and it is unlikely that subsurface artefacts will be present at this location.

Table 12: Summary of artefact assemblage.

Artefact ID	Lithology	Artefact type	Dimensions
B 23-01	Mudstone	Proximal flake fragment	5 mm x 10 mm x 2 mm
B 23-02	Mudstone	Proximal flake fragment	5 mm x 4 mm x 2 mm
B 23-03	Mudstone	Marginal flake fragment	9 mm x 7 mm x 3 mm

Artefact ID	Lithology	Artefact type	Dimensions
B 23-04	Mudstone	Debris	12 mm x 9 mm x 4 mm
B 23-05	Mudstone	Complete flake	29 mm x 33 mm x 10 mm
B 23-06	Silcrete	Complete flake	20 mm x 17 mm x 3 mm
B 23-07	Silcrete	Proximal flake fragment	15 mm x 13 mm x 4 mm
B 23-08	Mudstone	Complete flake	12 mm x 5 mm x 2 mm
B 23-09	Silcrete	Scraper fragment	15 mm x 12 mm x 4 mm



Figure 43. In-situ photograph of silcrete scraper fragment, recorded as B 23-09.



Figure 44. In-situ photograph of silcrete scraper fragment, recorded as B 23-02.



Figure 45. View north across B 23 (AHIMS ID 45-5-2641).



Figure 46. View east across PAD feature identified at B 23 (AHIMS ID 45-5-2641).

B 38 (AHIMS ID 45-5-2628)

Site type: Isolated Artefact

Centroid: MGA94 Zone 56 Zone 56 290855 mE 6243620 mN

Site dimensions: 3 m x 3 m

An exposure was identified at the recorded location of the site, but no Aboriginal objects were identified. The site was found to be located on a vehicle track, and it is likely that disturbance from vehicle usage has impacted the artefacts that were previously recorded at the site.



Figure 47. View north across B 38 (AHIMS ID 45-5-2628).



Figure 48. View west across B 38 (AHIMS ID 45-5-2628).

7.3.2 Newly recorded site

ACIF01 (AHIMS ID 45-5-5480)

Site type: Isolated find / PAD

Centroid: MGA94 Zone 56 Zone 56 290355 mE 6243801 mN

Site dimensions: 3 m x 3 m

ACIF01 (AHIMS ID 45-5-5480) is an isolated find and PAD. The surface assemblage is comprised of a single medial fragment of mudstone (Figure 49). The identified artefact measures 28 mm x 18 mm x 16 mm. The site was identified along the western edge of the study area within an area of erosion associated with a vehicle track (Figure 50). The landform sloped gently upwards to the north and was bordered to the east by dense seasonal grassland and regrown woodland. Based on the background research and predictive model, an area of PAD surround the isolated artefact has been identified (Figure 30).



Figure 49. In-situ photograph of medial mudstone fragment, identified at ACIF01 (AHIMS ID 54-4-5480).

Figure 50. View east across ACIF01 (AHIMS ID 54-4-5480), showing vegetation to the east and slope of landform.

ACAS01 (AHIMS ID 45-5-5480)

Site type: Artefact Scatter

Centroid: MGA94 Zone 56 Zone 56 290949 mE 6243534 mN

Site dimensions: 18 m x 18 m

ACAS01 (AHIMS ID 45-4-5480) is a low-density artefact scatter comprised of four surface artefacts. The site was located within an area of exposure associated with a vehicle track, approximately 20 m north of Thompsons Creek.

Table 13: Summary of artefact assemblage.

Artefact ID	Lithology	Artefact type	Dimensions
ACAS01-01	Silcrete	Core fragment	19 mm x 15 mm x 9 mm
ACAS01-02	Silcrete	Complete flake	20 mm x 13 mm x 6 mm
ACAS01-03	Silcrete	Complete flake	12 mm x 13 mm x 3 mm
ACAS01-04	Silcrete	Proximal flake	13 mm x 17 mm x 5 mm



Figure 51. In-situ photograph of ACAS01-01.



Figure 52. In-situ photograph of ACAS01-03 (left) and ACAS01-04 (right).

8. Analysis and Discussion

8.1 B 23 (AHIMS ID 45-5-2641)

Density

The majority of the identified artefacts (n=9) were located within B 23 (AHIMS ID 45-5-2641), which covers an area of 1,122 m² area for an average artefact density of 0.008 artefacts/m².

Artefact types

The artefact assemblage was predominantly comprised of transverse flake fragments (n = 4, 44.44%) with fewer numbers of complete flakes (n = 3, 33.33%), single scraper fragment (11.11%) and a single piece of debris (11.11%). The assemblage was dominated by flaked artefacts, with no cores or grounded artefacts present.

Debris is a biproduct of artefact reduction, but no other indicators of artefact reduction were identified in the assemblage, such as cores. It is possible that artefact manufacturing processes occurred at the location of B 23 (AHIMS ID 45-5-2641) and the core was retained in the systemic context.

Artefacts that are the product of the earlier stages of core reduction tend to have wide transverse margins and short longitudinal margins. However, artefacts that are the produce of later stage core reduction will have short transverse margins and long longitudinal margins. Artefacts will tend to break along the longest margin. Therefore, longitudinal flake fragments are likely to be the result of early-stage reduction while transverse flake fragments are the product of later stage reduction. The majority of the assemblage is comprised of transverse flake fragments and is indicative of later stage artefact manufacturing.

Fragmented artefacts are usually associated with repeated site occupation where artefacts have been broken by site trampling. However, as the lithological diversity and artefact density is relatively low, it is likely that the assemblage has been damaged by modern site disturbances.

Raw materials

The majority of the artefacts identified within the B 23 (AHIMS ID 45-5-2641) assemblage were comprised of mudstone (n=6, 66.67%) with lower numbers of silcrete (n=3, 33.33%). The composition of the assemblage is inconsistent with identified distributions of raw materials within sites across the local context, where silcrete is the dominant raw material. However, the high frequency of fragmented artefacts and low archaeological integrity of the site is likely impacting the identified distribution of raw materials across the assemblage.

The low lithological diversity is indicative of temporary site occupation by a small, highly mobile group engaged in opportunistic resource acquisition. The assemblage is primarily comprised of lithologies common in the regional context (mudstone and silcrete), indicating that raw materials were utilised during travel. High lithological diversity and the presence of exotic materials is indicative of a long-term campsite and high logistical mobile mobility.

Summary

The area surrounding B 23 (AHIMS ID 45-5-2641) was initially considered to be an area of PAD due to the moderate number of surface artefacts. However, upon interrogation of historical aerials, it is clear that the area was heavily disturbed by one of the antenna features installed as part of the Bringelly RAAF station. There is not likely to be any intact subsurface archaeological remains associated with the artefact scatter. As a result, the AHIMS site card associated with the scatter has been updated to include the additional artefacts, but no further investigation of the area is required.

8.2 ACAS01 (AHIMS ID 45-5-5481)

ACAS01 is an artefact scatter comprised of four artefacts within a 3.4 m² area for an average artefact density of 1.18 artefacts/ m². All identified artefacts within the assemblage were found to be made of silcrete. The assemblage is predominately comprised of flaked artefacts (n=3, 75%), with a single core fragment (25%). As the site is located approximately 130 m south of B 23 (AHIMS ID 45-5-2641), the two sites may be connected as part of a wide complex of sites. The presence of a core fragment in the ACAS01 assemblage may be associated with the piece of debris identified within B 23.

8.3 ACIF01 (AHIMS ID 45-5-5480)

ACIF01 (AHIMS ID 45-5-5480) is an isolated artefact associated with an associated area of PAD. The site is currently considered to be representative of background scatter and is likely to be the product of post depositional processes rather than utilisation of the landscape by Aboriginal people. Test excavations of the identified area of PAD will be required to further investigate the nature and extent of the site.

8.4 Sites not relocated

A study completed by Schoville (2019) identified that a wide range of post-depositional processes can be responsible the mobility of artefacts within soils and across the ground surface. Schoville's study investigated the movement of stone tools within pastoral areas and focused on the impact of animal trampling on the artefacts over a five-month period. The study found that artefacts could be displaced by up to 3 m within a five-month period. The study also found that only 65% of the artefacts could be relocated within high intensity areas.

Ground surface visibility across the study area is variable depending on seasonal conditions and it is likely that regrowth of the surrounding vegetation impeded visibility of surface artefacts during the archaeological survey. Seasonal inundation of the sites is likely to have resulted in the movement of the artefact assemblage down towards the saddle landform. In addition, aeolian and colluvial process are likely to have deposited sediment over the surface artefacts, further reducing visibility.

8.5 Summary

The results of the current assessment have identified a total of 14 Aboriginal objects across the 115.7 ha area from three Aboriginal sites. An additional seven Aboriginal sites have been previously registered within the study area, but could not be located during the completion of the archaeological survey. It is likely that the sites that could not be located have been concealed or removed from the study area by taphonomic processes. This indicates that the archaeological integrity of surface artefacts across the majority of the study area is low and meaningful interpretations of Aboriginal land use cannot be established from a study of the spatial distribution of these artefacts.

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9. Additional areas of archaeological potential

Historical background research and use of predictive models, particularly the Cumberland Plains Predictive Model (White and McDonald 2010; McDonald 1997), has revealed additional areas of high archaeological potential.

9.1 Moore Gully (AHIMS ID 45-5-5492)

The Cumberland Plains Predictive Model indicates that the third order creek, Moore Gully, is likely to be associated with sites of frequent and repeated occupation by small groups of Aboriginal people. Archaeological evidence of these sites is likely to take the form of knapping floors that may be reused, and more concentrated activities.

The model suggests that the highest potential for artefacts associated with the waterway would be within a zone of 50m from the watercourse. As Moore Gully is heavily swampy, the 50m buffer has been based on the periphery of the waterlogged area. The alluvial nature of the South Creek soil landscape along part of the creek line provides further opportunity for recovering stratified deposits.

The nature and extent of archaeology associated with Moore Gully (AHIMS ID 45-5-5492) is unknown and further investigation in the form of test excavations will be required to understand the soil landscape and any use of the area and its resources.

The area of potential associated with Moore Gully (AHIMS ID 45-5-5492) extends to the west where it is contained within the boundary of PAD ACIF01 (AHIMS ID 45-5-5480).

9.2 Thompsons Creek (AHIMS ID 45-5-5491)

The Cumberland Plains Predictive Model indicates that the fourth order waterway, Thompsons Creek, is likely to be associated with complex and stratified sites containing high artefact densities. Artefacts associated with these sites may show less use of rationing strategies as people may have remained in the same location for several days, or even weeks. Evidence of the caching or raw materials may also be present.

The model suggests that the highest potential for artefacts associated with fourth order landscapes occur within 51 to 100 m from the watercourse. These flat terraces overlook the waterway and are not likely affected by flooding making them ideal site locations. As most of the eastern boundary of the study area is located at 50 m or less from the watercourse, the predictive model puts this high-density area within the project boundary. The alluvial nature of the South Creek soil landscape along part of the creek line provides further opportunity for recovering stratified deposits. In addition, the confluence between Moore Gully and Thompsons Creek also falls just outside the study area and may present evidence of an occupation site (McDonald 1997, 56-57).

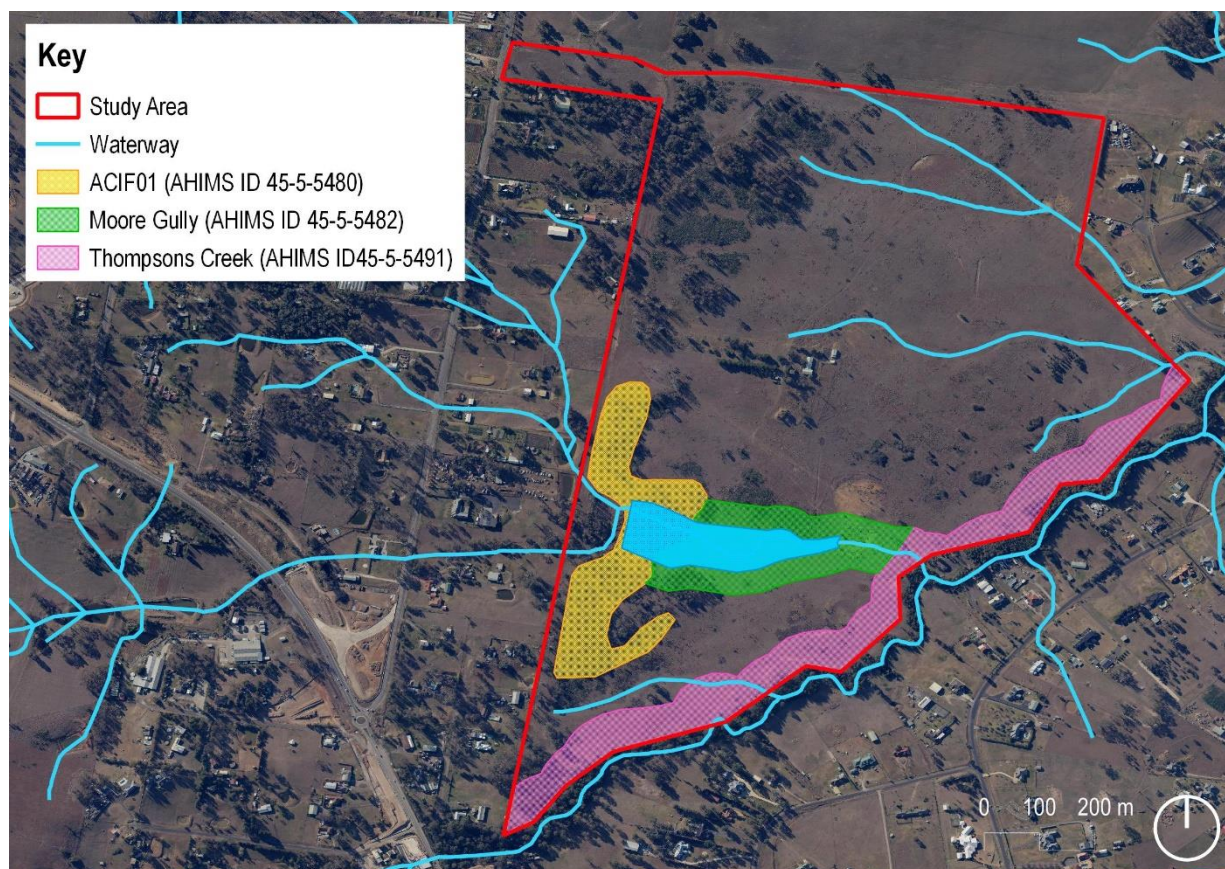


Figure 53. Location of ACIFS01 (AHIMS ID 45-5-5480), Moore Gully (AHIMS ID 45-5-5492), and Thompsons Creek (AHIMS ID 45-5-5491).

10. Aboriginal Cultural Heritage Assessment

As part of ongoing research to inform the planning of Western Sydney Aerotropolis, Extent Heritage has undertaken multiple phases of cultural values assessment, as distinct projects. These phases of engagement and their findings are detailed in the following section.

The aims of all phases of cultural values assessment were to identify:

- traditional values and places;
- historical values and places;
- contemporary values and places; and
- views of the Elders, knowledge holders and representatives regarding future management and interpretation of those values.

Types of values

Aboriginal traditional owner claimants and knowledge holders have considerable knowledge about use of traditional lands before and after British colonisation. The landscape continues to

hold cultural values that are important to the Aboriginal community. The Aboriginal community collectively holds values and knowledge that relate to:

- Traditional values: these are passed down by family and community as part of ancient tradition.
- Historical values: these are passed down by family and community and relate to the eras since colonisation; these may include information gained from historical source documents.
- Contemporary values: these are values of modern importance and relevance for Aboriginal stakeholder groups.

There is often no clear demarcation between these values. They collectively co-exist and are of equal importance in forming the value that Aboriginal people place on landscape, cultural heritage, intangible values, and particular landforms or parts of the landscape.

10.1 Wider Western Sydney Aerotropolis Cultural Values Workshop

As part of the preparation of the *Western Sydney Aerotropolis Initial Precincts: Aboriginal and Non-Aboriginal Cultural Heritage Assessment* (2020) report for the Western Sydney Planning Partnership, Extent Heritage undertook a preliminary assessment of cultural values. This scope related to all precincts in the Aerotropolis.

This previous phase of works consisted of a preliminary cultural values mapping workshop undertaken with the Local Aboriginal Land Councils within the study area and identified knowledge holders. The goal of this workshop was to start the process of learning about, identifying and understanding the Aboriginal cultural values of the Aerotropolis. The intention was that understanding these values at an early stage could help inform strategic precinct planning design and identifying necessary future stages of Aboriginal community engagement required at the master planning stages.

The preliminary cultural values mapping workshop was held on 23 June 2020 at Liverpool City Council chambers in this earlier scope of works. The attendees are recorded in Table 7 below.

Table 14 Record of Registered Aboriginal Parties.

Organisation	Contact name
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker
Darug Custodians Aboriginal Corporation	Tylah Blunden
Deerubbin Local Aboriginal Land Council	Steve Randall

Organisation	Contact name
Gandangara Local Aboriginal Land Council	Darren Duncan and Dr Ruth Sheridan

The workshop began with a presentation by James Wheeler (Extent Heritage, Executive Director) of historical research undertaken and project background information.

A discussion of the presented material followed the presentation, and this led to a semi-structured group discussion of cultural values, places and stories that relate to the Western Sydney Aerotropolis region.

The workshop concluded with a cultural values tree and mapping exercise designed to understand and prioritise values, places, issues, aspirations, and concerns through these visualisation exercises.

The outcomes of the cultural values discussion are summarised below.

Ancestral connections

The Elders and knowledge holders emphasised the violence towards and displacement of Aboriginal people that occurred within and around the study area.

Cubbitch Barta Elder Glenda Chalker spoke about specific conflicts within the study area and how there have been attempts to write the conflicts out of history:

- John Macarthur influenced Governor Macquarie before the Appin massacre of 1816.
- Governor Macquarie was the first to take Aboriginal children and institutionalise them. Ms Chalker said that her grandmother had been institutionalised as a child.
- Macquarie refers to these children and Aboriginal people as prisoners of war, acknowledging that there was war, even though it has been attempted to be written out of history.
- This history has not been taught in schools and it should be.
- The ancestor of Ms Chalker's husband worked on Blaxland and Lawson's land at the confluence of Badgery Creek and Wianamatta-South Creek, located within the Wianamatta-South Creek Aerotropolis Study Precinct. He came to Australia from Oxford and was given a land grant on Cooks River, then South Creek, and later at Mittagong.
- Ms Chalker also brought attention to the length of South Creek and noted that stories from one part of the creek are sometimes mistakenly told about another part of the creek, and said that this is why the locations in some stories can be confused with others.

- Ms Chalker said that she has specific stories for Glenfield and Liverpool, in relation to her ancestors receiving blankets in 1842 and 1843. Ms Chalker's grandmother is listed on the NSW blanket return.

The workshop participants emphasised that the Cumberland Plain is imbued with stories of dispossession and disconnection of Aboriginal people from their traditional lands and their families after European occupation. Representatives from the Gandangara Local Aboriginal Land Council stated that cultural genocide should not be forgotten, both stories and physical remains of structures and other contact artefacts or objects should be preserved where possible. This should be led by Aboriginal people.

The stakeholders said that they would like more time to talk to their community members and families, and that they would be able to provide further stories and values at a later date. The importance of walking Country and visiting the precincts was also noted. All agreed further detailed on Country investigation by the traditional owners and Land Councils was essential to fully understanding the cultural values and places within the Aerotropolis, and the stakeholders emphasised the need for detailed archaeological investigation – particularly given the relative lack of prior investigation work across large portions of the Aerotropolis study area.

Inter-generational equity: Conservation of Landscape

A significant issue of cultural concern for each of the Aboriginal stakeholder groups was the cumulative impact of future urban development proposed as part of the Aerotropolis project. All the groups emphasised that the Cumberland Plain is very important to local Aboriginal people and that this project should involve conservation of a representative range of remnant terrain and environment, not simply (in the words of one participant) 'trees planted in rows'. This value includes an understanding of the importance of retaining areas of native bushlands and grasslands and the essential habitat it provides to native animals being able to live on the Cumberland Plain.

Stakeholders highlighted the importance of preserving all creek corridors within the study area and keeping them as open space. These creek corridors are culturally significant as resource, mythological and transit places and the stakeholders stated that there is archaeological potential along the creek corridors even in areas where if no sites have been previously recorded. The example of Duck Creek, running from Clyde to Guildford, was given as what the stakeholders did not want to happen within the study area. Duck Creek has been channelised and no traces of the natural creek line remain. The stakeholders emphasised that unusual and well-preserved landforms such as exposed sandstone outcrops, areas of remnant old growth vegetation and well-preserved creek corridors should be protected where possible as should priority conservation areas identified early in strategic planning work.

Preservation of rare and culturally significant archaeological sites

Every stakeholder emphasised the paramount importance of ensuring development works will not impact grinding grooves, modified trees and art sites. Cubbitch Barta Elder Glenda Chalker enquired about the legitimacy of the 'Art Sites' shown on the map of registered Aboriginal sites within the Aerotropolis. Ms Chalker pointed out that they did not appear to be located near sandstone outcrops and that they were therefore unlikely to be correctly recorded. Stakeholders also felt that archaeological sites in the region should be ground-truthed for their current

condition, and that site records should be brought up to date so that these sites can be preserved into the future.

A concern reiterated throughout the workshop was that these sites, cultural connections, and conflict histories were going to be lost, and that one possible counter to this loss could take place through the conservation of a large portion of the study area.

Stakeholder involvement

The Stakeholders discussed the importance of being on Country to talk about and see the archaeological sites and landscapes being discussed, and that this is an important aspect of the consultation process. The Stakeholders strongly emphasised that it was important that any other Aboriginal parties who are involved in the project should be comprised of people from the local area represented by the Land Councils and traditional owners of the region who are Darug and Dharawal descendants. The stakeholders stated that care for culture is paramount to the cultural values surviving into the future.

Darren Duncan and Dr Ruth Sheridan of Gandangara Local Aboriginal Land Council stated the importance of consulting with the Local Aboriginal Land Councils on all projects within their boundaries and that no earth should be moved without consultation with registered Aboriginal parties (RAPs). Glenda Chalker agreed, and stated that the consultation process should be adhered to during construction projects within the Aerotropolis and that there should be deadlines for registration of interest, in order to avoid an overwhelming number of groups joining a project over its lifetime.

The Stakeholders stated the importance of the LALCs and traditional owners of the area being consulted before any works are undertaken on any Aerotropolis project, and through the entirety of the project's lifetime.

Further research

The workshop attendees identified key areas for which additional research would be desirable:

- an investigation of the three registered 'art sites' within the Aerotropolis¹;
- discussions between the Stakeholders and other LALC members and Elders, to gather stories and values from a larger group of traditional owners;
- research into the listing of Glenda Chalker's grandmother in the blanket return;
- continuing investigations into the ethnohistory of the study area;
- on-Country cultural values mapping with the key Elders and knowledge holders; and

¹ Extent Heritage undertook an enquiry with DPC to clear up the identification of the three Art Sites (#45-5-2790, #45-5-2784 and #45-5-2786). These sites were all identified as Artefact sites on their original site cards. DPC found that the information for these sites had been incorrectly transcribed into the AHIMS database when the site cards were digitised in 2000. The AHIMS database has since been corrected and these sites are now listed as Artefact sites.

- detailed archaeological investigation and ground truthing.

Cultural values tree

At the conclusion of the cultural values workshop the stakeholders were engaged in a cultural values ‘tree mapping’ visualisation exercise. In this exercise, stakeholders were invited to write down key values, their most important values and places or stories associated with the Aerotropolis region on small cards, each of which represented the leaf of a tree.

The workshop participants were asked to pin the ‘leaves’ to a cultural values tree diagram depicting the branches of a tree to visually represent the importance of values, stories and any other culturally significant ideas. The stakeholders were asked to place their ‘leaves’ at points on the branches of the tree depending on how vulnerable they felt the value to be. The robust and enduring values at the strong base of the tree trunk and the more vulnerable values on the outer branches and limbs.

The cultural values tree exercise is designed to tease out and order the key values associated with a place and to ensure the views of participants who prefer to contribute in writing, rather than through discussion, are properly heard and documented. It also acts as a good device for generating and focusing group discussion.

The stakeholders were initially reserved about placing their notes on the tree diagram. All of the stakeholders reiterated that the whole tree is in danger— a consensus conclusion that ties back into the theme of cumulative impact across the Cumberland Plain and how the progressive development of Western Sydney has removed all but a small portion of the original environment of the Cumberland Plain. While the stakeholders included some high-level values on the cultural values tree, the general consensus was that they needed to go out from the meeting and talk to elders and members of the communities before providing any more cultural values input. And all the stakeholders emphasised the need to get on Country to take the cultural values mapping to the next stage of detail needed for master planning.

The cultural values tree prepared by the stakeholders is shown Figure 75 below.

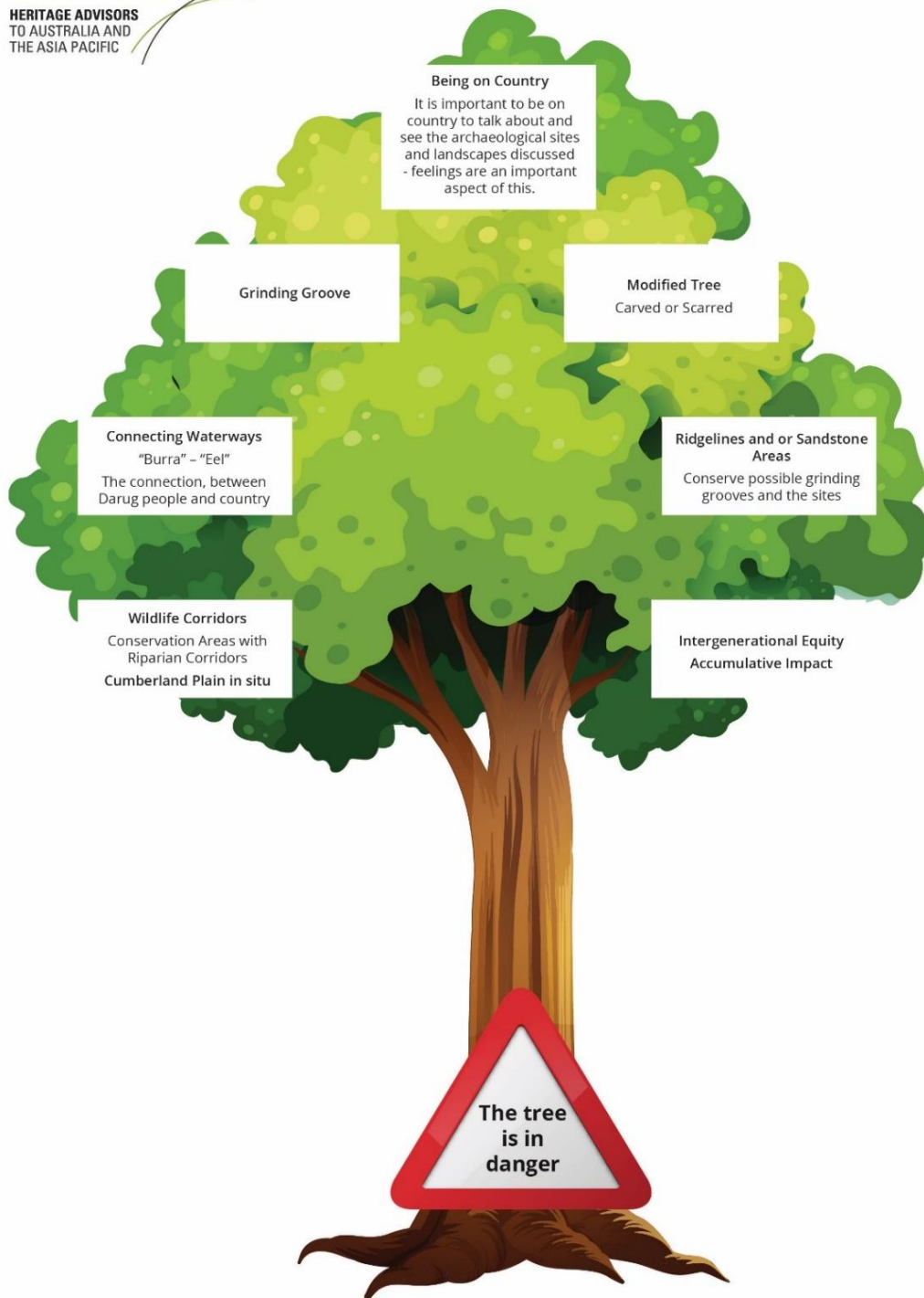


Figure 54. Representation of the tree created by the stakeholders during the cultural values mapping workshop

Additional cultural values enquiries

Following the workshop, a packet of information was posted or emailed to all RAPs to solicit any additional information about the Aboriginal cultural values of the Aerotropolis that they might be willing to share.

Comments with cultural values information were received from five RAPs. The written and oral responses are summarised below.

- A single location should be established within the Aerotropolis where all artefacts recovered during archaeological investigations could be repatriated or held. This would allow all artefacts to be reburied on Country near where they were recovered and would also provide a central location for Aboriginal community members to visit.
- This artefact repatriation location or 'keeping place' could even be established as a memorial park where Aboriginal community members could go for the foreseeable future to feel connections with past and present Aboriginal people and with Aboriginal culture.
- Additional workshops should be established to allow inputs from a wider range of Aboriginal stakeholders. It was felt that this would be a better approach for soliciting cultural values information than via written responses.
- Aboriginal naming should be undertaken for locations and streets within the Aerotropolis . Because the airport will be the first point of contact with Aboriginal culture for many visitors, as they arrive, it is essential that Aboriginal naming should also be undertaken for the airport and even specific locations within the airport (e.g., arrival halls, concourses).
- All modified and scarred trees must be conserved in situ.
- There is an unregistered resource gathering sites (i.e., ochre source) in the Aerotropolis that should be investigated and conserved as much as possible.
- As many other known Aboriginal heritage sites should be preserved as possible.
- There should be specific education locations to educate residents and visitors about Australia's past, the history of Aboriginal people in the area and the current lives of Aboriginal people in the Aerotropolis .
- A range of Aboriginal artwork should be installed in the Aerotropolis . This artwork should depict both tangible and intangible aspects of traditional Aboriginal culture and should be undertaken in a diverse range of traditional and modern media.
- Any interpretive signs or historical information regarding Aboriginal cultural values should not shy away from the truth about the effects of colonisation on Aboriginal people. This subject can be quite disturbing and must be approached respectfully and with great sensitivity.
- As much as possible, natural areas should be conserved as they are.
- While working with Aboriginal people in the Aerotropolis , cultural intellectual property should be respected.
- Aboriginal art should be located in more places than just highway sound barriers (as is seen elsewhere in Sydney). The Aerotropolis should deeply incorporate of Aboriginal stories and art into all manner of infrastructure, from the very large (the airport) to the very small (e.g.,

bus shelters). If the Aerotropolis is to have Aboriginal Cultural Values at its core, these values and their representation in art should infuse as many aspects of the Aerotropolis as possible.

- Given that the focus of the Aerotropolis region is the central airport, there should be an effort made to create large-scale Aboriginal artwork that is primarily visible from the air. This art would capitalise on the unique aerial viewpoints that people will have of this region of Sydney; it could also serve as a clear marker of the unique nature of the Western Sydney Airport. When people fly into Kingsford-Smith Airport, they expect to see the Sydney Opera House and the Harbour Bridge; these are both large-scale European features. In contrast, when people fly into Nancy-Bird Airport, they should see expressions of Aboriginal culture across the landscape. This would provide a clear distinction between the two airports and be representative of the importance of Aboriginal Cultural Values in the Aerotropolis planning process.
- It is essential that additional cultural values inputs take place via face-to-face conversations held on Country.

10.1.1 Wider Western Sydney Aerotropolis Conclusions

This initial workshop revealed some cultural values of the Aerotropolis region held by the Aboriginal stakeholders, as well as several concerns the stakeholders have regarding the project and the current level of historical and archaeological information in the area.

Key conclusions that can be drawn from the cultural values workshop include:

- The stakeholders stated that it is too early to comment with certainty on cultural values because there has not been an opportunity to walk Country and there have been no archaeological field investigations, and large parts of the landscape have not been extensively investigated during prior studies.
- The cumulative impact of the project is a key issue of cultural concern. When the stakeholders were asked what they would most like to see if they were to return to the study area in 50 years, the consensus answer was the retention of a significant portion of the Cumberland Plain particularly where original terrain, landscape and environment elements are best preserved. The consensus was also that this conservation area would not just include conserved creek corridors, but also contain a representative range of remnant terrain, emphasising the importance of retaining the Cumberland Plain Woodland rather than simply replacing with rows of trees for example.
- Unusual and well-preserved landforms such as exposed sandstone outcrops, areas of remnant old growth vegetation, well preserved creek corridors, should be protected where possible.
- There is a need to investigate the results of archaeological assessments undertaken across the Badgerys Creek airport site as they may shed important light on site and colonisation patterns in the region.

- The stakeholders present said that it is critical that the traditional owners and LALCs play a key role in future consultation and are given the opportunity to participate in further studies. The stakeholders stated that it is offensive when Aboriginal groups with no connection to country are engaged to do archaeological work.
- Any interpretation and storytelling needs to be undertaken in consultation with the traditional owners and LALCs to ensure it is culturally appropriate.
- There are some family connections to this country and nearby, and those should be recognised through acknowledgment in the studies done of the area as well as further interpretation through consultation with the traditional owners and LALCs.

10.2 Bradfield City Centre Cultural Values Engagement

Following the work completed for the Western Sydney Planning Partnership, Extent Heritage were subsequently engaged by the Western Parkland City Authority to undertake cultural values assessment relating specifically to the Bradfield City Centre. The details of the work have been included here as the findings are an important body of evidence to help assess the cultural and intangible values of the study area.

10.2.1 Methodology

GHD/Zion Engagement and Planning were commissioned by the proponent to provide advice on the selection stakeholders for this more targeted engagement work. Extent Heritage were advised by GHD/Zion that the following groups should be invited to participate:

Organisation	Attendance
Dharug Strategic Management Group	Invited, but did not attend
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Participated through an interview
Gandangara Local Aboriginal Land Council	Participated through a discussion on site
Dharug Ngurra Aboriginal Corporation	Invited, but did not attend
Dharug Custodian Aboriginal Corporation	Provided input via phone and written correspondence following the field survey
Darug Aboriginal Cultural Heritage Assessments	Invited, but did not attend
Darug Land Observations	Invited, but did not attend
Burbaga Aboriginal Corporation	Invited, but did not attend

Extent Heritage planned to undertake cultural values mapping on Country as part of this work, but stakeholder availability and accessibility/mobility issues meant that this was not possible for all groups. To enable as much participation as possible, Extent Heritage offered to undertake interviews or accept written advice and remote consultation as preferred by individual groups.

The intention of these cultural values interviews was to help identify and understand key social, cultural and intangible values associated with the Bradfield City Centre and to identify how these values should be conserved, remembered and managed throughout this project and into the future. The section below summarises the key findings of the cultural values research in Stage 2.

10.2.2 Cubbitch Barta Native Title Claimants Aboriginal Corporation

On 17 November 2020 Chloe Sullivian (GHD) and Madeline Shanahan (Extent Heritage) undertook an interview with Glenda Chalker of Cubbitch Barta Native Title Claimants Aboriginal Corporation in order to help identify and understand key social, cultural and intangible values associated with the Bradfield City Centre study area. The interview also aimed and to identify how these values should be conserved, remembered and managed throughout this project and into the future.

Glenda Chalker provided the following advice:

- Culturally modified trees in the broader region have previously been damaged and removed.
- The coverage of the study area previously seems to have been poor and large areas, particularly in the middle require more detailed investigation.
- It is important to walk the creek lines properly to identify tree types.
- Inter-generational equity is important. Some Country needs to be left for future generations to be able to learn and share culture.
- The Cumberland Plain landscape needs to be protected so that there is still an opportunity to learn. How can culture be continued if there is nothing left?
- If culturally modified trees are identified, these need to be connected to other trees and flora in the area.
- The connections between trees need to be maintained so that they are not left in isolation.
- People do not know the history of this Country and the endurance of its people – we still exist here and practise culture despite everything.
- Interpretation will be important, but it should be used for education, not as a mitigation for destruction.

10.2.3 Gandangara Local Aboriginal Land Council (GLALC)

Darren Duncan of GLALC participated in a cultural values walk over the study area on 1 December 2020. Madeline Shanahan and Francesca McMaster of Extent Heritage were in

attendance, accompanied by Elle Davidson (Zion Engagement and Planning), Chloe Sullivan (GHD) and Lilly Dolenec (Western Parklands City Authority).

Darren Duncan provided the following advice:

- Based on his previous experience excavating and undertaking survey at the site, it appears to be highly disturbed.
- The waterways, such as Thompsons Creek, are very important.
- Development should stay away from the waterways and focus should be given to improving water quality and flow.
- When the creek was healthy it would have had plenty of wildlife – would have had fishes, turtles, lots of water, lots of other mammals coming down to drink and feed. These animals are important.
- The large eucalyptus tree on the creek line was noted as being of high importance.

10.2.4 Dharug Custodian Aboriginal Corporation

Dharug Custodian Aboriginal Corporation were unable to attend the planned site visit, but were provided with access to the site during the field survey and an opportunity to comment via phone and in writing. Extent Heritage received detailed feedback via a letter written by Justine Coplin on 15 December 2020.

The following advice, including direct excerpts from the letter, was received:

- *“Aboriginal peoples are the oldest continued culture...the land may have been taken from us for many tens [sic] of years and disturbed. However, they still have cultural values, as a culture we have had to adapt to a forever changing landscape, allowance for culture, way of practicing these cultures and even our language is forever changing and adapting.”*
- *“Asking me to choose what would be more important to us, this question is problematic to me. Rather than looking them as separate areas you need to look at them combined. Trees, animals, scrubs, waterways are all people to us, not an item or possession. Through archaeology it is shown that you will find stone tools and sites closer to the river, but without the plains the rivers will not and cannot thrive and be a healthy entity.”*
- *“The greatest thing for me to feel when going to a site is how the country is still fighting to this day. The land was stripped of us and, we were stripped from the land. Sometimes I think that the term ‘care for country’ can be misinterpreted. When speaking about country it is not something we own, rather than the country and you work hand in hand. In a symbiotic relationship. As a Darug person the land is my mother, when I speak to country, I speak to it as if it is a person. A person that I have a duty of care for that also cares for me. The land is the direct link between all aspect of our existence; our spirituality; Culture, language, family, lore and foremost creates our identity. This*

connection flows from us to the country and country back to us. When I looked around, I could see the country fighting back after being abused, manipulated and quite frankly used."

- *"There was fields of kangaroo grass...the seed heads when they would dry and ripen would be processed then ground to a powder to make damper."*
- The large trees by the creek line are "grandmother trees, I've always been taught that the trees with smooth bugi (bark) are the women and the rough bugi are the men. A grandmother tree like the one pictured...holds so much knowledge its incredible. It provides many things to us such as wisdom, healing and practical things like bulu (shadow from the tree). Gurrundurrung (Paper barks) are very widely spread and have over 200 species. They are very important to us and all Aboriginal peoples around all countries. They were used in many practical ways but also some bark of certain trees are used in ceremonial practices."
- *"I saw many animals when I was on the survey which makes me feel special. I saw burus (kangaroos), Banggaray (swamp wallaby), Djarrawunnang (magpie), many other Binyang(birds), my family totem the Kutukulung (long neck turtle), Bulada (black snake), Mugadun(monitor), and many more. Seeing these animals shoes the importance of these land. The push to save these lands to allow home for our all our people."*
- Key priorities of the development are to use sustainable materials, plant native plants that are from the area, using correct terminology, do not use the past tense and ensure that it is clear throughout the development that this is always has been and always will be Aboriginal land.
- *"To make this a great project Extent needs to make sure that the Aboriginal involvement is not just to tick a box and not to treat Aboriginal peoples in a tokenistic way."*



Figure 55. Image courtesy of Tylan Blunden, DCAC.

10.2.5 Stage 2- Conclusions

After reviewing the findings of the cultural values research undertaken in Stage 2, identifiable patterns emerge. The following summary conclusions can be made regarding the cultural values identified for the Aerotropolis Core precinct:

- The Cumberland Plain landscape needs to be protected and conserved.
- Intergenerational equity is critical, and younger generations will not be able to learn if there is nothing left of the Cumberland Plain.
- Culturally modified trees are highly important. Many have been destroyed throughout the region and those left need to be protected.
- The connections between trees need to be maintained. If they are left in isolation they will not be protected.

- The mature trees, especially the 'Grandmother' trees are highly important.
- Kangaroo grass is culturally important and was used to make damper.
- The waterways are very important. Development should stay away from the waterways and focus should be given to improving water quality and flow.
- The wildlife and animals here are important and require healthy waterways and Country for their protection.
- The connections across all of Country and between all things need to be understood. The land, trees, water and animals cannot, be seen in isolation. It needs to be understood and protected as a whole.
- Country is the direct link to spirituality, culture, language, family, lore and identity. Darug people are connected to Country and Country is connected to them.
- Key priorities of the development are to use sustainable materials, plant native plants that are from the area, using correct terminology, do not use the past tense and ensure that it is clear throughout the development that this is, always has been and always will be Aboriginal land.

Note: Section to be updated following review by the RAPs.

11. Significance Assessment

11.1 Assessment criteria

While all Aboriginal objects in NSW are protected under NSW legislation, the *National Parks and Wildlife Act 1974* recognises that the destruction of sites may be necessary to allow other activities or developments to proceed. In order for Heritage NSW – DPC to make informed decisions on such matters, a consideration of the significance of cultural heritage places and objects is an important element of the assessment process.

An assessment of the cultural heritage significance of an item or place is required in order to form the basis of its management. The Guide (OEH 2011: 10) provides guidelines, in accordance with the Burra Charter (Australia ICOMOS 2013) for significance assessment with assessments being required to consider the following criteria:

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

An assessment of the scientific significance of an item or place is required in order to form the basis of its management. The Code of Practice required that the assessment must reflect best practice assessment processes as set out in the Burra Charter (Australia ICOMOS 2013):

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

It is important to note that heritage significance is a dynamic value and will be updated in consideration of the results of future investigations.

11.2 Significance assessment

11.2.1 Scientific value

B 22 (AHIMS ID 45-5-2640)

The site was recorded in 1996 as an open artefact scatter comprised of three Aboriginal objects. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B17 (AHIMS ID 45-5-2779)

The site was recorded in 1996 as an open artefact scatter comprised of two Aboriginal objects. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B 18 (AHIMS ID 45-5-2620)

The site was recorded in 1996 as an isolated find. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B 19 (AHIMS ID 45-5-2621)

The site was recorded in 1996 as an open camp site. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B 20 (AHIMS ID 45-5-2622)

The site was recorded in 1996 as an open camp site. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B 21 (AHIMS ID 45-5-2639)

The site was recorded in 1996 as an open artefact scatter, comprising 11 Aboriginal objects. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

B 23 (AHIMS ID 45-5-2641)

The site was recorded in 1996 as an artefact scatter comprising four artefacts. The results of the archaeological survey identified an additional nine Aboriginal objects at the recorded location of the site. None of the Aboriginal objects identified during the archaeological survey matched the artefacts recorded on the 1996 site card. It is likely that the site has been subject

to taphonomic processes which have impacted the distribution of the site assemblage. In addition, background research showed that the artefacts were located on an area where a large aerial was constructed in the mid-twentieth century. Due to high levels of historical ground disturbance, the site is considered to be of low scientific value.

B 38 (AHIMS ID 45-5-2628)

The site was recorded in 1996 as an artefact site. The site could not be relocated during the archaeological survey and is likely to have been impacted by taphonomic processes. As the site cannot be relocated, it is considered to be of low scientific value.

ACIF01 (AHIMS ID 45-5-5480)

The results of the archaeological survey identified one Aboriginal object likely to be associated with an area of PAD. Further archaeological investigations are required to determine if any subsurface artefacts are present within the site extent. Following completion of a test excavation program the site will be revaluated within the regional and local archaeological context. As a result, the site is considered to be of unknown scientific value.

ACAS01 (AHIMS ID 45-5-5481)

The site is comprised of four Aboriginal objects identified within an exposure associated with a vehicle track. As the study area is likely to be subject to ongoing taphonomic processes which are impacting the archaeological integrity of surface artefacts across the study area, the site is considered to have low research potential. The artefacts obtained from the site are not considered to be especially rare or representative of artefact types of lithologies within the local or regional context. Due to the low research, representative and rarity value of the artefacts, the site is not considered to be especially significant for educational purposes. Overall, ACAS01 (AHIMS ID 45-5-5481) is considered to be of low scientific value.

Moore Gully (AHIMS ID 45-5-5492)

A zone along Moore Gully has the potential to contain surface and subsurface artefacts and sites. While it is likely that several areas along Moore Gully will have been impacted by historical ground disturbance associated with the Bringelly RAAF base, the full extent of historical impacts to the soil profiles is unknown. Further investigation is required to recover and assess any archaeological deposits located within the PAD. Until a test excavation program has been undertaken, the scientific value of any artefacts or sites cannot be assessed.

Thompsons Creek (AHIMS ID 45-5-5491)

A zone along Thompsons Creek has the potential to contain surface and subsurface artefacts and sites. While it is likely that several areas along Moore Gully will have been impacted by historical ground disturbance associated with the Bringelly RAAF base, the full extent of historical impacts to the soil profiles is unknown. Further investigation is required to recover and assess any archaeological deposits located within the PAD. Until a test excavation program has been undertaken, the scientific value of any artefacts or sites cannot be assessed.

Summary

A summary of scientific value for the study area is provided in Table 15.

Table 15: Summary of archaeological significance.

Site name (AHIMS ID)	Research potential	Representativeness	Rarity	Education potential	Overall significance assessment
B 22 (AHIMS ID 45-5-2640)	Low	Low	Low	Low	Low
B17 (AHIMS ID 45-5-2779)	Low	Low	Low	Low	Low
B 18 (AHIMS ID 45-5-2620)	Low	Low	Low	Low	Low
B 19 (AHIMS ID 45-5-2621)	Low	Low	Low	Low	Low
B 20 (AHIMS ID 45-5-2622)	Low	Low	Low	Low	Low
B 21 (AHIMS ID 45-5-2639)	Low	Low	Low	Low	Low
B 23 (AHIMS ID 45-5-2641)	Low	Low	Low	Low	Low
B 38 (AHIMS ID 45-5-2628)	Low	Low	Low	Low	Low
ACIF01 (AHIMS ID 45-5-5480)	Unknown	Unknown	Unknown	Unknown	Unknown
ACAS01 (AHIMS ID 45-5-5481)	Low	Low	Low	Low	Low
Moore Gully (AHIMS ID 45-5-5492)	Unknown	Unknown	Unknown	Unknown	Unknown
Thompsons Creek (AHIMS ID 45-5-5491)	Unknown	Unknown	Unknown	Unknown	Unknown

11.2.2 Historic significance

The guidelines to the *Burra Charter* include the following discussion of historic significance:

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment. (Australia ICOMOS 2013b)

In relation to Aboriginal cultural heritage, many post-contact places and sites would have historic value. Pre-contact places and items may also be significant according to this criterion, although the association with historic figures, events, phases or activities may be more difficult to establish. Places of historic significance may include sacred or ceremonial sites, sites of resistance battles and massacres, places associated with Aboriginal communities after colonisation and the more recent past, and archaeological sites with evidence of technological developments.

Based on current research, the study area is not known to be associated with any specific people, events or activities of historical importance to the Aboriginal community.

(Note: this section is reliant on information provided by Aboriginal stakeholder consultation. This is an ongoing process and the section will be updated following the finalisation of consultation).

11.2.3 Aesthetic value

This criterion refers to aspects of sensory perception and the ability of the site to elicit emotional responses referred to as sensory or sensori-emotional values. The guidelines to the *Burra Charter* note that assessments may include consideration of the form, scale, colour, texture and material of the item or place, as well as sounds and smells. With regard to pre-contact Aboriginal cultural heritage sites, the placement within the landscape would be considered under this criterion as would memoryscapes and the ability of the site to transmit such memories. It is important to consider that sensori-emotional values are not always equated with 'beauty'; for example, massacre sites or sites of incarceration may have value under this criterion. Individual artefacts, sites and site features may also have aesthetic significance.

The majority of the study area has been subject to the clearance of native vegetation, which has compromised the aesthetic value and some areas. However, based on proximity to features such as waterways, trees and remnant, intact landforms in the margins, the study area is considered to be of moderate aesthetic value. Mature trees described as 'grandmother trees' have high aesthetic value that has been highlighted by several Aboriginal stakeholders.

(Note: this section is reliant on information provided by Aboriginal stakeholder consultation. This is an ongoing process and the section will be updated following the finalisation of consultation).

11.2.4 Social value

In Aboriginal heritage this criterion concerns the relationship and importance of sites to the contemporary Aboriginal community. Aspects of social and spiritual significance include people's traditional and contemporary links with a place or object as well as an overall concern by Aboriginal people for sites and their continued protection. Aboriginal cultural values may partially reflect or follow on from archaeological values, historic values, aesthetic values or be tied to values associated with the natural environment. This criterion requires the active participation of Aboriginal people in the assessment process as it is their knowledge and values that must be articulated.

Cultural values research, as summarised in Section 9, has clearly indicated that the study area holds social, cultural and spiritual significance. The importance of maintaining the Cumberland Plain and protecting Country so that future generations can learn culture has been highlighted by stakeholders. The importance of the cultural landscape as a whole, where land, waters, vegetation and animals are all connected, and in turn, are connected to Aboriginal people has also been highlighted. The connections between Country, culture and community demonstrates the social and cultural values of the study area.

The social and cultural importance of grandmother trees has been highlighted by several Aboriginal stakeholders. The trees have been identified as holding knowledge, wisdom, and healing. The trees also provide additional practical elements such as shade, and bark used in ceremonial practices. These features relate directly to both traditional and modern social and cultural practices, experiences, and values. As a result, they have high social and cultural value. That this information is still being passed down through generations further demonstrate the importance of grandmother trees to the local Aboriginal community.

As part of the consultation process the registered Aboriginal stakeholder groups will also be asked to provide appropriate information on the cultural significance of the subject site.

(Note: this section is reliant on information provided by Aboriginal stakeholder consultation. This is an ongoing process and the section will be updated following the finalisation of consultation).

11.3 Statement of significance

The study area is considered to have social and cultural significance for Aboriginal stakeholders. The connection between the cultural landscape, community and culture has been highlighted repeatedly and underpins the cultural and social Aboriginal values of the place. The importance of retaining this landscape to ensure intergenerational equity and access to culture is also critical. The study area also holds moderate aesthetic significance due to the presence of landscape features including waterways. Areas associated with the mature trees known as grandmother trees hold high aesthetic significance. The trees themselves hold high cultural and social values for the local Aboriginal community.

The scientific significance of the study area has not yet been determined. ACIF01 (AHIMS ID 45-5-5480) are of unknown scientific significance and test excavations will be required before this can be adequately assessed. The RAPs have not yet been provided an opportunity to

contribute towards the overall significance of the study area, in accordance with the Consultation Requirements.

(Note: this section is reliant on information provided by Aboriginal stakeholder consultation and the results of the test excavation program. This is an ongoing process and the section will be updated).

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12. Impact Assessment

12.1 Proposed works.

As the project is currently in the planning phase, the extent and nature of impacts beyond the First Building subject area is unknown. Until detailed designs are generated, it is assumed that any site or portion of a site located within the current study area will be harmed by the proposed works.

12.1.1 Potential impacts to Aboriginal heritage

The results of the archaeological survey, background research and Aboriginal stakeholder consultation have provided evidence for the presence of Aboriginal objects within the study area. It is assumed that the entire study area will be subject to ground disturbing works which will result in a direct impact and total loss of value to all identified Aboriginal sites. See Table 16 for a summary of impacts. It is assumed that the proposed works will also pose an impact to all identified social, cultural, and intangible values within the study area.

Table 16: Summary of archaeological significance.

Site name	Type of harm	Degree of harm	Consequence of harm
B 22 (AHIMS ID 45-5-2640)	Direct	Total	Total loss of value
B17 (AHIMS ID 45-5-2779)	Direct	Total	Total loss of value
B 18 (AHIMS ID 45-5-2620)	Direct	Total	Total loss of value
B 19 (AHIMS ID 45-5-2621)	Direct	Total	Total loss of value
B 20 (AHIMS ID 45-5-2622)	Direct	Total	Total loss of value
B 21 (AHIMS ID 45-5-2639)	Direct	Total	Total loss of value
B 23 (AHIMS ID 45-5-2641)	Direct	Total	Total loss of value
B 38 (AHIMS ID 45-5-2628)	Direct	Total	Total loss of value
ACIF01 (AHIMS 45-5-5480)	Direct	Total	Total loss of value
ACAS01 (AHIMS ID 45-5-5481)	Direct	Total	Total loss of value

Site name	Type of harm	Degree of harm	Consequence of harm
Moore Gully (AHIMS ID 45-5-5492)	Direct	Total	Total loss of value
Thompsons Creek (AHIMS ID 45-5-5491)	Direct	Total	Total loss of value

12.2 Ecological Sustainable Development principles

The Guide (OEH 2011) specifies that Ecological Sustainable Development (ESD) principles must be considered when assessing harm and recommending mitigation measures in relation to Aboriginal objects.

The following relevant ESD principles are outlined in Section 3A of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999:

- Decision-making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations (the 'integration principle')
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle')
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the 'principle of intergenerational equity').

12.2.1 The integration principle

The proposal would comply with the integration principle in regard to Aboriginal heritage. The Aboriginal heritage values of the study area have been considered as part of the planning process for the proposed works. The development and implementation of a heritage interpretation strategy for Aboriginal cultural heritage values of the study area will assist in complying with the integration principle.

12.2.2 The precautionary principle

Three areas of PAD were identified during the completion of this assessment, ACIF01 (AHIMS ID 45-5-5480), Moore Gully (AHIMS ID 45-5-5492), and Thompsons Creek (AHIMS ID 45-5-5491). As a result, the significance of these sites cannot be determined until further archaeological investigations, such as test excavations, have been completed.

12.2.3 The principle of intergenerational equity

The proposed works should adhere, as close as possible, to the principle of intergenerational equity by collating scientific and cultural information on former Aboriginal occupation of the study

area through the previous investigations and this ACHAR. The preservation of landscape features associated with social, cultural, and intangible Aboriginal heritage values should be incorporated in the final design. Preservation of these features would assist in complying with the principal of intergenerational equity by preserving these values for future generations.

12.3 Cumulative impacts

A cumulative impact is an impact on Aboriginal cultural heritage resulting from the incremental impact of the action/s of a development when added to other past, present and reasonably foreseeable future actions.

The land surrounding the study area will be subject to several large development projects which will result in a substantial cumulative impact to the Aboriginal cultural heritage of the region.

The Western Sydney International Airport site at Badgerys Creek extends over approximately 1700 hectares, with adjacent lands progressively scheduled for resumption and development over the next 50 years. At least 70 Aboriginal sites have been identified across the airport site with additional heritage investigation identifying additional Aboriginal objects as part of project mitigation measures (Navin Officer 2016). While effort has been made to preserve sites through environmental conservation areas and movement of topsoil it is expected that a large portion of these sites will be impacted or relocated as part of construction.

Options assessment of the proposed M12 route resulted in the identification of a number of surface and subsurface sites through a combination of survey and test excavation. A total of 19 Aboriginal sites are located within the construction footprint and will be subject to impact as part of the program including several sites to the north of the current study area (Jacobs 2019).

The results of the archaeological survey program have confirmed the presence of surface artefact sites. The proposed works are likely to result in a total impact to the identified Aboriginal sites. While resulting in a comparatively small cumulative impact when compared to the impacts of the above projects, the increase will never-the-less result in an increase to the cumulative destruction of Aboriginal cultural heritage in the region.

13. Management and Mitigation Strategy

13.1 Guiding principles

Where possible, cultural heritage should be conserved and protected *in situ*. However, where conservation is not practical, measures should be implemented to mitigate against the loss of archaeological value. These mitigation measures are based on the assessed significance of the site against the proposed impacts:

- Low significance – Conservation where possible. An AHIP would be required to impact the site before works can commence.
- Moderate significance – Conservation where possible. If conservation was not practicable further archaeological investigation would be required such as salvage excavations or surface collection under an AHIP.
- High significance – Conservation as a priority. An AHIP would be required only if other practical alternatives have been discounted. Conditions of this AHIP would depend on the nature of the site, but may include removal and preservation of scarred trees, or comprehensive salvage excavations.
- Unknown significance – Conservation where possible. Further investigation under the Code of practice will be required to assess the extent and significance of the PAD. Test excavation is not a mitigation measure.

To fully assess the level of significance and determine adequate mitigation and management measures, further assessment is required.

13.2 Archaeological test excavations

The scientific significance of ACIF01 (AHIMS ID 45-5-5480), Moore Gully (AHIMS ID 45-5-5492), and Thompsons Creek (AHIMS ID 45-5-5491) is currently unknown. Therefore, it is recommended that a test excavation program is completed to investigate the nature of any subsurface artefacts that may be present within the study area. The purpose of archaeological test excavation is to assess the nature, extent, and scientific value of the PADs. Test excavations are not a form of mitigation against those potential impacts. An archaeological test excavation methodology would be prepared and sent to the RAPs for review and comment prior to the commencement of test excavation.

An investigation in the north-western corner of the study area (First Building subject area) should be used to understand the landscape and soil profile in an area of low archaeological potential. To assist with the development timeframe, this section of the test excavation program was completed first. The conclusions of the test excavations in this area are summarised below and in the preliminary Aboriginal archaeological report (Appendix B). This assessment has been undertaken prior to the completion of the remaining test excavation program and has been sent for RAP review and comment.

Any requirements for further archaeological investigation, such as salvage excavation, would be determined following preparation of the test excavation results. Any identified sites of moderate – high archaeological significance may be recommended for salvage excavation. Where test excavation identifies sites of high scientific value, this information would inform future design preparation regarding future management of those areas, such as conservation where possible.

13.3 Test Excavation results

Test excavation has been completed for the First Building subject area (see Appendix B), with the following conclusions and recommendations:

- There are no registered Aboriginal objects and/or places located within or in close proximity of the First Building subject area.
- The subject area is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low potential to contain Aboriginal objects.
- Further Aboriginal archaeological assessment of the First Building subject area is not warranted given the results of the Aboriginal archaeological report (Appendix B).

13.3.1 Surface collection

To prevent the unnecessary destruction and loss of archaeological material located on the ground surface, the RAPs should be provided with the opportunity to conduct a surface collection of Aboriginal objects across the mapped extent of the study area.

13.3.2 Management of Aboriginal objects and heritage values

It is recommended that the artefacts recovered from the surface collection or test excavation program be reburied within the study area. The temporary repository of any retrieved artefacts will be in a locked cupboard on the premises of the archaeological consultant engaged to complete the works. The recovered artefacts should be reburied within the study area in an area not subject to future works. The reburial location will be recorded with a differential GPS and a site card lodged to the AHIMS database.

Based on the feedback from the RAPs it is recommended that buffer zones are placed around waterways, culturally modified trees and mature trees (especially the ‘Grandmother’ trees) in order to maintain connections and healthy ecosystems.

(Note: this section will be updated following the determination of a suitable reburial location and consultation with the RAPs).

13.3.3 Salvage excavation

Depending on the results of the Test Excavation Report and RAP consultation, salvage excavations may be recommended. If salvage excavations are required, a salvage excavation

methodology will be developed for the RAPs to review. The salvage excavation methodology will be incorporated into the ACHAR and ATER.

13.4 Heritage interpretation strategy

A heritage interpretation strategy should be developed in consultation with RAPs to address the cultural significance of the study area location within the Darug landscape. Methods of incorporating identified Aboriginal heritage values into the design process could include a cultural centre, interpretive displays and artistic elements within the new premises, and external elements such as paving components and plantings, providing information on Aboriginal land-use and life-ways within the study area and surrounds.

13.5 Discovery of human remains

The AHIP would not authorise harm to any human remains are identified during works. If human remains are discovered, the Coroners Act requires that all works should cease, and the NSW Police and the NSW Coroner's Office be contacted. Aboriginal burials which occur outside of designated cemeteries are protected under the National Parks and Wildlife Act and should not be disturbed. Interpreting the age and nature of skeletal remains is a specialist field, and an appropriately skilled archaeologist or physical anthropologist should therefore be contacted to inspect the find and recommend an appropriate course of action. Should the remains prove to be Aboriginal in origin, you are required to notify Heritage NSW – DPC and the Local Aboriginal Land Council. Notification should also be made to the Commonwealth Minister for the Environment, under the provisions of the Aboriginal and Torres Strait Islander Heritage Protection Act.

13.6 Unexpected finds

Unexpected finds remain protected under the NPW Act. If unforeseen Aboriginal objects are uncovered during construction, work should cease, and an archaeologist, Heritage NSW – DPC and the Gandangara LALC should be informed.

13.7 Ongoing consultation with Aboriginal stakeholder groups

Consultation with the registered Aboriginal stakeholders would continue throughout the life of the project, as necessary. Ongoing consultation with registered Aboriginal stakeholders will take place throughout all facets of the project, including reburial of retrieved artefacts and in the event of any unexpected Aboriginal objects being identified during works. To keep consultation current, the registered Aboriginal parties should be sent an update on the project every six months.

14. Summary of Findings and Recommendations

A total of 10 Aboriginal sites comprising isolated artefacts or artefact scatters have been identified through the completion of background research, database searches and field survey. One of these sites was also associated with an area of PAD. Two additional areas of PAD were

identified during the background research. Through the phases of cultural values assessment undertaken for this project, key social, cultural, and intangible values have been identified with the aim to understand how the RAPs would like these values to be conserved, remembered and managed throughout this project and into the future.

Based on the findings of this assessment and the understanding of the proposed impacts, it is recommended that:

- In accordance with the views of some stakeholders, the development should prioritise the use of sustainable materials and plant native plants that are from the area. Signage and information should also use correct terminology, should not use the past tense and should ensure that it is clear throughout the development that this is, always has been and always will be Aboriginal land.
- In accordance with feedback from the RAPs, buffer zones should be placed around waterways and trees identified as having cultural value (especially the 'grandmother trees') in order to maintain connections and healthy ecosystems.
- Where possible, impacts to identified Aboriginal sites should be avoided.
- An archaeological test excavation methodology be developed in accordance with the Code of Practice, to investigate the nature and extent of potential subsurface artefact across ACIF01 (AHIMS ID 45-5-5480), Moore Gully (AHIMS ID 45-5-5492), and Thompsons Creek (AHIMS ID 45-5-5491).
- The results of the Aboriginal archaeological test excavation program be prepared as a standalone report that identifies any requirements for an update to this ACHAR.
- Consultation with RAPs should be completed in accordance with the Consultation Requirements to inform the development of the test excavation methodology.
- A heritage interpretation strategy should be prepared for the study area in consultation with the RAPs. This strategy would include methods of incorporating identified Aboriginal heritage values into the design process, such as use of native vegetation in replanting, use of local Aboriginal place names and interpretative signage providing information on Aboriginal land-use within the study area and surrounding area.
- If changes are made to the proposed works which result in impact to locations outside of the current study area, further archaeological investigation and survey may be required.
- If suspected human remains are located during any stage of the proposed works, work should stop immediately, and the NSW police and Coroner's Office should be notified. Heritage NSW – DPC should be notified if the remains are found to be those of an Aboriginal person.

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Appendix A. Aboriginal Archaeology

Appendix A.1 Site type information

Aboriginal sites

Aboriginal sites are classified in several ways. At the most basic level, sites are recorded as 'closed sites' or 'open sites'. Closed sites are associated with rock shelters, and include other evidence of Aboriginal occupation that may be present, such as accumulated cultural deposit within the shelter ('potential archaeological deposit' or PAD), faunal remains (animal bone or shell), and rock art on the shelter walls (paintings or engravings). Open sites are broadly defined and encompass all other types of Aboriginal sites identified where there is no rock shelter.

The most common types of open sites found in NSW include artefacts, which can occur almost anywhere in the landscape, grinding grooves, rock art across formations, culturally modified trees, and shell deposits (middens) (OEH 2012, 7-10). The presence or absence of stone artefacts is often a defining factor, although it is worth pointing out that almost any site is likely to have at least some associated artefacts, as discard or loss of this most ubiquitous and practically indestructible marker of Aboriginal archaeology is likely to have occurred anywhere that Aboriginal people stopped or gathered for any length of time.

Any one site (or group of linked sites described as a 'site complex') can contain several different site features. For example, a shelter may have art on the walls, artefacts on the floor surface or outside the shelter, and be predicted to contain faunal remains and further artefacts in the accumulated deposit inside.

A description of terms used to describe different Aboriginal site features in NSW is provided in Table AD-1. Other features or types of Aboriginal cultural sites that do not necessarily leave physical evidence may exist or have once existed in the landscape as well; however, such sites have not been recorded previously which reflects the archaeological focus of past studies and the loss of traditional knowledge of such places in this area. Similarly, there may be places of contemporary significance to Aboriginal people in the study area and this will require consultation with the Aboriginal community to identify such places.

Table 17: Aboriginal site feature definitions

Site feature	Definition
Artefact	Objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating evidence of use of the area by Aboriginal people.
Potential archaeological deposit (PAD)	An area where Aboriginal objects may occur below the ground surface. The term 'potential archaeological deposit' was first applied in Sydney regional archaeology in the 1980s, and referred to rock shelters that were large enough and with enough accumulated deposit to allow archaeologists to presume that subsurface cultural material was highly likely to be present. Since then it has come to include open sites where the same prediction can be made.

Site feature	Definition
Modified tree (carved or scarred)	Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials shrouds, for medicinal purposes, foot holds etc., or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area, again these carvings may also act as territorial or burial markers.
Stone quarry	Usually a source of good quality stone which is quarried and used to produce stone tools
Burial	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked, e.g. in caves, marked by stone cairns, in sand areas, along creek banks etc.

Source: OEH (2012, 8-10).

Stone artefacts

Aboriginal stone artefacts are important sources of archaeological information because stone is preserved for long periods of time whereas organic materials such as bone, shell, wood and plant fibres often decay. Stone artefacts provide valuable information about technology, economy, cultural change through time and settlement patterning. Stone has also been used for 'relative' dating of sites where direct methods such as radiocarbon dating cannot be applied.

A technological sequence for stone artefacts for the region was first described in the late 1940s by Fred McCarthy and has since been refined over time by Hiscock and Attenbrow (2005) into the 'Eastern Regional Sequence':

- Capertian—Distinguished by large uniface pebble tools, core tools, horse-hoof cores, scrapers and hammerstones. Backed artefacts occasionally present. Generally, dates to before 5,000 years BP.
- Early Bondaian—Aspects of the Capertian assemblage continue but backed artefacts and ground-edged artefacts increase. Artefacts during this period were predominantly made from fine-grained siliceous stone such as silcrete and tuff. Generally dated from 5,000 BP to 2,800 BP.
- Middle Bondaian—Characterised by backed artefacts, particularly Bondi Points and ground-edged artefacts. Artefacts made from siliceous materials; however, quartz becomes more frequent. Generally dated from 2,800 BP to 1,600 BP.
- Late Bondaian—Characterised by bipolar technology, eloueras, ground-edged artefacts, and bone and shell artefacts. Bondi points are virtually absent, and artefacts are predominantly made from Quartz. Generally dated from 1,600 BP to European contact.

Preservation of the archaeological record

The following observations can be made about the nature and preservation of the archaeological record across the Cumberland subregion:

- Archaeological material is often found in areas of sub-surface exposure, such as those caused by erosion.
- Surface evidence (or the absence of surface evidence) does not necessarily indicate the potential, nature or density of sub-surface material. Extensive excavations have shown that areas with no surface evidence often contain sub-surface deposits buried beneath current ground surfaces (e.g. Kohen et al. 1984).
- Due to the limitations of surface surveys, test excavation is often required to establish the nature and density of archaeological material.
- Aboriginal cultural material is more likely to survive in areas that contain remnant portions of the pre-European soil profile, in contrast to landforms that have been impacted by historical or recent disturbances.
- The potential for survival of any archaeological sites will largely depend on the degree of past disturbance.
- Past disturbance to the soil profile can be due to European activity such as clearing, ploughing, grazing, and urban development and/or due to environmental factors such as flooding events, erosion and colluvial movement. These activities may disturb, erode or remove the natural soil profile completely.
- Aboriginal stone artefacts are more likely to survive because stone is preserved for long periods of time whereas organic materials such as bone, shell, wood and plant fibres decay.
- A major impact of more than 200 years of post-contact settlement on Aboriginal sites would have been the destruction of carved and scarred trees, which would have been removed as part of clearing for agricultural activities and the construction of infrastructure such as buildings and roads. However, there is some potential for culturally modified trees to survive in areas where there are stands of remnant native vegetation.

Appendix A.2 AHIMS Search

A copy of the results from the search for Aboriginal sites on AHIMS in the study area is provided in the following pages.

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AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2790	B 54	AGD	56	288280	6245560	Open site	Valid	Art (Pigment or Engraved) :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2791	B 11	AGD	56	289700	6246200	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2798	B 27	AGD	56	291650	6245090	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2779	B 17	AGD	56	291060	6244300	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2780	B 65	AGD	56	291310	6246110	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2618	B 32	AGD	56	286370	6246560	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2619	B 29	AGD	56	291970	6244700	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Kerry Navin			<u>Permits</u>		
45-5-2620	B 18	AGD	56	291100	6243960	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2621	B 19	AGD	56	291230	6243620	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2622	B 20	AGD	56	291110	6243510	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2624	B 34	AGD	56	291750	6244890	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2625	B 35	AGD	56	291550	6244330	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2626	B 36	AGD	56	291060	6244350	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2627	B 37	AGD	56	290500	6244900	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2628	B 38	AGD	56	290750	6243430	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2629	B 39	AGD	56	286980	6246450	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2631	B 42	AGD	56	288150	6246050	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		

Report generated by AHIMS Web Service on 19/06/2020 for Tse SangLim for the following area at Datum :GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2633	B 45	AGD	56	288580	6245840	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2634	B 8	AGD	56	288120	6245500	Open site	Valid	Modified Tree (Carved or Scarred) :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2635	B 7	AGD	56	288020	6245150	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2636	B 6	GDA	56	288030	6244919	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd, Kelleher Nightingale Consulting Pty Ltd			<u>Permits</u>		
45-5-2637	B 5	AGD	56	289470	6246250	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2638	B 4	GDA	56	288340	6245652	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd, Navin Officer Heritage Consultants Pty I			<u>Permits</u>		
45-5-2639	B 21	AGD	56	291060	6243490	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2640	B 22	AGD	56	290620	6243800	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2641	B 23	AGD	56	290710	6243460	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2642	B 24	AGD	56	287040	6246000	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2643	B 25	AGD	56	287050	6246390	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2644	B 26	AGD	56	291550	6245110	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2784	B 106	AGD	56	289560	6245450	Open site	Valid	Art (Pigment or Engraved) :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2785	B 107	AGD	56	291550	6245560	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2786	B 109	AGD	56	291360	6246530	Open site	Valid	Art (Pigment or Engraved) :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		
45-5-2787	B 110	AGD	56	291250	6246230	Open site	Valid	Artefact :-		
	<u>Contact</u>			<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd			<u>Permits</u>		

Report generated by AHIMS Web Service on 19/06/2020 for Tse Siang Lim for the following area at Datum : GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2766	B108	AGD	56	292300	6246010	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2772	B33	AGD	56	290480	6244800	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2812	b105	AGD	56	289920	6245360	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2702	B10	AGD	56	289550	6246130	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-3963	ALN-IP 01	GDA	56	296499	6245984	Open site	Valid	Artefact : 1		103786
	<u>Contact</u>	<u>Recorders</u>				Australian Museum Consulting (AM Consulting), Mrs. Jenna Weston		<u>Permits</u>		
45-5-3966	ALN-IP 04	GDA	56	297889	6246602	Open site	Valid	Artefact : 1		103786
	<u>Contact</u>	<u>Recorders</u>				Australian Museum Consulting (AM Consulting), Mrs. Jenna Weston		<u>Permits</u>		
45-5-4002	Isolated Object 2004-5	AGD	56	296478	6246591	Open site	Valid	Artefact : 1		103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4003	Artefact Scatter PAD 2005-846	GDA	56	296202	6246065	Open site	Valid	Artefact :-		103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4005	PAD 2006-6	GDA	56	295790	6245041	Open site	Valid	Potential Archaeological Deposit (PAD) :-		
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4014	Artefact Scatter PAD 2015-46	GDA	56	298032	6245823	Open site	Partially Destroyed	Artefact :-, Potential Archaeological Deposit (PAD) :-		103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams, Kelleher		<u>Permits</u>	3837	
45-5-4015	Isolated Object 2016-5	GDA	56	297480	6245528	Open site	Valid	Artefact :-		103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4016	PAD 2017-6	GDA	56	296388	6245649	Open site	Valid	Potential Archaeological Deposit (PAD) :-		103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4017	PAD 2018-6	GDA	56	296377	6244929	Open site	Valid	Potential Archaeological Deposit (PAD) :-		103783, 103786
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams		<u>Permits</u>		
45-5-4021	Isolated Object 2022-5	GDA	56	295399	6245634	Open site	Destroyed	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor. Alan Williams, AECOM		<u>Permits</u>		
45-5-5280	Ramsay Road South APT 1	GDA	56	293129	6244136	Open site	Valid	Artefact :-		

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AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders						Permits		
45-5-5291	FOURTH AVENUE	GDA	56	297277	6244546	Open site	Valid	Artefact : 1	4577	
	Contact	Recorders						Permits		
45-5-2583	B 30	AGD	56	292370	6244490	Open site	Valid	Artefact :-	Open Camp Site	
	Contact	Recorders						Permits		
45-5-0905	Bringelly 1	GDA	56	293005	6243550	Open site	Valid	Artefact :-	Open Camp Site	2457,2499
	Contact	Recorders						Permits		
45-5-3096	B58	AGD	56	290530	6246180	Open site	Destroyed	Artefact : 2	4577	
	Contact	Recorders						Permits		
45-5-4146	TNRU10	GDA	56	289307	6244080	Open site	Valid	Artefact : 1	3752	
	Contact	Recorders						Permits		
45-5-4147	TNRU11	GDA	56	289417	6243880	Open site	Valid	Artefact : 1	3894	
	Contact	Recorders						Permits		
45-5-5067	B130	GDA	56	290085	6246717	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5069	B132	GDA	56	288663	6246138	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5070	B133	GDA	56	288818	6246047	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5164	BCBW18 AS 02	GDA	56	293128	6246842	Open site	Valid	Artefact :-		
	Contact	Recorders						Permits		
45-5-5078	B136	GDA	56	289532	6246401	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5053	B116	GDA	56	286258	6246773	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5054	B117	GDA	56	288782	6246337	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5055	B118	GDA	56	290118	6246822	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5056	B119	GDA	56	287790	6246334	Open site	Valid	Artefact : 1		
	Contact	Recorders						Permits		
45-5-5057	B120	GDA	56	290162	6246756	Open site	Valid	Grinding Groove : 1		
	Contact	Recorders						Permits		
45-5-5060	B123	GDA	56	288134	6245959	Open site	Valid	Artefact : 1		

Report generated by AHIMS Web Service on 19/06/2020 for Tse SiangLim for the following area at Datum : GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Jo Dibden							
45-5-5061	B124	GDA	56	288283	6245779	Open site	Valid	Artefact : 1		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Jo Dibden							
45-5-5062	B125	GDA	56	285378	6246620	Open site	Valid	Artefact : 1		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Jo Dibden							
45-5-5063	B126	GDA	56	285196	6246684	Open site	Valid	Artefact : 1		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd,Mrs.Jo Dibden							
45-2-0369	Bringelly 1;	GDA	56	293005	6243550	Open site	Valid	Artefact :-	Open Camp Site	2457
	Contact	Recorders	Doctor Jo McDonald,Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (
45-5-2658	B67	AGD	56	290150	6246700	Open site	Valid	Artefact :-	4577	
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2660	B64	AGD	56	291300	6246000	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2661	B63	AGD	56	291450	6245880	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2662	B61	AGD	56	291100	6245450	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2663	B79	AGD	56	287900	6246390	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2666	B85	AGD	56	290000	6244893	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2669	B96	AGD	56	291270	6245670	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2670	B92	AGD	56	287650	6245800	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2672	B97	AGD	56	291270	6245510	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2674	B100	AGD	56	290870	6245740	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2675	B99	AGD	56	291950	6246080	Open site	Valid	Artefact :-		
	Contact	Recorders	Navin Officer Heritage Consultants Pty Ltd							
45-5-2676	B98	AGD	56	291840	6245800	Open site	Valid	Modified Tree (Carved or Scarred) :		
	Contact	Recorders	Hilton Naden							

Report generated by AHIMS Web Service on 19/06/2020 for Tse SiangLim for the following area at Datum : GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SYD0220086

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2677	B16	AGD	56	291830	6244780	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2616	B 28	AGD	56	291700	6244980	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2617	B 31	AGD	56	287350	6245410	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Robert Paton		<u>Permits</u>		
45-5-2684	B73	AGD	56	291080	6246280	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2686	B72	AGD	56	290800	6246500	Open site	Valid	Artefact :-		102196
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2689	B62	AGD	56	295050	6245290	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2691	B60	AGD	56	290900	6245480	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2692	B56	AGD	56	288460	6245530	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2693	B55	AGD	56	290310	6246680	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2694	B52	AGD	56	290550	6246580	Open site	Not a Site	Modified Tree (Carved or Scarred) :		103124
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd, Mr James Hammond		<u>Permits</u>		
45-5-2695	B51	AGD	56	290150	6246420	Open site	Not a Site	Artefact :-		103124
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd, Mr James Hammond		<u>Permits</u>		
45-5-2696	B50	AGD	56	289720	6246120	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2697	B49	AGD	56	289200	6245800	Open site	Valid	Modified Tree (Carved or Scarred) :		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2698	B48	AGD	56	288810	6245800	Open site	Valid	Modified Tree (Carved or Scarred) :		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		
45-5-2699	B46	AGD	56	288760	6245940	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>				Navin Officer Heritage Consultants Pty Ltd		<u>Permits</u>		

Report generated by AHIMS Web Service on 19/06/2020 for Tse Siang Lim for the following area at Datum : GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : SYD0220086

Client Service ID : 514056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-5-2700	B9	AGD	56	289120	6245900	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd							
45-5-2701	B47	AGD	56	288530	6245620	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd							
45-5-2703	B12	AGD	56	289840	6246320	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd							
45-5-2706	B57	AGD	56	289200	6245750	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Navin Officer Heritage Consultants Pty Ltd							
45-5-4797	TNR APT 30	GDA	56	286634	6246090	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightingale Consulting Pty Ltd,Mr							
45-5-4801	TNR APT 29	GDA	56	285946	6246336	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightingale Consulting Pty Ltd,Mr							
45-5-4802	TNR APT 31	GDA	56	286351	6246252	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightingale Consulting Pty Ltd,Mr							
45-5-5317	EDM IF1	GDA	56	297809	6243447	Open site	Valid	Artefact :-		<u>Permits</u>
	<u>Contact</u>	<u>Recorders</u>	Extent Heritage Pty Ltd - Pyrmont - Individual users,Mr.Cameron Neal							

Report generated by AHIMS Web Service on 19/06/2020 for Tse SiangLim for the following area at Datum : GDA, Zone : 56, Eastings : 284800 - 298050, Northings : 6243390 - 6246890 with a Buffer of 0 meters. Additional Info : To inform an ACHA report..Number of Aboriginal sites and Aboriginal objects found is 104

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Appendix A.3 Individual Site Cards

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Appendix A.4 Consultation records

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Appendix B. Aboriginal Archaeological Report

CONFIDENTIAL

17 November 2021
Attention: Paul Hedge
Western Parkland City Authority
Level 2, 10 Valentine Ave, Parramatta
NSW 2150

Dear Mr Hedge,

First Building - Aboriginal Archaeology Report

We write in relation to the recently completed Aboriginal archaeological report that has been undertaken for the First Building subject area withing the proposed Bradfield City Centre. The assessment including test excavation has now been completed with the following conclusions and recommendations:

- There are no registered Aboriginal objects and/or places located within or in close proximity of the First Building subject area.
- The subject area is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low potential to contain Aboriginal objects.
- Further Aboriginal archaeological assessment of the subject area is not warranted given the results of this Aboriginal archaeological report.

Based on the above conclusions, the proposed development can proceed with caution in line with the following recommendations:

1. This document should be kept, providing proof that an Aboriginal archaeological report has been applied for the subject area.
2. This document should be issued to the Registered Aboriginal Parties (RAP) and Local Aboriginal Land Council for review and any responses recorded and appended to the report.
3. The Aboriginal Cultural Heritage Assessment (ACHA) and consultation with relevant Aboriginal stakeholders for the broader Bradfield City Centre masterplan area (including the First Building subject area) should continue to be carried out to investigate, assess and manage both tangible and intangible Aboriginal cultural heritage resources within the broader project area.

Should you have any questions or concerns please do not hesitate to contact me on (02) 9555 4000.

Yours sincerely,



Andrew Costello

Senior Associate Archaeologist | Extent Heritage

Background and purpose of document

In NSW, Aboriginal objects, whether recorded or yet undiscovered, are afforded statutory protection under the *National Parks and Wildlife Act 1974* (the NPW Act or the Act). Under Section 86 of the Act, it is an offence to disturb, destroy or deface Aboriginal objects without the approval of the Director General of the DPIE. A breach of Section 86 of the NPW Act could result in prosecution and fines in excess of \$1 million. Further information on legislation is provided in **(Appendix A)**. The DPIE provides a series of guidelines as a framework for identifying and managing Aboriginal heritage and the cultural heritage interests of Aboriginal parties within development planning contexts. The identification of cultural heritage values must be conducted in accordance with the *Code of Practice for Archaeological Investigation for Aboriginal objects in NSW* (DECCW 2010), and be guided by the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH 2011).

Extent Heritage Pty Ltd (Extent Heritage) have been engaged by the Western Parkland City Authority to prepare an Aboriginal archaeological report for the First Building Site (subject area) within the Bradfield City Centre development area. This report is an amendment to the ongoing Aboriginal Cultural Heritage Assessment Report (ACHAR) currently in preparation for the broader Bradfield City Centre masterplan area. The results of this assessment, which includes test excavation, will be used to inform the Environmental Impact Statement under the Planning Secretary's Environmental Assessment Requirements (SEARS [SSD-25452459]) to support the development of the masterplan for the Bradfield City Centre.

This Aboriginal archaeological report was prepared to investigate the presence or absence of Aboriginal objects and/or places within the subject area, and establish whether the proposed development will have the potential to harm Aboriginal objects that may exist in subsurface deposits. The document can also provide advice relating to any potential Aboriginal archaeological constraints. This report was prepared in accordance with the Code of Practice for Archaeological Investigation for Aboriginal objects in NSW (DECCW 2010), and guided by the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales (OEH 2011), and included the following:

- Comprehensive background research of the AHIMS register, statutory and non-statutory heritage listings.
- Analysis of landscape features and their potential to retain Aboriginal objects.
- Analysis of historical land use and its impact on the subject area.
- Archaeological survey of the subject area.
- Test excavation of eight test trenches within the subject area, in accordance with the NSW Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010b).

- Aboriginal consultation related to the cultural heritage assessment and investigation of the subject area.

The background assessment confirmed the presence of Aboriginal sites within 200 m of the subject area (Table 1). None of these sites would be impacted by the First Building development.

AHIMS ID	Site Name	Site type	Distance to subject area
45-5-2779	B 17	Isolated artefact	500 m
45-5-2640	B 22	Isolated artefact	200 m
45-5-2620	B 18	Artefact scatter	500 m
45-5-5480	ACIF01	Isolated artefact and PAD	200 m
45-5-2641	B 23	Artefact scatter	400 m
45-5-2628	B 38	Isolated artefact	420 m

Statutory background

The National Parks and Wildlife Act 1974 (NSW) (the NPW Act) is the primary piece of legislation for the protection of Aboriginal cultural heritage in New South Wales (NSW). Heritage NSW administers the NPW Act. The NPW Act provides statutory protection for Aboriginal objects by making it illegal to harm Aboriginal objects and Aboriginal places, and by providing two tiers of offence against which individuals or corporations who harm Aboriginal objects or Aboriginal places can be prosecuted. The NPW Act defines Aboriginal objects and Aboriginal places:

Aboriginal object means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Aboriginal place means any place declared to be an Aboriginal place under section 84. The highest tier offences are reserved for knowledgeable harm of Aboriginal objects or knowledgeable desecration of Aboriginal places. Second tier offences are strict liability offences - that is, offences regardless of whether or not the offender knows they are harming an Aboriginal object or desecrating an Aboriginal place – against which defences may be established under the National Parks and Wildlife Regulation 2009 (NSW) (the NPW Regulation).

This Aboriginal archaeological report follows the relevant acts and aims to establish whether Aboriginal objects would be harmed by the proposed development of the subject area.

Existing environment

The subject area is located on the Cumberland Plain, an extensive low-lying sub-region within the wider Sydney Basin bioregion (DAWE n.d.). The surface geology underlying the subject area is largely characterised by sandstone, siltstone, and shale rocks of the Wianamatta Group (Geoscience Australia and Australian Stratigraphy Commission [GAASC] 2017).

Over the course of the Holocene epoch (c.11,650 cal. BP–present), channel and floodplain alluvium comprising of gravel, sand, silt and clay has also been deposited along the bank of Thompsons Creek, located along the eastern and western boundary of the study area (GAASC 2017). Arising from this geological background within the study area are two distinctive natural soil landscapes (OEH 2019): South Creek and Blacktown (Figure 1).

The South Creek soil landscape is located along the channels and floodplains of Badgerys, Cosgroves, Kemps, South and Thompsons creeks, as well as that of a minor unnamed watercourse at the northern boundary of the study area (OEH 2019). This landscape comprises flat to gently sloping floodplains and valley flats, drainage depressions and incised channels, with occasional terraces or levees providing low, local reliefs (Figure 2). Its soil generally consists of shallow to deep sediment layers with an A horizon topsoil of brown loam over a B horizon of brown clay. The South Creek soil landscape is an active floodplain that is presently reworked by fluvial processes, resulting in streambank and gully erosion during periods of concentrated flows.

The Blacktown soil landscape (Figure 1) is located on higher elevations adjacent to the South Creek soil landscape and characterises most of the subject area (OEH 2019). This landscape consists of gently undulating rises with broad crests and ridges that are rounded with convex upper slopes grading into concave lower slopes. Its soil generally consists of shallow to deep layered sediments with an A horizon topsoil of brownish black loam or clay loam over a B horizon subsoil of brown or grey mottled clay. In contrast to the South Creek soil landscape, the erosion hazard for the Blacktown soil landscape is generally slight to moderate which can increase to moderate or high during periods of concentrated flows.

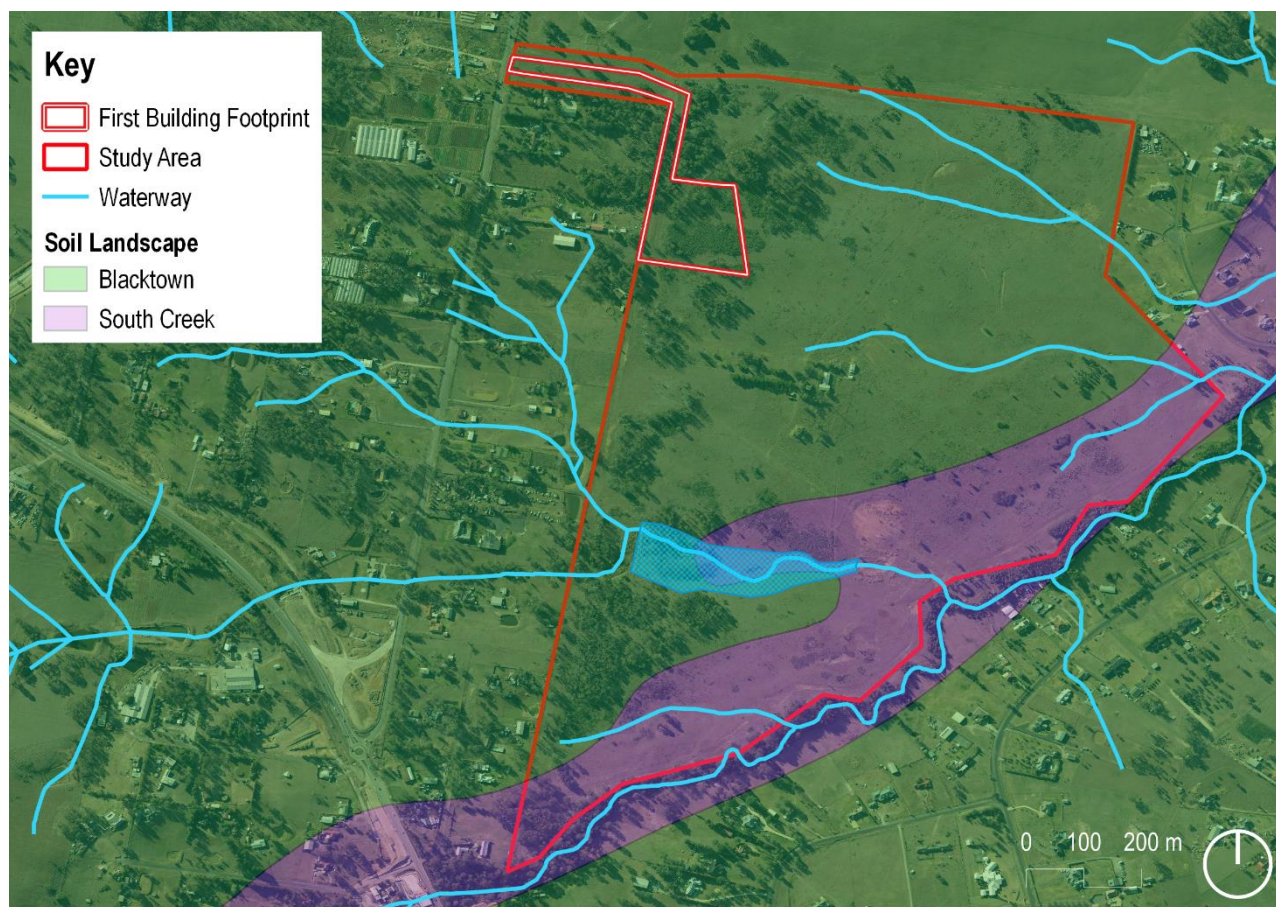


Figure 1 Soil landscapes within the Bradfield City Centre masterplan study area showing the First Building Footprint (source: NSW Planning and Environment with Extent Heritage additions 2021).

The subject area has undergone ground disturbance during its function as agricultural and pastoral lands from the early nineteenth century to mid-twentieth century (Figure 2). Ploughing, especially noted in the eastern side of the site, earthworks, disturbance from sheep and/or cattle grazing, and the establishment of dams will have impacted surface and subsurface Aboriginal archaeological remains.

In particular, ploughing can disturb the soil to a depth of 200 to 300 mm below the surface. Despite this, the deeper soil profiles associated with the south creek soil landscape may be only partially affected by this disturbance and, as a result, still contain intact lower layers. Further archaeological investigation is required to fully appreciate the impact of this disturbance.

The establishment of the Bringelly RAAF station has caused significant impacts to the central portion of the Bradfield city centre masterplan area (Figure 2). The construction of the station, staff housing, and associated structures will have significant impact to surface and subsurface Aboriginal sites within their footprint. The location of additional auxiliary works across the Bradfield City Centre masterplan area, such as water pipes, electricity services, and the concrete pads, will have further significant impacts. There is a nil to low potential for archaeological evidence in these locations.

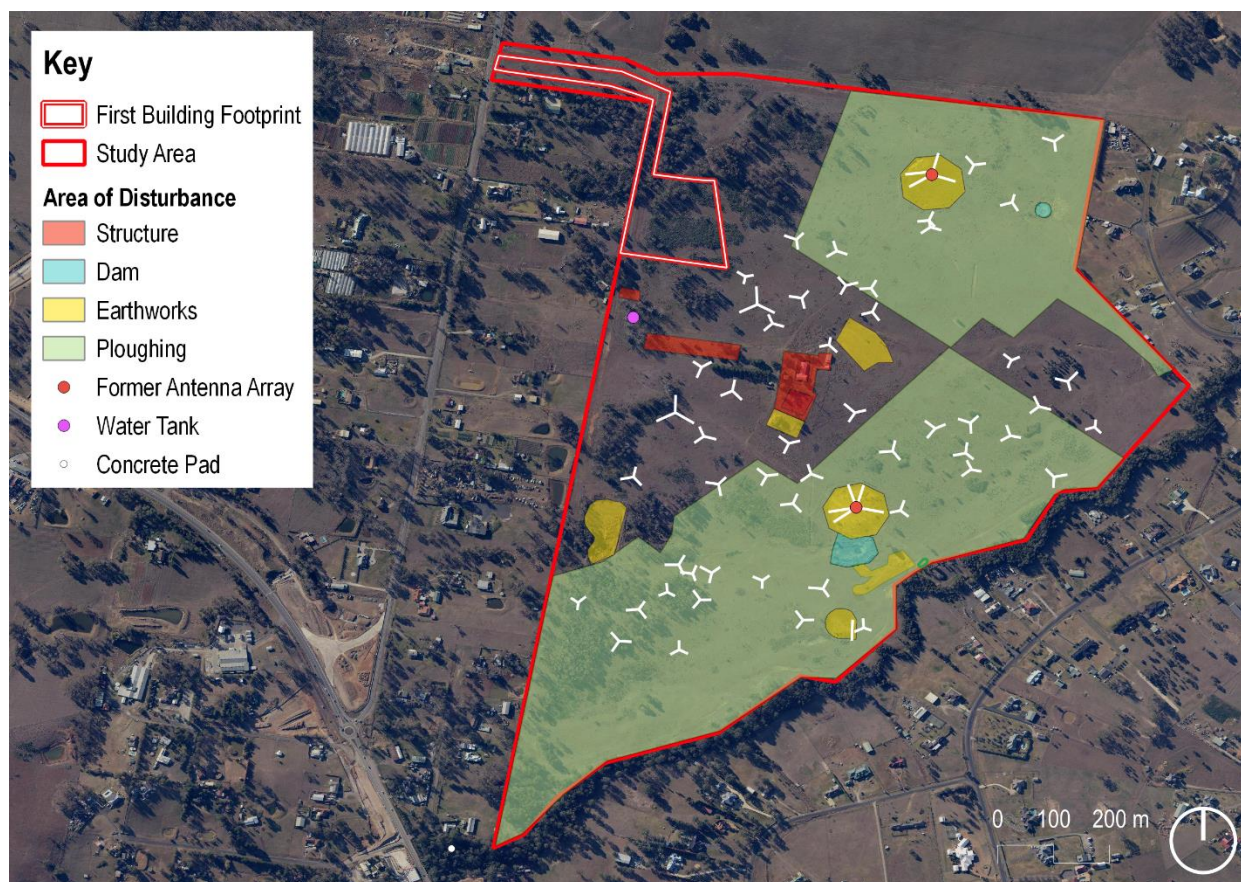


Figure 2 Disturbance mapping of historical impacts and location of structures built across the broader Bradfield study area during its use as Bringelly RAAF base, including concrete pads for light aerials and associated guy-wires. Note that not all the concrete pads have been identified and marked on this map (source: Extent Heritage 2021).

Archaeological context

Although the Cumberland Plain has been the subject of hundreds of archaeological studies, the subject area is in a portion of the plain where significantly less detail is available regarding the nature, distribution, and survival of archaeological materials. Recent investigations within the subject area and its surrounding region indicate that Aboriginal archaeological materials will potentially be present in areas that have not been subject to major development impacts.

The previously completed assessments reviewed as part of the desktop assessment have identified the presence of 'open camp' or 'shelter' and art sites, areas of rich natural resources for subsistence and raw material sources for stone tool manufacture. In general, the raw material utilized in the manufacture of stone tools appear to be predominantly silcrete, with lesser utilisation of chert, quartz, quartzite, sandstone, petrified wood, and mudstone or tuff. Edge-ground artefacts and grinding grooves were found along South Creek as it passes near Badgerys Creek (Haglund 1978), while another edge-ground axe was recently recovered with other stone flakes during another survey at Mamre Road near Kemps Creek (Artefact 2019). A fragment of a possible 'microblade' was also identified during a survey of a locality at

Badgerys Creek by Kohen (1991, 14). Two 'backed implements' were also identified during another survey on a spur above South Creek near Ramsay Road (Brayshaw McDonald 1992, 9), whereas an indurated mudstone scraper was recovered during test excavations at the Twin Creeks Estate near South Creek (Dominic Steele 2007).

AECOM (2021) completed an archaeological survey and report for the Sydney Metro - Western Sydney Airport, which lies 50 m directly south of the subject area. An objective of the survey was to re-identify an artefact scatter, AHIMS ID 45-5-2640 (B 22), previously identified adjacent to the subject area (Figure 3).

During the survey, however, no artefacts were detected. AECOM noted that the artefacts were likely obscured by dense vegetation and that the site was still likely to be valid. No additional surface artefacts were identified during the survey, but the land surrounding AHIMS ID 45-52640 was assessed as demonstrating potential to contain subsurface artefacts.

A total of 26 test pits (measuring 500 mm x 500 mm) were excavated by AECOM (Figure 3). No Aboriginal objects were recovered from the test excavation program. As result, the land surrounding AHIMS ID 45-52640 was assessed by AECOM as demonstrating low archaeological potential.

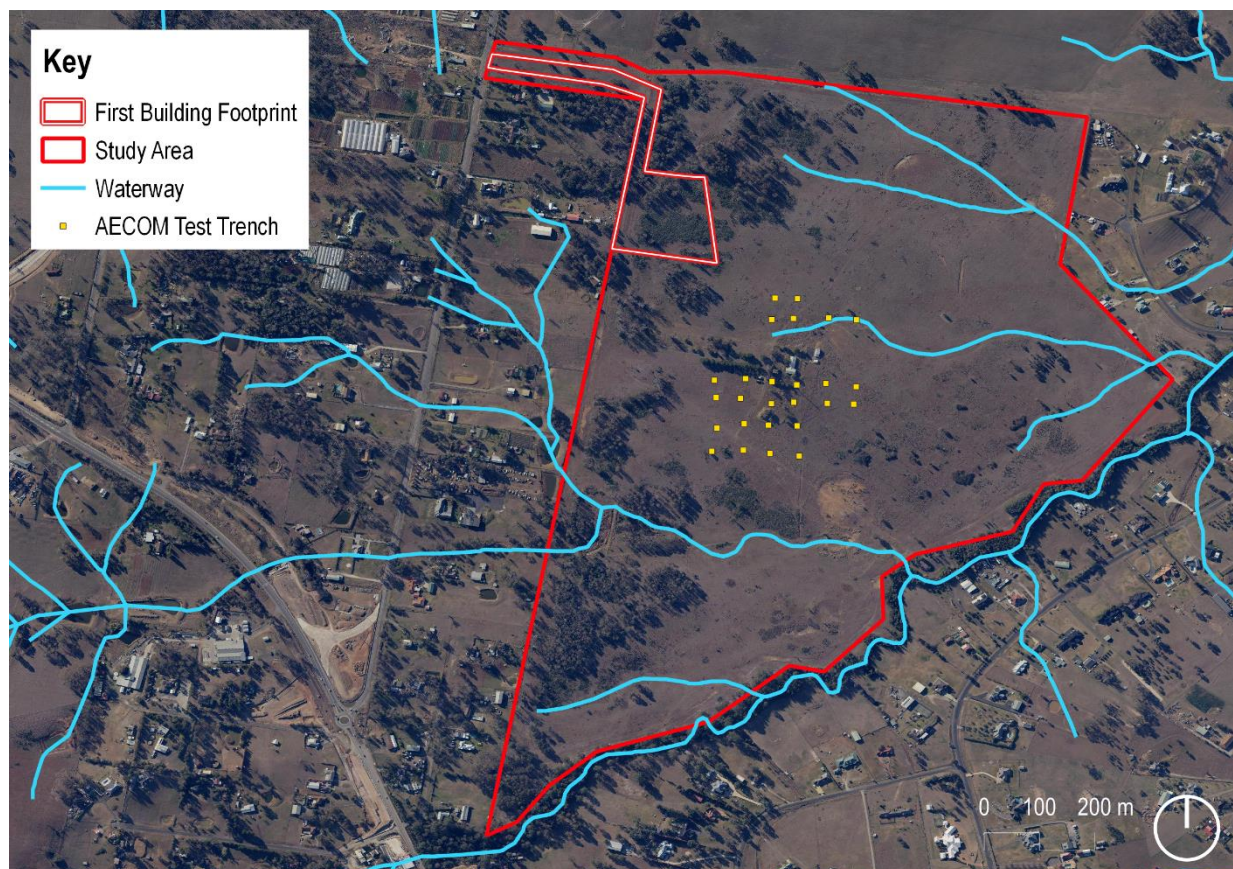


Figure 3 Location of the first Building subject area in relation to the Bradfield city centre masterplan study area, showing the location of test excavations undertaken by AECOM as part of the Sydney Metro – Western Sydney Airport project (source: AECOM 2021, figure 4-1d).

AHIMS database

A search of the Aboriginal Heritage Information Management Systems (AHIMS) database was completed on 16 June 2020 for the wider Bradfield City Centre masterplan area, which encompasses the First Building study area. The search resulted in the identification of six registered sites within 500 m of the subject area boundary (Table 1 & Figure 4).

Table 1 AHIMS sites within 500 m of the subject area

AHIMS ID	Site Name	Site type	Distance to subject area
45-5-2779	B 17	Isolated artefact	500 m
45-5-2640	B 22	Isolated artefact	100 m
45-5-2620	B 18	Artefact scatter	500 m
45-5-5480	ACIF01	Isolated artefact and PAD	150 m
45-5-2641	B 23	Artefact scatter	400 m
45-5-2628	B 38	Isolated artefact	420 m

There are no previously recorded sites directly within the subject area. The nearest site (45-5-5480) is approximately 150 m from the proposed activity and will not be impacted by the conduct of the activity.

Archaeological survey and test excavation

An archaeological survey was completed as part of the ACHA for the broader Bradfield City Centre masterplan study area (Extent 2021) on 7 December 2020 (Figure 4). This section provides a summary of the results (outlined in detail within the ACHAR) of this survey:

- A total of 6 Aboriginal sites were identified within 500 m of the subject area (Figure 4); five of the sites had been previously registered on the AHIMS database and one site was identified during the completion of the survey.
- A full coverage survey of the Bradfield City Centre masterplan area was completed, which found that the majority of the study area was covered in dense vegetation which limited ground surface visibility.

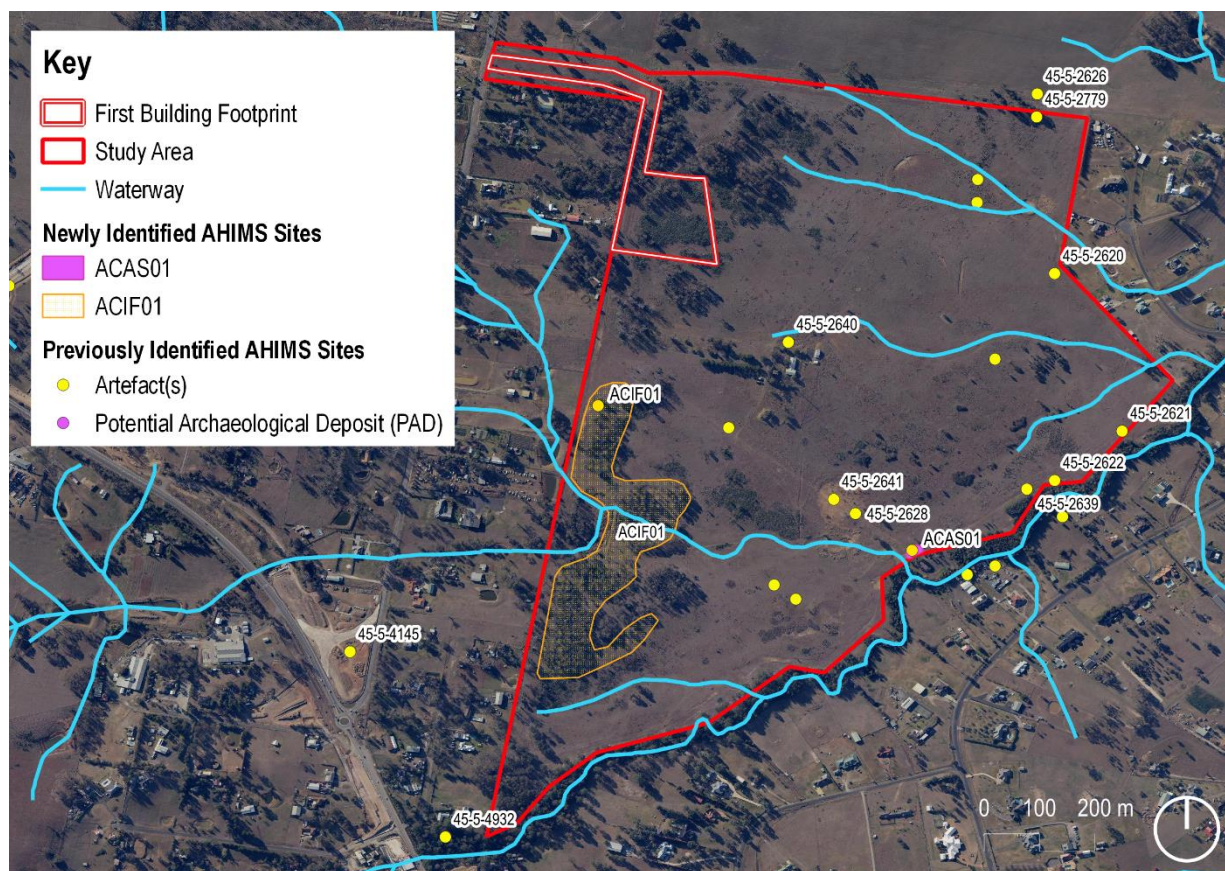


Figure 4 Results of archaeological survey conducted on 7 December 2020 showing AHIMS sites and the first Building Footprint (Extent Heritage 2020, 4761).

Test excavation was conducted at the First Building subject area as part of the Bradfield City Centre Aboriginal Cultural Heritage Assessment (Extent 2021) on 5 and 6 October. Eight 500 x 500 mm test trenches (TP 1- 8) were excavated in a single transect running north – south (Figure 5). The depth of the excavations ranged from 100 mm to 300 mm, and demonstrated there is a thin, disturbed layer of topsoil above a clay B Horizon appearing between 100 and 300 mm below surface. It is likely that the topsoil has been disturbed through previous ground disturbing activity on the site.

No Aboriginal objects were recovered from the test excavation.

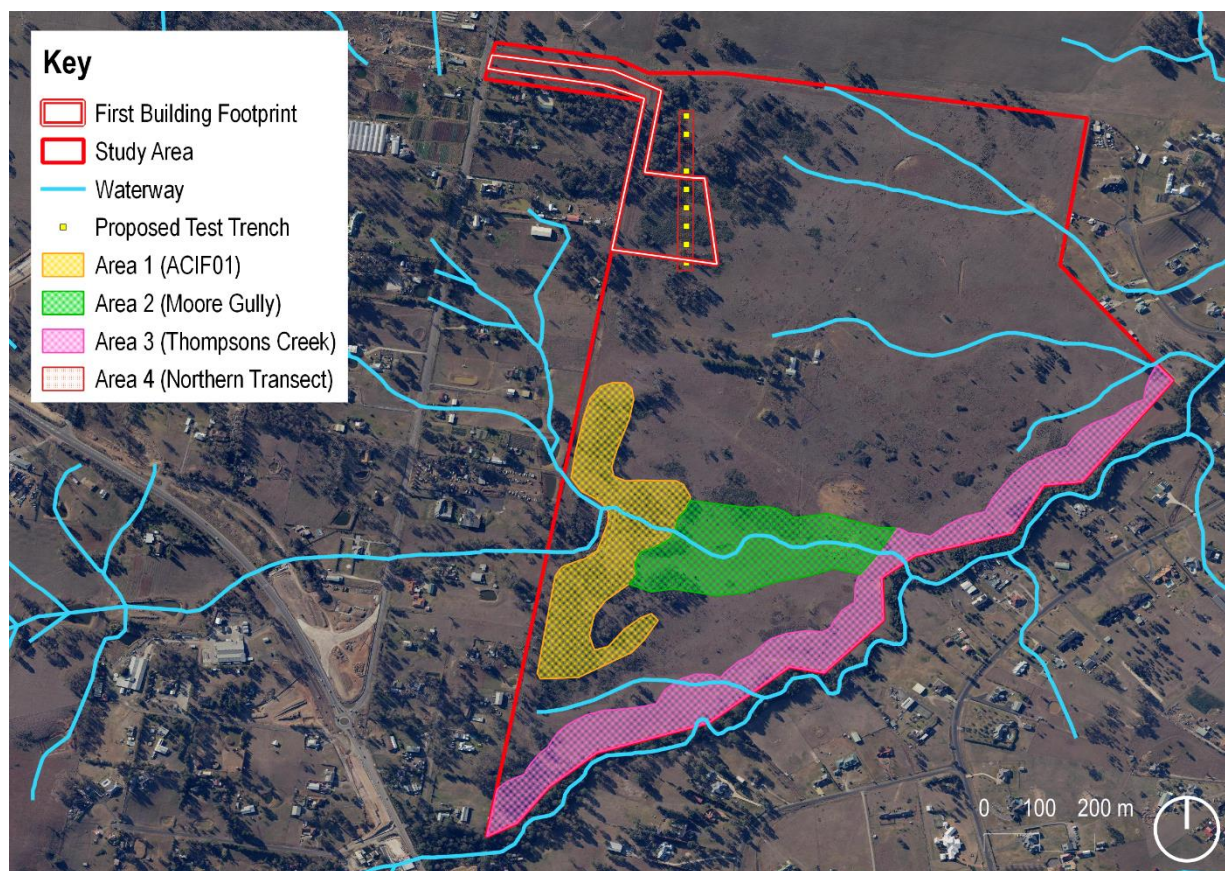


Figure 5 Location of excavated test trenches within the subject area (source: Extent Heritage2021).

Consultation

This Aboriginal archaeological report was sent to the Registered Aboriginal Parties (RAP) for the broader Aerocore Project for review and comment on the outcomes on 14 October 20121. Three comments were received, none of which had any issues with the process, outcomes or recommendations. They are summarised in Table 2.

Table 2 Summary of Aboriginal consultation

Individual	RAP affiliation	Date received	Comment
Rodney Gunther	Waawaar Awaa Aboriginal Corporation	4 November 2021	<p>Waawaar Awaa Aboriginal Corporation supports the attached report for the archaeological assessment for the First Building of the Bradfield City Centre for the following reasons:</p> <p>There are no registered Aboriginal objects and/or places located within or in close proximity of the First Building subject area.</p> <p>The subject area is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low</p>

			<p>potential to contain Aboriginal objects.</p> <p>No Aboriginal objects were recovered from the test excavation.</p>
Glenda Chalker	Cubbitch Barta Native Title Claimants	3 November 2021	<p>The results of the test excavation that has been carried out in that area on the 5th and 6th October, 2021 have demonstrated that there is no further archaeological work required within this proposed area.</p> <p>The excavations within the greater area are continuing to be carried out as I write this response.</p> <p>I have no further recommendations for this proposed project, that could impact on this project from not proceeding as planned.</p>
Marilyn Carroll-Johnson	Corroboree Aboriginal Corporation	6 November 2021	<p>We do not see any issues with the assessment.</p>

Conclusions and recommendations

This Aboriginal archaeological report concludes that:

- There are no registered Aboriginal objects and/or places located within or in close proximity of the subject area of the proposed First Building site.
- The subject area of the First Building site is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low potential to contain Aboriginal objects.
- There are no objections to the assessment or recommendations by the relevant RAPs.

Based on the above conclusions, the proposed development can proceed with caution in line with the following recommendations:

- This Aboriginal archaeological report should be kept providing proof that the Aboriginal archaeological assessment process was applied for the subject area
- The Aboriginal Cultural Heritage Assessment (ACHA) and consultation with relevant Aboriginal stakeholders for the broader Bradfield City Centre masterplan area should be carried out to investigate, assess and manage both tangible and intangible Aboriginal cultural heritage resources within the broader area.

The ACHA consultation process should be completed prior to the submission of the Bradfield City Centre masterplan area to inform the proposed development of any Aboriginal archaeological (tangible) and cultural heritage (intangible) resources that may exist outside the First Building study area, in relation to the Bradfield City Centre development area. The

consultation with the RAPs prior to the submission of the masterplan ACHAR would also inform the development of any opportunities for interpretation of tangible and/or intangible Aboriginal cultural heritage values.

Procedure for the discovery of human remains

Aboriginal burials which occur outside of designated cemeteries are protected under the National Parks and Wildlife Act 1974 and should not be disturbed. If any suspected human remains are identified during the completion of the excavation program, the following actions will be followed:

- Cease all excavation activity
- Notify NSW Police
- Notify Heritage NSW (DPC) via the Environment Line on 131 555 to provide details of the remains and their location
- Excavation activity will not recommence unless authorised in writing by Heritage NSW (DPC).

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Appendix A. Information on legislation

A.1. Commonwealth Legislation

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Aboriginal and Torres Strait Islander Heritage Protection Act was enacted at a Federal level to preserve and protect areas (particularly sacred sites) and objects of particular significance to Aboriginal Australians from damage or desecration. Steps necessary for the protection of a threatened place are outlined in a gazetted Ministerial Declaration (Sections 9 and 10). This can include the preclusion of development.

As well as providing protection to areas, it can also protect objects by Declaration, in particular Aboriginal skeletal remains (Section 12). Although this is a Federal Act, it can be invoked on a State level if the State is unwilling or unable to provide protection for such sites or objects.

Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act provides for the protection of natural and cultural heritage places. The Act establishes (amongst other things) a National Heritage List (NHL) and a Commonwealth Heritage List (CHL). Places on the NHL are of natural or cultural significance at a national level and can be in public or private ownership. The CHL is limited to places owned or occupied by the Commonwealth which are of heritage significance for certain specified reasons.

Places listed on the NHL are considered to be of State and local heritage value, even if State or local various heritage lists do not specifically include them.

The heritage values of places on the NHL or the CHL are protected under the terms of the EPBC Act. The Act requires that the Minister administering the EPBC Act assess any action which has, will have, or is likely to have, a significant impact on the heritage values of a listed place. The approval (or rejection) follows the referral of the matter by the relevant agency's Minister.

Native Title Act 1993

The Native Title Act provides recognition and protection for native title. The Act established the National Native Title Tribunal to administer native title claims to rights and interests over lands and waters by Aboriginal people. The Tribunal also administers the future act processes that attract the right to negotiate under the Native Title Act 1993.

The Act also provides for Indigenous Land Use Agreements (ILUA). An ILUA is an agreement between a native title group and others about the use and management of land and waters. ILUAs were introduced as a result of amendments to the Native Title Act in 1998. They allow people to negotiate flexible, pragmatic agreements to suit their particular circumstances.

An ILUA can be negotiated over areas where native title has, or has not yet, been determined. They can be part of a native title determination, or settled separately from a native title claim. An ILUA can be negotiated and registered whether there is a native title claim over the area or not.

A.2. NSW state legislation

Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act (EP&A Act) requires that environmental and heritage impacts are considered by consent authorities prior to granting development approvals. The relevant sections of the EP&A Act are:

- Part 4: Development that requires consent under consideration of environmental planning instruments.
- Part 5: An assessment process for activities undertaken by Public Authorities and for developments that do not require development consent but an approval under another mechanism.

Where Project Approval is to be determined under Part 4 (Division 4.1) of the Act, further approvals under the National Parks and Wildlife Act 1974, are not required. In those instances, management of Aboriginal heritage follows the applicable Aboriginal assessment guidelines (the Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation, July 2005) and any relevant statement of commitments included in the Development Approval.

National Parks and Wildlife Act 1974

The National Parks and Wildlife Act (NPW Act) provides blanket protection for Aboriginal objects (material evidence of Indigenous occupation) and Aboriginal places (areas of cultural significance to the Aboriginal community) across New South Wales. An Aboriginal object is defined as:

Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

An Aboriginal place is any place declared to be an Aboriginal place by the Minister for the Environment, under section 84 of the Act.

It is an offence to disturb Aboriginal objects or places without a permit authorised by the Director-General of the Office of Environment and Heritage. In addition, anyone who discovers an Aboriginal object is obliged to report the discovery to OEH.

The operation of the NPW Act is administered by OEH. With regard to the assessment of Aboriginal cultural heritage, OEH has endorsed the following guidelines:

- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010),
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010),
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010), and
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (2011).

Aboriginal Land Rights Act 1983

The Aboriginal Land Rights Act allows for the transfer of ownership to a Local Aboriginal Land Council of vacant Crown land not required for an essential purpose or for residential land. These lands are then managed and maintained by the Local Aboriginal Land Council.

Appendix B. Aboriginal consultation

Cubbitch Barta Native Title Claimants
Aboriginal Corporation
55 Nightingale Road,
PHEASANTS NEST. N.S.W. 2574.
3rd November, 2021

Extent Heritage
3/73 Union Street,
PYRMONT. N.S.W.

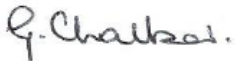
Dear Hannah,

RE; FIRST BUILDING BRADFELD
CITY CENTRE.

Thank you for the opportunity of commenting on the Due Diligence assessment for this project. The results of the test excavation that has been carried out in that area on the 5th and 6th October, 2021 have demonstrated that there is no further archaeological work required within this proposed area, The excavations within the greater area are continuing to be carried out as I write this response.

I have no further recommendations for this proposed project, that could impact on this project from not proceeding as planned.

Yours faithfully,



Glenda Chalker
Phone/Fax 0246841129 0427218425



From: Rodney Gunther <[REDACTED]>
Sent: Thursday, 4 November 2021 9:28 PM
To: Hannah Morris
Subject: Re: SSD-25452459 | YOUR FEEDBACK: Due diligence assessment, First Building, Bradfield City Centre

Categories: Address

Hi Hannah,

Waawaar Awaa Aboriginal Corporation supports the attached report for the archaeological assessment for the First Building of the Bradfield City Centre for the following reasons:

- There are no registered Aboriginal objects and/or places located within or in close proximity of the First Building subject area.
- The subject area is generally highly disturbed, with the removal of the upper part of natural soils leaving a thin layer of soil with low potential to contain Aboriginal objects.
- No Aboriginal objects were recovered from the test excavation.

regards

Rodney Gunther

On Thu, Oct 14, 2021 at 12:06 PM Hannah Morris <hmorris@extent.com.au> wrote:

Dear Stakeholder,

We are writing to you as a registered Aboriginal party for the investigations being undertaken by Extent Heritage around the planning application for the First Building, located in the northwest corner of the Bradfield City Centre site.

The First Building will include a visitor centre as well as a dedicated space and equipment for research and industry to work together on technology projects. The first building will be sustainable and include green and open spaces. Construction of the first building should begin next year with completion anticipated by the end of 2023, should planning consent be granted.

A due diligence assessment has been prepared for the First Building site, separate to the broader Bradfield City Centre project, as it is on a different development schedule. Please find a copy of the due diligence report attached to this email. We would welcome your feedback about the findings of the due diligence assessment by **5pm Wednesday 10 November 2021**.

Please contact me via email or phone with any enquiries.

Kind regards,

Hannah Morris

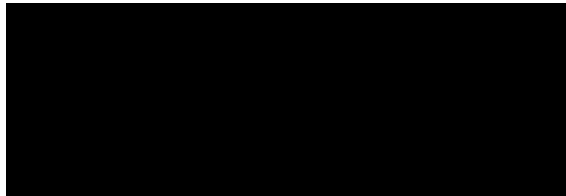
Hannah Morris
Senior Heritage Advisor

From: [REDACTED]
Sent: Saturday, 6 November 2021 4:33 PM
To: Hannah Morris
Subject: Re: SSD-25452459 | YOUR FEEDBACK: Due diligence assessment, First Building, Bradfield City Centre

Categories: Address

Hi Hannah
We do not see any issues with the assessment.

Kind regards



On 14 Oct 2021, at 12:05 pm, Hannah Morris <hmorris@extent.com.au> wrote:

Dear Stakeholder,

We are writing to you as a registered Aboriginal party for the investigations being undertaken by Extent Heritage around the planning application for the First Building, located in the northwest corner of the Bradfield City Centre site.

The First Building will include a visitor centre as well as a dedicated space and equipment for research and industry to work together on technology projects. The first building will be sustainable and include green and open spaces. Construction of the first building should begin next year with completion anticipated by the end of 2023, should planning consent be granted.

A due diligence assessment has been prepared for the First Building site, separate to the broader Bradfield City Centre project, as it is on a different development schedule. Please find a copy of the due diligence report attached to this email. We would welcome your feedback about the findings of the due diligence assessment by **5pm Wednesday 10 November 2021**.

Please contact me via email or phone with any enquiries.

Kind regards,
Hannah Morris

Hannah Morris
Senior Heritage Advisor

T 02 9555 4000
hmorris@extent.com.au
extent.com.au
Connect with us on:

[<FB_a13f28b7-0d98-4b6f-b087-9250dcff9e3e.png>](#)

[<LinkedIn_befe15c3-3565-4476-87c7-4fea9326e2e4.png>](#)