Aboriginal Cultural Heritage Assessment

Ingham's Tahmoor Landholdings, comprising Lot C DP 374621, Lots 1-6 DP 1128745 and Lot 255 DP 10669.

April 2016

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Executive Summary

The following Aboriginal Cultural Heritage Assessment (ACHA) has been prepared for a parcel of land located in the town of Tahmoor, NSW. Tahmoor is located in the Macarthur Region of NSW and falls within the Wollondilly Shire local government area (LGA). The parcel of land being assessed, which is herein referred to as the Study Area, comprises the following allotments:

- Lot C DP374621
- Lot 1 DP1128745
- Lot 2 DP1128745
- Lot 3 DP1128745
- Lot 4 DP1128745
- Lot 5 DP1128745
- Lot 6 DP1128745
- Lot 255 DP10669

In December 2013 a Planning Justification Report was submitted to Wollondilly Shire Council on behalf of Ingham Property Development Pty Ltd in support of a formal request to amend the Wollondilly Local Environmental Plan (LEP) 2011. The study area is currently zoned RU4 Primary Production Small Lots under the Wollondilly LEP with a minimum lot size of two hectares; the Planning Proposal seeks to suitably rezone the study area to part R5 Large Lot Residential and part E2 Environmental Conservation, with the inclusion of some R2 Low Density Residential, RE1 Public Recreation and E3 Environmental Management. As part of this Proposal, an archaeological investigation of the study area was required.

The study area has previously been subject to archaeological investigation by D. Byrne (on behalf of Mary Dallas Consulting Archaeologist [MDCA]) in 1993, and by John Appleton of Archaeological Surveys and Reports Pty Ltd (ASR) in 2006 and again in 2012. The latter two reports were specifically prepared to inform the abovementioned Planning Proposal, with the 2012 report having been submitted as part of the Planning Justification Report. The purpose of this ACHA is to supplement the three existing archaeological investigations, as well as to address the concerns raised by Office of Environment and Heritage (OEH) regarding the most recent of these reports.

Based on the results of this assessment, the following conclusions have been made:

- Of the six rock shelter with Potential Archaeological Deposit (PAD) sites previously identified within the Study Area, three were able to be re-located as part of the current assessment;
- On the basis of input from the Aboriginal community, as well as direction received from OEH directly, these three rock shelters with PAD have been identified as sites. Site recording forms will be prepared for each of the sites and submitted to AHIMS for registration on the database;
- No other Aboriginal sites or objects were identified within the Study Area, and the potential or as yet unidentified sites to be present has been assessed as very low to negligible;
- Following on from the above, it has further been assessed that there is very little to negligible potential for intact archaeological deposits to be impacted by the proposed rezoning and associated development, based on an assessment of the topography, the extent to which the area has been disturbed, and the relative scarcity of open artefact sites in the local area generally;
- Through this assessment ,as well as through consultation with representatives of the local Aboriginal community, no other cultural heritage constraints to the Planning Proposal and proposed rezoning have been identified; and
- No historic heritage sites have been recorded as being located within the Study Area, and none were identified as part of this investigation.

Through a review of the indicative rezoning plans submitted as part of the Planning Proposal, it has been determined that the proposed activity does not present any identified risk of harm to the three identified sites. The three sites, as well as the associated drainage channel, will be wholly located within an environmental conservation (E2) zone as part of the rezoning.

As recommended by the previous archaeological assessments, the width of this E2 zone allows for a buffer of at least 50 metres to be maintained around the identified sites. Additionally, the area proposed to be rezoned as E2 will be conserved, and will not be subject to any physical works or disturbance as part of the future redevelopment of the Study Area.

Based on the above, appropriate management recommendations were prepared in accordance with the relevant legislation and have been provided in Section 13 of this report.

1 Introduction

1.1 BRIEF

The following Aboriginal Cultural Heritage Assessment (ACHA) has been prepared for a parcel of land located in the town of Tahmoor, NSW. Tahmoor is located in the Macarthur Region of NSW and falls within the Wollondilly Shire local government area (LGA). The parcel of land being assessed, which is herein referred to as the Study Area, comprises the following allotments:

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The study area has previously been subject to archaeological investigation by D. Byrne (on behalf of Mary Dallas Consulting Archaeologist [MDCA]) in 1993, and by John Appleton of Archaeological Surveys and Reports Pty Ltd (ASR) in 2006 and again in 2012. The latter two reports were specifically prepared to inform the abovementioned Planning Proposal, with the 2012 report having been submitted as part of the Planning Justification Report.

Comments on the planning proposal were received from the New South Wales Office of Environment and Heritage (NSW OEH), including specific comments on the Archaeological Investigation report prepared by ASR (2012). OEH identified the report as ‘inadequate’ and noted a number of points of concern including:

- Previously identified potential archaeological sites were not adequately assessed to determine whether or not they were Aboriginal sites, or whether or not they held and Aboriginal cultural value;
- Previously identified sites were not registered on AHIMS for their protection;
- The overall Aboriginal cultural heritage values of the study area were not adequately assessed in order to fully inform the Planning Proposal and future management of the Study Area; and
- Potential mitigation and management measures were not adequately addressed.

The purpose of this ACHA is to supplement the three existing archaeological investigations, as well as to address the concerns raised by OEH regarding the most recent of these reports. This ACHA has been prepared with reference to the existing archaeological investigations, as well as the various environmental studies that were prepared to inform the Planning Proposal. This includes:

- Appleton, J. (Archaeological Surveys and Reports Pty Ltd), July 2006, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW*, for Ingham’s Enterprises Pty Ltd.
- Appleton, J. (Archaeological Surveys and Reports Pty Ltd), June 2012, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW (Revised)*, for Ingham’s Enterprises Pty Ltd.

- Byrne, D. (Mary Dallas Consulting Archaeologists), August 1993, *Survey for Aboriginal Archaeological Sites on Part of DP 10669 on the Bargo River at Tahmoor, NSW,* a report to Design Collaborative Pty Ltd.
- Ecological Australia, August 2013a, *Tahmoor Planning Proposal – Bushfire Assessment*, prepared for Ingham Property Development Pty Ltd.
- Ecological Australia, October 2013b, *Tahmoor Planning Proposal – Ecological and Riparian Assessment*, prepared for Ingham Property Development Pty Ltd.
- Environmental and Earth Sciences, November 2010, *Limited Preliminary Environmental Site Assessment of Ingham's Processing Plant, Tahmoor, NSW.*
- Hyder Consulting Pty Ltd, May 2013, *Inghams, Tahmoor – Preliminary Utilities and Servicing Strategy.*
- Hyder Consulting Pty Ltd, June 2013, *Inghams, Tahmoor – Preliminary Stormwater Management Strategy.*

The specific aim of this assessment was to relocate previously identified potential Aboriginal archaeological sites, and to make a determination in consultation with Aboriginal community stakeholders as to whether or not these sites should be registered on the Aboriginal Heritage Information Management System (AHIMS). In addition to this specific aim, the assessment was also generally intended to allow for the gathering of further information regarding the cultural heritage values of the Study Area, also in consultation with the Aboriginal community, to allow for the future management and protection of the Study Area in terms of Aboriginal cultural heritage.

1.2 PROPOSED ACTIVITY

The key aim of the current Planning Proposal is to rezone the Study Area to enable a form of 'large lot' residential housing that responds to and appropriately integrates with the Study Area's biodiversity significance and Aboriginal cultural heritage values. It should be noted that at this stage, the Proposal seeks to rezone the Study Area only; **no physical works are currently proposed for the Study Area.** Any physical works proposed in the future will be subject to a separate archaeological assessment that specifically assesses any proposed works, where required.

As part of the current Planning Proposal, the following new zoning classifications are proposed for the site:

- R2 Low Density Residential
- R5 Large Lot Residential
- E3 Environmental Management
- E2 Environmental Conservation
- RE1 Public Recreation

The proposed activity is discussed in greater detail in Section 12, below.

1.3 METHODOLOGY

The report has been prepared in accordance with the following documents prepared by the NSW OEH (formerly NSW Department of Environment, Climate Change and Water [DECCW]):

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*
- *Due Diligence Code of Practice for Protection of Aboriginal Objects in NSW*
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*
- *Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants 2010*

1.4 AUTHOR IDENTIFICATION AND ACKNOWLEDGEMENTS

The following report has been prepared by Karyn Virgin (Heritage Consultant/Archaeologist) and Karyn McLeod (Heritage Consultant/Archaeologist). Stephen Davies (Director-Heritage) has reviewed and endorsed its content.

Unless otherwise stated, all drawings, illustrations and photographs are the work of Urbis.

The authors would like to thank the following people for their assistance with the compilation of this document:

- Glenda Chalker, Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC);
- Abbi Whillock and Sarah Duncan, Tharawal Local Aboriginal Land Council (LALC); and
- Michael Parkinson, Ingham's Property Development Pty Ltd.

2 Relevant Statutory Controls

The following legislation, which has been sourced from the *Guide to Investigation, Assessing and Reporting on Aboriginal Cultural Heritage in NSW,* provides the primary context for Aboriginal heritage management in NSW: the *National Parks and Wildlife Act 1974* (NPW Act), the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Heritage Act 1977* (the Heritage Act).

Other relevant legislation includes the Aboriginal Land Rights Act 1983, the Native Title Act 1993 (Cth), the NSW Native Title Act 1994 and other Australian Government legislation.

2.1 NATIONAL PARKS AND WILDLIFE ACT 1974

The NSW Government is working towards standalone legislation to protect Aboriginal cultural heritage which will be a significant reform for NSW. The first stage of this work has been completed and includes significant changes in relation to the regulation of Aboriginal cultural heritage management. The primary state legislation relating to Aboriginal cultural heritage in NSW is the NPW Act. The legislation is currently overseen by the Office of Environment and Heritage (OEH).

Changes to the NPW Act were made effective on 1 October 2010 and include:

- Increased penalties for Aboriginal heritage offences, in some cases from $22,000 up to $1.1 million in the
- case of companies who do not comply with the legislation;
- Prevention of companies or individuals claiming ‘no knowledge’ in cases of serious harm to Aboriginal
- heritage places and objects by creating new strict liability offences under the Act;
- Introduction of remediation provisions to ensure people who illegally harm significant Aboriginal sites are
- forced to repair the damage, without need for a court order;
- Unification of Aboriginal heritage permits into a single, more flexible permit; and
- Strengthened offences around breaches of Aboriginal heritage permit conditions.

2.2 NATIONAL PARKS AND WILDLIFE REGULATION 2009

The *National Parks and Wildlife Regulation 2009* (NPW Regulation) provides a framework for undertaking activities and exercising due diligence in respect to Aboriginal heritage. The NPW Regulation outlines the recognised due diligence codes of practice which are relevant to this report, but it also outlines procedures for Aboriginal Heritage Impact Permit (AHIP) applications and Aboriginal Cultural Heritage Consultation Requirements (ACHCRs); amongst other regulatory processes.

2.3 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The EP&A Act, administered by the NSW Department of Planning and Infrastructure, provides planning controls and requirements for environmental assessment in the development approval process. It also establishes the framework for Aboriginal heritage values to be formally assessed in the land-use planning and development consent processes.

2.4 HERITAGE ACT 1977

The Heritage Act, administered by NSW Office of Environment and Heritage, protects the states’ natural and cultural heritage. Aboriginal heritage is primarily protected under the NPW Act but may be subject to the provisions of the Heritage Act if the item is listed on the State Heritage Register or subject to an interim heritage order (IHO).

The Heritage Act established the NSW Heritage Council, which provides advice and recommendations to the Minister for Heritage. The Minister approves the listing of items and places on the State Heritage Register and can also prevent the destruction, demolition or alteration of items of potential heritage value through an IHO until the significance of the item has been assessed.

2.5 ABORIGINAL LAND RIGHTS ACT 1983

The NSW Aboriginal Land Rights Act 1983 (ALR Act), administered by NSW Department of Education and Communities, establishes the NSW Aboriginal Land Council (NSWALC) and Local Aboriginal Land Councils (LALCs). The Act requires these bodies to:

1. take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law
2. promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

These requirements recognise and acknowledge the statutory role and responsibilities of NSWALC and LALCs. The ALR Act also establishes the registrar whose functions include, but are not limited to, maintaining the Register of Aboriginal Land Claims and the Register of Aboriginal Owners.

Under the NSW Aboriginal Lands Right Act 1983, the registrar is to give priority to the entry in the register of the names of Aboriginal persons who have a cultural association with:

1. lands listed in Schedule 14 to the NPW Act
2. lands to which section 36A of the ALR Act applies.

2.6 NATIVE TITLE LEGISLATION

The Native Title Act 1993 (Cth) (NTA) provides the legislative framework to:

1. recognise and protect native title
2. establish ways in which future dealings affecting native title may proceed and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title
3. establish a mechanism for determining claims to native title
4. provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The NSW Native Title Act 1994 was introduced to make sure the laws of NSW are consistent with the Commonwealth's NTA on future dealings. It validates past and intermediate acts that may have been invalidated because of the existence of native title. The National Native Title Tribunal has a number of functions under the NTA, including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims.

2.7 OTHER ACTS

The Australian Government Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth) may be relevant if any item of Aboriginal heritage significance to an Aboriginal community is under threat of injury or desecration and state-based processes are unable to protect it. The Environment Protection and Biodiversity Conservation Act 1999 (Cth) may also be relevant to some proposals, particularly where there are heritage values of national significance present.

3 Consultation Process

The (then) Department of Environment, Climate Change and Water (DECCW) (now OEH) established a set of Aboriginal Cultural Heritage Consultation Requirements (ACHCRs), which were endorsed in 2010. The intention of the ACHCRs is to establish the requirements for consultation with the registered Aboriginal parties as part of the heritage assessment process to determine potential impacts of proposed activities on Aboriginal cultural heritage and to inform decision making for any application for an Aboriginal Heritage Impact Permit (AHIP). The ACHCRs require consultation with Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places as relevant to a proposed project area/development zone in accordance with these requirements.

These requirements:

- apply to all activities throughout New South Wales that have the potential to harm Aboriginal *objects* or *places* and that requires an AHIP;
- replace the *Interim Community Consultation Requirements for Applicants*, December 2004; and
- support other (then) DECCW policies and procedures that provide direction and guidance for AHIP proponents in determining Aboriginal cultural heritage impacts.

3.1 PREVIOUS ABORIGINAL COMMUNITY CONSULTATION FOR THE STUDY AREA (1993 TO 2012)

To date, three separate archaeological investigations of the Study Area have been undertaken in 1993, 2006 and again in 2012. As part of the 1993 investigation, and prior to the establishment of the ACHCRs, the formal consultation process in its current form was not followed. However, Aboriginal community stakeholders were consulted, and a representative of Tharawal LALC (Glenda Chalker) did participate in a site survey. In 2006 and, again, prior to the establishment of the formal ACHCR process, consultation was also undertaken. Representatives of both CBNTCAC (Glenda Chalker) and Tharawal LALC (Donna Whillock) were consulted, participated in a site survey, and provided statements that were included as appendices to the archaeological report.

Following the endorsement of the ACHCRs in 2010, the 2006 study was reviewed, and the formal consultation process was followed as part of the 2012 investigation. Although a number of Aboriginal groups were identified through this process, no comments or responses were received from these groups at that time.

More detailed summaries of the consultation processes specific to each of the previous investigations has been provided below.

Byrne, D. 1993, *Survey for Aboriginal Archaeological Sites on Part of DP 10669 on the Bargo River at Tahmoor, NSW*

As part of the original investigation and field survey of the Study Area, undertaken in 1993, the formal ACHCR process was not followed. Community consultation was, however, undertaken to inform the investigation.

The report noted that the survey area fell within the boundaries of the Tharawal LALC. As part of the investigation, the LALC was notified of the intention to carry out an archaeological field survey. Glenda Chalker was nominated as the representative for the LALC, and participated in the field survey. The report noted that Glenda intended to submit a report, for the LALC, regarding her part in the investigation and the LALC's interest in the area.

Appleton, J. 2006, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW*

As part of his 2006 study, Appleton contacted both Tharawal LALC and CBNTCAC, and invited site officers from both organisations to attend a field survey. As a result, Donna Whillock, representing

Tharawal LALC, and Glenda Chalker, representing CBNTCAC, attended the survey, which was undertaken on 22 September 2006. This was Glenda's second survey of the Study Area, the first being in 1993 (discussed above).

The report notes that throughout the survey, the representatives discussed the survey strategy and the potential for sites to be present with Appleton. The results of the investigation were discussed following the survey, as well as appropriate recommendations and mitigation measures. Both of the representatives provided a written statement on behalf of their respective organisations, and these statements were included in the report as appendices.

Donna's letter on behalf of Tharawal LALC stated that no sites or objects or great Aboriginal significance were identified, with the exception of the 'pre-recorded sites in the creek bed'. On behalf of Tharawal LALC, Donna recommended that there be a 50 metre buffer zone in creek areas, and that no excavation work be undertaken in proximity to the creek areas. On the basis of these recommendations being followed, the letter stated that there were no objections to the development of the site proceeding.

Glenda's letter on behalf of CBNTCAC stated that future development of the Study Area should have no impact on the creek lines, or on the shelters located along them. Glenda also recommended a 50 metre exclusion zone be enforced around the creek lines as part of any future development. The letter concluded by stating that there are no further restrictions to any other development within the Study Area.

Appleton, 2012, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW (Revised)*

Following changes to relevant archaeological guidelines and codes in 2010 and 2011, the requirements for Aboriginal community consultation were revised and amended. Consequently, Appleton was engaged to revise his 2006 assessment in line with the new requirements.

Appleton stated in his report that as no Aboriginal sites were recorded in his 2006 survey, and as no registered AHIMS sites are located within the Study Area, there was no requirement to apply for an Aboriginal Heritage Impact Permit (AHIP). As such, Appleton condensed the consultation process down to the following steps:

1. The archaeologist is to place an advertisement in the local press inviting all Aboriginal stakeholders with an interest in the project site to register their interest (they have 14 days in which to respond), and
2. The archaeologist is to write to seven nominated government departments and agencies requesting that they provide a list of all registered Aboriginal stakeholders for the area.
3. The archaeologist is required to consult with each of the registered Aboriginal stakeholders to provide them with the opportunity to identify any cultural issues or constraints that should be considered and included in the archaeological report.
4. A copy of the draft report of the archaeological investigation is to be sent to each of the registered Aboriginal stakeholders for comment (they have a minimum of 21 days in which to respond).

On 7 June 2012 Appleton wrote to each of seven departments, being the Office of the Registrar (*Aboriginal Land Rights Act*), OEH, Wollondilly Shire Council, Tharawal LALC, NTSCorp, NSW & Act Registry, and the Sydney Metropolitan CMA requesting that the provide any information available regarding Aboriginal stakeholders for the Tahmoor area. An example of the letter that was sent was included in Appendix iii of the report.

Responses were received from the above listed government departments and agencies. The report stated that Wollondilly Shire Council listed three Aboriginal stakeholders; OEH identified an additional nine stakeholders. The National Native Title Tribunal provided information regarding a Registered Native Title Claim lodged by Gundungurra Tribal Council Aboriginal Corporation (NNTT No. "NC97/7"). A copy of the Title Claim was included in Appendix iv of the report, though it was noted that the Study Area was located at the eastern margin of the area subject to the Land Claim, with the Bargo River forming the eastern boundary of both the Study Area and the Land Claim area.

On 12 June 2012 an advertisement was placed in the "*Macarthur Chronicle"* inviting all Aboriginal stakeholders with an interest in the area to register their interest. A copy of this advertisement as it appeared in the newspaper was provided in Appendix v of the report. As a result of both the letter to

government departments/agencies and the newspaper advertisements, the flowing list of Aboriginal stakeholders was compiled:

- Tharawal LALC
- Cubbitch Barta Native Title Claimants Aboriginal Corp.
- Wollondilly Aboriginal Advisory Committee
- Darug Custodial Aboriginal Corp.
- Darug Tribal Aboriginal Corp
- Darug Aboriginal Cultural Heritage Assessments
- Darug Land Observations
- Darug Aboriginal Land Care Inc.
- Gunjeewong Cultural Heritage Aboriginal Corp.
- Peter Falk Consultancy
- Scott Franks
- Gandangara LALC

Relevant extracts from Appleton's report were sent to each of the registered stakeholders by Registered Post, in order to give them the opportunity to provide any cultural information directly associated with the Study Area that may have been pertinent to the investigation, or that may have presented a constraint to the proposed development.

Appleton noted that no responses were received from any of the registered stakeholders who were consulted as per above. Appleton therefore assumed that the Aboriginal stakeholders either did not have any additional cultural information; or did not want any information they might have, to be made public.

He included the statements provided in 2006 by Donna Whillock and Glenda Chalker on behalf of Tharawal LALC and CBNTCAC, respectively, as Appendix i and Appendix ii of his 2012 report. No updated (dated 2012) statements from any Aboriginal stakeholders were included in the report.

3.2 CURRENT ABORIGINAL COMMUNITY CONSULTATION FOR THE STUDY AREA (2015-2016)

Based on the number of previous investigations that have been undertaken for the Study Area, and the community consultation that has already been undertaken as part of these investigations, it was determined in consultation with OEH that the full ACHCR process **was not required to be repeated** to inform this assessment. However, to ensure that the cultural heritage values of the Study Area were adequately assessed as part of this assessment, and to enable further input from the local Aboriginal community, consultation was undertaken.

As part of the 2012 investigation, in which the formal ACHCR process was followed, a number of Aboriginal groups/organisations were identified as potentially having an interest in and/or cultural knowledge of the area. These groups were therefore consulted as part of the 2012 investigation in accordance with the ACHCRs; however, none of the groups/organisations responded to correspondence from Appleton, and none provided any input into the 2012 investigation.

Consequently, only CBNTCAC and Tharawal LALC, who have been closely involved with the project over a number of years, were consulted as part of the current assessment. Representatives from these groups/organisations have previously attended site surveys of the Study Area, and have provided input into the investigation process in the past (in the case of Tharawal LALC, since 1993). In consultation with OEH, it was determined that consultation with these two groups would be adequate to address the concerns raised by OEH regarding the 2012 assessment, and to adequately inform and assess and Aboriginal cultural heritage values associated with the Study Area.

The consultation process followed for the current assessment has been outlined in Table 1, below.

TABLE 1 – CONSULTATION PROCESS FOLLOWED FOR THE CURRENT ASSESSMENT

DATE	GROUP	CONTACT NAME	METHOD OF CONTACT	DETAILS OF CONSULTATION
13-Jan-15	CBNTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to discuss the project and get an understanding of her recollections/thoughts. Glenda advised that she recalled the project, but would appreciate a site visit to refresh her memory and to re-assess the previously identified potential sites. Advised that I would be in touch once given the go-ahead for the project, and would include scope for a site visit in our fee proposal.
28-Jan-15	Tharawal LALC	N/A	Phone (landline)	Called the Tharawal LALC office regarding the project. Phone was not answered, messsage was left.
28-Jan-15	Tharawal LALC	N/A	Email (reception and heritage departmen t)	Emailed reception and the heritage department. Provided a decription of the project and attached previous reports for reference. Invited a representative to attend the site visit, and asked for the advisement of availability
28-Jan-15	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Emailed Glenda Chalker specifically. Provided a decription of the project and attached previous reports for reference. Invited a representative to attend the site visit, and asked for the advisement of availability
28-Jan-15	Tharawal LALC	N/A	Phone (landline)	Called the Tharawal LALC office regarding the project. Spoke to reception regarding the organisation of the site visit, and was advised that a cultural heritage officer would return my call.
29-Jan-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to tentatively book in a site visit for Thursday the 5th January. Glenda said that should be fine and advised that she would let Abbi Whillock of Tharawal LALC know.
2-Feb-15	Tharawal LALC	Abbi Whillock	Phone (landline)	Received a call from Abbi Whillock of Tharawal LACL to advise that she was available for the Thursday site visit. I mentioned that I would need both her and Glenda to send through their relevant insurances, and advised that I would confirm the site visit with the client and get back to both Abbi and Glenda.
3-Feb-15	Cubbitch Barta NTCAC	Abbi Whillock	Email (heritage departmen t)	Emailed through a confirmation of the site visit time/day/meet location as well as a map of the area to be surveyed. Also reminded about the need to send through insurances prior to the site visit.
28-Jan-15	Tharawal LALC	Glenda Chalker	Email (Glenda Chalker)	Emailed through a confirmation of the site visit time/day/meet location as well as a map of the area to be surveyed. Also reminded about the need to send through insurances prior to the site visit.
28-Jan-	Cubbitch Barta	Glenda	Phone (mobile,	Texted Glenda to advise that I had sent an email to both Abbi and herself. Asked if she could please confirm that they would be

DATE	GROUP	CONTACT NAME	METHOD OF CONTACT	DETAILS OF CONSULTATION
15	NTCAC	Chalker	text message)	attending, and to send insurances through.
3-Feb-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Tharawal LALC generally	Email (Glenda Chalker and Abbi Whillock)	Emailed both organisations confirming the site visit being scheduled for Thursday 5th February, outlining what PPE/general equipment to bring, advising about invoicing, and asking for insurance certificates. Information was also provided regarding the intended survey area (targeted survey to relocate previously identified rock shelter/PAD sites, as yet unregistered) and indicated this on an attached map.
4-Feb-15	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Glenda email to advise that she would bring her insurance certificates with her to site.
5-Feb-15	Tharawal LALC	Abbi Whillock	Email (heritage departmen t)	Received an email containing the Certificate of Currency and Association Liability Certificate of Insurance for Thawaral LALC. It was noted that the latter was out of date as of last year.
5-Feb-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Sarah	Site Visit	Attended site visit with Glenda Chalker of CBNTCAC and Sarah of Tharawal LALC. Through the survey, the survey approach was discussed, as were the present landforms. A survey strategy was formulated with input from both Glenda and Sarah on site - as the area had previously been surveyed twice before, it was decided that the survey would target sensitive landforms within the Study Area (drainage lines, ridge tops, etc) and specifically attempt to relocated previously identified and documented rock shelters. Both throughout and at the completion of the survey, Glenda and Sarah were asked if they were comfortable and happy with the survey coverage and whether or not there were any other areas they particularly wanted to target. Both were also asked if they had (and/or wanted to provide) any information regarding the cultural heritage values of the area generally, or of the subject site and landforms/identified sites specifically. Both Glenda and Sarah were in agreement that the nearby Mermaid's Pool would have been an important place for Aboriginal people in the past, with Glenda noting that it is a known women's area. Additionally, Glenda identified that areas of high ground that provide views of the Bargo River and associated landscape are likely to have been frequented by Aboriginal people in the past, and may have had some cultural significance and/or been used for ceremonial purposes.
6-Feb-15	Cubbitch Barta NTCAC and Tharawal	Glenda Chalker and Tharawal	Email (Glenda Chalker and	Sent a follow-up email to both groups, providing them with maps from the planning proposal report, which show the indicative plan of the redevelopment, as well as a more detailed contour/watercourses map. Noted that if either wanted to ask any

DATE	GROUP	CONTACT NAME	METHOD OF CONTACT	DETAILS OF CONSULTATION
	LALC	LALC generally	reception and heritage departments of Tharawal LALC)	questions or discuss the site visit to please feel free to contact Urbis.
6-Feb-15	Tharawal LALC	Abbi Whillock	Phone (landline)	Called to chase up insurances as the Association Liability Certificate of Insurance was out of date as of last year. Abbi advised she would email it through by the end of the day.
10-Feb-15	Tharawal LALC	N/A	Email (reception and heritage department)	Emailed reception and the heritage department reminding them to send through updated insurance certificates and also to ask for Sarah's full name for inclusion in the report.
10-Feb-15	Tharawal LALC	Abbi Whillock	Email (Abbi Whillock)	Abbi emailed to advise that she would send the insurances through the following day. She also provided Sarah's full name (Sarah Duncan).
11-Feb-15	Tharawal LALC	Abbi Whillock	Email (reception and heritage department)	Abbi emailed through an updated copy of the group's insurances, which were forwarded to the client.
26-Feb-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to discuss potential impacts and mitigation measures. Explained that the 50 metre buffer may not be able to be maintained around the entire drainage line and how she felt about mitigating that. Glenda advised that she understood that that may not be possible, and would review this aspect of the report closely. She also advised that as long as the sites were protected other mitigation measures may be acceptable.
3-Mar-15	Tharawal LALC	Abbi Whillock	Email (reception and heritage department)	Abbi emailed asking if there was an email address to which the invoice could be sent. Michael Parkinson's contact details were provided.
28-May-15	Cubbitch Barta NTCAC and	Glenda Chalker and	Email (Glenda Chalker	Emailed draft copies of the ACHCR report for review.

DATE	GROUP	CONTACT NAME	METHOD OF CONTACT	DETAILS OF CONSULTATION
	Tharawal LALC	Tharawal LALC generally	and reception and heritage departments of Tharawal LALC)	
1-Jun-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Tharawal LALC generally	Email (Glenda Chalker and reception and heritage departments of Tharawal LALC)	Re-emailed draft copies of the ACHCR report for review, as no acknowledgement received for previous email.
9-Jun-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda's email to follow up on emails sent on 28 May and 1 June. Glenda confirmed the report had been received but requested it be sent via post. Glenda mentioned she had been contacted by the National Parks association regarding the intended buffers around the gorge/sensitive areas. Advised that she would review the report when hard-copy received.
9-Jun-15	Tharawal LALC	N/A	Phone (landline)	Called to follow up on emails sent on 28 May and 1 June. No answer. No option to leave a message.
15-Jun-15	Cubbitch Barta NTCAC	Glenda Chalker	Mail	Glenda sent a letter outlining her response to the study and any and all concerns she had.
18-Jun-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to discuss her letter. Glenda raised specific concerns regarding the future management of any conservation zones within the study area. Glenda did not comment on the remainder of the report.
18-Jun-15	Tharawal LALC	N/A	Phone (landline)	Called to follow up on emails sent on 28 May and 1 June, and previous phone calls in order to get a response regarding the report. Was advised that someone would call back.
1-Apr-16	Tharawal LALC	N/A	Email (reception and heritage	Emailed reception and the heritage department regarding the proposed text to be incorporated within the Archaeological Assessment for the Cross Street Planning Proposal addressing the proposed approach to conversation and management of the

DATE	GROUP	CONTACT NAME	METHOD OF CONTACT	DETAILS OF CONSULTATION
			department)	proposed environmental lands on site. This is in accordance with both comments received from OEH regarding the previous assessment of the area, as well as the specific content of Glenda's feedback letter
1-Apr-16	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Emailed Glenda Chalker specifically regarding the proposed text to be incorporated within the Archaeological Assessment for the Cross Street Planning Proposal addressing the proposed approach to conversation and management of the proposed environmental lands on site. This is in accordance with both comments received from OEH regarding the previous assessment of the area, as well as the specific content of Glenda's feedback letter
8-Apr-16	Tharawal LALC	N/A	Email (reception and heritage department)	Follow up email enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. No response received to date.
8-Apr-16	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Follow up email enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. No response received to date.
8-Apr-16	Tharawal LALC	N/A	Phone (landline)	Follow up call enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. Was advised by reception that the email would be given to the CEO for comment. No response received as of yet.

A final draft of this report was sent to both CBNTCAC and Tharawal LALC for comment. Written correspondence was received from Glenda Chalker via mail, and a copy of this correspondence has been included at Appendix C.

The letter stated that three of the six previously identified rock shelters were relocated during the most recent field survey, and recommended that the three identified shelters be registered on AHIMS as Aboriginal sites. The area that borders the Bargo River, and which is located within a proposed exclusion zone, was identified in the letter as having potential for Aboriginal archaeological material. The letter recommended that this are be excluded from all works as part of the current development and in the future.

It was also recommended that two of the drainage lines which run through the site be maintained as conservation lands, and concerns were expressed regarding the future management of the areas identified in the letter as warranting protection as conservation lands. It was recommended that a management plan be put in place to protect the identified areas, being specifically the two drainage lines and the area that borders the Bargo River to the south. These areas were identified as having cultural and spiritual significance for the Dharawal people, with stories having been told regarding the significance of the Bargo River and the country around it.

In response to this, information regarding the proposed management of the proposed E2, E3 and RE1 zones of the site was forwarded to both Glenda Chalker OF CBNTCAC and Tharawal LALC for comment. No comments have been received from either CBNTCAC or Tharawal LALC regarding this information to date, though it is acknowledged that consultation around this matter will be ongoing in association with further consultation with both OEH and Council. Both CBNTCAC and Tharawal LALC will be involved in this consultation going forward, and will be invited to have input into the ultimate resolution of this matter.

The letter received from CBNTCAC also stated that the remainder of the study area, which is proposed for rezoning and subsequent development, has been highly disturbed from past usage.

It is noted that consultation with both groups may be ongoing, pending receipt of any comments on this assessment received from OEH and/or Council following submission.

4 Study Area Description

The following description of the Study Area has been compiled based on relevant aerial and topographic mapping, a review of previous and current land uses, and a field survey of the area, which was undertaken on 5th February 2015.

4.1 SITE LOCATION, ACCESS AND SETTING

The Study Area is located in the town of Tahmoor, NSW, within the Wollondilly Shire LGA. The Study Area comprises a number of separate lots, being:

- Lot C DP374621
- Lot 1 DP1128745
- Lot 2 DP1128745
- Lot 3 DP1128745
- Lot 4 DP1128745
- Lot 5 DP1128745
- Lot 6 DP1128745
- Lot 255 DP10669

Aerial imagery of the Study Area showing the boundaries of these allotments has been provided in Figure 1, below. The Study Area is characterised by the following (refer also to Figure 2):

- The Study Area is currently occupied by an intensive duck farm operation, run by Pepe's Ducks. The duck operations are located on the western portion of the Study Area.
- The remainder of the Study Area is occupied by general cattle grazing. Previously, the Study Area was used for free range turkey farming, with access tracks still existent throughout.
- The Study Area immediately adjoins the Ingham's Enterprises Turkey Processing Plant to the west.
- Currently, large lot rural residential uses adjoin the Study Area at its northern boundary.
- The Study Area adjoins the 'JR Stud' site to the east, which is formally utilised as grazing land for cattle and previously as a horse stud.
- The Study Area contains significant parcels of natural vegetation. These vegetation clusters generally follow the existing riparian corridors on site and consist of both exotic pasture grasslands and wooded areas.
- The Bargo River Gorge bounds the Study Area to the south and the Nepean River runs in proximity (within one kilometre) of the eastern boundary of the Study Area.

The Study Area's northern edge intersects with Progress Street, Tahmoor Road, Myrtle Creek Avenue and River Road.

4.2 DISTURBANCE AND LANDSCAPE MODIFICATION

Based on a review of relevant reports and aerial imagery, as well as the known impacts associated with the above described land uses, it is considered that the majority of the Study Area has been subject to extensive disturbance over time. Previous field surveys of the area noted that with the exception of the less accessible areas, such as those associated with the Bargo River to the south, and the drainage channels that run north-south through the Study Area, the Study Area generally has been cleared for pasture, with most of the land having been ploughed, built upon, subject to irrigation, or used for grazing (Byrne 1993: 1). The amount of land that has been cleared, and that is considered to be 'managed land', is shown in Figure 3, below.

The less accessible areas mentioned above are relatively undisturbed, but have previously been subject to some vegetation clearance. Further information regarding the history of the Study Area in terms of land ownership and uses has been provided in Section 5.4, below.

FIGURE 1 – AERIAL IMAGERY OF THE STUDY AREA SHOWING INDIVIDUAL LOTS

FIGURE 2 – SITE CONTEXT (SOURCE: AE DESIGN PARTNERSHIP, 2013).

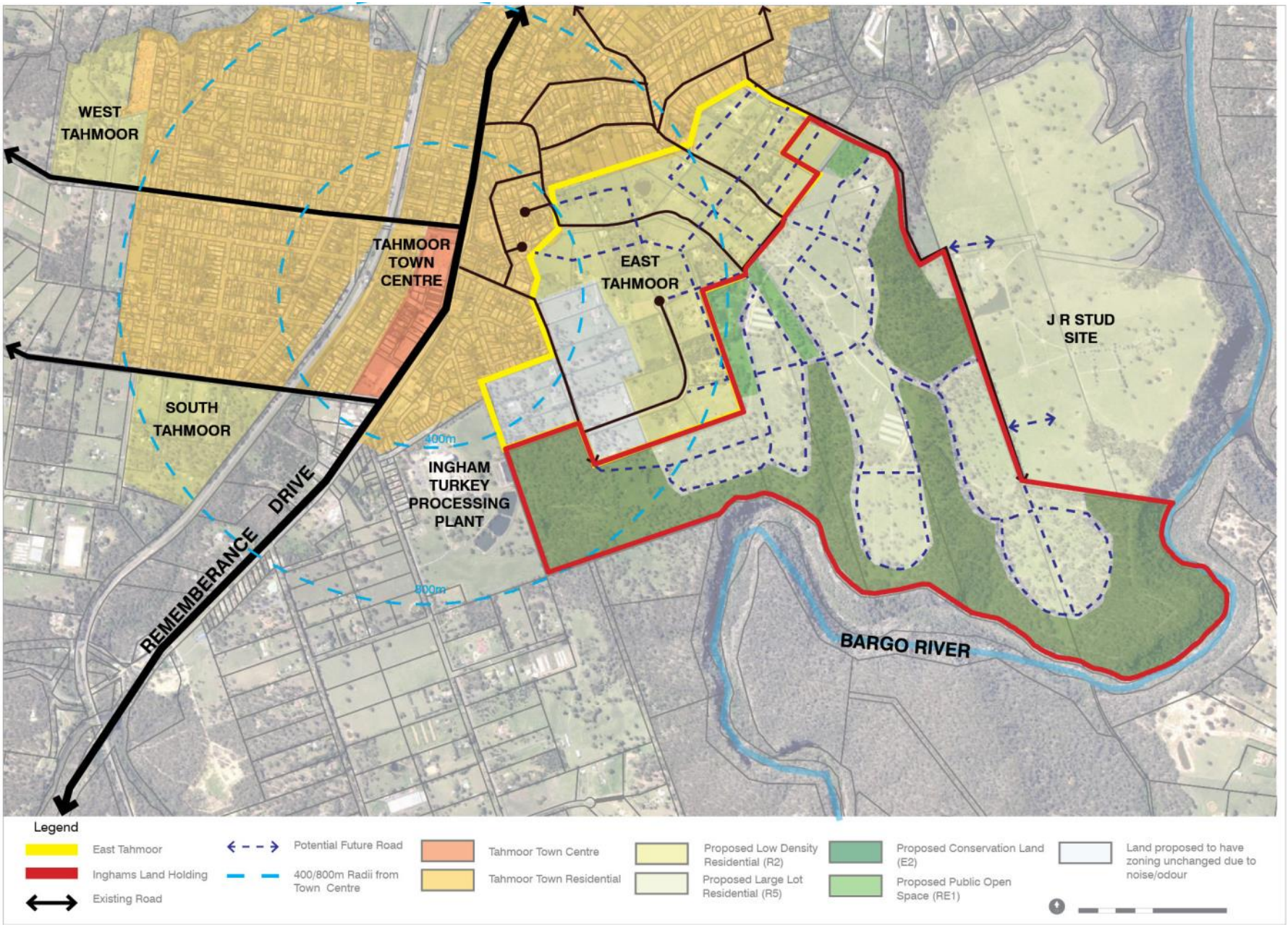


FIGURE 3 – VEGETATION CONDITION AND CLEARED LAND WITHIN THE STUDY AREA, SOURCED FROM ECOLOGICAL AUSTRALIA 2013A, FIGURE 4

FIGURE 4 – GENERAL PHOTOGRAPHS OF THE STUDY AREA

VIEW LOOKING SOUTH TOWARDS THE STUDY AREA FROM CROSS STREET.

VIEW FROM THE CENTRE OF THE STUDY AREA LOOKING SOUTH.

VIEW LOOKING WEST EXISTING DUCK OPERATIONS WITHIN THE STUDY AREA

VIEW OF EXISTING DUCK SHEDS ON THE WESTERN PORTION OF THE STUDY AREA

VIEW LOOKING WEST FROM THE EASTERN PORTION OF THE STUDY AREA

VIEW OF THE SOUTH EASTERN PORTION OF THE STUDY AREA

VIEW LOOKING EAST FROM THE STUDY AREA TO THE JR STUD PROPERTY.

VIEW FROM THE SOUTHERN PORTION OF THE STUDY AREA LOOKING EAST ALONG THE INTERFACE BETWEEN THE STUDY AREA AND THE BARGO GORGE

5 Historical Context

5.1 ABORIGINAL OVERVIEW

Ethnohistorical observations of the Aborigines in the Wollondilly region were made by early explorers and settlers. In 1798 expedition through the area, observed that Aboriginal people were wearing large skin cloaks. When James Backhouse travelled to the region in 1836, he observed that skin cloaks were still worn, but some European clothes and blankets were also in circulation. Major Mitchell noted in 1828 that hut structures or shelters consisting of a sheet of bark propped up against a tree were used by a single person and few boughs covered with bark and branches were used by family groups (Attenbrow 2003).

Early settlers noted that Aboriginal people lived in extended family groups of 20–40 members, hunting kangaroos, possums and eels and gathering yams and other seasonal fruit and vegetables from the local area and having flexible territorial boundaries. They were described as 'short, stocky, strong and superbly built' and generally considered peaceful. However as British settlers encroached on their land and reduced their food sources, Aboriginal people responded with armed resistance. In 1816 more than 14 Aboriginal people were killed by Europeans in an infamous event now known as the Appin Massacre and Aboriginal resistance was essentially ceased (Campbelltown and Airds Historical Society http://www.cahs.com.au/massacre-at-appin-1816.html).

Estimates of pre-contact population, language groups and territory are difficult to determine, due to disease, dislocation and violence which led to the demise of traditional lifestyles and the scarcity and unreliability of the early historical observations. The impact of diseases and massive social dislocation caused the Aboriginal population to decline rapidly after contact. The pre-contact population density of the Southern Highlands is assumed to be lower than for the coastal zone (Flood 1980). Hundreds of sites in the area including grinding groove sites, rock shelters with art and artefacts, scarred trees and artefact scatters demonstrate the traditional life ways of the original inhabitants.

5.2 HISTORICAL OVERVIEW

European explorers first visited the area south of the Nepaen River in 1795 and named it 'Cowpastures' after a herd of cattle that had escaped from Sydney Cove was discovered there. In February 1805, a surveyor measured out 5,000 acres (2,000 hectares) for John Macarthur at Cowpastures. He had been promised land by the Secretary of State for War and the Colonies, Lord Camden and Macarthur named his property Camden Park in honour of his sponsor (ADB John Macarthur). The land was primarily used for grazing.

Following the discovery of good land in the interior around the Goulburn area, Governor Macquarie authorised the building of the new Great South Road (Hume Highway) in 1819. Cowpastures was opened for settlement in 1822 which made land in Picton, Appin, Bargo and Tahmoor area available to settlers who created a patchwork of settlement between Camden and the Southern Highlands. When Europeans took up land grants, they cleared and fenced the land, creating a predominantly rural landscape used for grazing and irrecoverably changing the patterns of hunting and gathering that had been followed by the Dharawal people for tens of thousands of years.

The first land grants were small, ranging between 30 and 80 acres with the rear boundaries being either Myrtle Creek or the Bargo River, the recipients being mainly ex-convicts and their families who grew maize, wheat and corn. Tahmoor includes part of a grant of 50 acres to Edward Doyle by Governor Macquarie in 1821. Doyle built the Travellers Inn on the Great Southern Road which is still standing and listed as a State significant item known as Tahmoor House. Within 15 years the majority of the original grantees had sold their land and moved away, their holdings eventually being consolidated into one property which became known locally as the ‘Myrtle Creek Estate’ owned by James Crispe .

As the cattle and wool industry thrived, local citizens began pushing for the establishment of a town in the area to support the industry. Allotments of land in the new town of Camden went on sale in 1840. Picton was already the location of a number of properties when it was established as ‘Stonequarry’ in1840. Its name was changed in 1845. Appin had a permanent Post Office by 1841 and Tahmoor, originally known as Myrtle Creek had a school in 1860. These were all farming areas that developed on the Great Southern Road, and often identified by a roadside inn or hotel. The Travellers Inn (1821) and Lupton’s Inn

(1830) at Tahmoor and the Woolpack and George IV Inn at Picton (1839) were constructed to provide travellers on the Great Southern Road with food and accommodation. Inn keeping was generally more profitable than farming.

FIGURE 5 – INNS ON THE GREAT SOUTH ROAD

[Source: http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2690128]

[source: http://www.environment.nsw.gov.au/heritageapp/HeritageItemImage.aspx?ID=2690152#ad-image-1]

The railway arrived in Picton in 1863 and was extended to Mittagong in 1867 which resulted in the closure of roadside inns and hotels as road traffic decreased. The train line made moving people and produce quicker and easier and the settlements began to expand. When the new branch of the Main Southern Railway line opened in 1919, it included a railway station named Tahmoor. This name is a local Aboriginal word for the Common Bronzewing, (*Phaps chalcoptera*) a native pigeon often seen in the area (Macarthur Tourism http://www.macarthur.gdayneighbour.com.au/WollondillySuburbHistories.htm).

John Ashcraft farmed land in Tahmoor which today would include Remembrance Drive from Bronzewing Street to Thirlmere Way back to Fraser Street. In the early years he referred to his property as 'Tahmoor Farm' and in the 1890's as 'Jericho'. Johannes Knauer purchased land at the end of what is now River Road and established a successful vineyard for which he received a 'Commended' Award from the Department of Agriculture in 1890. In 1916 Samuel Emmett purchased hundreds of acres of land in the Tahmoor area which he later subdivided to form the nucleus of the current town. The lands formerly comprising the Myrtle Creek Estate were subdivided in 1921 and named Tahmoor Park Estate (Marlane Fairfax Family and Local History - http://fairfaxhistory.com/tahmoor_nsw.htm). This subdivision brought about the creation of Myrtle Creek Avenue, River Road, Tahmoor Road, Struan Street (then called Station Street), Park Avenue, and Moorland Road part of which is within the study area.

Subdivision in the 1920s provided large allotments between Remembrance Drive and the Bargo River which were utilised for agricultural industries such as market gardens, orchards, dairy and poultry farming. Underground coal mining commenced in Tahmoor in 1979, several kilometres to the south of the town centre. The coal is processed on-site before being transported by rail to the coal terminal at Port Kembla for shipping overseas. The Tahmoor area remains semi-rural despite large scale coal mining and agricultural industries that have provided the shire with new industry and prosperity. Tahmoor is now the largest town in the Wollondilly Shire.

5.3 HISTORIC HERITAGE REGISTERS

Historic heritage is recorded in a number of ways/places including the Australian Heritage Database, which is an online database of items listed under the Commonwealth Heritage List, National Heritage List and the Register of the National Estate, along with a variety of State and local heritage registers and organisations.

5.3.1 NATIONAL HERITAGE

The National Heritage List is now the lead statutory document for the protection of heritage places considered to have national importance. This list comprises Indigenous, natural and historic places that are of outstanding national heritage significance to Australia.

A search of the National Heritage List revealed that there are no items listed on the National Heritage List located within or in proximity to the Study Area.

5.3.2 COMMONWEALTH HERITAGE

The Commonwealth Heritage List is a list of natural, Indigenous and historic heritage places owned or controlled by the Australian Government. These include places connected to defence, communications, customs and other government activities that also reflect Australia's development as a nation. The Australian Heritage Database is an online database of items listed under the Commonwealth Heritage List, National Heritage List and the Register of the National Estate Archive.

A search of the Australian Heritage Database showed that there are no items listed on the above lists/registers are located within or in proximity to the Study Area.

5.3.3 STATE HERITAGE

Heritage items in NSW may be registered as important at the State level and/or at the local level. The Heritage Council has developed a set of seven criteria to help determine whether a heritage item is of State or local significance to the people of New South Wales. Items are assessed by the Heritage Council of NSW, and if deemed eligible for listing, i.e. are of state significance, they are referred to the Minister for Heritage for Listing on the State Heritage Register (SHR), a statutory register of heritage items created by the NSW Heritage Act 1977.

A search of the SHR revealed that there are no state heritage listed items located within or in proximity to the Study Area.

5.3.4 LOCAL HERITAGE

Searches of the Heritage Branch, OEH State Heritage Inventory, and the Wollondilly Shire LEP revealed that there are no locally listed heritage items located within or in proximity to the Study Area.

5.4 CURRENT AND PREVIOUS LAND USES

Current and previous uses of the Study Area, and the disturbance that this has resulted in, has previously been assessed by Environmental and Earth Sciences (2010) to inform the Planning Proposal. The following overview has therefore been sourced primarily from this document.

The report prepared by Earth and Environmental Sciences summarised by stating that the Study Area has been generally used for farming activities since at least 1955. They noted that the current site layout and development was apparent on the 1972 photograph, and from that point it has remained consistent. The most significant addition was identified to be the development of a quarrying operation to the south-west of the Study Area.

Seven aerial photographs taken between 1955 and 2004 were reviewed as part of the 2010 investigation (Earth and Environmental Sciences 2010: 6-7). Information on the Study Area from each of the photographs has been discussed below in Table 2, below, which has been sourced from the Earth and Environmental Sciences 2010 report.

TABLE 2 – REVIEW OF HISTORICAL AERIAL PHOTOGRAPHY OF THE STUDY AREA (SOURCES FROM EARTH AND ENVIRONMENTAL SCIENCES, 2010)

YEAR	MAP NUMBER	RUN	COMMENTS
1955	581-5032	10	The site mainly consisted of dense woodland on the banks of the Bargo river. To the north and west of site, there was cleared pastoral land and no significant residential developments.
1966	1440-5016	6C	The site remained similar to the 1955 aerial photograph with dense woodland around the Bargo River. The land to the north of the site had been cleared for residential development north of Remembrance Drive. To the west and south of the Bargo River significantly more land had been

YEAR	MAP NUMBER	RUN	COMMENTS
			cleared for farming activities. At the east of the site were several small buildings and paddock areas, at the west of the site were some small buildings surrounded by bush land and some paddock areas.
1972	2018-5110	3	Prior to 1972 there had been development on site including construction of duck housing sheds, a processing plant and ponds. There was a growth in the residential area to the north of Remembrance drive.
1983	3341-229	4	The site and surrounding area remained similar to the previous aerial photograph with no significant development. This majority of the surrounding land had been cleared for farming activities.
1994	163-184	5	In 1994, the processing plant area of the site had developed and there was significant residential area to the north and north-west of site. There were more ponds on site which appeared to be full and construction of more access roads and roadways were present.
1998	142-154	4	Site infrastructure remained consistent with that of the previous aerial photograph. The Tahmoor Colliery was visible to the south of the site and no change to the residential area to the north were observed.
2004	129-143	1	In 2004 the site and surrounding areas were similar to the 1998 photograph. Small sheds used for duck housing in the north of site had been removed. The Tahmoor Colliery to the south had increased in size while the surrounding areas remained the same.
2010	Google Photograph		The site and surrounding areas did not appear to have changed significantly since the previous aerial photograph

Historical titles

A title search was carried out as part of the abovementioned 2010 report. Based on the title search, the report compiled the following lists of the past title-holders of the two largest allotments within the Study Area, being Lot 255 DP 10669 and Lot 23 DP 233658.

Lot 255, DP 10669 Schedule of Registered Proprietors:

- 1925 - Robert Williams Hardie and Edwin Samuel Phippard- both of Sydney,Gentleman;
- 1929 - Edwin Samuel Phippard;
- 1929 - Frederick George Phippard of Sydney Company Secretary, Austin Edward Phippard of Sydney, Engineer and Stanley Raymond Phippard of Sydney, Barrister;
- 1933 - Cecil Edward Joyce of Sydney, Company Director;
- 1952 - Keith James Moore of Tahmoor, Freeholder;
- 1989 - Mona Moore;
- 1994 - Inghams Processed Poultry Pty. Limited; and
- 2008 - Inghams Enterprises Pty. Limited.

Lot 23, DP 233658 Schedule of Registered Proprietors:

- 1924 - John Robert Stewart of Tahmoor, farmer and Myra Ida Stewart;
- 1940 - Charles Frederick Wild of Beecroft, Builder and Owen Frederick Wild of Beecroft, farmer;
- 1947 - Ena Emily Miles, wife of Bernard Wilfred Miles of Sydney, publisher;
- 1967 - A.A Tegal Pty. Limited; and
- 2006 - Inghams Enterprises Pty. Limited.

The list of former title holders and the aerial photography indicates that the site has generally been used for residential and/or agricultural purposes, and was owned by private landowners until the transfer of title to Ingham's in 1994 and 2006 respectively. A review of historical aerial photography shows the processing plant to have been built between 1984 and 1994.

Generally speaking, the wider local area has also been subject to disturbance from a range of agricultural industries, coal mining, the construction of the existing railway, large areas of clearance and subdivision for residential and recreational use, construction of highways, roads and vehicle tracks, essential services such as electricity transmission lines, telecommunications cables and water management.

6 Environmental Context

An understanding of environmental context is important for the predictive modelling and interpretation of Aboriginal sites. The local environment provided natural resources for Aboriginal people, such as stone (for manufacturing stone tools), food and medicines, wood and bark (for implements such as shields, spears, canoes, bowls, shelters, amongst others), as well as areas for camping and other activities. The nature of Aboriginal occupation and resource procurement is related to the local environment and it therefore needs to be considered as part of the cultural heritage assessment process. An assessment of the environmental context is required under the *Code of Practice*.

6.1 TOPOGRAPHY

The Study Area is predominately situated across gently undulating but relatively flat land, with an elevation above sea level (ASL) of approximately 200 to 250 metres. The south and south eastern boundaries of the Study Area follow the natural contours of the Bargo River and associated drainage lines/gullies; these areas are characterised by steep slopes and the presence of sheer cliff faces at the interface with the Bargo River gorge. A decrease in elevation of approximately 50 metres occurs in association with these areas.

Gentle to very steep slopes are also present in association with other drainage channels within the Study Area (discussed below), particularly those that run north-south and connect with the Bargo River at their southernmost points. The topography of the Study Area is shown in Figure 6, below, which has been sourced from the *Bushfire Assessment* prepared for the Study Area by Ecological Australia in 2013.

6.2 SOIL LANDSCAPES AND GEOLOGY

The soil landscapes of the Tahmoor region are described in the 1:100 000 Wollongong-Port- Hacking Soil Landscape sheet (NSW Soil Conservation Society, 1988) as belonging to the Lucas Heights soil landscape. The landscape generally features undulating crests, ridges and plateau surfaces of the Mittagong formation (alternating bands of shale and fine grained sandstones).

The soils are described as deep (50-150 cm) hard setting yellow podzolic soils on ridges and plateau surfaces with yellow earthy sands in valley flats. Soil limitations include low soil fertility, stoniness and hard-setting surfaces (Environmental and Earth Sciences 2010: 4). It is not anticipated that Aboriginal artefacts will be present in subsoil layers. Therefore, potential archaeological deposits, if present, are likely to be limited to the topsoil layers of this soil landscapes; based on the visual inspection of the Study Area undertaken to inform this assessment, topsoil layers are relatively shallow, with sandstone bedrock visible in many places across the inspected area.

Aboriginal people often made stone tools using siliceous, metamorphic or igneous rocks. Therefore, understanding the local geology can provide important information regarding resources that may have been locally available in the past. The nature of stone exploitation by Aboriginal people depends on the characteristics of the source, for example whether it outcrops on the surface (a primary source), or whether it occurs as gravels (a secondary source) (Doelman et al. 2008).

Geologically, the Study Area is predominately underlain by Hawkesbury Sandstone, from the Triassic period. This geological formation typically features medium to coarse grained quartz sandstone with very minor shale and laminate lenses. Geology in the north and west of the Study Area is underlain by Ashfield Shale, which is from the Liverpool Subgroup of the Wianamatta Shales, Ashfield Shale is a fractured shale, and is characterised by a laminite and dark grey siltstone (Environmental and Earth Sciences 2010: 4).

The presence of sandstone and siltstone within and around the Study Area is significant in that they may have provided local Aboriginal people with resources for stone tool making or maintenance, which would have been used in resource procurement, processing and consumption, and general subsistence activities. For example, exposed sandstone bedrock was used for the shaping and/or maintenance of ground-edge hatchets, known as grinding grooves (South East Archaeology 2011: 22).

FIGURE 6 – TOPOGRAPHY OF THE STUDY AREA, SOURCED FROM ECOLOGICAL AUSTRALIA 2013B, FIGURE 5

6.3 FLORA AND FAUNA

The *Ecological and Riparian Report* prepared by Ecological Australia in (2013: 19-21) identified the following vegetation communities as being present within the Study Area:

1. Cumberland Plain Woodland
2. Shale Sandstone Transition Forest
3. Western Sandstone Gully Forest
4. Upper Georges River Sandstone Woodland; and
5. Exotic Pasture.

These vegetation communities are described individually, below, and their distribution across the Study Area is shown in Figure 7 (note: this figure also shows the extent to which land in the Study Area has been cleared). The following descriptions have been sourced from The *Ecological and Riparian Report* prepared by Ecological Australia in (2013: 19-21).

Cumberland Plain Woodland

Cumberland Plain Woodland is listed as a critically endangered ecological community under both the TSC Act and the EPBC Act. The Cumberland Plain Woodland comprises distinct groupings of plants that occur on the clay soils derived from shale on the undulating Cumberland Plain.

Dominant canopy trees include grey box, forest red gum, narrow-leaved ironbark, and spotted gum. A variety of other lesser-known eucalypts as well as shrubs, grasses and herbs are also found. The shrub layer may be dominated by blackthorn and other shrubs such as hickory wattle, duwabili and wedge-leaf hop-bush. Commonly occurring grasses and herbs include kangaroo grass, weeping meadow grass, kidney weed and blue trumpet.

Shale Sandstone Transition Forest

Shale-Sandstone Transition Forest occurs at the edges of the Cumberland Plain at the interface between shale rock/clay soils and sandstone. The main tree species are grey gum, white stringybark, thin-leaved stringybark, and red ironbark. Typically species found in this vegetation community include tick bush, narrow-leaved geebung, blackthorn, kangaroo grass, and kidney weed.

Western Sandstone Gully Forest

Western Sandstone Gully Forest occurs on the lower slopes of sandstone gullies on the western side of the Woronora Plateau and is often associated with soils derived from the Mittagong formation. Sandstone outcrops are common.

The canopy of this vegetation community is dominated by Sydney red gum, red bloodwood and blackbutt. A sparse layer of smaller trees is often present, and may be dominated by black she-oak. Typical shrub species include sunshine wattle, slender tea-tree, narrow-leaved geebung and hairpin banksia. Bracken fern is also extremely common in this community, and sweet sarsaparilla is also found. Wiry panic, spiny-headed mat-rush), and raspwort are common ground species.

Upper Georges River Sandstone Woodland

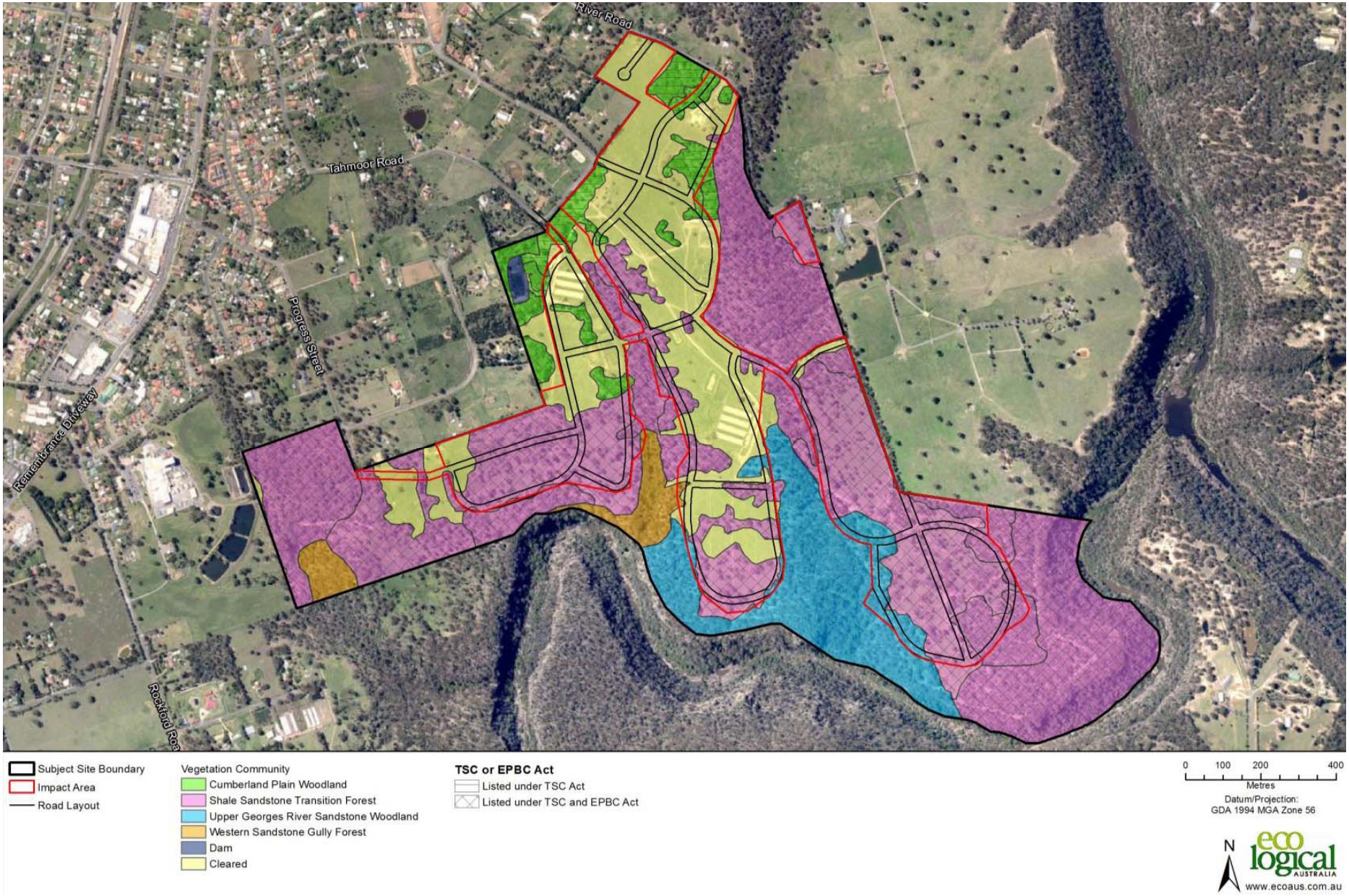
The Upper Georges River Sandstone Woodland is typically found on upper slopes and ridges. It is dominated by grey gum and red bloodwood, though narrow-leaved stringybark is also present to a lesser degree. Black she-oak also commonly features on the upper slopes of gullies.

Characteristic shrub species include prickly moses, white wattle, pale-fruit ballart, black tea-tree, narrow-leaved geebung. Dominant grass species include threeawn speargrass, wallaby grass, blue flax lily and mat-rush species.

Exotic Pastures

Exotic pastures refer to dominant species of exotic pasture grasses, including kikuyu grass and paspalum.

FIGURE 7 – CURRENT VEGETATION COMMUNITIES ACROSS THE STUDY AREA, SOURCED FROM ECOLOGICAL AUSTRALIA 2013A, FIGURE 3



Summary of Vegetation

The above vegetation communities would have provided habitats for a variety of animals, as well as providing potential food and raw material sources for Aboriginal people. The leaves of the flax lily were boiled for tea and the roots and fruits were edible, the bark of the geebung was used to soak string and fishing line, and mat-rush was used to make woven baskets for fishing (Nash 2004: 4-8; Stewart and Percival 1997:42). Eucalyptus trees were a particularly important resource; leaves were crushed and soaked for medicinal purposes, bowls, dishes, and canoes were made from the bark, and spears, boomerangs and shields were crafted from the hard wood (Nash 2004: 4-8).

Typical animals which may have been present in the area and hunted by Aboriginal people in the past include kangaroos, wallabies, wombats, sugar gliders, possums, echidnas, a variety of lizards and snakes, birds, as well as native rats and mice. These animals may have been utilised as a source of food, or as a resource for the manufacture of implements and ornaments (Attenbrow 2003:70-76).

6.4 HYDROLOGY

Several 1st and 2nd order watercourses pass through the Study Area. These watercourses are primarily associated with the Bargo River, which runs along the southern boundary of the Study Area, and the Nepean River, which runs within one kilometre of the eastern boundary of the Study Area at its closest point.

Based on the Strahler stream classification system, 1st and 2nd order streams are generally unnamed waterways with intermittent flow following rain events only. There is little or no defined drainage channel, and little or no flor or free standing water or pools after rain events. They typically present as dry gullies or shallow floodplain depressions, with no permanent aquatic flora present (DPI 2012: 98). These watercourses may therefore have provided an ephemeral source of water following periods of heavy rain, but are unlikely to have provided a reliable resource suitable for consistent use

The Bargo and Nepean Rivers, both of which are 4th order streams, are major permanent or intermittently flowing sources of water, providing a habitat for aquatic flora and fauna species. These water courses are likely to have provided Aboriginal people with a reliable source of water in the past. High order water courses and their tributaries were often used by Aboriginal people in the past as suitable areas for camping and food and resource procurement. The potential for archaeological sites and deposits to be found in their vicinity is therefore generally high (Attenbrow 2003: 49).

The location of the abovementioned watercourses in relation to the Study Area is illustrated in Figure 6, below.

6.5 SUMMARY

A review of the environmental context suggests that resources, including food (flora and fauna) and raw material sources, would have been available in and around the Study Area in the past. Topographically, the majority of the Study Area would have been easily accessed and navigated on foot.

The Study Area also would have been well sourced with subsistence resources, including flora, fauna and water. Several drainage channels extend through the Study Area, and these would have provided intermittent but relatively reliable ephemeral sources of water. In addition to this, the substantial and permanent Bargo River borders the Study Area to the south, providing a highly reliable and readily accessible water source. Mermaids Pools, located to the south of the Study Area and associated with the Bargo River, has previously been identified a site of cultural heritage significance for Aboriginal people, as well as a spiritual site.

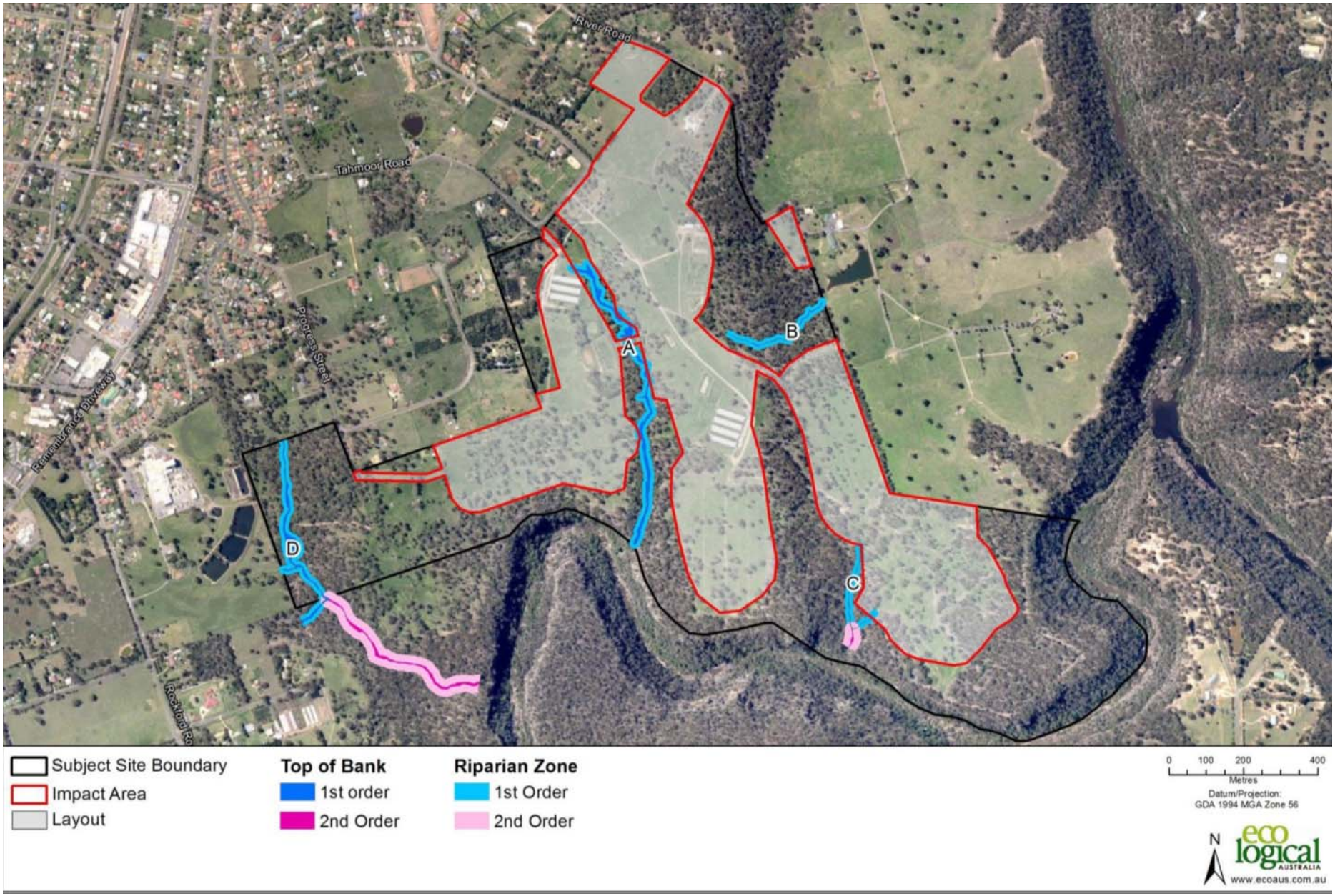
The vegetation and associated fauna would have also provided an abundance of natural resources for use as food, or for the manufacture of tools and general equipment. As discussed above, vegetation species present in the Study Area, including various eucalypt and tea tree species, are known to have been used by Aboriginal people in the past.

The presence of rock shelters within the Study Area, associated with sandstone overhangs and outcrops, would also have provided Aboriginal people with shelter in the past, primarily on a transient basis. This is particularly likely given the proximity to these sandstone landscape features to drainage channels.

Raw stone material, particularly sandstone, would also have been available within the Study Area in the past. However, preferred raw stone materials such as chert, mudstone, quartz and silcrete do not naturally occur in the immediate area. The majority of the Study Area has been disturbed through previous and current land uses; however, soil profiles within the Study Area suggest that there may be very limited potential for sub-surface deposits of artefactual material to be present within the Study Area in areas where the soil remains relatively deep, and where disturbance has been minimal.

An overview of the environmental context indicates that there would have been adequate naturally occurring resources in and around the Study Area, which may have encouraged Aboriginal use and occupation of the area in the past.

FIGURE 8 – HYDROLOGY OF THE STUDY AREA, SOURCED FROM ECOLOGICAL AUSTRALIA 2013A, FIGURE 11



7 Archaeological Context

7.1 AHIMS: REGISTERED ABORIGINAL SITES OR PLACES IN OR WITHIN THE VICINITY OF THE STUDY AREA

A search of the AHIMS database undertaken on 11 April 2016 has revealed that no Aboriginal sites, objects or places are located in or within 50 metres of the Study Area. This search was based on individual lot and DPs within the Study Area, and allowed for a buffer of 50 metres around each lot.

A wider search of the AHIMS database, intended to inform a wider understanding of the likely site types to be encountered in the general, was undertaken on 11 April 2016 for the following area and allowing for a 1000 metre buffer:

- GDA Zone 56 Eastings 274835 – 284046
- GDA Zone 56 Northings 6207732 - 6212499

The results of the search revealed a total of 63 Aboriginal sites as having been recording in this area. As one of these sites has been registered as 'deleted' due to the entry being a duplication, this leaves a total of 63 sites.

The site types, number of sites and frequency of sites within the area has been summarised in Table 3, below, and are also included in Appendix A, and shown in in relation to the Study Area in in Figure 9, below.

TABLE 3 – RESULTS OF THE EXTENSIVE AHIMS SEARCH CONDUCTED FOR THE STUDY AREA

SITE TYPE	NUMBER	FREQUENCY %	RANKING
Rock shelter with Art (Pigment or Engraved)	19	30.6	1
Isolated Artefact	10	16.1	2
Artefact(s) Unspecified	8	12.9	3
Rock shelter with Art (Pigment or Engraved) and Artefact(s) Unspecified	6	9.7	4
Isolated Artefact with PAD	6	9.7	5
Modified Tree (Carved or Scarred)	4	6.5	6
Artefact Scatter	2	3.2	7
Rock shelter with Art (Pigment or Engraved) and PAD	2	3.2	8
Rock shelter with Artefact(s) Unspecified	2	3.2	9
Rock shelter with Art (Pigment or Engraved), Artefact(s) Unspecified and PAD	1	1.6	10
PAD	1	1.6	11
Restricted Site	1	1.6	12
TOTALS	**62**	**99.9**	**-**

As shown in the above table, the most common site type identified in the vicinity of the Study Area are rock shelter sites with art (pigment or engraved). Rock shelter sites generally, either with or without art, artefacts of PAD, were the most common, accounting for half of all sites recorded.

Though some open artefact sites have been recorded, including isolated artefacts and artefacts scatters, they are less common than closed, rock shelter sites. This is likely to be a result of the surrounding topography, and the extent to which the local area has been impacted by continuous habitation and use since European settlement. Similarly, modified trees, although represented in the above table, have a relatively low frequency compared to other site types. Again, this may be a result of the general land clearance that has been undertaken across the area.

The majority of sites registered in the vicinity are located in proximity to or in association with significance landscape features, such as watercourses, as shown in Figure 9, below.

7.2 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS OF THE STUDY AREA

Byrne, D. 1993, *Survey for Aboriginal Archaeological Sites on Part of DP 10669 on the Bargo River at Tahmoor, NSW*

In 1993, Byrne undertook an assessment and site survey of the current Study Area to inform a planning proposal for rezoning and subdivision. At this time, the Study Area did not include the westernmost portion of Lot C DP 374621, and consequently this portion of the current Study Area was not included in the 1993 assessment. The Study Area was surveyed by Byrne and Glenda Chalker, who was then representing Tharawal LALC. The Study Area was divided into 15 individual survey units, which were determined primarily based on topography.

Byrne reported that no archaeological sites or material were identified as part of the survey. No evidence of rock art was identified, with most of the sandstone surfaces inspected assessed as being unsuitable for painting, drawing or engraving. Additionally, no open sites were recorded, though it was noted that poor ground surface visibility and the impacts of disturbance may have obscured any artefacts present on the ground surface.

As a result of the survey, six rock shelters considered to be of a habitable size and containing soil deposits were identified in the easternmost gully. These rock shelters were classified as PADs and recorded, but were not ultimately registered as Aboriginal sites. Byrne concluded by stating that in the absence of any artefactual material being identified within the shelters, the PADs could not be registered as Aboriginal archaeological sites under the NPW Act. It was recommended, however, that the PADs be treated as sites until proven otherwise.

In order to manage the PADs, Byrne stated that excluding the gully from any future subdivision of the Study Area would afford the potential sites adequate protection. In the event that the gully was proposed for subdivision in the future, Byrne recommended that caveats be placed on the title of the lots in question, requiring that prior to any disturbance to the PADs or their immediate vicinity (within five metres of the rock shelter openings) test excavation be carried out by a qualified archaeological to determine the presence/absence of archaeological material. In the event that archaeological deposit was proven to be present, Byrne stated that the normal Consent to Destroy procedure would apply.

Appleton, 2006, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW* (Revised 2012)

Appleton was engaged to conduct an archaeological investigation and field survey of the Study Area, again to inform proposed rezoning and subdivision of the site. As part of this investigation, Appleton consulted with representatives of Tharawal LALC (Donna Whillock) and CBNTCAC (Glenda Walker), both of whom participated in a survey of the site.

The Study Area was comprehensively surveyed, and no Aboriginal sites or objects were identified. Appleton made note of the rock shelters with PAD previously identified by Byrne (1993), and relocated ‘PAD #5’. Similar to Byrne, Appleton determined that in the absence of any archaeological material, the rock shelters with PAD would not be registered as sites on the AHIMS as a result of the investigation.

Appleton concluded by stating that as no archaeological sites or objects were identified, then there were no identified constraints to the proposal rezoning/subdivision on archaeological or cultural heritage grounds. He further noted that neither Glenda nor Donna identified any particular Aboriginal associations with the survey area, other than in relation to the six rock shelters with PAD.

FIGURE 9 – MAP OF AHIMS EXTENSIVE SEARCH RESULTS IN RELATION TO THE STUDY AREA

In terms of management options, Appleton recommended that the drainage line/gorge in which the rock shelters with PAD were recorded be set aside as a reserve, and that this area not be impacted by future development. He further specified that a buffer of 40 metres from either side of the creek line be maintained as part of any future rezoning/subdivision.

Both of Glenda and Donna provided written statement on behalf of their respective organisations, and these statements were included in the report as appendices. Both letters stated that no sites or objects or great Aboriginal significance were identified, with the exception of the 'pre-recorded sites in the creek bed'. Both letters also recommended that there be a 50 metre buffer zone around the drainage line containing the rock shelters with PAD, and that no excavation work be undertaken in proximity to these potential sites. On the basis of these recommendations being followed, the letters stated that there were no objections to the development of the site proceeding.

Appleton, 2012, *The Archaeological Investigation for Sites of Indigenous Cultural Significance on Part Lot 19669, Tahmoor, NSW* (Revised)

Appleton's 2012 study was undertaken primarily as a review of his 2006 study, and to ensure that the newly endorsed ACHCRs were undertaken for the project. Although a number of Aboriginal groups were identified through the formal ACHCR process, no comments or responses were received from these groups at that time.

Appleton reiterated the conclusions of his previous assessment, as described above.

7.3 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS IN THE LOCAL AREA

A number of Aboriginal heritage investigations have been undertaken within the vicinity of the Study Area, principally for Environmental Impact Assessments relating to development proposals, particularly coal mining. The following discussion of the most relevant investigations highlights the range of site types and the variety of site contents in the region, and identifies typical site locations. A review of previous archaeological investigation in the local area will inform the predictive model for the Study Area presented in Section 8, below.

Kamminga, J., 1975, Archaeological Survey of Proposed Clutha Coal Mine, Tahmoor. Unpublished report to Dames and Moore.

An initial archaeological survey of the Tahmoor Colliery was undertaken by Kamminga (1975) for Clutha Development. A rock shelter with art (#52-2-461) was located outside of the study area, near the railway and Remembrance Drive.

Further investigations were undertaken in 1979 for an EIS prepared by Dames and Moore, for a proposed coal handling and preparation plant and reject emplacement area. A rock shelter with art was located west of the Hume Highway Bridge, adjacent to the Bargo River (Xstrata Coal Tahmoor Colliery 2009).

Sefton, C. ,1992, North Tahmoor Project Archaeological Survey. Unpublished report to Kembla Coal and Coke Pty Ltd.

Sefton (1992) investigated the Tahmoor North man entry shaft site, located immediately approximately four kilometres north of the present Study Area along the northern margin of Redbank Creek, east of the Main Southern Railway. The 4.35 hectare area was inspected with a representative of the Tharawal LALC in July 1992 and no Aboriginal heritage evidence was identified.

Sefton, C., 1994, *Archaeological Survey of Tahmoor Mine Longwall 14-18 Application.* Unpublished report to Kembla Coal and Coke Pty Ltd.; Sefton, C. 1997 *Archaeological Survey of Tahmoor Mine Longwall 17-20 Application*. Unpublished report.; Sefton, C. ,1998, *Archaeological Survey of Tahmoor North Lease Area, Urban Areas and Railway Infrastructure*. Unpublished report to Olsen Environmental Consulting Pty Ltd.

Further investigations were undertaken by Sefton (1994) in relation to Subsidence Management Plan (SMP) approvals for Longwall Panels 14-18. The survey targeted rock formations with potential for rock

shelters. Three rock shelters with art were identified. Sefton (1997) also investigated Longwall Panels 17-20 for an SMP application, which overlapped partially with the earlier study area.

Sefton (1998) investigated the broader Tahmoor lease areas and located nine Aboriginal sites, including two grinding groove sites, two rock shelters with art, two rock shelters with artefacts, one rock shelter with art and artefacts, a scarred tree and one PAD. This includes site #52-2-2078 ('Tahmoor 1'), a rock shelter with art and deposit, recorded immediately adjacent to Myrtle Creek.

Comber Consultants, 2005, *Cultural Heritage Assessment and Archaeological Survey: Maldon to Tahmoor Electricity Line Upgrade*. Unpublished report to Integral Energy.

Comber (2005) investigated a proposed electricity transmission line between Tahmoor and Maldon, approximately three kilometres to the north east of the present Study Area. No Aboriginal heritage evidence was identified.

Biosis Research, 2007, *Archaeological and Cultural Heritage Assessment of the Bargo River Gorge, Downstream of Mermaids Pools*, Tahmoor. Unpublished report.

Approximately 1.5 kilometres south of the present Study Area, Biosis Research (2007) investigated Bargo River Gorge, downstream of Mermaids Pools. The area was identified as being of significance to the Aboriginal community, with a spiritual site and other cultural values, along with two PADs.

RPS, 2010, *Cultural Heritage Impact Assessment 165 - 185 River Road, Tahmoor*. Unpublished report to EG Property.

RPS (2010) investigated 165 - 185 River Road, Tahmoor, for a proposed rezoning. This area is located just outside the present Study Area to the east, and borders the Nepean River, Bargo River and Myrtle Creek. The preliminary level investigation only involved consultation with the Tharawal LALC and a two-day field inspection, with subdivision of the area into five arbitrary survey units. One rock shelter with PAD was identified along the Nepean River.

Biosis Research, 2009, *Bulli Seam Operations: Aboriginal Cultural Heritage Assessment*. Unpublished report to BHP Billiton Illawarra Coal.

Biosis Research (2009) investigated a broad area in relation to BHP Billiton's underground coal mining area known as the Bulli Seam Operations to the east of Picton. Surveys were conducted in late 2008 and early 2009, with 44 previously unrecorded Aboriginal sites identified. A total of 588 sites had previously been recorded within the investigation area. Reflecting the nature of the sandstone topography and the sampling strategy, many of the sites are rock shelters or grinding grooves.

South East Archaeology, 2011, *Tahmoor Coal Redbank Tunnel Subsidence Management Project, Tahmoor, Wollondilly Shire, Southern Highlands of New South Wales: Aboriginal Heritage Impact Assessment.*

South East Archaeology (2011) surveyed an area of approximately 76.4 hectares north of Remembrance Drive which comprised the existing rail corridor around Redbank Tunnel and adjacent private property. The land is predominantly rural and rural-residential land cleared of native vegetation and used for grazing livestock. The survey was undertaken with representatives of CBNTCAC and Tharawal LALC and resulted in the identification of three Aboriginal heritage sites which comprised of open artefact occurrences. A previously recorded rock shelter with art and deposit (#52-2-2078) and another previously recorded site (#52-2-3667) were relocated. All of these sites are approximately 2-3 kilometres north of the current Study Area.

7.4 SUMMARY

Surveys within the general area have typically resulted in the location of low numbers of Aboriginal heritage sites, generally where the underlying geology permits. Rock shelters with deposit and/or art, grinding grooves, and/or rock engravings are relatively common, and have typically been found in association with rock overhangs and outcrops.

Across the wider landscape more generally, low density artefact scatters have been identified, however, dense vegetation cover and the associated limitations on surface visibility have been noted as a constraint to the identification of such sites in previous archaeological assessments in the locality.

Significantly, one of the previous studies (Biosis Research 2007) identified an area of cultural significance for the Aboriginal community (spiritual site) in association with the Bargo River gorge and Mermaids Pools, located to the east of the current Study Area. This demonstrates that not all sites of Aboriginal cultural heritage significance will be evidence in the form of material traces, and is relevant to the current investigation due to the proximity of Mermaids Pools to the current Study Area.

8 Predictive Model

In terms of archaeology, predictive modelling is used to present a model, or series of testable statements, about the nature and distribution of evidence of Aboriginal land use in the study area, based on the historical, environment and archaeological context (refer to Sections 5, 6 and 7, above). To achieve this, a predictive model must characterise the patterning of material traces across the local and/or regional area, consider the distribution of natural resources and probable land-use strategies employed by Aboriginal people in the past, and consider the spatial and temporal relationships of sites.

Based on this, an identification of the material traces that are likely to be present in the Study Area can be made, along with inferences as to the nature of Aboriginal occupation of the landscape in the past.

8.1 SITE TYPES

The following descriptions of Aboriginal site types is not exhaustive, but does include the most commonly encountered/recording site types, as they appear on the AHIMS.

Artefact Scatters

Artefact scatters are defined by the presence of two or more stone artefacts in close association (i.e. within fifty metres of each other). An artefact scatter may consist solely of surface material exposed by erosion, or may contain sub-surface deposit of varying depth. Associated features may include hearths or stone-lined fireplaces and heat treatment pits.

- Artefact scatters may represent:
- Camp sites: involving short or long-term habitation, manufacture and maintenance of stone or wooden tools, raw material management, tool storage and food preparation and consumption;
- Hunting or gathering activities;
- Activities spatially separated from camp sites (e.g. tool manufacture or maintenance); or
- Transient movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility, including vegetation cover, ground disturbance and recent sediment deposition. Factors such as poor light, vegetation, and leaf litter may obscure artefact scatters and prevent their detection during surface surveys. In addition, because artefact scatters are located on the ground surface, and are not fixed to the ground or any other surface, they can be easily disturbed and/or moved from their original contexts, or damaged. The likelihood of identifying artefact scatters in highly disturbed and intensively used areas is generally very low.

Bora/Ceremonial Sites

Bora grounds are a type of ceremonial site associated with initiation ceremonies. They are usually made of two circular depressions in the earth, sometimes edged with stone. Bora grounds can occur on soft sediments in river valleys and elsewhere, although occasionally they are located on high, rocky ground where they may be associated with stone arrangements.

Burials

Human remains tended to be placed in hollow trees, caves or sand deposits. Usually burials are only identified when eroding out of sand deposits or creek banks, or when disturbed by development. Aboriginal communities are strongly opposed to the disturbance of burial sites. The probability of detecting burials during archaeological fieldwork is typically extremely low.

Carved/Scarred Trees

Scarred trees contain scars caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters. Ethnographic records suggest that carved trees were still relatively common in NSW in the early 20th century. They were commonly used as markers for ceremonial or symbolic areas, including burials.

Grinding Grooves

Grinding groove are elongated, narrow depressions in soft rocks (particularly sedimentary), generally associated with watercourses. They are most often found in association with sandstone. The depressions are created by the shaping and sharpening of ground-edge hatchets.

Lithic Quarries

A lithic quarry is the location of an exploited stone source. Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur; this includes chert, quartz, mudstone, and silcrete. Reduction sites, where the early stages of stone artefact manufacture occur, are often associated with quarries.

Rock Shelters with Art/Engravings and/or Occupational Deposits

Rock shelters include rock overhangs, shelters or caves, which were used by Aboriginal people for shelter, temporary occupation, and resource processing and/or preparation. Rock shelter site may contain artefacts, midden deposits and/or rock art/engravings. These sites will only occur where suitable geological formations are present.

Stone Arrangements

Stone arrangements include circles, mounds, lines or other patterns of stone arranged by Aboriginal people. Some were associated with bora grounds or ceremonial sites, and others with mythological or sacred sites. Hill tops and ridge crests which contain stone outcrops or surface stone, and have been subject to minimal impacts from recent land use practices, are potential locations for stone arrangements. Stone arrangements are also typically located on relatively flat, open land.

8.2 PREDICTIVE MODEL

The potential for each of the above identified site types to be present within the Study Area is assessed in Table 4, below. This assessment has been informed by the historical, archaeological and environmental context of the Study Area, the development and current and past uses of the Study Area, and the results of the AHIMS search.

TABLE 4 – PREDICTIVE MODEL FOR ARCHAEOLOGICAL SITES WITHIN THE STUDY AREA

SITE TYPE	DISCUSSION	POTENTIAL
Artefact Scatters	Within the study area, there is potential for stone artefacts to occur in a widespread distribution of variable density across virtually all landform units, apart from in areas which have been substantially impacted by recent land-use. A higher density of evidence is expected to occur where more focused and/or repeated Aboriginal occupation has occurred (eg. along higher order watercourses and on adjacent low gradient simple slopes or spur crests). Given the extent to which the majority of the Study Area has previously been disturbed, it is considered that there is low potential for artefact scatters to be present across the majority of the Study Area. There is a low to moderate potential for artefact scatters to be identified in less disturbed areas (i.e. along the southern/southeastern Study Area boundaries and in association with drainage lines/gullies, particularly in association with rock shelters). However, if present, artefact scatters in these areas may not be visible due to vegetation or general ground cover, and may not be found *in situ* due to the steep terrain. Additionally, the geology of the Study Area does not suggest that raw stone	Low - Moderate

	materials preferred for working were readily available within the immediate vicinity. Though stone material is likely to have been sourced from other areas, the absence of readily available sources within the Study Area may further reduce the likelihood for artefact scatters to be present.	
Bora/Ceremonial Sites	The majority of the Study Area has previously been subject to disturbance due to farming, development and continuous land use. Additionally, sites of a similar nature have not previously been identified in proximity to the Study Area or in the local area generally, and the Study Area was not identified as having any particular or specific spiritual or cultural significance for the Aboriginal community as part of previous investigations.[1] The potential for bora/ceremonial sites to be present within the Study Area is therefore assessed as very low.	Very Low
Burials	Based on previous/current land uses and the associated disturbance, as well as the general absence of substantial sandy creek beds, suitable hollow trees, and suitable caves, the potential for burial sites to occur within the Study Area is considered to be very low. There is no historical or cultural information to suggest that burials are likely to be present in the area, however the potential presence of burials cannot be completely discounted.	Very Low
Carved/Scarred Trees	Carved/scarred trees are typically found in association with stands of original vegetation. Land use impacts over time, which have involved the extensive clearance of vegetation across NSW generally, has resulted in this site type becoming extremely rare. Given both the extended time between when this practice was more common, and the extent to which vegetation has been cleared and/or disturbed within the Study Area, it is considered that the potential for carved/scarred trees is very low.	Very Low
Grinding Grooves	Grinding grooves are most likely to be located in sedimentary bedrock (sandstone) along watercourses. As there are watercourses located within and in proximity to the Study Area, and the underlying geological formations feature sandstone, the potential for these sites to be present within is assessed as moderate.	Moderate
Lithic Quarries	Lithic quarries occur in association with outcrops of suitable stone material. The underlying geology of the Study Area, which is not characterised by an abundance of any of the preferred raw stone materials, suggests that such outcrops are unlikely to be present in the Study Area. The potential for lithic quarries to be present is therefore considered to be low.	Low
Rock shelters with Art/Engravings and/or	Previous assessments of the Study Area, as well as a review of the topography and landscape, suggests that geological formations associated with the presence of rock shelter sites are common within the Study Area, particularly in association with drainage channels/gullies and associated	High

[1] Note: information regarding the spiritual and/or cultural significance of any area may be sensitive information. Sharing this information for the purposes of archaeological investigation/reporting is entirely at the discretion of the community, and an absence of documentation should not be assumed to equate to non-significance

Occupation Deposit	sandstone formations/cliff faces. The potential for this site type to occur within the Study Area and in association with these landscape features is therefore assessed as high.	
Stone Arrangements	Stone arrangements are typically situated on hill tops, or along ridge crests that contain stone outcrops and/or surface stone, and are more likely to be located on relatively flat, open land. Given the extent to which the Study Area has been disturbed due to continuous use, as well as the relative scarcity of the abovementioned landforms within the Study Area, the potential for stone arrangements to be present within the Study Area is considered to be low.	Low

8.3 SUMMARY

The predictive model present in Table 4, above, demonstrates there the potential for Aboriginal archaeological sites within the Study Area is highly dependent upon the presence/absence of particular landscape features, the extent to which the area has previously been disturbed, and the current condition (including ground surface visibility) of the Study Area.

Based on a review of these factors, it has been determined that the rock shelter sites have the highest potential to be present within the Study Area. This is based both on the topography of the Study Area and the presence of sandstone overhangs/outcrops associated with drainage channels, and the frequency of this site type across the wider landscape, as identified in previous studies (refer Section 7, above). Based on the presence of sandstone in the Study Area, particularly in association with water courses, the potential for grinding groove sites has been assessed as moderate.

If present, rock shelters and grinding groove sites would be expected to be identified in proximity to water courses; this is based both on the nature of the site types themselves, as well as the results of previous investigations in the vicinity.

All other site types, including artefact scatters, carved/scarred trees, bora/ceremonial sites and stone arrangements are considered to have a low to very low level of potential to occur within the Study Area. This is based on a number of factors, including the relatively low number of such site types having been previously identified in the area generally, the limitations associated with poor ground surface visibility in the Study Area, the extent to which the Study Area has been disturbed (including vegetation clearance), and the scarcity of undisturbed, open and relatively flat land within the Study Area.

9 Archaeological Field Survey

9.1 SURVEY METHODOLOGY

The study area was surveyed in accordance with the requirements set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

9.2 SURVEY AIMS

As discussed above, the Study Area has been subject to previous field surveys in 1993, and again in 2006. Consequently, the primary aim of the most recent survey was to relocate, inspect and assess the six potential Aboriginal sites (rock shelters) that were identified in these previous surveys, but which had not yet been registered. If relocated and identified to be Aboriginal sites, these rock shelters were to be recorded and a site card submitted to the OEH for inclusion on the AHIMS database.

In response to the comments received from OEH regarding the 2012 report (ASR 2012), the survey also specifically aimed to gain further information regarding Aboriginal landscapes and areas of particular cultural value to the Aboriginal community within and in proximity to the Study Area, through on-site consultation with the Aboriginal stakeholders.

In addition to this, the general purpose of the survey was to inspect visible ground surfaces, observe exposed soil profiles and sample all landform types in the Study Area in order to record any unidentified material evidence for Aboriginal and historic occupation. Any Aboriginal objects or sites were to be recorded and a site card submitted to the OEH for inclusion on the AHIMS database.

9.3 SURVEY STRATEGY

In accordance with the survey aims described above, the survey strategy was formulated so as to enable a targeted survey of the area in which the potential rock shelter sites were previously identified, being the westernmost drainage channel/gully.

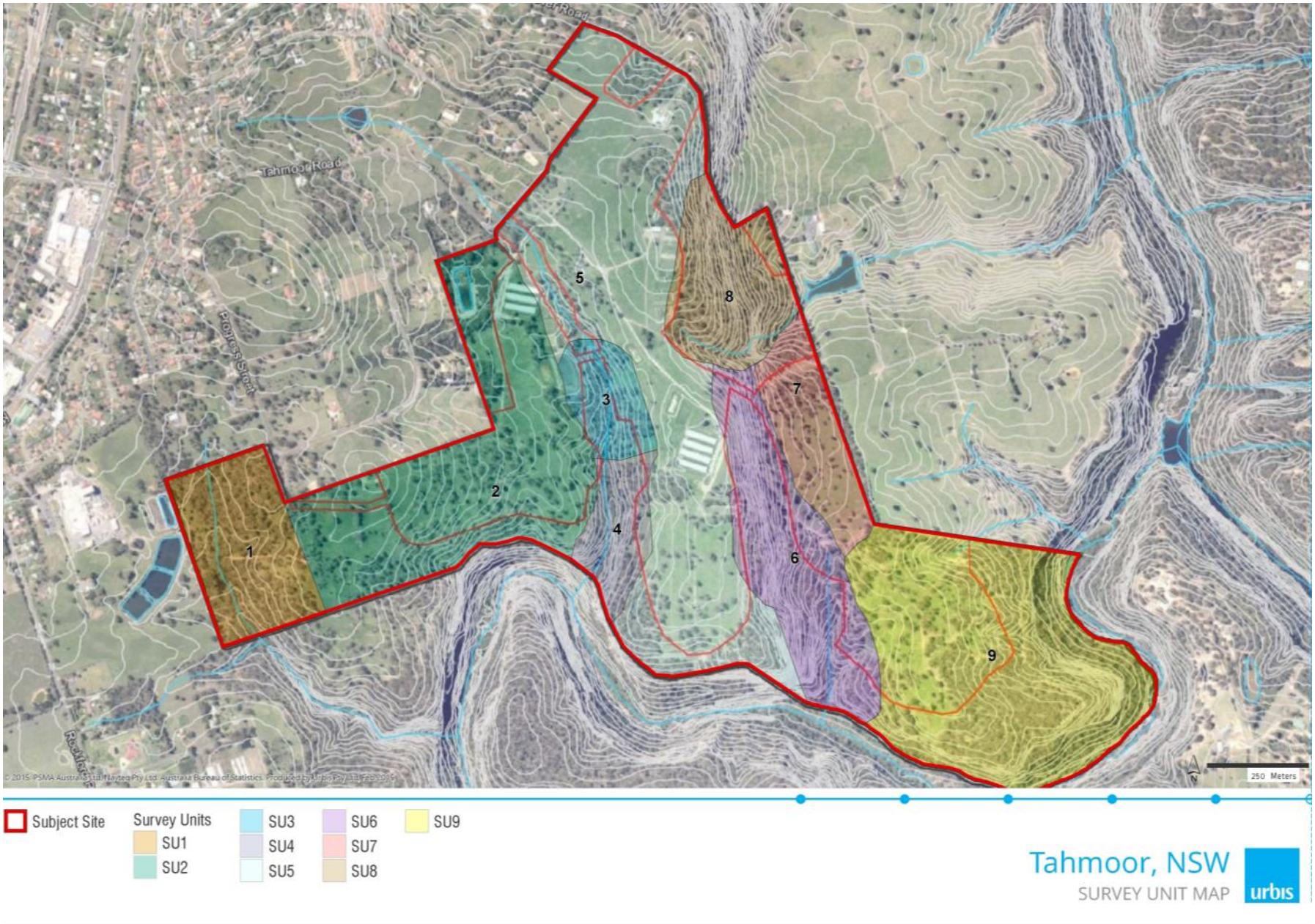
In addition to this, a general survey methodology focussing on similar landforms and features most likely to contain archaeological evidence of occupation, such as ridges, drainage channels, gullies, rocky outcrops, sandstone sheets and mature trees capable of bearing cultural modification (scarred or carved), was applied. Areas that were specifically targeted for survey have been shown in Figure 10, below.

The remainder of the Study Area, which primarily comprises areas that have previously been disturbed, intensively used and/or cleared of vegetation, were not subject to detailed inspection, for several reasons:

a) These areas have previously been subject to pedestrian survey as part of investigations undertaken in 1993 and again in 2006;
b) Generally, these areas have been subject to disturbance by way of continuous use for farming, the construction of buildings and structures associated with the Study Area's use as farm land, use as grazing land, vegetation clearance and irrigation;
c) These areas do not contain any landscape features that are considered to indicate the likely existence of Aboriginal sites/objects, such as drainage channels, ridge tops, cliff faces, rock shelters or sand dunes; and
d) Aboriginal community stakeholders, being Glenda Chalker (CBNTCAC) and Sarah Duncan (Tharawal LACL) did not feel that is was necessary to re-survey these areas, and considered the likelihood of identifying Aboriginal sites and/or objects in these areas to be very low.

Rather than be subject to detailed survey, these areas were inspected broadly and from a vehicle.

FIGURE 10 – SURVEY UNITS WITHIN THE STUDY AREA, SHOWING THE UNDERLYING TOPOGRAPHY



9.4 FIELD METHODS

The survey was predominately conducted on foot (pedestrian), and specifically targeted the landscape features identified in above the survey strategy. Some of the survey units, being Survey Units 1, 5 and 8, were not subject to pedestrian survey, but were viewed more broadly from tracks or roads. These survey units have been described based on these broad observations, as well as will reference to previous assessments and aerial imagery of the Study Area. As Glenda Chalker has previously surveyed the Study Area on two separate occasions, the decision not to inspect these survey units more closely was made in consultation with her, as well as with Sarah Duncan of Tharawal LALC.

Individual survey units were determined based on the presence/absence of landscape features, the Study Area boundaries, the location of disturbed areas, and/or other relevant considerations including accessibility. Survey units were mapped with reference to aerial and topographic mapping, as well as previously recorded GPS data (derived from the 1993, 2006 and 2012 investigations). Each of the survey units represents a specific landform, as shown in Table 6.

During the survey, the survey units were recorded through the use of representative digital photography, field notes, and the use of GPS equipment to track the extent and coverage of the pedestrian survey. During the survey, observation were made and recording regarding soils, identified raw stone materials, vegetation cover, ground surface exposure and visibility, landform features and general disturbance.

The survey units, as mentioned, were subject to pedestrian survey. A total of four survey team members (Karyn Virgin, Urbis; Glenda Chalker, CBNTCAC; Sarah Duncan, Tharawal LALC; and Michael Parkinson, Ingham's) were present. The specific survey methods employed depended largely upon terrain and accessibility, and are described in detail for each survey unit in Section 9.5, below.

9.4.1 GROUND SURFACE VISIBILITY

Ground surface visibility is the amount of bare ground (or visibility) on the exposures which might reveal artefacts or other archaeological materials. It is important to note that visibility, on its own, is not a reliable indicator of the detectability of buried archaeological material. Things like vegetation, plant or leaf litter, loose sand, stony ground or introduced materials will affect the visibility. Visibility has been described by (then) DECCW (now OEH) as 'what conceals' (DECCW 2010: 39).Ground surface visibility has been assessed for the Study Area in relation to the gradings of visibility set out in Table 5, below. As per requirements, the ratings have been graded to the nearest 10%.

TABLE 5 – GRADINGS OF GROUND SURFACE VISIBILITY

GROUND SURFACE VISIBILITY RATING	OVERALL RATING	DESCRIPTION
0-29%	Low	Heavy to moderate vegetation with scrub foliage, tree cover and/or floor debris (leaves etc). Ground Surface not clearly visible, though patches of visibility caused by animal tracks, erosion etc may be present.
30-59%	Moderate	Moderate to low levels of vegetation, scrub and/or tree cover. Small to moderate patches of ground surface associated with animal tracks, erosion, ploughing grading, clearing, etc visible across the Study Area.
60-100	High	Low to very low levels of vegetation, and little to no scrub cover. Moderate to large areas of visibility due to more extensive disturbances associated with larger scale events like ploughing, grading, mining, and extensive erosion.

An assessment of ground surface visibility for each of the survey units has been provided in the survey unit descriptions, below, and also in Table 6.

9.4.2 GROUND SURFACE EXPOSURE

Ground surface exposure is different to visibility because it estimates the area with a likelihood of revealing buried artefacts or deposits rather than just being an observation of the amount of bare ground. It is the percentage of land for which erosion and exposure was sufficient to reveal archaeological evidence on the surface of the ground. In contrast to visibility, exposure has been described by (then) DECCW (now OEH) as 'what reveals' (DECCW 2010: 37).

An assessment of ground surface exposure for each of the survey units has been provided in the survey unit descriptions, below, and also in Table 6.

9.4.3 LIMITATIONS

As discussed in Section 9.3, above, only specific areas of the Study Area were targeted for survey as part of this assessment. Though the remainder of the Study Area was subject to broad observation, primarily from a vehicle, it was not inspected in detail, for the reasons discussed below.

A review of the historical context of the Study Area, including a consideration of past and current land uses, suggests that the majority of the land has previously been subject to disturbance as a result of farming, irrigation, and general and continuous use; and this has been confirmed by previous archaeological surveys of the Study Area. In addition to this, the entirety of the Study Area, including disturbed areas, has previously been subject to comprehensive pedestrian survey as part of two previous investigations (1993 and 2006); no Aboriginal objects or sites were identified in these areas as part of these investigations. No landscape features considered to indicate the likely presence of Aboriginal objects/sites are located in these areas.

Survey Units 1, 5 and 8, described below, were therefore not subject to pedestrian survey as part of this assessment (for ease of reference and for the purposes of this report, they are referred to as Survey Units, as explain below). In deciding not to re-survey these areas, representatives of the Aboriginal community, being Glenda Chalker and Sarah Duncan, were consulted. Both representatives stated that they were satisfied that these areas had been adequately considered in previous investigations, and that they did not warrant further survey.

In addition to those areas not specifically targeted for survey, other parts of the Study Area were unable to be surveyed due to accessibility. This includes buildings or structures for which access was not granted, as well as areas that were considered to be too dangerous to traverse due to environmental factors such as steep terrain and dense vegetation.

9.5 SURVEY UNITS

For the specific purposes of this investigation, the four survey units were established within the Study Area. These units are described in greater detail below, and shown in Figure 10, above. Although not all of the following survey units were subject to detailed pedestrian inspection as part of this assessment, they have all been subject to survey as part of previous assessment(s), and for ease of reference have been described as 'survey units' for the purposes of this report. Where a survey unit was not subject to detailed pedestrian survey (Survey Units 1, 5 and 8), this has been identified and justified in the below discussion.

9.5.1 SURVEY UNIT 1

Survey Unit 1 (SU1) was located within the westernmost portion of the Study Area. It comprised an ephemeral drainage channel, running in a north-south orientation. The land surrounding this drainage channels slopes gently towards its banks. The area features some dirt vehicle tracks and shows evidence of general vegetation clearance.

SU1 was not subject to detailed inspection as part of the current assessment, but was viewed from the road only. This SU did not form part of the Study Area at the time that the 1993 and 2066 investigation was undertaken. Through on-site consultation with representatives of the Aboriginal community it was determined that they did not feel that SU1 needed to be re-surveyed, a) because it had previously been surveyed and no Aboriginal sites or objects, or significant landscape features, and been identified and b)

because through previous surveys it was determined that the area had been subject to extensive disturbance through farming and general land use.

No Aboriginal sites or objects have been identified in SU1 as part of previous investigations.

9.5.2 SURVEY UNIT 2

Survey Unit 2 (SU2) was located in the centre of the Study Area, extending the entire length of the Study Area from the northern boundary to the southern boundary. SU2 was the survey unit through which the Study Area was accessed (via Cross Street). In terms of landforms, SU2 is primarily comprised of gently sloping ground, with the elevation of land decreasing somewhat to towards the south. This survey unit was subject to pedestrian survey.

SU2 was observed to be highly disturbed through extensive land clearance and the impacts associated with known previous and current land uses, including farming, grazing and ploughing. The construction of a number of structures, as well as the installation or irrigation systems and general infrastructure (e.g. general electrical and plumbing services) have all contributed to a modification of the landscape within this survey unit.

Though sparse stands of remnant vegetation were identified in the form of mature eucalypt trees, the majority of the land was observed to have been cleared. Ground surface visibility was low (10%), due to a thick, dense ground cover of grasses and weed species (such as stinking roger or black mint). Areas of ground surface exposure were few, and were primarily observed in association with disturbed vehicle tracks and around contemporary structures (20%).

No significant landscape features were observed within this survey unit. Where visible, soils were observed to be disturbed. Due to the limited ground surface visibility, no raw stone material was identified, and no mature trees suitable for carving/scarring were present.

No Aboriginal sites or objects were identified in SU2.

FIGURE 11 – PHOTOGRAPHS OF SU2

PICTURE 1 – VIEW OF SHEDS ASSOCIATED WITH FARMING WITHIN SU2

PICTURE 2 – VIEW OF SU2 LOOKING NORTH, SHOWING GROUND SURFACE VISIBILITY AND EVIDENCE OF DISTURBANCE

PICTURE 3 – GENERAL VIEW OF SU2, LOOKING WEST

PICTURE 4 – EVIDENCE OF DISTURBANCE WITHIN SU2, LOOKING NORTHEAST

9.5.3 SURVEY UNIT 3

Survey Unit 3 (SU3) was specifically targeted as it is located in proximity to the area in which potential rock shelters with PADs had been identified as part of previous investigations of the Study Area. (refer to description of Survey Unit 4, below). In terms of landforms, SU3 predominately comprises the northern reaches of a north-south running gully that connects with the Bargo River at its southernmost point. Land within this survey unit was largely undisturbed. This survey unit was subject to pedestrian survey.

The upper reaches of the gully featured relatively low lying, gentle slopes on both sides of the drainage channel. At the time of the survey and following rainfall in the preceding days, the drainage channel was flowing, though water levels were observed to be shallow. Vegetation cover on the slopes was observed to be moderate to heavy, with the dominant tree species being eucalypt. Grass and low level foliage cover was also observed to be dense in this area, and was dominated by bracken. The immediate ground surface was covered in a thick layer of leaf litter. Due to these factors, ground surface visibility was assessed to be low (20%).

Very few areas of exposure were noted, though some exposed soil profiles were identified in association with the banks of the drainage channel. Overall, ground surface exposure was assessed as being around 10%. The soil profiles appeared to comprise primarily medium brown, silty soil. Basalt boulders were located in association with the drainage channel, and small amounts (small stones and fragments) of sandstone were also noted.

The section of the gully did not feature any substantial cliff lines, overhangs or rock outcrops, and was therefore assessed to have no potential to contain rock shelter sites. Given the lack of flat, open land, and the density of vegetation and ground surface cover, no other site types were considered likely to be identified in this survey unit. No mature trees suitable for carving/scarring were identified, and no sandstone beds suitable for grinding grooves were noted.

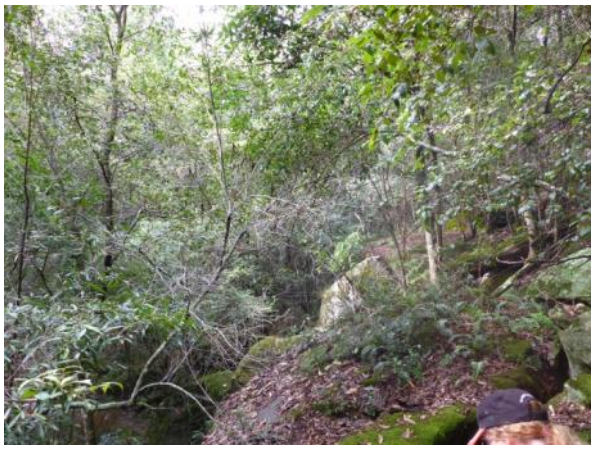
No Aboriginal sites or objects were identified in SU3.

FIGURE 12 – PHOTOGRAPHS OF SU3

PICTURE 5 – VIEW OF SU3 LOOKING SOUTHEAST, SHOWING THE NORTHERN END OF THE DRAINAGE CHANNEL

PICTURE 6 – VIEW OF THE DRAINAGE CHANNEL AND VEGETATION, LOOKING SOUTH TOWARDS SU4

PICTURE 7 – VEGETATION, SOILS AND GROUND SURFACE VISIBILITY WITHIN SU3



PICTURE 8 – VIEW OF THE DRAINAGE CHANNEL AND ASSOCIATED VEGETATION, LOOKING SOUTH

9.5.4 SURVEY UNIT 4

Survey Unit 4 (SU4) was specifically targeted as the area in which six potential rock shelters with PADs had been identified as part of previous investigations of the Study Area. In terms of landforms, SU4 predominately comprises the southern reaches of the north-south running gully mentioned above. This gully connects with the Bargo River at its southernmost point. Land within this survey unit was largely undisturbed, with limited accessibility at the southernmost extent due to the steepness of slopes and sheerness of the cliff face. This survey unit was subject to pedestrian survey.

This section of the gully was characterised by decidedly steeper slopes than that of SU1, as the gully deepens considerably as it extends to the south and the intersection with the Bargo River. Discontinuous cliff faces were present on both sides of the gully, and these ranged in height from one to two metres (low level) to eight to 10 metre (high level); the height of cliff faces generally increased to the south.

Sandstone overhangs and rock outcrops were common in this survey unit, and a large number of basalt and sandstone boulders were located in the low point of the gully, in proximity to the drainage line. Like SU1, the drainage channel as it extended through this survey unit was observed to be active at the time of inspection. Exposed sandstone beds and sandstone sheeting were identified both in association with the drainage channel/creek bed, as well as on the upper slopes of the gully.

Vegetation within the gully was typically extremely dense, with a thick layer of leaf litter and other organic debris obscuring the ground surface. Ground surface visibility in the lower lying areas of this survey unit was therefore minimal (10%). With the exception for patches of exposed soil profiles located along the immediate drainage channel banks and caused by erosion, overall the ground surface exposure in the

lower lying areas was low (20%). Where visible, soil appeared sandy, with loam content increasing further up the slopes.

On the upper slopes of the gully, ground surface visibility was minimal (10%) due to dense grass cover, and areas of exposure were limited to small patches of erosion surrounding exposed sandstone bedrock (10%). Sandstone boulders and exposed bedrock was present across the majority of the slope, and not just in association with the drainage channel (discussed above). In these higher areas, the density of vegetation was considerably lower than what was observed in association with the low point of the gully. Patches of bracken were observed to be less frequent and less dense from the mid slope upwards.

Based on the prevalence of rock overhangs and boulders, as well as the increasingly common presence of sandstone sheets and bedrock, this survey unit was considered likely to contain Aboriginal sites associated with these naturally occurring features, such as rock shelter sites and grinding grooves. Given the density of vegetation as well as the sloping terrain, the likelihood of identifying open sites such as artefact scatters was assessed as low. No mature trees suitable for carving/scarring were identified, and no sandstone beds suitable for grinding grooves were noted.

A number of rock overhangs were identified during the survey of SU4, and these were individually assessed to determine whether or not they may have been suitable for use as rock shelters by Aboriginal people in the past, whether or not they contained any artefactual material and/or traces of Aboriginal use/occupation, and whether or not they possessed substantial floor space and/or substantial soil deposits likely to contain sub-surface artefactual material. A number of overhangs were inspected and discounted, due either to their limited ceiling height, limited or sloping floor, or general inaccessibility.

Within this survey unit, three rock shelter sites with PAD were identified. Based on a comparative assessment of the shelters identified as part of the 1993 investigation, it is highly likely that these three sites were previously identified as PAD #2, PAD #4 and PAD #5 in the 1993 report. The remaining three rock shelters, being PAD #1, PAD #3 and PAD #6, were not able to be relocated.

Given the time that has elapsed since the original 1993 survey, as well as the propensity for water erosion and heavy rain events to have impacted the topography of the survey unit over time, it is possible that the potential shelters identified in 1993 have been so altered in the past 20 or so years that they no longer present as rock shelters suitable for habitation. As part of on-site consultation with both Glenda and Sarah, and following a comprehensive and targeted survey of the survey unit specifically aimed at relocated them, it was determined that the three potential rock shelter sites were either misidentified in 1993, or are no longer identifiable as rock shelters due to the abovementioned factors.

A full description of the identified rock shelter with PAD sites is provided in Section 10.1, below.

FIGURE 13 – PHOTOGRAPHS OF SU4

PICTURE 9 – VIEW OF URBIS RS/PAD 1, LOOKING NORTH WITH DRAINAGE CHANNEL VISIBLE AT RIGHT OF FRAME

PICTURE 10 – VEGETATION AND SLOPE TO THE WEST OF THE DRAINAGE CHANNEL

PICTURE 11 – VIEW OF THE MID-SLOPE LANDFORM, ON THE EASTERN SIDE OF THE DRAINAGE CHANNEL

PICTURE 12 – VEGETATION AND TOPOGRAPHY WITHIN SU4, LOOKING SOUTH INTO THE BARGO RIVER GORGE

PICTURE 13 – VIEW OF THE MID-SLOPE LANDFORM, ON THE EASTERN SIDE OF THE DRAINAGE CHANNEL, LOOKING NORTHEAST

PICTURE 14 – VIEW LOOKING EAST TO SU2, FROM THE UPPER SLOPE LANDFORM OF SU4

9.5.5 SURVEY UNIT 5

Survey Unit 5 (SU5) comprised the majority of the western arm of the Study Area, and was located to the immediate east of SU1 and to the immediate west of SU3 and SU4. Like SU2, SU5 comprised primarily gently sloping ground, that has been disturbed through the clearance of vegetation and the impacts of known previous and current land uses including farming, grazing, irrigation, and the installation of structures and infrastructure. This survey unit was not subject to pedestrian survey as part of this assessment. It has, however, been subject to survey as part of both the 1993 and 2006 investigations, with Glenda Chalker having participated in both.

It was determined through on-site consultation with the Aboriginal community representatives that a re-survey of this area was not required because a) it had previously been surveyed, and no Aboriginal sites or objects, or significant landscape features, and been identified and b) because through previous surveys it was determined that the area had been subject to extensive disturbance through farming and general land use. Both Glenda and Sarah were satisfied that SU5 had been adequately considered by previous assessments, and did not need to be re-surveyed.

The following description of the survey unit, as well as the gradings of ground surface visibility and exposure, have been sourced from the 1993 report and refined through on-site consultation with Glenda, and a review of aerial imagery.

The majority of SU5 comprised cleared and disturbed land. Ground surface visibility was extremely low (0%) due to a dense ground cover of thick grasses and weed species (including stinking roger/black mint). Areas of ground surface exposure were few, and were located in association with disturbed vehicle

tracks only. Due to the limited ground surface visibility, soils were not able to be inspected and were not described in previous assessments.

The southeastern boundary of the survey unit follows the contours of the Bargo River gorge. A strip of vegetation, comprising acacia and eucalypt species, separates the cleared grazing land to the north from the cliff edge, which is sheer/vertical. The 1993 report described this area as having slightly more ground surface exposures than the land to the north (10%), with some sandstone exposures visible.

Previous surveys of this survey unit did not identify any significant landscape features. Due to the limited ground surface visibility, no raw stone material was identified, and no mature trees suitable for carving/scarring were present.

No Aboriginal sites or objects have been identified in this survey unit as part of previous investigations.

FIGURE 14 – PHOTOGRAPHS OF SU4

PICTURE 15 – LOOKING NORTH INTO SU5 FROM SU3

9.5.6 SURVEY UNIT 6

Survey Unit 6 (SU6) was located in between SU2 to the west and SU7 and SU9 to the east, towards the south of the Study Area. It comprised a drainage channel and associated gully, which deepens to the south before intersecting with the Bargo River gorge. This survey unit was subject to pedestrian survey.

The survey unit featured discontinuous low cliff lines to the north (one to five metres in height), with the height of the cliff line increasing considerably to the south (up to 10 metres). No rock overhangs suitable for use as rock shelters were identified, and towards the south of the survey unit the cliff face was essentially sheer/vertical.

Vegetation in this survey unit was relatively dense (compared to other survey units), and was dominated by casuarina and eucalypt species. As the land sloped downwards toward into the gully, vegetation increased. Ground surface visibility was obscured by vegetation, leaf litter and a dense ground cover of grasses/weed species, particularly on the mid to upper slopes (10%). Few exposures were observed, and where present were located only in association with vehicle tracks or disturbed areas (20%).

Where visible, soils appeared to be disturbed on the mid to upper slopes, and undisturbed in closer proximity to the gully. No raw stone materials, aside from sandstone bedrock and sandstone fragments, were observed during the survey.

SU6 was previously surveyed in 1993 and 2006, with Glenda Chalker have been present in both instances. Through both a survey of the survey unit, as well as through on-site consultation with Glenda specifically, it was determined that this area did not contain any Aboriginal sites or objects.

No Aboriginal sites or objects were identified in SU6.

FIGURE 15 – PHOTOGRAPHS OF SU6

PICTURE 16 – VIEW OF THE WESTERN MARGINS OF SU6, WITH THE BARGO RIVER GORGE VISIBLE

PICTURE 17 – DISTURBANCE IN SU6

PICTURE 18 – VIEW OF THE BARGO RIVER GORGE FROM THE SOUTHERN PORTION OF SU6

PICTURE 19 – DISTURBANCE THE FORM OF A DAM IN SU6 (EASTERN SLOPE OF DRAINAGE CHANNEL VISIBLE IN BACKGROUND)

9.5.7 SURVEY UNIT 7

Survey Unit 7 (SU7), located to the immediate east of SU6, shares its eastern border with the eastern boundary of the Study Area. It primarily comprises open, flat and cleared land, though the eastern margin of the unit slopes downwards into the J.R. Stud site. This area was subject to pedestrian survey.

SU7 has been cleared of much vegetation across the majority of the survey unit, with sparse stands of eucalypts remaining. The density of vegetation increases to the east and in association with the slope, which is relatively undisturbed. The remainder of the area shows evidence of disturbance associated with land clearance, farming, irrigation and the installation of general infrastructure.

Generally, ground surface visibility in SU7 was low due to the dense ground cover of grasses and weeds (10%). Some exposures were noted, particularly in association with vehicle tracks and disturbed areas, but these were minimal (10%). No natural soils were observed, with visible soils comprising primarily fill, or being overlaid with gravel. No significant landform features, such as watercourses, sandstone overhangs/outcrops, or mature trees suitable for carving/scarring, were identified within the survey unit.

No Aboriginal sites or objects were identified in SU7.

FIGURE 16 – PHOTOGRAPHS OF SU7

PICTURE 20 – VIEW OF SU7, LOOKING NORTH

PICTURE 21 – VIEW OF SU7, LOOKING EAST

PICTURE 22 – VIEW OF DISTURBANCE WITHIN SU7

PICTURE 23 – VIEW OF SU7 SHOWING VEGETATION AND VEHICLE TRACKS, LOOKING SOUTH

9.5.8 SURVEY UNIT 8

Survey Unit 8 (SU8) was located to the east of SU2 and north of SU7, and shared its eastern boundary with the eastern boundary of the Study Area. SU8 has been identified as a distinct survey unit as it represents a change in topography from the surrounding survey units. SU8 was not subject to pedestrian survey as part of this assessment, but was previously surveyed as part of the 1993 and 2006 investigations, with Glenda Chalker having participated in both.

It was determined through on-site consultation with the Aboriginal community representatives that a re-survey of this area was not required because a) it had previously been surveyed, and no Aboriginal sites or objects, or significant landscape features, and been identified and b) because through previous surveys it was determined that the area had been subject to some disturbance associated with known previous and current land uses. Both Glenda and Sarah were satisfied that SU8 had been adequately considered by previous assessments, and did not need to be re-surveyed. The following description of the survey unit, as well as the gradings of ground surface visibility and exposure, have been sourced from the 1993 report and refined through on-site consultation with Glenda, and a review of aerial imagery.

SU8 comprises a moderate slope that sits below disturbed land associated with chicken sheds/farming. Extensive ground surface disturbance was identified in association with these structures, as well as with dams, though the slope to the east was noted to be relatively undisturbed. It is relatively heavily vegetated shrub and tree species, primarily eucalypts. A low sandstone cliff line has previously been identified on the eastern margin of the survey unit, though no overhangs or rock shelters were identified. Ground surface visibility in this area has previously been assessed as being less than 10%, with exposures limited to disturbed areas (10%).

No Aboriginal sites or objects have been identified in SU8 as part of previous investigations.

9.5.9 SURVEY UNIT 9

Survey Unit 9 (SU9) was specifically targeted as part of the overall survey due to its proximity to the Bargo River, a significant permanent water course, and because of the visibility and views of the watercourse and gorge from this slightly elevated aspect. This survey unit was subject to pedestrian survey.

SU9 is characterised by relatively flat ground, which slopes gently upwards to the north. It is bounded by the Bargo River to the east and south, with a sheer vertical cliff face at the interface with the gorge; this cliff face loosely demarcates the southern and southeastern boundaries of the Study Area. These areas of the survey unit are relatively undisturbed. The remainder of the survey unit, particularly to the north and west, has generally been disturbed through the construction and later demolition of duck sheds and associated yards, and dams/ponds. Vegetation in this area was relatively sparse, comprising some mature eucalypt trees. The density of vegetation increased considerably to the south and southeast of this survey unit.

Generally, ground surface visibility was limited across the survey unit due to a dense ground cover of grass, leaf litter and common weed species, including stinking roger (also known as black mint). Overall, ground surface visibility was low (20%). Vegetation in this survey unit appears to primarily comprise of regrowth vegetation, with no mature trees suitable for scarring/carving having been present. Due to previous disturbances associated with duck and turkey farming as well as general cattle grazing, a number of dirt vehicle tracks were identified within this survey unit. The remnants of these tracks, as well as general sheet erosion, have resulted in areas of ground surface exposure throughout the survey area (40%). Although present through SU10, these exposures were predominately concentrated to the northwest.

Where visible, soil was observed to comprise orange to light brown sandy silt. In some areas, particularly those featuring dense vegetation and located in proximity to the Bargo River gorge, exposed sandstone bedrock was identified; however, due to the distance of the survey unit from accessible water, no sandstone beds suitable for grinding grooves were identified. Additionally, no rock overhangs or rock shelters were present.

Fragments and small pieces of raw stone material including sandstone and siltstone, was observed in abundance, particularly in association with exposures. Small fragments of quartz, likely to have eroded out of local sandstone, were also observed by Glenda Chalker of CBNTCAC. However, no raw stone material suitable for artefact manufacture, either in terms of materiality or size, was identified.

No Aboriginal archaeological sites or objects were identified in SU9.

FIGURE 17 – PHOTOGRAPHS OF SU9

PICTURE 24 – EXPOSED SANDSTONE AND GROUND SURFACE VISIBILITY ALONG A TRACK WITHIN SU9

PICTURE 25 – GENERAL VEGETATION AND GROUND COVER WITHIN THE SOUTHERN PORTION OF SU9

PICTURE 26 – VEGETATION AND GROUND COVER IN THE NORTHERN PORTION OF SU9

PICTURE 27 – EROSION AND DISTURBANCE WITHIN SU9

9.6 SURVEY COVERAGE AND SURVEY COVERAGE DATA

Survey coverage data is required to be recorded as part of an archaeological survey so as to document the conditions present during the survey, and to enable an assessment of the survey's effectiveness. Moreover, recording survey coverage data allows for an assessment of the obtrusiveness of Aboriginal objects (i.e. whether objects are readily visible, or buried, or otherwise obscured); this is necessary because the obtrusiveness of Aboriginal objects will influence the survey results. The specific conditions affecting the detection of Aboriginal objects can be described in terms of what reveals and what conceals the objects (DECCW 2010: 16).

The key factors that influence survey coverage include ground surface visibility and ground surface exposure and accessibility. These elements have been discussed in Section 9.4 above. The survey coverage data for the most recent survey is present in Table 6, below.

TABLE 6 – SURVEY COVERAGE DATA

SURVEY UNIT	LANDFORM	SURVEY UNIT AREA (SQ M)	VISIBILITY %	EXPOSURE %	EFFECTIVE COVERAGE AREA (SQ M)	EFFECTIVE COVERAGE %	NUMBER OF SITES
1	Gentle to steeply sloping, cleared land	115,881	N/A	N/A	0	0%	None
2	Flat to gently sloping cleared land	305,134	10	20	6,103	2%	None
3	Northern reaches of drainage channel and associated gully	48,712	10	20	974	2%	None
4	Southern reaches of drainage channel and associated gully	51,532	10	20	1,030	2%	3

SURVEY UNIT	LANDFORM	SURVEY UNIT AREA (SQ M)	VISIBILITY %	EXPOSURE %	EFFECTIVE COVERAGE AREA (SQ M)	EFFECTIVE COVERAGE %	NUMBER OF SITES
5	Flat to gently sloping, cleared land	456,039	0	10	0	0%	None
6	Drainage channel and associated gully	159,259	10	20	3,185	2%	None
7	Flat to gently sloping, cleared land	78,938	10	10	789	1%	None
8	Gentle to steeply sloping, land	105,652	10	10	1,056	1%	None
9	Flat to gently sloping cleared land	343,908	20	40	27,512	8%	None
TOTAL		**1,665,055**	**-**	**-**	**40,649**	**2.4%**	**3**

10 Site Recording and Field Survey Results

The purpose of an archaeological survey aimed at identifying and recording sites is to create or contribute to the existing record of the material traces or evidence of Aboriginal land use. This information can then be used in archaeological assessments to interpret the Aboriginal history of a specific study area, and to inform the archaeological record for the wider local area. The first priority in recording any Aboriginal object must always be to avoid or minimise, as far practicable, the risk of harm to the object itself.

Any Aboriginal sites that are identified during an archaeological investigation must be recorded and submitted for registration on the AHIMS. In recording sites, any material traces of past Aboriginal land use, as well as the spatial extent/identifiable boundaries, must be recorded. At a minimum, the site recording methods must provide enough information to complete a current AHIMS site recording form.

It should be noted, however, that not all Aboriginal cultural sites identified by Aboriginal stakeholders will contain identifiable material traces or be associated with distinct landform features. The extent and boundaries of these sites need to be mapped based on consultation with and input from stakeholders.

Where identified, the locations of Aboriginal archaeological sites within the Study Area were recorded using a handheld GPS receiver. Locations were also marked on a hard-copy aerial map, to account for any potential technical issues with the handheld unit. Specific features and details of identified sites were recorded in accordance with the requirements set out in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*. This is described in greater detail in Section 10.1, below.

As part of previous investigations, the six potential rock shelter with PAD sites were not registered on AHIMS. In justification of this, Byrne's 1993 report stated that:

> *"No archaeological remains have been identified by the survey and there is, therefore, no identified archaeological constraint on the proposed development… PADs are not sites as defined by NPWS. Under the terms of the* National Parks and Wildlife Act 1972 *any archaeological material of Aboriginal origin contained in rock shelter deposits (as elsewhere) is protected and must not be disturbed or destroyed. If the PADs recorded by the survey do not contain such material then, obviously, the Act does not apply. The proper management strategy for PADs is that they be treated as Aboriginal sites until proven otherwise."*

However, in accordance with the comments received from OEH, this assessment has re-considered this issue in close consultation with the Aboriginal community stakeholders that have been involved in the project and participated in the most recent survey. The stakeholders have strongly stated that they feel there is potential for archaeological deposit to be present in the identified shelters, and that to best ensure their protection in the future these sites should be recognised and registered on the AHIMS. Following the survey and on-site consultation with the stakeholders this issue was discussed with OEH directly; based on these discussions, as well as consultation with the stakeholders, it has been determined that these sites *should* be recognised and registered on AHIMS for the above described reasons. As the remaining three previously identified potential rock shelter with PAD sites could not be relocated as part of the most recent survey, they will not be registered as sites on the AHIMS.

This approach has been guided by input and advice from representatives of the local Aboriginal community, as well as from OEH directly.

10.1 SURVEY RESULTS

As a result of the archaeological field survey, a total of three Aboriginal archaeological sites were identified. All three of these sites were identified as rock shelters with PADs, though one, being Urbis RS/PAD 3, was also observed to contain an indeterminate piece of charcoal Aboriginal rock art, identified by Glenda Chalker of CBNTCAC.

The identified sites are discussed individually below. The first two of the three identified shelters were extremely similar in terms of size and overall appearance, which is reflected in the following description. Urbis RS/PAD 2, however, was considerably larger.

No other Aboriginal archaeological sites were identified, and the remaining three rock shelters with PADs originally, identified in the 1993 investigation, could not be relocated during the survey.

Urbis RS/PAD 1

Urbis RS/PAD 1 was identified just to the south of SU1, in proximity to the northern boundary of SU2. The rock shelter was identified in association with a decided increase in the steepness of surrounding slopes, as well as an increase in the prevalence of sandstone boulders, overhangs and outcrops. It was located in a relatively low lying position and in close proximity to the creek, with the ground surface at the front (east) of the shelter, measuring approximately four metres wide, sloping steeply downwards to the creek bank. The shelter faced east onto the drainage channel.

The floor to ceiling height within the shelter was approximately 1.7 to two metres, and the floor of the shelter measured up to two metres wide before reaching the drip-line (east-west), and approximately three metres long (north-south). In accordance with the surrounding topography, the floor of the shelter sloped gently down towards the banks of the creek. Soil deposit on the shelter floor was observed to be very loose medium brown sandy silt, with an estimated depth of less than 10 centimetres. Sandstone bedrock was visible on the shelter floor in some areas, particularly to the south and southwest where the elevation of the floor was higher.

The shelter was observed to contain a number of large sandstone boulders; no other raw stone materials were identified within the shelter. The interior of the shelter, including the floor, wall and ceiling surfaces, showed evidence of the long-term effects of water erosion.

No Aboriginal artefacts or objects were identified within the shelter, and no Aboriginal rock art/engravings were observed on the shelter walls or ceiling. Based on the proportions and location of the shelter, as well as a comparison of photographs from previous reports, it is assumed that Urbis RS/PAD 1 was originally recorded in 1993 as ‘PAD #3’. In on-site consultation with the Aboriginal community stakeholders, it was determined that the shelter should be registered on AHIMS as a rock shelter with PAD for the following reasons:

- The shelter was of a suitable size and condition for use as transient shelter;
- The shelter was located in close proximity to a source of water;
- The shelter contains floor deposits of (approximately) up to 10 centimetres depth, thereby creating the potential for as yet unidentified Aboriginal artefacts to have been deposited within the shelter in the past; and
- To ensure that the shelter is recognised and registered as a site that has the potential to contain archaeological deposit, in order to afford in protection from impact in the future.

FIGURE 18 – PHOTOGRAPHS OF URBIS RS/PAD 1

PICTURE 28 – VIEW OF THE SITE FACING NORTH (G. CHALKER [CBNTCAC] AND S. DUNCAN [THARAWAL LALC]) VISIBLE

PICTURE 29 – VIEW OF THE SITE FACING NORTH, WITH G. CHALKER (CBNTCAC) FOR SCALE. DRAINAGE CHANNEL VISIBLE AT RIGHT OF FRAME

PICTURE 30 – VIEW OF THE SHELTER FACING WEST FROM THE DRAINAGE CHANNEL (G. CHALKER OF CBNTCAC USED FOR SCALE)

PICTURE 31 – DETAIL OF SOIL ON THE SHELTER FLOOR

Urbis RS/PAD 2

Urbis RS/PAD 2 was identified to the south of Urbis RS/PAD 1, on the eastern side of the drainage channel, at the high point of the slope. The ground surface at the front (west) of the shelter sloped steeply down towards the creek bank, resulting in very little flat floor space outside of the shelter floor itself. The shelter faced west onto the drainage channel.

The floor to ceiling height within the shelter was approximately 1.5 to two metres (varied across shelter), and the floor of the shelter measured up to two metres wide before reaching the drip-line (east-west), and approximately four metres long (north-south). In accordance with the surrounding topography, the floor of the shelter sloped gently down towards the banks of the creek to the west. Soil deposit on the shelter floor was observed to be very loose medium brown sandy silt, with an estimated depth of less than 20 centimetres. Sandstone bedrock was visible on the shelter floor in some areas, particularly to the southwest where the elevation of the floor was higher.

The shelter was observed to contain a number of large sandstone boulders and a number of small sandstone fragments; no other raw stone materials were identified within the shelter. The interior of the shelter, including the floor, wall and ceiling surfaces, showed evidence of the long-term effects of water erosion.

No Aboriginal artefacts or objects were identified within the shelter, and no Aboriginal rock art/engravings were observed on the shelter walls or ceiling. Based on the proportions and location of the shelter, as well as a comparison of photographs from previous reports, it is assumed that Urbis RS/PAD 2 was originally recorded in 1993 as ‘PAD #2’. In on-site consultation with the Aboriginal community stakeholders, it was determined that the shelter should be registered on AHIMS as a rock shelter with PAD for the following reasons:

- The shelter was of a suitable size and condition for use as transient shelter;
- The shelter was located in close proximity to a source of water;
- The shelter contains floor deposits of (approximately) up to 20 centimetres depth, thereby creating the potential for as yet unidentified Aboriginal artefacts to have been deposited within the shelter in the past; and
- To ensure that the shelter is recognised and registered as a site that has the potential to contain archaeological deposit, in order to afford in protection from impact in the future.

FIGURE 19 – PHOTOGRAPHS OF URBIS RS/PAD 2

PICTURE 32 – VIEW OF THE SITE FACING NORTH (S. DUNCAN [THARAWAL LALC]) USED FOR SCALE

PICTURE 33 – VIEW OF THE SITE FACING NORTH, SHOWING THE SLOPING GROUND SURFACE. DRAINAGE CHANNEL VISIBLE AT LEFT OF FRAME

PICTURE 34 – VIEW OF THE SHELTER FACING EAST FROM FURTHER DOWN THE SLOPE (S. DUNCAN OF THARAWAL LALC VISIBLE)

PICTURE 35 – SOIL AT THE SHELTER FLOOR

Urbis RS/PAD 3

Urbis RS/PAD 3 was identified to the south of Urbis RS/PAD 2, on the western side of the drainage channel, at a very low-lying position and in extremely close proximity to the drainage channel; the drip-line of the shelter was located in close alignment to the drainage channel bank. The ground surface at the front (east) was therefore extremely restricted, and it is likely that during periods of heavy rainfall the water level in the creek encroaches on the shelter floor. This is likely to have resulted in the disturbance of the shelter floor and associated soil deposits. The shelter faced east onto the drainage channel.

The floor to ceiling height within the shelter was considerably larger than that of the other two sites, at approximately four metres (varied across shelter). The floor of the shelter measured up to 2.5 metres wide before reaching the drip-line (east-west), and approximately nine metres long (north-south), though the floor to ceiling ratio decreased dramatically in the southern corner. In accordance with the surrounding topography, the floor of the shelter sloped down towards the bank of the drainage channel to the east. Soil deposit on the shelter floor was observed to be very loose medium brown sandy silt, with an estimated depth of less around 30 centimetres. Sandstone bedrock was visible on the shelter floor in some areas, particularly to the north and east, in association with the bank of the drainage channel.

The shelter was observed to contain a number of large sandstone boulders and a number of small sandstone fragments; no other raw stone materials were identified within the shelter. The interior of the shelter, including the floor, wall and ceiling surfaces, showed evidence of the long-term effects of water erosion.

An indeterminate and faint piece of charcoal rock art, measuring approximately 10 centimetres by 10 centimetres in total area, was identified on the ceiling of the shelter by Glenda Chalker of CBNTCAC. It is unclear as to what this rock art may represent in terms of motif, and based on the presence of charcoal staining across the shelter ceiling generally and the overall condition of the shelter ceiling/walls, it is identified as Aboriginal rock art tentatively only. The shelter will therefore be registered as a rock shelter with PAD, and the rock art will be noted and recorded in the site card to be submitted to AHIMS.

No other Aboriginal artefacts or objects were identified within the shelter. Based on the proportions and location of the shelter, as well as a comparison of photographs from previous reports, it is assumed that Urbis RS/PAD 2 was originally recorded in 1993 as 'PAD #4'. In on-site consultation with the Aboriginal community stakeholders, it was determined that the shelter should be registered on AHIMS as a rock shelter with PAD for the following reasons:

- The shelter was of a suitable size and condition for use as transient shelter;
- The shelter was located in close proximity to a source of water;
- The presence of the potential charcoal rock art (noted to be indeterminate during the time of inspection);
- The shelter contains floor deposits of (approximately) up to 30 centimetres depth, thereby creating the potential for as yet unidentified Aboriginal artefacts to have been deposited within the shelter in the past; and
- To ensure that the shelter is recognised and registered as a site that has the potential to contain archaeological deposit, in order to afford in protection from impact in the future.

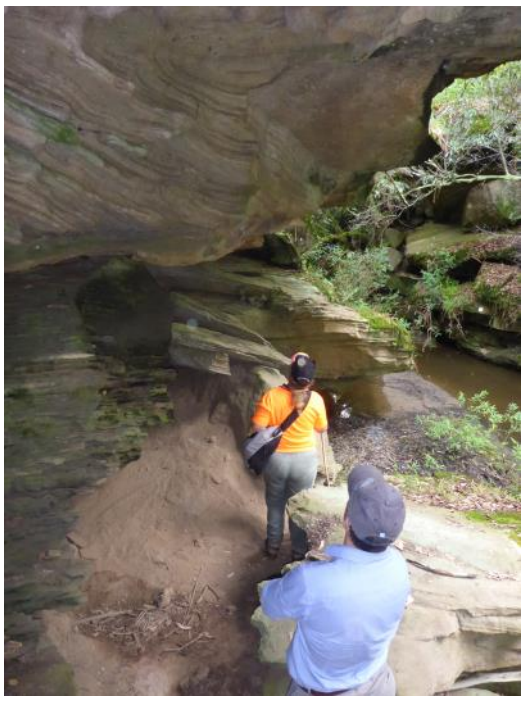
FIGURE 20 – PHOTOGRAPHS OF URBIS RS/PAD 3

PICTURE 36 – VIEW OF THE SITE FACING WEST FROM THE OPPOSITE SITE OF THE DRAINAGE CHANNEL

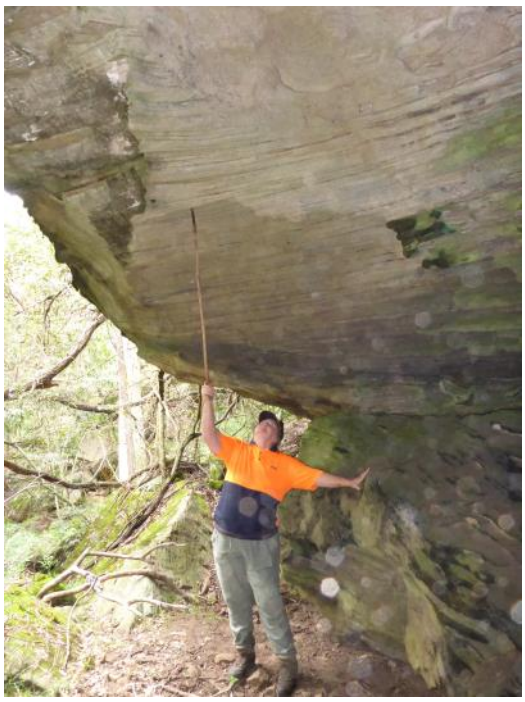
PICTURE 37 – VIEW OF THE SITE FACING NORTH, G. CHALKER (CBNTCAC) AND M. PARKINSON (INGHAM'S) VISIBLE. DRAINAGE CHANNEL VISIBLE AT RIGHT OF FRAME

PICTURE 38 – VIEW OF THE SHELTER FACING NORTH, SHOWING LARGE SANDSTONE OUTCROPS/BOULDERS

PICTURE 39 – SOIL AT THE SHELTER FLOOR



PICTURE 40 – VIEW OF THE SITE FACING NORTH, SHOWING THE DRAINAGE CHANNEL TO THE RIGHT AND HEIGHT OF SHELTER



PICTURE 41 – VIEW OF THE SITE FACING SOUTH, G. CHALKER OF CBNTCAC IS INDICATING THE LOCATION OF THE TENTATIVELY IDENTIFIED ROCK ART ON THE CEILING

PICTURE 42 – VIEW OF THE SHELTER CEILING SHOWING THE TENTATIVELY IDENTIFIED ROCK ART (INDICATED)

PICTURE 43 – DETAIL OF THE TENTATIVELY IDENTIFIED ROCK ART (INDICATED)

10.2 INTERPRETATION AND DISCUSSION OF SURVEY RESULTS

During the course of the archaeological survey, a total of three Aboriginal sites were identified, being Urbis RS/PAD 1, Urbis RS/PAD 2 and Urbis RS/PAD 3. The remaining three potential rock shelter with PAD sites identified in 1993 were not relocated. No historic archaeological sites or relics were identified during the survey,

Previous archaeological investigations of the Study Area, namely those undertaken in 1993 and 2006, involved comprehensive survey of the area in consultation with the Aboriginal community. Consequently, this survey did not result in the identification of any further Aboriginal or historic sites, in addition to those that had already been identified/recorded previously. The current investigation did, however, allow for the groundtruthing and updated inspection of the rock shelter with PAD sites, which were originally identified over 20 years ago.

A predictive model of the Study Area was formulated on the basis of a review of relevant environmental, historical and archaeological information. Based on AHIMS data and the results of previous

archaeological investigations of and in the vicinity of the Study Area, it was predicted that the site types most likely to be present within the Study Area would be rock shelters (with art, deposit or artefacts). If present, this site type was considered most likely to be found in association with sandstone outcrops/overhangs, and in proximity to drainage channels. This prediction was realised, with the only site type identified in the Study Area being rock shelters with PAD, all of which were located in close proximity to a drainage channel.

Based on the topography of the Study Area, as well as the extent to which it has been disturbed and cleared of vegetation, the potential for other site types such as scarred/carved trees, open artefact scatters, bora/ceremonial grounds, and stone arrangements was assessed as being low to very low. No such sites were identified during the survey, and vegetation was observed to predominately comprise stands of regrowth trees. Signs of extensive disturbance were also noted throughout the Study Area, with the only exceptions being those areas in close proximity to steep slopes associated with drainage channels.

A review of the environmental context suggests that the raw stone materials preferred for working, such as mudstone, chert, silcrete and tuff, were not readily available in the immediate area in the past. Although such resources may have been brought to the Study Area from other locations, the relative scarcity of these resources in the immediate vicinity was considered to reduce the potential for artefact scatters and lithic quarries to be present. No such sites were identified during the survey, and with the exception of small fragments of quartz (not suitable for working) none of the commonly preferred raw stone material types were identified within the Study Area.

If present, it was further considered that the low ground surface visibility noted in previous investigations of the Study Area would render the identification of artefact scatters or isolated finds difficult. As expected, ground surface visibility was generally very low across the Study Area, with intermittent and small areas of exposure only.

As predicted, no new Aboriginal sites were identified as a result of the survey. This was expected, particularly given the number and extent of previous surveys undertaken within the Study Area specifically, as well as the extent to which the Study Area has been disturbed through continuous use for farming and associated purposes, and the generally poor visibility across the Study Area due to an extremely dense ground cover of grasses, weeds and other vegetation.

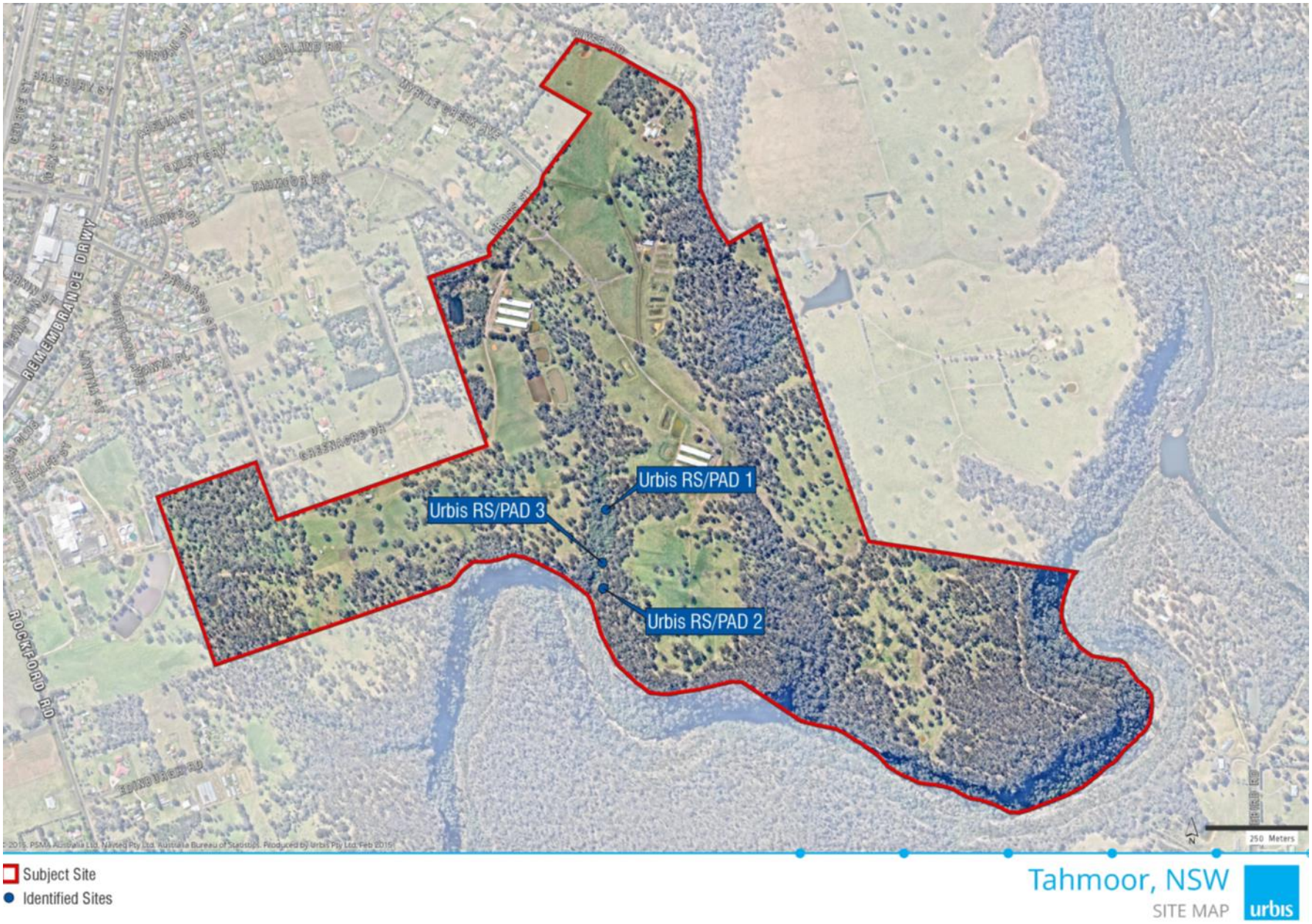
As the previously recorded potential rock shelter with PAD sites were not registered on AHIMS, there is no need to update any existing site cards. New site cards for the three identified sites (Urbis RS/PAD 1, 2 and 3) will be prepared and submitted to AHIMS for registration. These site cards will include updated photographs and GPS co-ordinates for the three sites.

The location of the identified sites in relation to the topography of the Study Area has been shown in Figure 21, below, and summarised in , also below.

TABLE 7 – SUMMARY OF SURVEY RESULTS

SITE	FEATURE(S)	SURVEY UNIT	LANDFORM
Urbis RS/PAD 1	Rock shelter with PAD	4	Drainage channel and associated gully
Urbis RS/PAD 2	Rock shelter with PAD	4	Drainage channel and associated gully
Urbis RS/PAD 3	Rock shelter with PAD	4	Drainage channel and associated gully

FIGURE 21 – LOCATION OF IDENTIFIED SITES



11 Cultural Heritage Values and Statement of Archaeological and Cultural Significance

Cultural significance is a concept that assists appraisal of the value of places. The places that are likely to be of significance are those that help us understand the past, enrich the present, and may be of value to future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects (Australia ICOMOS, 1999).

11.1 CULTURAL HERITAGE SIGNIFICANCE AND VALUES

The cultural heritage significance and values of an area and of any Aboriginal archaeological sites within that area can be assessed using the four criteria outlined in the *Burra Charter*; aesthetic, historic, scientific and social/ spiritual. These criteria are described below.

Social/Spiritual Value

Social/spiritual value concerns the spiritual, traditional, historical or contemporary associations and attachments which the place or area has for the present-day Aboriginal community. Places of social significance have associations with contemporary community identity. These aspects of heritage significance can only be determined through consultative processes with one or more Aboriginal communities. ·As such, they are archaeologically invisible and can only be identified with the aid of Aboriginal interpretation. If such sites are known, they hold particular cultural significance to contemporary Aboriginal people. Furthermore, sites of significance are not restricted to the period prior to contact with Europeans. Often events related to the contact period, and at times to the period since European settlement, may be important to the local Aboriginal communities.

Historic Value

Historic value refers to the associations of a place with a person, event, phase or activity of importance to the history of an Aboriginal community. Historic places may or may not have physical evidence of their historical importance, however the significance will be generally greater where evidence of the association or event survives in situ, or where the settings are substantially intact. Some events or associations may be so important that the place retains significance regardless of subsequent treatment. In relation to Aboriginal cultural heritage, many post-contact places and sites have historic value.

Aesthetic Value

Aesthetic value refers to aspects of sensory and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, as well as the smell and sounds associated with the place and its use. With regard to pre-contact Aboriginal cultural heritage sites, the placement within the landscape would be considered under this criterion. Individual artefacts, sites and site features may also have aesthetic significance.

Scientific (Archaeological) Value

Scientific (archaeological) value refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information. Scientific or archaeological significance may be assessed by placing a site, feature or landscape in a broader regional context and by assessing its individual merits in the context of current archaeological discourse.

11.1.1 ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE AND VALUES

An assessment of cultural heritage significance and values incorporates a range of values which may vary for different individual groups and may relate to both the natural and cultural characteristics of places or sites. Cultural significance and Aboriginal cultural views can only be determined by the Aboriginal community using their own knowledge of the area and any sites present, and their own value system.

All Aboriginal heritage evidence tends to have some contemporary significance to Aboriginal people, because it represents an important tangible link to their past and to the landscape.

Consultation with members of the local Aboriginal community was undertaken to identify the level of spiritual/cultural significance of the Study Area and its components. In acknowledgment that the Aboriginal community themselves are in the best position to identify levels of cultural significance, representatives of the Tharawal LALC and CBNTCAC expressed an interest in the identified heritage evidence.

Comments received from the representatives of these groups/organisations indicate that the local area generally is of cultural significance, due to the proximity of the Bargo River and Mermaids Pools, which have been identified as significant places as part of previous studies in the area. This was reiterated through written correspondence received from Glenda Chalker on behalf of CBNTCAC, in which it was stated that the area immediately surrounding the gorge was of spiritual and cultural significance, and should be protected. Significance was also acknowledged for the two substantial drainage lines that run through the Study Area.

The area immediately surrounding the gorge will be conserved by the proposed rezoning and future development of the Study Area, as it falls within a proposed E2 Conservation zone (not to be developed). The gorge itself is located outside of the Study Area and to the south, and will therefore not be subject to any impacts associated with the proposed works.

The remainder of the Study Area was acknowledged as being disturbed, and as being highly unlikely to contain any intact archaeological material or deposits. Through on-site consultation with Aboriginal community representatives during the visual inspection of the Study Area, it was determined that the remainder of the Study Area was not considered to be of any particular cultural or spiritual significance to the community.

The surrounding landscape, which contains a number of Aboriginal archaeological sites that provide evidence of past occupation and a connection to Aboriginal communities that used and inhabited the area in the past, was also identified by the representatives of Tharawal LALC and CBNTCAC as being culturally significant, in a general sense.

11.2 SCIENTIFIC (ARCHAEOLOGICAL) SIGNIFICANCE

Scientific significance, also referred to as archaeological significance, is determined by assessing an Aboriginal heritage site or area according to archaeological criteria. The assessment of archaeological significance is used to develop appropriate heritage management and impact mitigation strategies. Criteria for archaeological significance have been developed in accordance OEH guidelines, as shown in Table 8, below.

TABLE 8 – SCIENTIFIC (ARCHAEOLOGICAL) SIGNIFICANCE CRITERIA

SIGNIFICANCE CRITERIA	DESCRIPTION
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?
Condition	What is the condition of the site? Does it appear to have been impacted/altered?

11.2.1 ASSESSMENT OF SCIENTIFIC (ARCHAEOLOGICAL) SIGNIFICANCE

In accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, and in consultation with representatives of the local Aboriginal community, the following assessment of the scientific (archaeological) significance of identified sites within the Study Area has been prepared. Also in accordance with *The Guide*, this assessment employs gradings of significance, being high, medium, and low, which allow significance to be described and compared.

This assessment is presented in Table 9, below.

TABLE 9 – ASSESSMENT OF SCIENTIFIC (ARCHAEOLOGICAL) SIGNIFICANCE

SITE	SITE TYPE	SIGNIFICANCE SCALE	RESEARCH POTENTIAL	REPRESENTATIVENESS	RARITY	EDUCATION POTENTIAL	CONDITION	OVERALL ARCHAEOLOGICAL SIGNIFICANCE
Urbis RS/PAD 1	**Rock shelter with PAD**	**Local**	Low	Low	Low	Low	Low	Low
		Regional	Low	Low	Low	Low	Low	Low
Urbis RS/PAD 2	**Rock shelter with PAD**	**Local**	Low	Low	Low	Low	Low	Low
		Regional	Low	Low	Low	Low	Low	Low
Urbis RS/PAD 3	**Rock shelter with PAD**	**Local**	Low	Low	Low	Low	Low	Low
		Regional	Low	Low	Low	Low	Low	Low

Overall, the three identified sites are considered to have low scientific (archaeological) significance in terms of research potential, representativeness, rarity, education potential and condition.

No archaeological material was identified in association with the three rock shelter with PAD sites. Although there is considered to be some potential for sub-surface archaeological deposit to be located within the shelters, it is expected that any artefacts recovered from the sites in the future would be relatively similar in terms of content (artefact types and materials used) and density to other deposits in the area. The depth of soil deposits in the shelter, as well as their current condition, suggests that any deposits are unlikely to be highly intact, and that artefacts, if recovered, are unlikely to be found *in situ*. Aside from their potential to contain artefactual material, the sites are considered to be typical rock shelters, commonly encountered in the local area due to the topography and landscape features.

For these reasons, it is considered that the identified sites are unlikely to make a significance contribution to an understanding of the local area or region's natural or cultural history.

Rock shelter sites, including those with or without artefacts, PADs or art/engravings, are the most common site types identified in the local area. As such, a number of examples of this site type have been recorded, the majority of which are substantial in terms of size and condition, and contain material traces of Aboriginal use in the past (e.g. artefacts, rock art/engravings). The three sites identified within the Study Area, however, do not contain any artefactual material (with the exception of the indeterminate charcoal rock art), and are considered to be of a relatively average size and general condition. For these reasons, they are not considered to be representative of other rock shelter sites that have been identified in the local area/region.

As discussed above, the rock shelter sites do not contain any artefactual material (with the exception of the indeterminate charcoal rock art), and are considered to be of a relatively average size and general

condition. They therefore are not considered to provide significance evidence of a distinctive way of life, custom, process, land-use, function or design that is no longer practiced. The identified sites, for the reasons discussed above, are not considered to be suitable for use as teaching sites, and are not considered to be sites that have teaching potential.

In terms of condition, all three of the identified shelters displayed evidence of varying degrees of disturbance, including the long-term effects of water erosion, rock collapse, and gradual ground surface movement. These long-term and naturally occurring impacts are considered likely to have altered the configuration of the shelters to varying degrees, particularly their floor surface and associated soil deposits, but also their ceilings and walls. The long-term effects associated with these impacts may have resulted in the relocation and or removal of any artefactual material previously located on the ground surface of the shelters.

For the above discussed reasons, the three identified rock shelter with PAD sites located within the Study Area have been assessed to have low scientific (archaeological) significance.

12 The Proposed Activity

The key aim of the current Planning Proposal is to rezone the Study Area to enable a form of 'large lot' residential housing that responds to and appropriately integrates with the Study Area's biodiversity significance and Aboriginal cultural heritage values.

It should be noted that the current Planning Proposal seeks a rezoning of land within the Study Area only; **no physical works are proposed for the Study Area at this time**.

The following new zoning classifications are proposed for the site:

- **R2 Low Density Residential** – a small portion of the north eastern corner of the Study Area is proposed to be rezoned to R2. This parcel of land immediately adjoins the East Tahmoor precinct, and is effectively separated by a significant cluster of vegetation that is to be retained.

- **R5 Large Lot Residential** – the proposal seeks to rezone a majority of the site to R5 to accommodate 'large lot' residential. The Study Area is considered to present a unique opportunity to permit large lot residential whilst ensuring that the significant ecological values of the Study Area are preserved and, where required, enhanced. This form of residential development will ensure that a significant separation between dwellings and environmentally sensitive areas can be readily achieved.

- **E3 Environmental Management** – a small portion of cleared land on the Study Area's eastern boundary, immediately adjoining the JR Stud property, is proposed for E3. This parcel of land contains some scattered vegetation and is considered suitable to accommodate a dwelling house on site.

- **E2 Environmental Conservation** – in light of the Study Area's significant high quality ecological values, the adoption of the E2 zone is considered an appropriate means by which to ensure that the quality of certain ecological communities is preserved and, where possible, enhanced. The E2 zone is consistent with the existing zoning to the south along the Bargo Gorge, and with limited permitted uses under WLEP 2011, this is considered to be the most appropriate zone for the Study Area's environmentally significant lands.

- **RE1 Public Recreation** – a number of remnant Cumberland Plain Woodland clusters were identified along the interface between the Study Area and the East Tahmoor precinct. With the intent to preserve the Cumberland Plain Woodland on site without burdening the future residential subdivision, as well as improve the interface between the imminent residential subdivision to the north, the proposed introduction of a RE1 zone is considered appropriate.

The Planning Proposal identified a number of key public benefits associated with the project, including:

- Retention of significant onsite vegetation and protection of these areas through the use of 'zoning' and 'minimum allotment size'.
- Preservation and enhancement of existing riparian corridors on site.
- The creation of a connection between the existing Tahmoor township with the Bargo Gorge.
- Potential decommissioning of the existing duck farm operations, which will reduce odour and noise impacts on surrounding properties.
- Reduction of potential odour and noise impacts from existing duck farm operations.
- Provision of a form of housing choice that is not in direct competition with the East Tahmoor precinct or JR Stud site.
- Introduction of walk and cycle pathways through the site that connect with the existing network, as well as connect with JR Stud Site.
- Planned provision of dedicated 'public recreation' areas that will connect with the existing and proposed public open space network to the north of the site.
- Provision of housing choice that is ordinarily different to the general 'large lot residential' offer within and around the Tahmoor township.

- The potential removal of the duck farm operations will enable a greater realisation of low density residential development across the East Tahmoor Precinct. This will positively contribute to housing choice and affordability.

FIGURE 22 – ‘LOT LAYOUT’ MAP, SHOWING AREAS PROPOSED FOR DEVELOPMENT (SOURCE: AE DESIGN PARTNERSHIP, 2016).

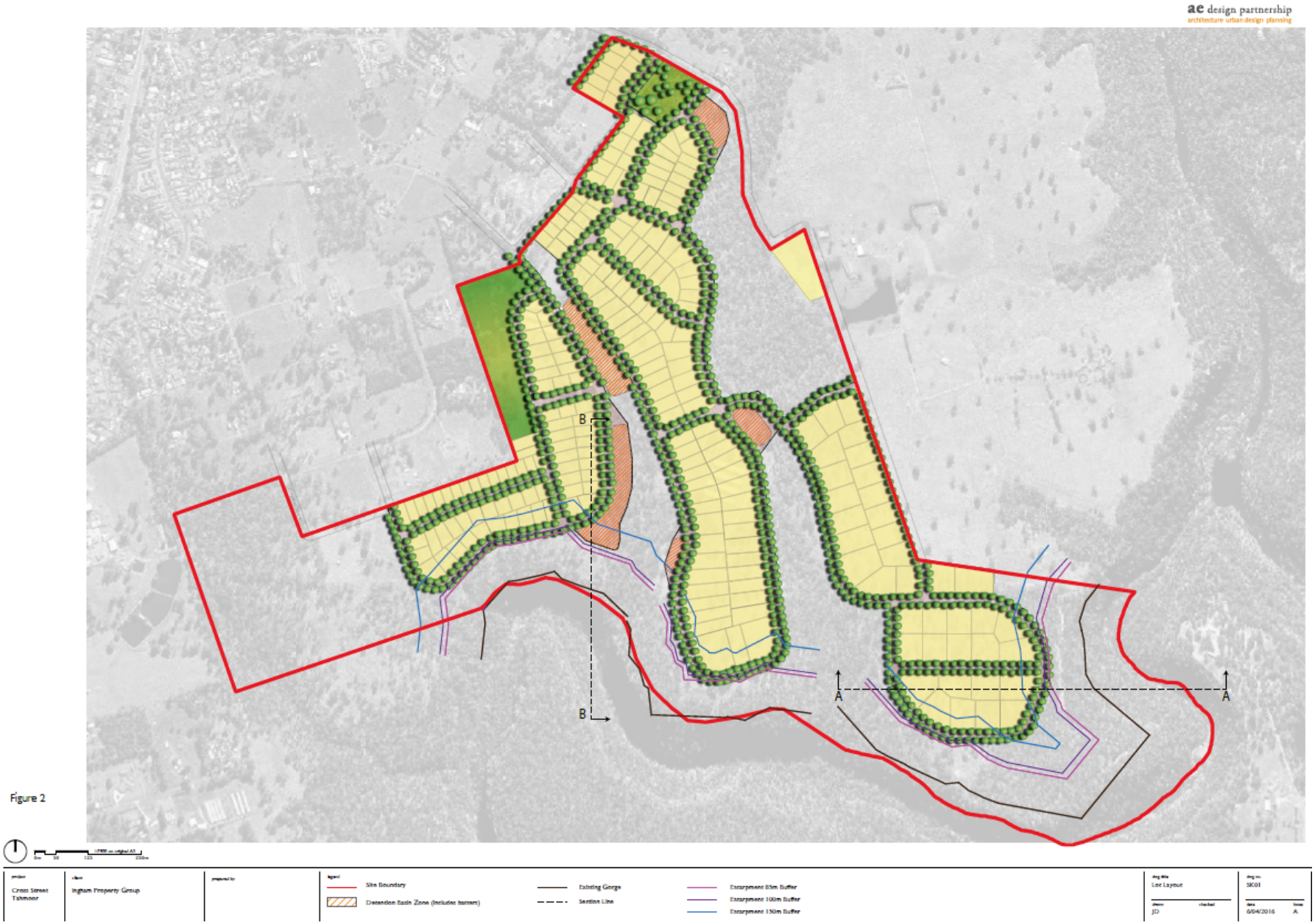
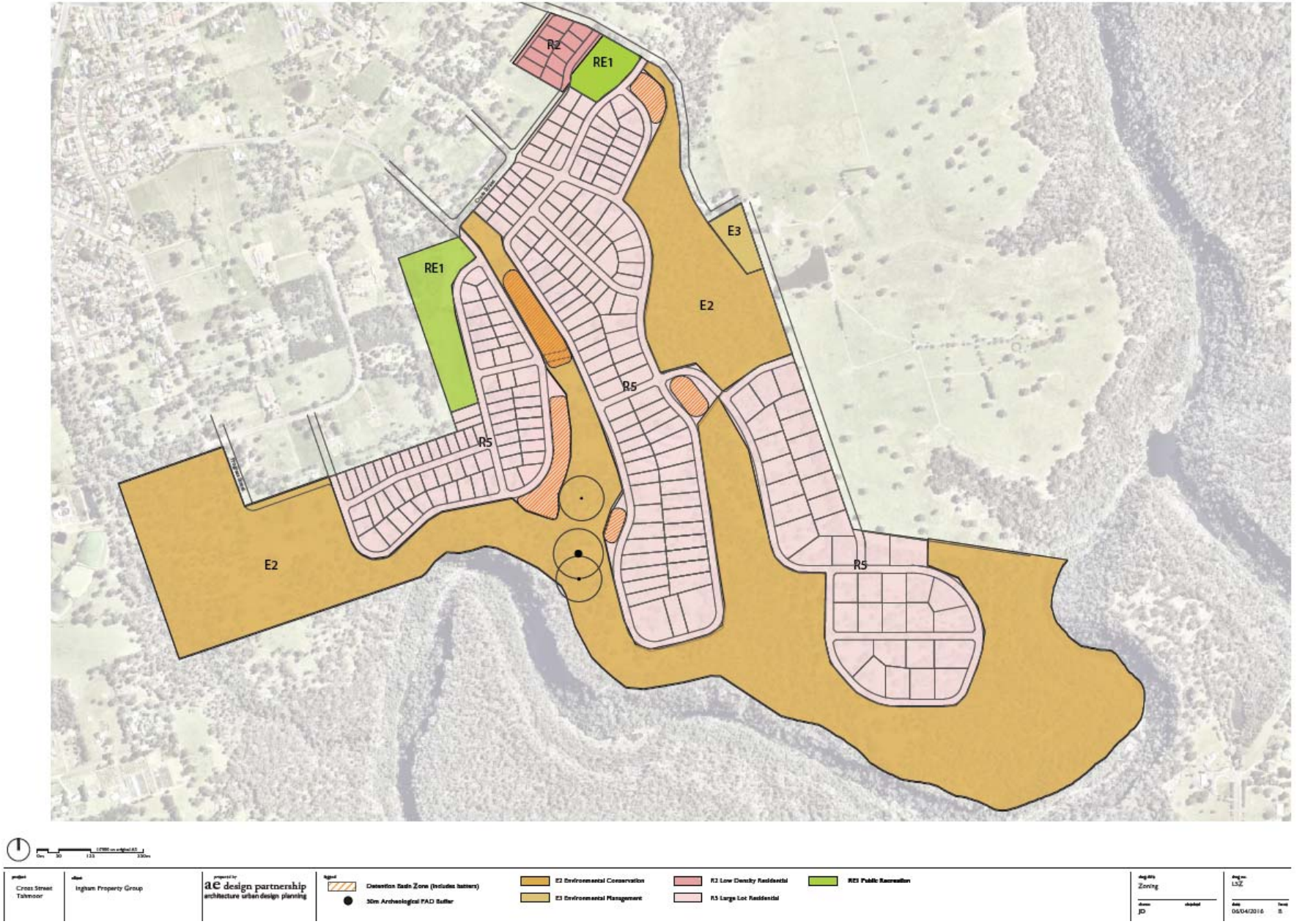


FIGURE 23 – ZONING MAP, SHOWING PROPOSED NEW ZONES (SOURCE: AE DESIGN PARTNERSHIP, 2016).



12.1 POTENTIAL IMPACT OF THE PROPOSED ACTIVITY

As described above, the proposed activity to be undertaken within the Study Area involves the rezoning of the area to enable future subdivision and residential use only; no physical works are proposed to occur within the Study Area at this time. A detailed description of the proposed activity has been provided above.

12.1.1 POTENTIAL IMPACTS TO IDENTIFIED ABORIGINAL ARCHAEOLOGICAL SITES

As no physical works are currently proposed within the Study Area, it is considered that the proposed activity will not result in any physical impacts, either directly or indirectly, to the three identified sites. The sites will be located wholly within the proposed E2 (environmental conservation) zone, which, under the current Planning Proposal, will be conserved and will not be subject to future development.

In accordance with best practice, as well as with the recommendations of previous archaeological investigations of the Study Area, a buffer of at least 50 metres will be maintained around the identified rock shelter sites as part of the proposed future rezoning. Additionally, this 50 metre buffer will apply to the drainage line generally, in accordance with advice received from Aboriginal community representatives, as well as due to the surrounding topography and environmental constraints identified by Ecological Australia (2013a) in their *Ecological and Riparian Assessment* of the Study Area.

The location of the three identified rock shelter with PAD sites in relation to the proposed environmental conservation zone and potential development areas has been shown in Figure 24, below. As shown in this figure, appropriate buffers will be maintained around both the sites and the drainage line generally, as summarised in Table 10, below.

As development will occur outside of the identified 50 metre buffer zone, and on the flat, open land above the drainage channel, proposed development within the identified development zones (outside of the E2 conservation zones) will not have any visual impacts on the identified sites. This sites will be not be readily visible from the proposed development area.

TABLE 10 – SUMMARY OF BUFFER AREAS AROUND IDENTIFIED SITES

SITE	BUFFER TO NORTHERN BOUNDARY OF E2 ZONE	BUFFER TO EASTERN BOUNDARY OF E2 ZONE	BUFFER TO WESTERN BOUNDARY OF E2 ZONE
Urbis RS/PAD 1	334 metres	55 metres	63 metres
Urbis RS/PAD 2	520 metres	79 metres	n/a Located adjacent to the Bargo River Gorge, which is located outside of the Study Area
Urbis RS/PAD 3	459 metres	70 metres	n/a Located adjacent to the Bargo River Gorge, which is located outside of the Study Area

12.1.2 POTENTIAL IMPACTS TO UNIDENTIFIED ABORIGINAL ARCHAEOLOGICAL SITES AND/OR DEPOSITS

No other Aboriginal objects or sites have been identified within the Study Area, either as part of this assessment or as a result of previous assessments (1993, 2006 and 2012). Each of these assessments

concluded that there is very little to negligible potential for any unidentified Aboriginal archaeological sites to be present within the Study Area; the results of the current study have confirmed this.

Additionally, and based on a review of the historical, archaeological and environmental context as well as a recent field survey of the Study Area, the potential for intact, sub-surface deposits to be present across the majority of the Study Area is considered to be to be very low to negligible.

Consequently, it is considered that any sub-surface works undertaken within the Study Area in the future for the purposes of residential development are highly unlikely to impact any unidentified Aboriginal sites or objects, and are unlikely to disturb and/or destroy any intact archaeological deposits.

Areas of particularly Aboriginal cultural heritage significance and/or spiritual significance have previously been identified in the vicinity of the Study Area, being the Bargo River gorge and Mermaids Pools to the south. These areas fall outside of the current Study Area, and are not proposed for rezoning. These areas will therefore not be impacted by the current Planning Proposal. No other areas of specific spiritual or cultural heritage significance have been identified through Aboriginal community consulted undertaken as part of the current or previous investigations.

12.1.3 SUMMARY

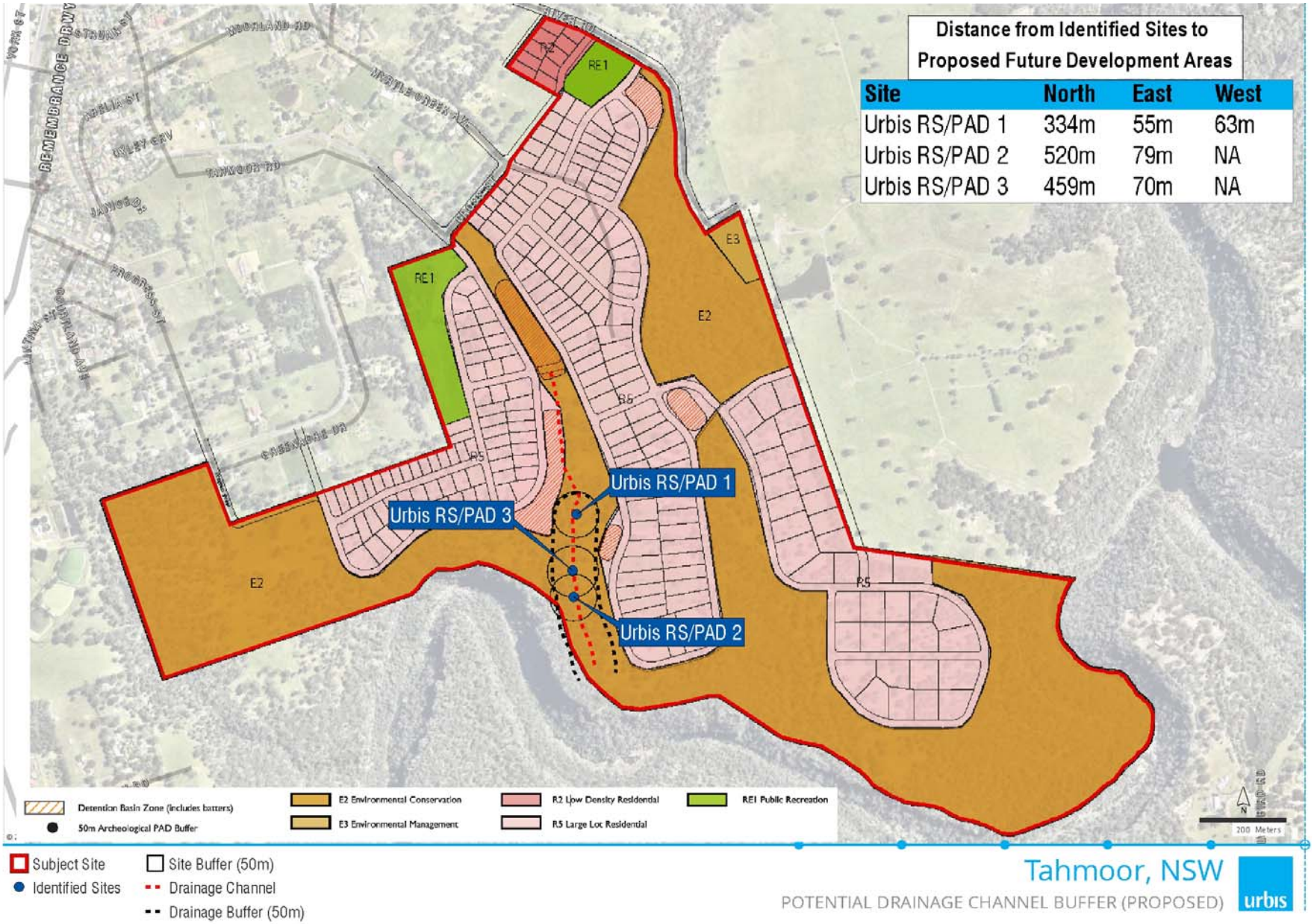
For the reasons discussed above, the current Planning Proposal and proposed rezoning is not considered to have any potential impact on either the three identified Aboriginal archaeological sites, or on any potential but as yet unidentified Aboriginal archaeological sites or deposits.

The potential impact of the currently proposed activity in relation to the identified sites has been summarised in the below table.

TABLE 11 – SUMMARY OF POTENTIAL IMPACTS TO IDENTIFIED ABORIGINAL ARCHAEOLOGICAL SITES

SITE	TYPE OF HARM	DEGREE OF HARM	CONSEQUENCE OF HARM
Urbis RS/PAD 1	None	None	No loss of value
Urbis RS/PAD 2	None	None	No loss of value
Urbis RS/PAD 3	None	None	No loss of value

FIGURE 24 – INDICATIVE RURAL RESIDENTIAL CONCEPT SHOWING THE LOCATION OF THE THREE IDENTIFIED SITES IN RELATION TO THE PROPOSED E2 CONSERVATION ZONES AND DEVELOPMENT AREA (SOURCE: AE DESIGN PARTNERSHIP, 2016)



13 Conclusion and Recommendations

The purpose of this ACHA was to supplement the three existing archaeological investigations (Byrne 1993, ASR 2006 and 2012), as well as to address the concerns raised by OEH regarding the most recent of these reports (ASR 2012). This ACHA has been prepared with reference to the existing archaeological investigations, as well as the various environmental studies that were prepared to inform the Planning Proposal.

This ACHA has reviewed the relevant historical, archaeological and environmental information relevant to the Study Area, as well as the archaeological investigations previously undertaken in 1993, 2006 and 2012. In addition, consultation that follows on from the ACHCR process instigated as part of the 2012 study has been undertaken, with representatives from both Tharawal LALC and CBNTCAC having being consulted as part of this assessment; Sarah Duncan (Tharawal LALC) and Glenda Chalker (CBNTCAC) both attended a targeted field survey of the Study Area, undertaken on 5th February 2015.

In accordance with the ACHCR process, these representatives have been asked to provide comments on this assessment and its findings, and to provide any other information that they feel is relevant to the project and proposed rezoning of the Study Area. Correspondence received has been included in Appendix C. Aboriginal community representatives involved in this project did not dispute any of the findings contained in this report.

As a result of the above, the following conclusions have been made:

- Of the six rock shelter with PAD sites previously identified within the Study Area, three were able to be re-located as part of the current assessment;
- On the basis of input from the Aboriginal community, as well as direction received from OEH directly, these three rock shelters with PAD have been identified as sites. Site recording forms will be prepared for each of the sites and submitted to AHIMS for registration on the database;
- The remaining three potential rock shelter with PAD sites ('PAD #1', 'PAD #5', and 'PAD #6') that were not able to be re-located as part of the current assessment will not be registered as sites on the AHIMS. This has been determined based on the results of the field survey, as well as through consultation with representatives of the Aboriginal community;
- No other Aboriginal sites or objects were identified within the Study Area, and the potential for as yet unidentified sites to be present has been assessed as very low to negligible;
- Following on from the above, it has further been assessed that there is very little to negligible potential for intact archaeological deposits to be impacted by the proposed rezoning and associated development. This is based on an assessment of the topography, the extent to which the area has been disturbed, and the relative scarcity of open artefact sites in the local area generally;
- Through this assessment, as well as through consultation with representatives of the local Aboriginal community, no other cultural heritage constraints to the Planning Proposal and proposed rezoning have been identified; and
- No historic heritage sites have been recorded as being located within the Study Area, and none were identified as part of this investigation.

Through a review of the indicative rezoning plans submitted as part of the Planning Proposal, it has been determined that the proposed activity does not present any identified risk of harm to the three identified sites. The three sites, as well as the associated drainage channel, will be wholly located within an environmental conservation (E2) zone as part of the rezoning. As recommended by the previous archaeological assessments, the width of this E2 zone allows for a buffer of at least 50 metres to be maintained around the identified sites and the drainage channel generally. Additionally, the area proposed to be rezoned as E2 will be conserved, and will not be subject to any physical works or disturbance as part of the proposed rezoning or future redevelopment of the Study Area.

Based on the above discussion, the following management recommendations have been prepared in accordance with the relevant legislation and guiding documents.

13.1 RECOMMENDATIONS AND MITIGATION MEASURES FOR AVOIDING AND MINIMISING HARM

General measures and strategies for the management of identified Aboriginal sites within the Study Area are provided below. A key consideration in selecting suitable mitigation measures and management strategies is the recognition that Aboriginal cultural heritage is of primary importance to the local Aboriginal community; decisions about the management of identified Aboriginal archaeological sites should be made in consultation with the registered Aboriginal stakeholders.

For all proposed developments, the specific level of Aboriginal heritage impact assessment and Aboriginal community consultation required, as well as requirement for an AHIP, is highly dependent upon not just the NP&W Act and Regulation, but also on a range of other factors. This may include the nature of the proposal; the Part and Division of the EP&A Act under which planning approval is required; any specific project approval requirements issued by the Department of Planning and Environment and/or the OEH; the presence or otherwise of Aboriginal objects and the potential for Aboriginal objects to occur. As the current Planning Proposal falls under Division 4B of Part 3 of the EP & A Act 1979, consent is required in the event that any activities proposed in the future will directly or indirectly impact identified Aboriginal archaeological sites.

Based on the conclusions outlined in Section 13, above, the following recommendations are made. The purpose of these recommendations is to avoid and/or minimise any potential impact or harm to identified sites within the Study Area.

Recommendation 1

The current planning proposal is for the rezoning of the Study Area only; no physical works are currently proposed to occur within the Study Area. Any physical works proposed as part of the future redevelopment of the site may require further assessment, depending on their nature, scale and location. Refer to Recommendations 3 and 5 in the event that such works are proposed in the future.

Recommendation 2

It is recommended that an exclusion zone of at least 50 metres be maintained around the three identified Aboriginal archaeological sites to ensure their protection as part of any future redevelopment. This exclusion zone should apply throughout the subsequent planning and/or development phases, and thereafter. Exclusion zones have been shown around each of the three identified sites in shown in Figure 24, above.

Recommendation 3

In the event that any works are proposed in the future that require ground or sub-surface disturbance within or in the vicinity of the identified sites (i.e. within the 50 metre buffer zone around each site), it is recommended that test excavation be undertaken to determine the presence/absence of archaeological deposits. Test excavations are typically required where sub-surface Aboriginal objects with potential conservation value have a high probability of being present in an area, and the area cannot be substantially avoided by the proposed activity.

In the event that test excavation of the identified rock shelter sites is proposed, it will be necessary to apply for an AHIP. AHIPs are issued by OEH under Part 6 of the NPW Act where harm to an Aboriginal object or Aboriginal place cannot be avoided. An AHIP is a defence to a prosecution for harming Aboriginal objects and/or Aboriginal places if the harm was authorised by the AHIP and the conditions of that AHIP were not contravened.

Where required, an AHIP must be informed by both Aboriginal community consultation (following the ACHCR process) and the preparation of an Aboriginal Cultural Heritage Assessment Report prepared in accordance with OEH's *Guide to investigating, assessing, and reporting on Aboriginal Cultural Heritage in*

NSW. This report must assess the potential impacts that any proposed activity may have on the heritage significance and physical fabric of the identified sites.

Recommendation 4

It is recommended that as part of the current Planning Proposal and rezoning process, a 50 metre exclusion zone be maintained around the southern portion of the drainage channel in which the three sites have been identified. This recommendation has been formulated in consultation with representatives of the local Aboriginal community, and is intended to protect both the drainage channel (which is a sensitive landform) and any as yet unidentified sites within the drainage channel from any harm associated with future redevelopment.

It is proposed that this buffer apply to the southern portion of the drainage line specifically (generally represented by Survey Unit 4), as this section contains rock outcrops, formations and overhangs that have the potential to contain as yet unidentified Aboriginal archaeological sites. In contrast, the northern portion of the drainage line features gently sloping, grassed bank, and was not observed to contain any rock shelters or rock overhangs. The proposed buffer zone around the southern portion of the drainage channel is shown in Figure 24.

In the event that any works are proposed to be undertaken within the 50 metre buffer zone identified in Figure 24, reference should be made to Recommendation 5.

Recommendation 5

In the event that any works are proposed in the future that require ground or sub-surface disturbance within the 50 metre buffer zone applied around the southern portion of the drainage line, it is recommended that representatives of the local Aboriginal community (Tharawal LALC and CBNTCAC) be contacted, and given the opportunity to provide feedback on the proposed works.

Depending on the nature, scale and location of any works proposed in the future, on-site monitoring by representatives of the Aboriginal community for the duration of the works may also be appropriate. This should be determined based on the future proposed works and in consultation with OEH, a qualified archaeologist, and representatives of the local Aboriginal community.

Recommendation 6

As required by the *NSW National Parks and Wildlife Service Act, 1974* and the *NSW Heritage Act 1977 (amended)*, in the event that Aboriginal cultural heritage or historic cultural fabric or deposits are encountered where they are not expected, works in the immediate vicinity of the uncovered cultural fabric/deposit must cease immediately and a suitably qualified archaeologist should be engaged to make an assessment of the find. The archaeologist may need to consult with OEH regarding Aboriginal cultural heritage relics, or the NSW Heritage Division concerning the significance of historic cultural material unearthed.

13.2 ENVIRONMENTAL MANAGEMENT

As this ACHA recognises, the intent of the Cross Street Planning Proposal is to rezone the subject site from RU4 Primary Production Small Lots, to a combination of R2 Low Density Residential, R5 Large Lot Residential, RE1 Public Recreation, E2 Environmental Conservation, and E3 Environmental Management.

Notwithstanding the above, the final zoning of the subject lands within the site proposed for conservation measures is still to be determined pending consultation with OEH and Council, however may consist of one or a combination of E2 Environmental Conservation, E3 Environmental Management, and RE1 Public Recreation zones.

As stated in the Biodiversity Inventory Report, prepared by Eco Logical Australia, the intent of the Planning Proposal is to protect and manage in perpetuity the conservation of 79.06 ha of vegetation, which equates to 69% of all the vegetation mapped within the sites subject Biodiversity Certification Area. The proposed ‘conservation measures’ for this area are still to be determined. However such measures are likely to include a form of permanently managed and funded conservation measure such as the

registration of a Biobank site under Part 7A of the Threatened Species Conservation Act or a permanently managed conservation measure such as the classification of land as Community Land under the Local Government Act 1993, provided it is categorised as a ‘natural area’ and is managed under a plan of management adopted under Division 2 of Part 2 of Chapter 6 of the Act primarily for nature conservation. Typical management measures would include managing for weeds and feral animals, fencing and fire management.

The figure overleaf shows the assumed vegetation formation within these zones following development and regeneration of conservation areas.

The above information regarding the proposed management of the proposed E2, E3 and RE1 zones of the site was forwarded to both Glenda Chalker OF CBNTCAC and Tharawal LALC for comment. No comments have been received from either CBNTCAC or Tharawal LALC regarding this information to date, though it is acknowledged that consultation around this matter will be ongoing in association with further consultation with both OEH and Council. Both CBNTCAC and Tharawal LALC will be involved in this consultation going forward, and will be invited to have input into the ultimate resolution of this matter.

FIGURE 25 – ASSUMED VEGETATION FORMATION FOLLOWING DEVELOPMENT AND REGENERATION OF CONSERVATION AREAS (ECO LOGICAL 2016)

14 Bibliography and References

14.1 REFERENCES

The report has been prepared in accordance with the following documents prepared by the NSW OEH (formerly NSW Department of Environment, Climate Change and Water [DECCW]):

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*
- *Due Diligence Code of Practice for Protection of Aboriginal Objects in NSW*
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*
- *Applying for an Aboriginal Heritage Impact Permit: Guide for Applicants 2010*

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[Note: Some government departments have changed their names over time and the above publications state the name at the time of publication.]

Abbreviations and Definitions

Common abbreviations and definitions used throughout the report are provided in the table below:

TABLE 12 – ABBREVIATIONS

ABBREVIATION	DEFINITION
ACHA	Aboriginal Cultural Heritage Assessment
ACHCR	Aboriginal Cultural Heritage Consultation Requirements
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BCA	Building Code of Australia
CMP	Conservation Management Plan
EMP	Environmental Management Plan
LEP	Local Environmental Plan
HAMS	Heritage Asset Management Strategy
HMF	Heritage Management Framework
OEH	Office of Environment and Heritage
PAD	Potential Archaeological Deposit
REF	Review of Environmental Factors
RNE	Register of the National Estate
S170R	Section 170 Heritage and Conservation Register (under the *Heritage Act 1977*)
SEPP	State Environmental Planning Policy
SHR	State Heritage Register of New South Wales (under the *Heritage Act 1977*)
TAMP	Total Asset Management Plan

TABLE 13 – TERMS

TERM	DEFINITION
Aboriginal object	A statutory term meaning 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

TERM	DEFINITION
	persons of non- Aboriginal extraction, and includes Aboriginal remains
Aboriginal place	A statutory term meaning any place declared to be an Aboriginal place (under s.84 of the *National Parks and Wildlife Act 1974*) by the Minister administering the NPW Act, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture; it may or may not contain Aboriginal objects
Archaeological assessment	A study undertaken to establish the archaeological significance (research potential) of a particular site and to identify appropriate management actions
Archaeological potential	The degree of physical evidence present on an archaeological site, usually assessed on the basis of physical evaluation and historical research
Archaeology	The study of past human cultures, behaviours and activities through the recording and excavation of archaeological sites and the analysis of physical evidence
Australia ICOMOS	The national committee of the International Council on Monuments and Sites
Burra Charter	Charter adopted by Australia ICOMOS, which establishes the nationally accepted principles for the conservation of places of cultural significance; Although the *Burra Charter* is not cited formally in an Act, it is nationally recognised as a document that shapes the policies of the Heritage Council of NSW
Conservation	All the processes of looking after an item so as to retain its cultural significance; it includes maintenance and may, according to circumstances, include preservation, restoration, reconstruction and adaptation, and will be commonly a combination of more than one of these
Conservation Management Plan	A document explaining the significance of a heritage item, including a heritage conservation area, and proposing policies to retain that significance; it can include guidelines for additional development or maintenance of the place
Conservation policy	A proposal to conserve a heritage item arising out of the opportunities and constraints presented by the statement of heritage significance and other considerations
Context	The specific character, quality, physical, historical and social characteristics of a building's setting; depending on the nature of the proposal, the context could be as small as a road or entire suburb
Curtilage	The geographical area that provides the physical context for an item, and which contributes to its heritage significance; land title boundaries do not necessarily coincide
Heritage and Conservation Registers	A register of heritage assets owned, occupied or controlled by a State agency, prepared in accordance with section 170 of the Heritage Act
Heritage assets	Items of heritage significance identified in a State Government Agency's Heritage and Conservation Register, including items of cultural and natural significance
Heritage Asset Management Strategy	A strategy prepared by a State Government Agency to document how the principles and guidelines outlined in the *Management of Heritage Assets by NSW Government Agencies* will be implemented in the management of heritage assets
Heritage item	A landscape, place, building, structure, relic or other work of heritage significance
Heritage significance	Of aesthetic, historic, scientific, cultural, social, archaeological, natural or aesthetic value for past, present or future generations
Heritage value	Often used interchangeably with the term 'heritage significance'; there are four nature of significance values used in heritage assessments (historical, aesthetic, social and technical/research) and two comparative significance values (representative and rarity)
Integrity	A heritage item is said to have integrity if its assessment and statement of significance is supported by sound research and analysis, and its fabric and curtilage and still largely intact
Interpretation	Interpretation explains the heritage significance of a place to the users and the community; the need to interpret heritage significance is likely to drive the design of new

TERM	DEFINITION
	elements and the layout or planning of the place
Maintenance	Continuous protective care of the fabric and setting of a place; to be distinguished from repair; repair involves restoration or reconstruction
Relics	Relic is defined under the Heritage Act 1977 (NSW) as any deposit, object or material evidence which relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of state or local heritage significance
Scared trees	Scarred trees have scars where a section of bark was removed by Aboriginal people in order to make canoes, shields or baskets; footsteps were also cut into the tree trunk to gain access to possums or honey in tree tops; scar trees are different to carved trees
Setting	The area around a heritage place or item that contributes to its heritage significance, which may include views to and from the heritage item; the listing boundary or curtilage of a heritage place does not always include the whole of its setting
Shell middens	Term is referred to in Australia as an archaeological deposit in which shells are the predominant visible cultural items; shells are principally the remains of past meals; some middens also consist of bones, stone and other artefacts
Total Asset Management Policy	Total Asset Management is a NSW Government policy introduced to achieve better planning and management of the State's assets. Total Asset Management is the strategic management of physical assets to best support the delivery of agency services. It is part of a planning framework in which the Government's social, ecological and financial service outcomes are achieved by the most efficient means and within the resource limits of the community. It provides a structured and systematic resource allocation approach to infrastructure and physical asset management so that resources are aligned with the service objectives of State agencies. This approach achieves reduced costs and best value for money.
Use	Means the functions of a place, as well, as the activities and the practices that may occur at the place; a compatible use respects the cultural significance of a place

Appendix A AHIMS Search Results

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Tahmoor

Client Service ID : 219868

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-2049	Couridjah 5 (Tahmoor)	AGD	56	274820	6206850	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	97959
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-2042	Couridjah 4 Tahmoor	AGD	56	274870	6206880	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	4030
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-0005	Thirlmere;	AGD	56	273899	6210520	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	103104
	Contact	**Recorders**	Unknown Author					**Permits**		
52-2-0006	Thirlmere;	AGD	56	273899	6210520	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	103104
	Contact	**Recorders**	Unknown Author					**Permits**		
52-2-1596	Carters Creek	AGD	56	283760	6206810	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1599	Bandibong;	AGD	56	280890	6208150	Open site	Valid	Artefact : -	Open Camp Site	1333
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1379	Shingle hill;	AGD	56	283000	6212000	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333,103104,103105
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1546	Dry Creek	AGD	56	281890	6207230	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1547	Carters Creek	AGD	56	283460	6207200	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1548	Carters Creek	AGD	56	283480	6207190	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1722	Couridjah 1	AGD	56	274960	6208260	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3017
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-0967	Nepean River Gully;Maldon;	AGD	56	284050	6212730	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	103104,103105
	Contact	**Recorders**	Val Attenbrow					**Permits**		
52-2-1518	James's Find;	AGD	56	282960	6211860	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333,103104,103105
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1541	Carters Creek;	AGD	56	283000	6207890	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-1545	Dry Creek	AGD	56	281870	6207220	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-2355	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	Contact Mr.Gavin Andrews	**Recorders**	Mr.Mark Simon					**Permits**		
52-2-3572	Maldon 01	GDA	56	285023	6213349	Open site	Valid	Modified Tree (Carved or Scarred) : 1		103104,103105
	Contact Searle	**Recorders**	Heritage Concepts					**Permits**		
52-2-3574	Maldon 03	GDA	56	284135	6212954	Open site	Valid	Artefact : 1		103104,103105
	Contact Searle	**Recorders**	Heritage Concepts					**Permits**		
52-2-1519	Julian's Find;	AGD	56	282910	6211830	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1333,103104,103105
	Contact	**Recorders**	Warren Bluff					**Permits**		
52-2-3809	Greenacre Road AFT-1	GDA	56	279024	6210452	Open site	Valid	Artefact : 1		103104
	Contact	**Recorders**	Mrs.Georgia Roberts					**Permits**		
52-2-3819	RPS TA1 Shelter with PAD	GDA	56	280841	6210099	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103104
	Contact	**Recorders**	Miss.Philippa Sokol,RPS Australia East Pty Ltd-Blacktown					**Permits**		
52-2-3801	Macquarie Place AFT-1	GDA	56	277182	6211066	Open site	Valid	Artefact : 1		103104,103105
	Contact	**Recorders**	Mrs.Georgia Roberts					**Permits**		
52-2-3802	Macquarie Place AFT-2	GDA	56	277200	6211179	Open site	Valid	Artefact : 1		103104,103105
	Contact	**Recorders**	Mrs.Georgia Roberts					**Permits**		
52-2-3876	Rita Street AFT-1	GDA	56	276858	6212784	Open site	Valid	Artefact : -		103104,103105
	Contact	**Recorders**	Mrs.Georgia Roberts,Biosis Pty Ltd - Wollongong					**Permits**		
52-2-3868	Redbank Tunnel 3/A	GDA	56	278800	6213433	Open site	Valid	Artefact : 4		103104,103105
	Contact	**Recorders**	Mr.Peter Kuskie,South East Archaeology					**Permits**		
52-2-3869	Redbank Tunnel 15/A	GDA	56	278739	6212137	Open site	Valid	Artefact : -		103104,103105
	Contact	**Recorders**	Mr.Peter Kuskie,South East Archaeology					**Permits**		

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Tahmoor

Client Service ID : 219868

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-3833	Thirlmere Lakes NP_art02	GDA	56	274293	6211109	Open site	Valid	Art (Pigment or Engraved) : -, Artefact : -		103104
	Contact	**Recorders**	Mr.Mark Simon					**Permits**		
52-2-0461	Courijah;	AGD	56	276943	6209208	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	103104
	Contact	**Recorders**	Doctor.Johan Kamminga					**Permits**		
52-2-3633	Couridjah 2	GDA	56	276460	6207820	Open site	Valid	Art (Pigment or Engraved) : 3		3017
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-1723	Couridjah 1	AGD	56	276460	6207820	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-1724	Couridjah 3	AGD	56	276200	6207560	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	3017
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-3706	Bulli Site 26	AGD	56	284159	6212893	Closed site	Valid	Art (Pigment or Engraved) : -		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3667	Redbank Creek IA 1	GDA	56	278175	6213091	Open site	Valid	Artefact : -		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3663	Myrtle Creek PAD 1	AGD	56	278559	6212032	Open site	Valid	Potential Archaeological Deposit (PAD) : -		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3664	Redbank Creek OCS-1	AGD	56	277567	6212600	Open site	Valid	Artefact : -		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3665	Redbank Creek OCS-2	AGD	56	277824	6212689	Open site	Valid	Artefact : -		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3685	Bulli Site 5	AGD	56	284258	6213135	Open site	Valid	Artefact : 1		103104,103105
	Contact	**Recorders**	Ms.Renee Regal					**Permits**		
52-2-3692	Bulli Site 12	AGD	56	282574	6212816	Closed site	Valid	Art (Pigment or Engraved) : -		103104,103105
	Contact	**Recorders**	Mr.Jamie Reeves					**Permits**		

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Tahmoor

Client Service ID : 219868

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-3937	Chris Lee Lodge - TRE01	AGD	56	277476	6211965	Open site	Valid	Modified Tree (Carved or Scarred) : -		103104,103105
	Contact	**Recorders**	Tharawal Local Aboriginal Land Council					**Permits**		
52-2-3922	Dogtrap Creek IA-1	GDA	56	280225	6207339	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Niche Environment and Heritage,Ms.Renee Regal					**Permits**		
52-2-3969	Eliza Creek 2013.3	GDA	56	281714	6208196	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -		
	Contact	**Recorders**	Niche Environment and Heritage,Mr.Jamie Reeves					**Permits**		
52-2-3970	Eliza Creek 2013.2	GDA	56	281704	6208204	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -		
	Contact	**Recorders**	Niche Environment and Heritage,Mr.Jamie Reeves					**Permits**		
52-2-3996	RPS MP ISO1	GDA	56	277021	6211083	Open site	Valid	Artefact : 1		103104
	Contact	**Recorders**	RPS - Echuca,Ms.Karyn Virgin					**Permits**		
52-2-4198	Kent Road Creek 1	GDA	56	280321	6212312	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Kelleher Nightingale Consulting Pty Ltd					**Permits**		
52-2-4199	Kent Road Creek 2	GDA	56	280833	6211936	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Kelleher Nightingale Consulting Pty Ltd					**Permits**		
52-2-2078	Tahmoor 1	AGD	56	278630	6211550	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	103104,103105
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-2079	Tahmoor 2	AGD	56	279580	6210860	Closed site	Valid	Artefact : -	Shelter with Deposit	103104,103105
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-2083	Matthews Creek 1	AGD	56	275800	6213040	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	103104,103105
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-2-2084	Thirlmere 2	AGD	56	275670	6213140	Closed site	Valid	Artefact : -	Shelter with Deposit	103104,103105
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**	1013	
52-2-3254	Redbank Creek 1	AGD	56	278050	6213100	Closed site	Valid	Artefact : 10		103104,103105
	Contact T Russell	**Recorders**	Mrs.Caryll Sefton					**Permits**	3781	

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Tahmoor

Client Service ID : 219868

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-4071	WJ-RS-05	GDA	56	285014	6211234	Closed site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4072	WJ-RS-06	GDA	56	284976	6211232	Closed site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4073	WJ-RS-07 duplicate of 52-2-4070	GDA	56	284961	6211278	Closed site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4074	WJ-RS-08	GDA	56	284928	6211282	Closed site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4075	WJ-RS-03	GDA	56	284956	6211435	Closed site	Valid	Art (Pigment or Engraved) : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services,Mr.Tom Knight					**Permits**		
52-2-4076	WJ-RS-04	GDA	56	284920	6211249	Closed site	Valid	Art (Pigment or Engraved) : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4077	WJ-RS-01	GDA	56	284910	6211245	Closed site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services,Mr.Tom Knight					**Permits**		
52-2-4078	WJ-RS-02	GDA	56	284926	6211396	Closed site	Valid	Art (Pigment or Engraved) : 1, Artefact : 1, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services,Mr.Tom Knight					**Permits**		

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Tahmoor

Client Service ID : 219868

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
52-2-4080	WJ-ST-05	GDA	56	284618	6211330	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4086	WJ-IF-07	GDA	56	284990	6211137	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4094	WJ-AS-05	GDA	56	284889	6211195	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		
52-2-4097	WJ-AS-01	GDA	56	284939	6211274	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Kayandel Archaeological Services,Mr.Tom Knight					**Permits**		
52-2-4070	WJ-RS-07 duplicate of 52-2-4073	GDA	56	284961	6211278	Open site	Deleted	Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Kayandel Archaeological Services					**Permits**		

Report generated by AHIMS Web Service on 11/04/2016 for Karyn Virgin for the following area at Datum :GDA, Zone : 56, Eastings : 274835 - 284046, Northings : 6207732 - 6212499 with a Buffer of 1000 meters. Additional Info : reearch. Number of Aboriginal sites and Aboriginal objects found is 63

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219877

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

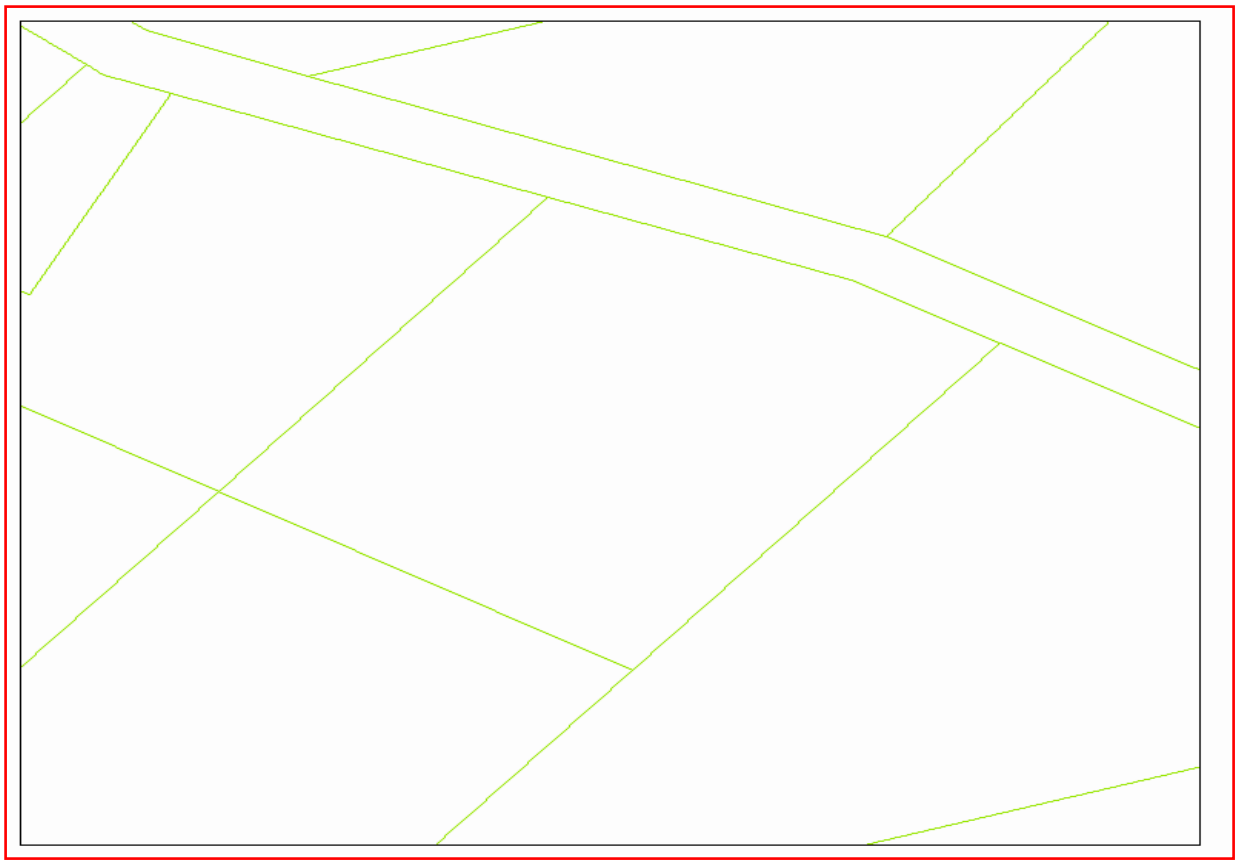
Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 255, DP:DP10669 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

Important information about your AHIMS search

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

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219876

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

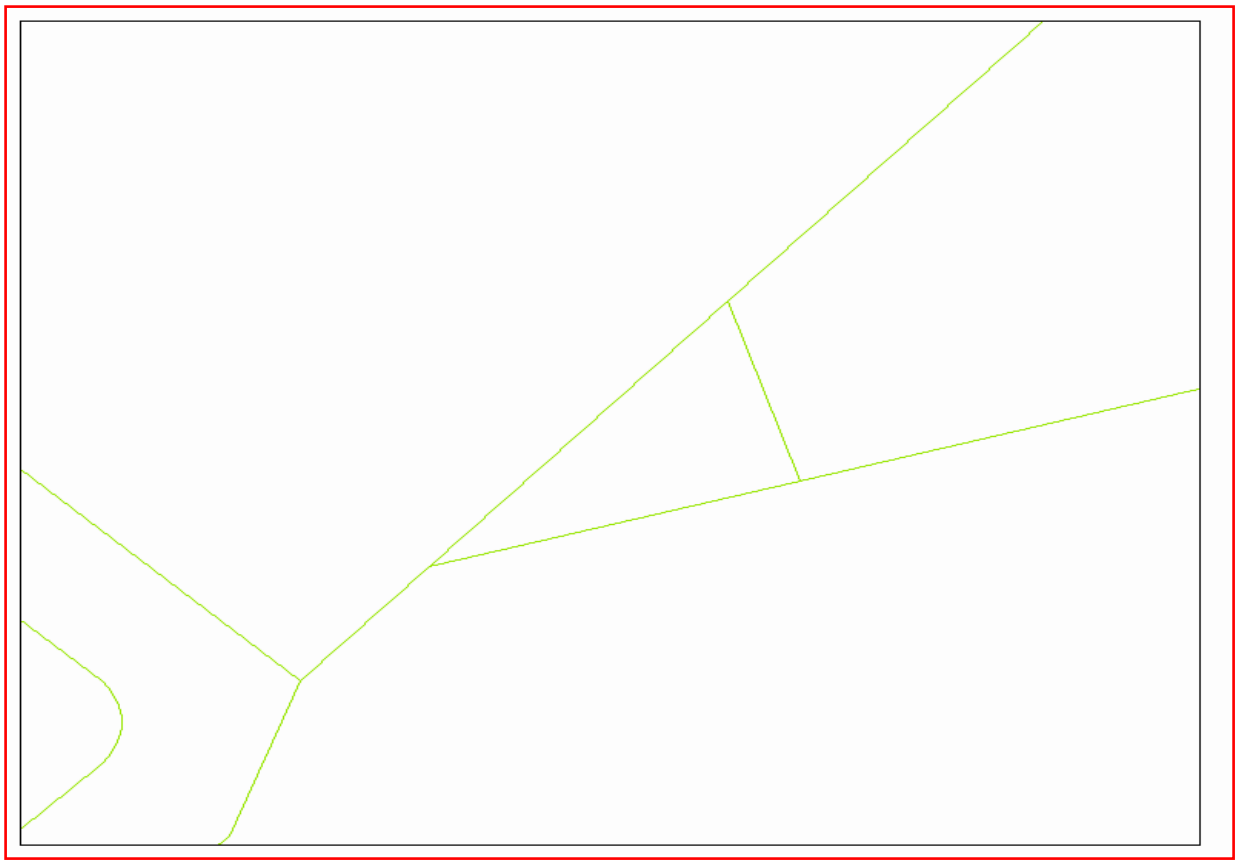
Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 6, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

Important information about your AHIMS search

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- This search can form part of your due diligence and remains valid for 12 months.

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Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219875

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 5, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
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- This search can form part of your due diligence and remains valid for 12 months.

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Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219874

Urbis Sydney

GPO 5278
sydney New South Wales 2001

Attention: Karyn Virgin

Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 4, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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0	Aboriginal places have been declared in or near the above location. *

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

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- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
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- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219873

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 3, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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0	Aboriginal places have been declared in or near the above location. *

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

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Important information about your AHIMS search

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AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219872

Urbis Sydney

GPO 5278
sydney New South Wales 2001

Attention: Karyn Virgin

Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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0	Aboriginal places have been declared in or near the above location. *

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

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

Important information about your AHIMS search

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

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219871

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 1, DP:DP1128745 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

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- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
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ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : tahmoor

Client Service ID : 219870

Urbis Sydney

GPO 5278

sydney New South Wales 2001

Attention: Karyn Virgin

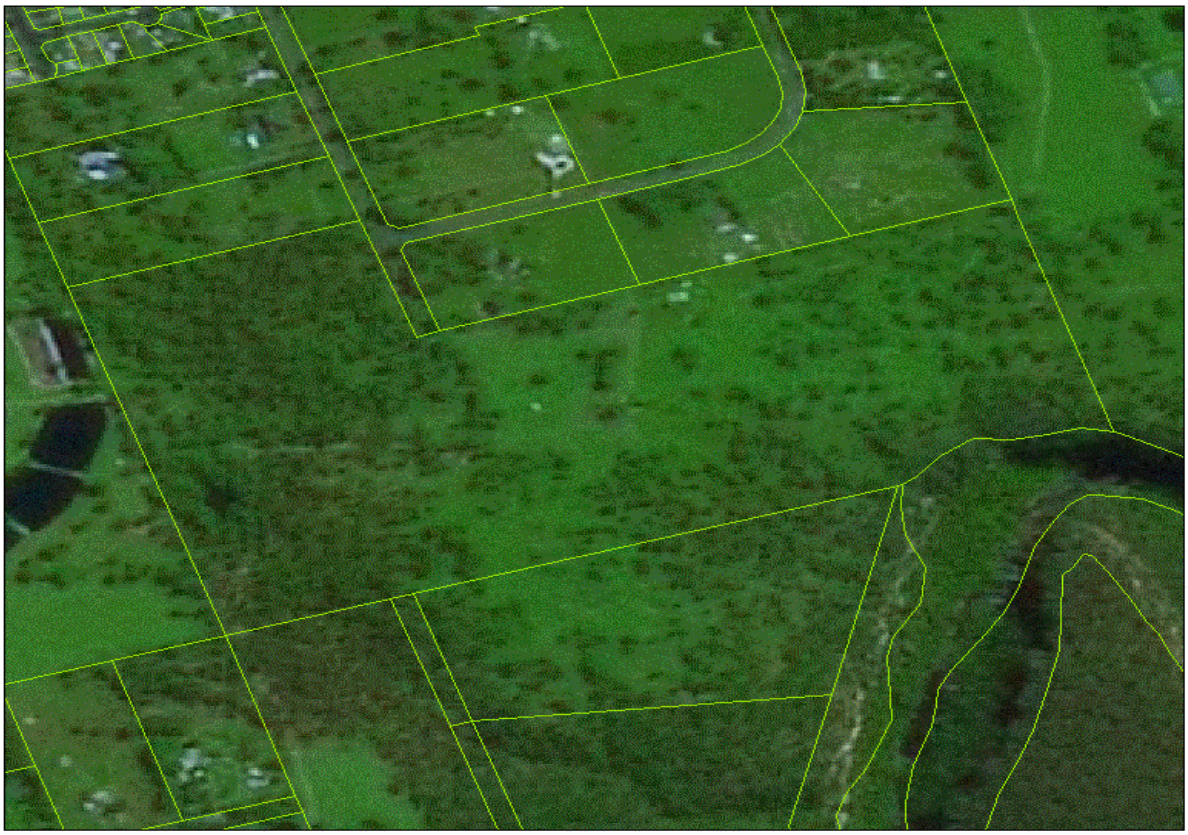
Email: kvirgin@urbis.com.au

Date: 11 April 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : C, DP:DP374621 with a Buffer of 50 meters, conducted by Karyn Virgin on 11 April 2016.

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



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

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ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

Appendix B ACHCR Correspondence Log

Date	Organisation/Group/Individual	Contact Name	Method of Contact	Details
13-Jan-15	Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	Phone (mobile)	Called Glenda to discuss the project and get an understanding of her recollections/thoughts. Glenda advised that she recalled the project, but would appreciate site visit to refresh her memory and to re-assess the previously identified potential sites. Advised that I would be in touch once given the go-ahead for the project, and would include scope for a site visit in our fee proposal.
28-Jan-15	Tharawal Local	N/A	Phone (landline)	Called the Tharawal LALC office regarding the project. Phone was not answered, messsage was left.
28-Jan-15	Tharawal LALC	N/A	Email (reception and heritage department)	Emailed reception and the heritage department. Provided a decription of the project and attached previous reports for reference. Invited a representative to attend the site visit, and asked for the advisement of availability
28-Jan-15	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Emailed Glenda Chalker specifically. Provided a decription of the project and attached previous reports for reference. Invited a representative to attend the site visit, and asked for the advisement of availability
28-Jan-15	Tharawal LALC	N/A	Phone (landline)	Called the Tharawal LALC office regarding the project. Spoke to reception regarding the organisation of the site visit, and was advised that a cultural heritage officer would return my call.
29-Jan-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to tentatively book in a site visit for Thursday the 5th January. Glenda said that should be fine and advised that she would let Abbi Whillock of Tharawal LALC know.
2-Feb-15	Tharawal LALC	Abbi Whillock	Phone (landline)	Received a call from Abbi Whillock of Tharawal LACL to advise that she was available for the Thursday site visit. I mentioned that I would need both her and Glenda to send through their relevant insurances, and advised that I would confirm the site visit with the client and get back to both Abbi and Glenda.
3-Feb-15	Cubbitch Barta NTCAC	Abbi Whillock	Email (heritage department)	Emailed through a confirmation of the site visit time/day/meet location as well as a map of the area to be surveyed. Also reminded about the need to send through insurances prior to the site visit.
28-Jan-15	Tharawal LALC	Glenda Chalker	Email (Glenda Chalker)	Emailed through a confirmation of the site visit time/day/meet location as well as a map of the area to be surveyed. Also reminded about the need to send through insurances prior to the site visit.
28-Jan-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile, text message)	Texted Glenda to advise that I had sent an email to both Abbi and herself. Asked if she could please confirm that they would be attending, and to send insurances through.
3-Feb-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Tharawal LALC generally	Email (Glenda Chalker and Abbi Whillock)	Emailed both organisations confirming the site visit being scheduled for Thursday 5th February, outlining what PPE/general equipment to bring, advising about invoicing, and asking for insurance certificates. Information was also provided regarding the intended survey area (targeted survey to relocate previously identified rockshelter/PAD sites, as yet unregistered) and indicated this on an attached map.
4-Feb-15	Cubbitch Barta	Glenda Chalker	Email (Glenda Chalker)	Glenda email to advise that she would bring her insurance certificates with her to site.
5-Feb-15	Tharawal LALC	Abbi Whillock	Email (heritage department)	Received an email containing the Certificate of Currency and Association Liability Certificate of Insurance for Thawaral LALC. It was noted that the latter was out of date as of last year.
5-Feb-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Sarah Duncan	Site Visit	Attended site visit with Glenda Chalker of CBNTCAC and Sarah Duncan of Tharawal LALC. Through the survey, the survey approach was discussed, as were the present landforms. A survey strategy was formulated with input from both Glenda and Sarah on site - as the area had previously been surveyed twice before, it was decided that the survey would target sensitive landforms within the Study Area (drainage lines, ridge tops, etc) and specifically attempt to relocated previously identified and documented rockshelters. Both throughout and at the completion of the survey, Glenda and Sarah were asked if they were comfortable and happy with the survey coverage and whether or not there were any other areas they particularly wanted to target. Both were also asked if they had (and/or wanted to provide) any information regarding the cultural heritage values of the area generally, or of the subject site and landforms/identified sites specifically. Both Glenda and Sarah were in agreeement that the nearby Mermaid's Pool would have been an important place for Aboriginal people in the past, with Glenda noting that it is a known women's area. Additionally, Glenda identified that areas of high ground that provide views of the Bargo River and associated landscape are likely to have been frequented by Aboriginal people in the past, and may have had some cultural significance and/or been used for ceremonial purposes.
6-Feb-15	Cubbitch Barta NTCAC and Tharawal LALC	Glenda Chalker and Tharawal LALC generally	Email (Glenda Chalker and reception and heritage departments	Sent a follow-up email to both groups, providing them with maps from the planning proposal report, which show the indicative plan of the redevelopment, as well as a more detailed contour/watercourses map. Noted that if either wanted to ask any questions or discuss the site visit to please feel free to contact Urbis.
6-Feb-15	Tharawal LACL	Abbi Whillock	Phone (landline)	Called to chase up insurances as the Association Liability Certificate of Insurance was out of date as of last year. Abbi advised she would email it through by the end of the day.
10-Feb-15	Tharawal LALC	N/A	Email (reception and heritage department)	Emailed reception and the heritage department reminding them to send through updated insurance certificates and also to ask for Sarah's full name for inclusion in the report.
10-Feb-15	Tharawal LALC	Abbi Whillock	Email (Abbi Whillock)	Abbi emailed to advise that she would send the insurances through the following day. She also provided Sarah's full name (Sarah Duncan).
11-Feb-15	Tharawal LALC	Abbi Whillock	Email (reception and	Abbi emailed through an updated copy of the group's insurances, which were forwarded to the client.
18-Feb-15	Cubbitch Barta	Glenda Chalker and	Email (Glenda Chalker	Emailed Glenda Chalker and Abbi Whillock to advise as to the appopriate address to forward their invoicing to.
26-Feb-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to discuss potential impacts and mitigation measures. Explained that the 50 metre buffer may not be able to be maintained around the entire drainage line and how she felt about mitigating that. Glenda advised that she understood that that may not be possible, and would review this aspect of the report closely. She also advised that as long as the sites were protected other mitigation measures may be acceptable.
3-Mar-15	Tharawal LALC	Abbi Whillock	Email (reception and	Abbi emailed asking if there was an email address to which the invoice could be sent. Michael Parkinson's contact details were provided.
28-May-15	Cubbitch Barta	Glenda Chalker and	Email (Glenda Chalker	Emailed draft copies of the ACHCR report for review.
1-Jun-15	Cubbitch Barta	Glenda Chalker and	Email (Glenda Chalker	Re-emailed draft copies of the ACHCR report for review, as no acknowledgement received for previous email.
9-Jun-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda's email to follow up on emails sent on 28 May and 1 June. Glenda confirmed the report had been received but requested it be sent via post. Glenda mentioned she had been contacted by the National Parks association regarding the intended buffers around the gorge/sensitive areas. Advised that she would review the report when hard-copy recieved.
9-Jun-15	Tharawal LALC	N/A	Phone (landline)	Called to follow up on emails sent on 28 May and 1 June. No answer. No option to leave a message.
15-Jun-15	Cubbitch Barta	Glenda Chalker	Mail	Glenda sent a letter outlining her response to the study and any and all concerns she had.
18-Jun-15	Cubbitch Barta NTCAC	Glenda Chalker	Phone (mobile)	Called Glenda to discuss her letter. Glenda raised specific concerns regarding the future management of any conservation zones within the study area. Glenda did not comment on the remainder of the report.
18-Jun-15	Tharawal LALC	N/A	Phone (landline)	Called to follow up on emails sent on 28 May and 1 June, and previous phone calls in order to get a response regarding the report. Was advised that someone would call back.
1-Apr-16	Tharawal LALC	N/A	Email (reception and heritage department)	Emailed reception and the heritage department regarding the proposed text to be incorporated within the Archaeological Assessment for the Cross Street Planning Proposal addressing the proposed approach to conversvation and management of the proposed environmental lands on site. This is in accordance with both comments recieved from OEH regarding the previous assessment of the area, as well as the specific content of Glenda's feedback letter
1-Apr-16	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Emailed Glenda Chalker specifically regarding the proposed text to be incorporated within the Archaeological Assessment for the Cross Street Planning Proposal addressing the proposed approach to conversvation and management of the proposed environmental lands on site. This is in accordance with both comments recieved from OEH regarding the previous assessment of the area, as well as the specific content of Glenda's feedback letter
8-Apr-16	Tharawal LALC	N/A	Email (reception and heritage department)	Follow up email enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. No response received to date.
8-Apr-16	Cubbitch Barta NTCAC	Glenda Chalker	Email (Glenda Chalker)	Follow up email enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. No response received to date.
8-Apr-16	Tharawal LALC	N/A	Phone (landline)	Follow up call enquiring as to whether or not the group had any comments regarding the environmental management policy emailed through on 1 April 2016. Was advised by reception that the email would be given to the CEO for comment. No response received as of yet.

Appendix C Correspondence Received from CBNTCAC

Cubbitch Barta Native Title Claimants
Aboriginal Corporation
55 Nightingale Road,
PHEASANTS NEST. N.S.W. 2574.
15th June, 2015.

Urbis
GPO Box 5278,
SYDNEY. N.S.W. 2001.

Dear Karyn,

INGHAMS TAHMOOR

Thank you for the opportunity of participating in the above project and commenting on the DRAFT ACHAR.

During the field survey there were only three of the six previously identified shelters located. The six were originally recorded in 1993, and during the inspection in 2006, only one of the shelters was revisited. The three shelters identified in February 2015 should be registered on AHIMS.

Although there were no other Aboriginal sited identified, there is one area that still has potential for subsurface material. The area that borders around the Bargo river that is not part of the proposed development which is to be within an exclusion zone, should never be impacted by any development. The two drainage lines within the proposed development run directly into the Bargo River and should all be retained as conservation lands. The third drainage line runs out of the property through the property next door and into the Bargo River. This third drainage line is a lesser drainage line that does not have the same deeply incised sides as the other two, until it reaches the edge of the river on the property next door.

There is no mention in the ACHAR of any proposed management of the conservation lands, which have Aboriginal sites within it and the possibility of unknown sites, bordering along the edge of the river. The exclusion zone around the edges varies from 50 metres to 400 metres in some places, and although the reason for that is basically because of the trees, this area also has the potential to contain unknown Aboriginal sites. There should be a management plan put in place to maintain the land as it exists today for future generations. What will be the ownership of this land?

The land that is proposed for this development, in the impact area has been highly disturbed from past usage, with the poultry farms that existed there many years ago. There is still evidence of this past use with building material, excavations and concrete slabs still on site, in almost all of the area proposed for development.

The reference to the exact location of the shelters should be removed from any public documents, including maps. To prevent any accidental or secondary impacts during any development, earthworks etc. the exclusion zone should be barricaded or fenced off during construction. There should be no services, such as water, power and or sewerage lines to be placed within the exclusion or conservation areas.

The Bargo River and its surrounds are a spiritual place to the Dharawal people, and there are stories which tell of the significance of the River and the country around it. It is also a wild and sometimes dangerous place to be for those who do not treat it with the respect it deserves, as it has been for thousands of years.

Yours faithfully,

G. Chalker.

Glenda Chalker
Phone/Fax 0246841129 0427218425
kgchalker@bigpond.com

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