

ABORIGINAL TEXT EXCAVATION REPORT

**Lot 2 Section 4 DP 2954
1111-1141 Elizabeth Drive
Cecil Park NSW
(Fairfield LGA)**



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& Streat Archaeological Services

For

1111 Elizabeth Drive Pty Ltd



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Cover Image

Photograph of test excavations being undertaken on site.
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EXECUTIVE SUMMARY

Study Area

Archaeological Management and Consulting Group (AMAC) in conjunction with Streat Archaeological Services Pty Ltd (SAS) was commissioned by 1111 Elizabeth Drive, Cecil Park in January 2018, to prepare an Aboriginal Cultural Heritage Assessment for the proposed subdivision at Lot 2 Section 4 DP 2954 – 1111-1141 Elizabeth Drive, Cecil Park, New South Wales.

Since 2018 this report has been amended in response to the proposed acquisition of part of the Site which will reduce the site area by 26,617SQM. The acquisition of the area of the site proposed by TfNSW has required amendments to be made to the proposed development and development footprint which require a re-assessment of the impacts and design which responds to the new development Site

As part of this investigation a programme of test excavation was conducted under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). This report forms the results and analysis of said test excavation.

Aboriginal Consultation

Consultation for this report has been undertaken in accordance with the National Parks and Wildlife Act 1974: Part 6; *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), as part of the programme of test excavation under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

Physical Evidence

Test excavation was undertaken over four days 26/03/18 – 29/03/18. The programme was conducted under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* and consisted of the excavation of 30 test trenches (50cm x 50cm).

The proposed subdivision and associated infrastructure will impact the study area. In review of the test excavation results, of which intact soils were found to be present, however the study area was found to be absent of any Aboriginal objects and/or deposits or features of cultural and archaeological significance. Therefore, further investigation is not warranted and works may proceed with caution.

Significance

The site is found to be of nil-low archaeological significance this is on account to the test excavation resulting in no Aboriginal objects and/or deposits of cultural or archaeological significance being located. The A horizon (artefact bearing deposit) was present in areas as well as intact soils. However, a significant portion of the study area was found to be disturbed.

Recommendations

The findings from the test excavation indicate the site to be of nil-low archaeological significance, intact A2 horizon was present, although majority of the study area was disturbed from past agricultural land use. Test excavation resulted in no Aboriginal objects and/or deposits of cultural significance being located, therefore the development should be allowed to proceed with caution.

The recommendations have been formulated after consultation with RAPs, the proponent and the Heritage NSW;

- Consultation with the registered Aboriginal stakeholders should continue. Stakeholders have been given the opportunity to comment on the recommendations of this report and these comments are included in this report;
- An Aboriginal Cultural Heritage Management Plan should be devised as a final document for the study area when State Significant Development (SSD) status (SSD #8859), in order to manage any unexpected Aboriginal archaeological and cultural constraints that may arise;
- Archaeological test excavation in accordance with Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010) revealed no Aboriginal archaeological objects or deposits: the subdivision as shown (Figures 4.1) should be allowed to 'proceed with caution';
- After this and before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site as to their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development;

If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place;

- All work is to cease in the immediate vicinity of the deposits and/or objects
- The area is to be demarcated
- Heritage NSW, a qualified archaeologist and the participating RAPs are to be notified.

Should any human remains be located during the following development;

- All excavation in the immediate vicinity of any objects of deposits shall cease immediately;
- The NSW police and Heritage NSW's Envioline be informed as soon as possible;
- Once it has been established that the human remains are Aboriginal ancestral remains, Heritage NSW and the relevant Registered Aboriginal Parties will identify the appropriate course of action.

1.0 INTRODUCTION

1.1 BACKGROUND

Archaeological Management and Consulting Group (AMAC) in conjunction with Streat Archaeological Services Pty Ltd (SAS) was commissioned by 1111 Elizabeth Drive, Cecil Park in January 2018, to prepare an Aboriginal Cultural Heritage Assessment for the proposed subdivision at Lot 2 Section 4 DP 2954 – 1111-1141 Elizabeth Drive, Cecil Park. Since 2018, new development plans have been reissued by AE design Partnership in 2020 and amendments have been made to the previous 2018 plans in this report to reflect these changes. A copy of this 2020 Test Excavation report was submitted to the Aboriginal stakeholders for review.

As part of this investigation a programme of test excavation was conducted under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). This report forms the results and analysis of said test excavation.

1.2 STUDY AREA

The study site is that piece of land described as Lot 2 Section 4 of the Land and Property Information Deposited Plan 2954, forming the following street address 1111-1141 Elizabeth Drive, Cecil Park, in the Parish of Cabramatta, County of Cumberland.

Lot	Section	Deposited Plan
2	4	2954

1.3 SCOPE & OBJECTIVES OF THE ASSESSMENT

This report forms the results of the programme of test excavation that was conducted, including the synthesis and analysis of information of which may contribute to our understanding of the site characteristics and local and/or regional prehistory. The results of the test excavation will aid in the formalisation of appropriate management recommendations and conservation goals for the proposed development and any archaeological material recovered.

This assessment is intended for submission in conjunction with an Aboriginal Cultural Heritage Assessment and Aboriginal Archaeological Assessment (AMAC Group 2016), to Heritage NSW.

1.4 ABORIGINAL CONSULTATION & PARTICIPATION SUMMARY

Consultation for this report has been undertaken in accordance with the Office of Environment and Heritage and National Parks and Wildlife Act 1974: Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), as part of the Aboriginal Cultural Heritage Assessment and programme of test excavation under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

There is a mandatory 28-day period for the Aboriginal stakeholders to comment on this document. A final Aboriginal stakeholder approved version of this report shall be issued at the close of this period (should any changes be required as a result of the exhibition process or Aboriginal stakeholder comment they will be included at this stage).

1.5 AUTHOR IDENTIFICATION

The analysis of the archaeological background and the reporting were undertaken by Benjamin Streat (B.A, Grad Dip Arch Her, Grad Dip App Sc), archaeologist and Director of Streat Archaeological Services Pty Ltd and archaeologists Yolanda Pavincich (B Arch, Grad Dip Cul Her) and Steven J. Vasilakis (B Arch. Hons.) in association with, and under the guidance of Mr Martin Carney, archaeologist and Managing Director of AMAC Group.

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- Darug Tribal Aboriginal Corp.
- Deerubbin Local Aboriginal Land Council
- Dharug CHTS
- Didge Ngunawal Clan
- Djiringanj CHTS
- Elouera
- Gangangarra
- Goobah
- Gunjeewong Cultural Heritage Aboriginal Corp.
- Kamaroi-Yankuntjatjara Working Group
- Kawul Cultural Services
- Butucarbin
- Kuringgai
- Muragadi
- Murra Bidgee Mullangari Aboriginal Corp.
- Murramarang
- Ngunnawal CHTS
- Nundagurri
- Thauaira CHTS
- Thawawal CHTS
- Walbunja
- Wandandian CHTS
- Warragil
- Widescope Indigenous Group
- Yerramurra.

2.0 LEGISLATIVE CONTEXT AND STATUTORY CONTROLS

This section of the report provides a brief outline of the relevant legislation and statutory instruments that protect Aboriginal archaeological and cultural heritage sites within the state of New South Wales. Some of the legislation and statutory instruments operate at a federal or local level and as such are applicable to Aboriginal archaeological and cultural heritage sites in New South Wales. This material is not legal advice and is based purely on the author's understanding of the legislation and statutory instruments. This document seeks to meet the requirements of the legislation and statutory instruments set out within this section of the report.

2.1 COMMONWEALTH HERITAGE LEGISLATION AND LISTS

One piece of legislation and two statutory lists and one non-statutory list are maintained and were consulted as part of this report: the National Heritage List; the Commonwealth Heritage List and the Register of the National Estate.

2.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) offers provisions to protect matters of national environmental significance. This act establishes the National Heritage List and the Commonwealth Heritage List which can include natural, Indigenous and historic places of value to the nation. This Act helps ensure that the natural, Aboriginal and historic heritage values of places under Commonwealth ownership or control are identified, protected and managed (Australian Government 1999).

2.1.2 National Heritage List

The National Heritage List is a list which contains places, items and areas of outstanding heritage value to Australia; this can include places, items and areas overseas as well as items of Aboriginal significance and origin. These places are protected under the Australian Government's EPBC Act.

2.1.3 Commonwealth Heritage List

The Commonwealth Heritage List can include natural, Indigenous and historic places of value to the nation. Items on this list are under Commonwealth ownership or control and as such are identified, protected and managed by the Federal Government.

2.1.4 Register of the National Estate

The Register of the National Estate is a list of natural, Indigenous and heritage places throughout Australia. It was originally established under the *Australian Heritage Commission Act 1975* (AHC Act). This has now been replaced by the Environment Protection and Biodiversity Conservation Act 1999. The register will continue to operate until February 2012 when it will be completely replaced by The Commonwealth Heritage List.

2.2 NEW SOUTH WALES STATE HERITAGE LEGISLATION AND LISTS

The state (NSW) based legislation that is of relevance to this assessment comes in the form of the acts which are outlined below.

2.2.1 National Parks and Wildlife Act 1974

The NSW National Parks and Wildlife Act 1974 (as amended) defines Aboriginal objects and provides protection to any and all material remains which may be evidence of the Aboriginal occupation of lands continued within the state of New South Wales. The relevant sections of the Act are sections 84, 86, 87 and 90. An Aboriginal object, formerly known as a relic is defined as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains" (NSW Government, 1974).

It is an offence to harm or desecrate an Aboriginal object or places under Part 6, Section 86 of the NPW Act:

Part 6, Division 1, Section 86: Harming or desecrating Aboriginal objects and Aboriginal places:

(1) *A person must not harm or desecrate an object that the person knows is an Aboriginal object.*

Maximum penalty:

(a) *in the case of an individual—2,500 penalty units or imprisonment for 1 year, or both, or (in circumstances of aggravation) 5,000 penalty units or imprisonment for 2 years, or both, or*

(b) *in the case of a corporation—10,000 penalty units.*

(2) *A person must not harm an Aboriginal object.*

Maximum penalty:

(a) *in the case of an individual—500 penalty units or (in circumstances of aggravation) 1,000 penalty units, or*

(b) *in the case of a corporation—2,000 penalty units.*

(3) *For the purposes of this section, circumstances of aggravation are:*

(a) *that the offence was committed in the course of carrying out a commercial activity, or*

(b) *that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.*

This subsection does not apply unless the circumstances of aggravation were identified in the court attendance notice or summons for the offence.

(4) *A person must not harm or desecrate an Aboriginal place.*

Maximum penalty:

(a) *in the case of an individual—5,000 penalty units or imprisonment for 2 years, or both, or*

(b) *in the case of a corporation—10,000 penalty units.*

(5) *The offences under subsections (2) and (4) are offences of strict liability and the defence of honest and reasonable mistake of fact applies.*

- (6) Subsections (1) and (2) do not apply with respect to an Aboriginal object that is dealt with in accordance with section 85A.
- (7) A single prosecution for an offence under subsection (1) or (2) may relate to a single Aboriginal object or a group of Aboriginal objects.
- (8) If, in proceedings for an offence under subsection (1), the court is satisfied that, at the time the accused harmed the Aboriginal object concerned, the accused did not know that the object was an Aboriginal object, the court may find an offence proved under subsection (2).

2.2.2 Environmental Planning & Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) states that environmental impacts of proposed developments must be considered in land use planning procedures. Four parts of this act relate to Aboriginal cultural heritage.

- Part 3, divisions 3, 4 and 4A refer to Regional Environmental Plans (REP) and Local Environmental Plans (LEP) which are environmental planning instruments and call for the assessment of Aboriginal heritage among other requirements.
- Part 4 determines what developments require consent and what developments do not require consent. Section 79C calls for the evaluation of *The likely impacts of that development, including environmental impacts on both the natural and built environments and the social and economic impacts in the locality* (NSW Government 1979).
- Part 5 of this Act requires that impacts on a locality which may have an impact on the aesthetic, anthropological, architectural, cultural, historic, scientific, recreational or scenic value are considered as part of the development application process (NSW Government, 1979).

2.2.3 The Aboriginal Land Rights Act 1983

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

- take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law;
- 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 New South Wales Aboriginal Land Council and Local Aboriginal Land Councils.

The ALR Act also establishes the Office of 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 ALR Act the Office of the Registrar is to give priority to the entry in the Register of the names of Aboriginal persons who have a cultural association with:

- lands listed in Schedule 14 to the NPW Act;
- lands to which section 36A of the ALR Act applies (NSW Government, 1974 & DECCW 2010).

2.2.4 The Native Title Act 1993

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

- recognise and protect native title;
- 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;
- establish a mechanism for determining claims to native title;
- provide for, or permit, the validation of past acts 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 (NSW Government, 1974 & DECCW 2010).

2.2.5 New South Wales Heritage Register and Inventory 1999

The State Heritage Register is a list of places and objects of particular importance to the people of NSW. The register lists a diverse range of over 1,500 items, in both private and public ownership. Places can be nominated by any person to be considered to be listed on the Heritage register. To be placed an item must be significant for the whole of NSW. The State Heritage Inventory lists items that are listed in local council's local environmental plan (LEP) or in a regional environmental plan (REP) and are of local significance.

2.2.6 Register of Declared Aboriginal Places 1999

The NPW Act protects areas of land that have recognised values of significance to Aboriginal people. These areas may or may not contain Aboriginal objects (i.e. any physical evidence of Aboriginal occupation or use). Places can be nominated by any person to be considered for Aboriginal Place gazettal. Once nominated, a recommendation can be made to EPA/Heritage NSW for consideration by the Minister. The Minister declares an area to be an 'Aboriginal place' if the Minister believes that the place is or was of special significance to Aboriginal culture. An area can have spiritual, natural resource usage, historical, social, educational or other type of significance.

Under section 86 of the NPW Act it is an offence to harm or desecrate a declared Aboriginal place. Harm includes destroying, defacing or damaging an Aboriginal place. The potential impacts of the development on an Aboriginal place must be assessed if the development will be in the vicinity of an Aboriginal place (DECCW 2010).

2.3 LOCAL PLANNING INSTRUMENTS

2.3.1 Fairfield City Council Local Environmental Plan 2013

The Fairfield City Council Local Environment Plan was endorsed in 2013. Heritage Conservation is discussed in Part 5; Clause 5.10. The following section highlights the archaeological considerations of a site in relation to developments:

5.10 Heritage conservation

(1) Objectives

The objectives of this clause are as follows:

- (a) *to conserve the environmental heritage of Fairfield*
- (b) *to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*
- (c) *to conserve archaeological sites,*
- (d) *to conserve Aboriginal objects and Aboriginal places of heritage significance.*

(2) Requirement for consent

Development consent is required for any of the following:

- (a) *demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):*
 - (i) *a heritage item,*
 - (ii) *an Aboriginal object,*
 - (iii) *a building, work, relic or tree within a heritage conservation area,*
- (b) *altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,*
- (c) *disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,*
- (d) *disturbing or excavating an Aboriginal place of heritage significance,*
- (e) *erecting a building on land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,*
- (f) *subdividing land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.*

(3) When consent not required

However, development consent under this clause is not required if:

- (a) *the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:*
 - (i) *is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or*

archaeological site or a building, work, relic, tree or place within the heritage conservation area, and

- (ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or

- (b) the development is in a cemetery or burial ground and the proposed development:
 - (i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and
 - (ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or
- (c) the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or
- (d) the development is exempt development.

(8) Aboriginal places of heritage significance

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:

- (a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and
- (b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent

(10) Conservation incentives

The consent authority may grant consent to development for any purpose of a building that is a heritage item or of the land on which such a building is erected, or for any purpose on an Aboriginal place of heritage significance, even though development for that purpose would otherwise not be allowed by this Plan, if the consent authority is satisfied that:

- (a) the conservation of the heritage item or Aboriginal place of heritage significance is facilitated by the granting of consent, and
- (b) the proposed development is in accordance with a heritage management document that has been approved by the consent authority, and
- (c) the consent to the proposed development would require that all necessary conservation work identified in the heritage management document is carried out, and
- (d) the proposed development would not adversely affect the heritage significance of the heritage item, including its setting, or the heritage significance of the Aboriginal place of heritage significance, and

- (e) *the proposed development would not have any significant adverse effect on the amenity of the surrounding area*

2.3.2 Fairfield Citywide Development Control Plan 2013

The Fairfield Citywide Development Control Plan was endorsed by Fairfield City Council in 2013. Chapter 14 refers to subdivisions of which section 14.3.2 outlines Aboriginal heritage controls with regards to vacant lot subdivisions, such as that subject to this report. The following control is mentioned.

14.3.2 Vacant Lot Subdivisions

“Vacant Lot Subdivisions” are defined at Appendix A. The location and orientation of future buildings can have an important influence on the quality of the rural environment. To enable proper consideration of this issue at the subdivision stage, vacant lot subdivisions are required to include particular information not otherwise required for subdivision of developed sites where no further development is likely.

Controls

a) *All subdivisions involving the creation of vacant lots in the rural areas must be accompanied by a site analysis in accordance with the provisions of Chapter 3 of this DCP as well as information covering the following:*

- a. Topographical features such as slope, native vegetation and watercourses, top of bank and riparian land;
- b. Phase 1 Contamination Assessment;
- c. Location of existing farm buildings and any industrial / commercial operations;
- d. Views and Vistas;
- e. Vehicular and pedestrian access;
- f. Availability of services including any easements affecting the land;
- g. Available waste water disposal areas based on a preliminary waste water disposal report prepared by a suitably qualified professional;
- h. Relationship to adjoining development (including extractive industries in accordance with Chapter 4);
- i. Setbacks from roads in accordance with Chapter 4;
- j. Aircraft Noise; and
- k. Aboriginal and European Heritage items.

b) *Subdivision plans must show available building envelopes where the site analysis demonstrates that the site is affected by any of the following constraints:*

- a. Flooding;
- b. Any requirement for an activity approval under Part 3 of Chapter 3 of the Water Management Act 2000 which may be triggered by future development, in accordance with the Integrated Development Provisions of the Environmental Planning and Assessment Act 1979, generally a zone extending for a distance of 40 metres from the top of bank of a watercourse.
- c. Bushfire prone land;
- d. Contaminated Land;
- e. Aboriginal or European Heritage; and
- f. Threatened Species.

Appendix H deals with heritage of which the following sections address Aboriginal Cultural Heritage;

2.1 Due Diligence

For activities that are not low impact and not on disturbed land (see 2.2 for definitions), evidence of following due diligence procedures in development is a defence against prosecution for the strict liability offence under s86(2) if an Aboriginal Object or Place is unknowingly harmed without an Aboriginal Heritage Impact Permit (AHIP).

The Office of Environment and Heritage has a Due Diligence Code of Practice, designed to assist proponents to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP).

The due diligence procedure sets out reasonable and practicable steps which individuals and organisations need to take in order to:

1. identify whether or not Aboriginal objects are, or are likely to be, present in an area
2. determine whether or not their activities are likely to harm Aboriginal objects (if present)
3. determine whether an AHIP application is required.

Council has its own detailed due diligence procedure that is applied during the Development Assessment process based on the OEH Due Diligence Code of Practice.

Prior to a submission of a Development Application proponents are able to undertake an initial assessment of the potential impacts of their development on Aboriginal Heritage in accordance with the Office of Environment and Heritage's Due Diligence Code of Practice.

2.2 Low impact activities and disturbed land

The requirement to undertake Due Diligence for proposed activities has exemptions for 'low impact activities' in 'disturbed lands'. These are defined by the National Parks and Wildlife Regulation and may be subject to change. See <http://www.legislation.nsw.gov.au/> for up to date regulations. The list of 'low impact activities' in the Regulation is lengthy and includes many common open space maintenance activities, however for example, does not include activities such as the construction of a new dwelling or road.

The list of 'disturbed lands' in the Regulation is also lengthy, however, generally, land is considered 'disturbed' if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable. Some examples of activities that may have disturbed land include soil ploughing, the construction of rural infrastructure (such as dams and fences), roads, trails and tracks, buildings or structures, substantial grazing or earthworks.

NOTE: The exemption for 'low impact activities' in 'disturbed land' does not apply to Aboriginal Scarred trees whether or not they are 'known' through recording on the AHIMS Register.

The exemption only applies to 'low impact activities' in 'disturbed land'. It does not apply to other activities in 'disturbed land'. For example, constructing a house on land defined under the Regulation as 'disturbed' is not an exempt activity.

3. Potential Investigation Areas

To assist in the identification of areas of the City where Aboriginal Heritage needs to be taken into account, Council's Aboriginal Heritage Study identified Potential Investigation Areas based on best current archaeological practice (Figure 1). These areas include:

- Relatively undisturbed ground within 200m of creekline or major ridgeline
- Land within 50m of known aboriginal Sites
- Aboriginal Historical Places

Properties within Potential Investigation Areas will be noted within a Section 149(5) certificate.

More information on the methodology behind the determination of Potential Investigation Areas in Fairfield City is available within Section 6.2.2 of the Fairfield City Council Aboriginal Heritage Study 2017.

4. Procedure for Development Assessment

Each Development Application's impact on Aboriginal Heritage will be assessed by Council in accordance with the principles of Council's own Aboriginal Heritage Management system as recommended under Council's Aboriginal Heritage Study 2017.

If Council deems that a development may have an impact on Aboriginal Heritage, an Aboriginal Heritage Assessment will be required. The requirements for an Aboriginal Heritage Assessment are outlined below (Section 4.1, 4.2).

Under the development assessment process, if Council advises that an Aboriginal Heritage Assessment is not required, this indicates that there is a low likelihood that Aboriginal objects will be impacted by the proposal. It does not however constitute a guarantee that no Aboriginal heritage may be exist on a site.

Any Aboriginal objects which may be present within the property are still legally protected. All development applications in potential investigation areas contain an advisory note that outlines the legal responsibilities of all proponents regarding Aboriginal heritage.

NOTE: The presence of Aboriginal objects on a site does not prevent development from occurring. However, modifications may be required to a development to accommodate the presence of Aboriginal heritage.

4.1 Requirements for Aboriginal Heritage Assessment

Where proponents are required to provide an Aboriginal heritage assessment, the following standards need to be met. This will ensure that the assessment is consistent with the Office of Environment and Heritage Due Diligence Assessment requirements and the obligations of Council. Any Aboriginal heritage assessment report submitted to Council should:

- Be undertaken by a suitably qualified Aboriginal heritage consultant;
- Also meet the requirements for Due Diligence as per the OEH Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales;
- Contain evidence of Aboriginal community consultation with the relevant Local Aboriginal Land Councils;

- *Include evidence of a current (no more than 12 months old) search of the AHIMS Aboriginal Sites Register and consideration of relevant previous Aboriginal heritage investigations;*
- *Involve a field inspection, or justification as to why an inspection was not considered necessary (for example if background research confirmed that the land has been comprehensively disturbed in the past);*
- *Consider ways in which harm to known or potential Aboriginal objects can be avoided in relation to the proposed activity and outline the steps to be followed to ensure this (e.g. an alternative location or method of construction);*
- *Identify further requirements in situations where harm cannot be avoided (e.g. archaeological test excavation, applications for an Aboriginal Heritage Impact Permit)*

4.2 Actions Resulting from Aboriginal Heritage Assessments

All Aboriginal heritage assessments received by Council will be reviewed to determine:

- a) If the assessment and documentation is sufficient to support a determination in relation to the proposal;*
- b) If the assessment report and proposal will require referral to the Office of Environment & Heritage as Integrated Development under Part 5 of the Environmental Planning and Assessment Act (1979);*

It is noted that there are some options under current procedure which allow further investigation without referral to the Office of Environment & Heritage. Under the Office of Environment and Heritage Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW, in certain circumstances, archaeological test excavation can be undertaken without an Aboriginal Heritage Impact Permit. As part of the Aboriginal Heritage Assessment, a proponent may decide, on advice from their Aboriginal heritage consultant, that such test excavations will take place prior to obtaining development consent. The resulting report will be described as an Aboriginal Cultural Heritage Assessment report, and will require referral to the Office of Environment & Heritage unless no Aboriginal objects were uncovered during the excavations and it is assessed that no potential harm will arise from the proposed development activity.

NOTE: The requirements stated in 2.1 and 2.2 above will not apply to developments where there is no:

- a) Disturbance of the soil, or;*
- b) Construction works on the land. For the purposes of this section, any internal or external works to an existing building is not deemed to be construction work.*

2.4 DUE DILIGENCE CODE OF PRACTICE FOR THE PROTECTION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

This assessment conforms to the parameters set out in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales states that if;

- a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely, then further archaeological investigation and impact assessment is necessary.

2.5 CODE OF PRACTICE FOR ARCHAEOLOGICAL INVESTIGATION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

Any further work resulting from recommendations should be carried out conforming to the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

2.6 GUIDELINES

This report has been carried out in consultation with the following documents which advocate best practice in New South Wales:

- Aboriginal Archaeological Survey, Guidelines for Archaeological Survey Reporting (NSW NPWS 1998);
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Aboriginal Cultural Heritage Standards and Guidelines Kit (NPWS 1998);
- Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999);
- Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010);
- Protecting Local Heritage Places: A Guide for Communities (Australian Heritage Commission 1999).

3.0 DESCRIPTION OF STUDY AREA

The study site is that piece of land described as Lot 2 Section 4 of the Land and Property Information Deposited Plan 2954, forming the following street address 1111-1141 Elizabeth Drive, Cecil Park, in the Parish of Cabramatta, County of Cumberland. Since the 2018 assessment a portion of the study area has been acquired by TfNSW and as such the subdivision and associated impacts are now contained to only a portion of the aforementioned Lot and DP. See Figure 3.1.

Lot	Section	Deposited Plan
2	4	2954

3.1 REGISTERED ARCHAEOLOGICAL SITES WITHIN THE STUDY AREA

AHIMS search results show one registered site within the study area – Registered Site 45-5-2563. This original site card, placements and recommendations have been presented in the *111-1141 Elizabeth Drive Aboriginal Cultural Heritage Assessment* (AMAC 2021) Section 4.1.1. The placement of this site is viewed as an error in recording and the location is recommended to move south east to reflect A Nicholson's initial report and illustration. An amended site card has been submitted to RAPs for approval and will be lodged with AHIMS. Furthermore, test excavation resulted in no Aboriginal archaeological and cultural objects and/or deposits being located.

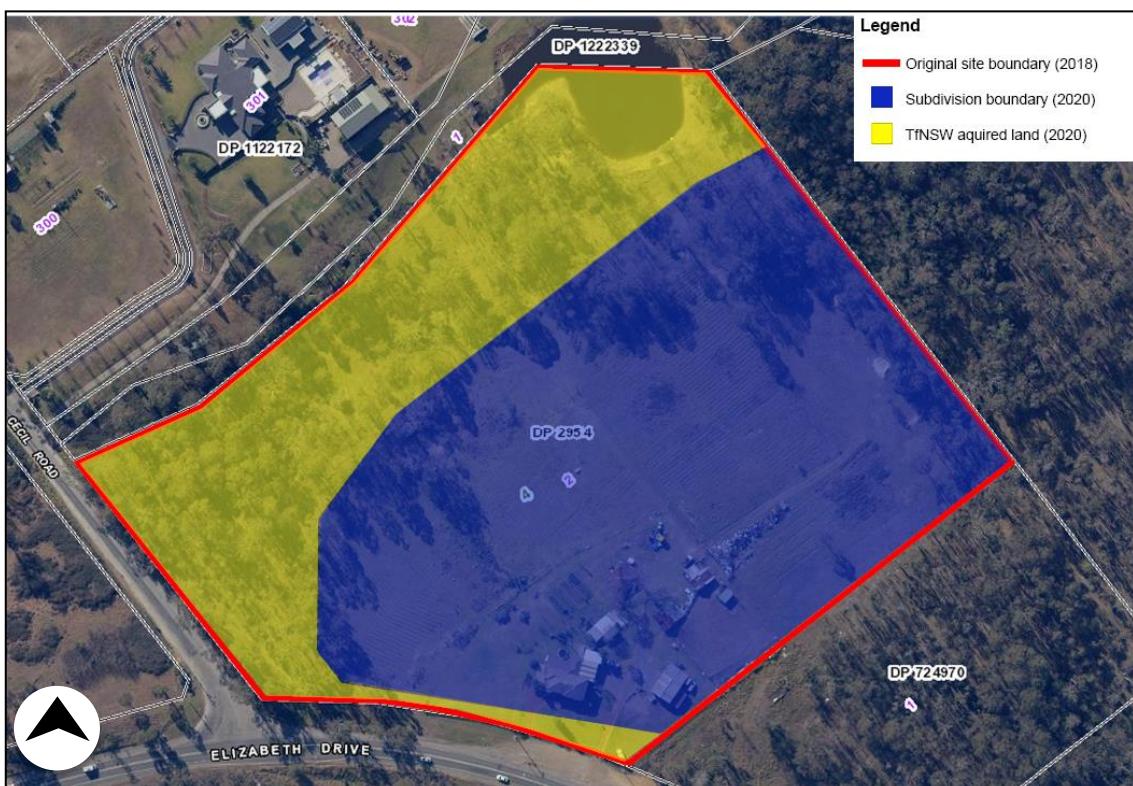


Figure 3-1 Aerial of study area.

Study area outlined in red. Six Maps, LPI Online (accessed 26/2/18).

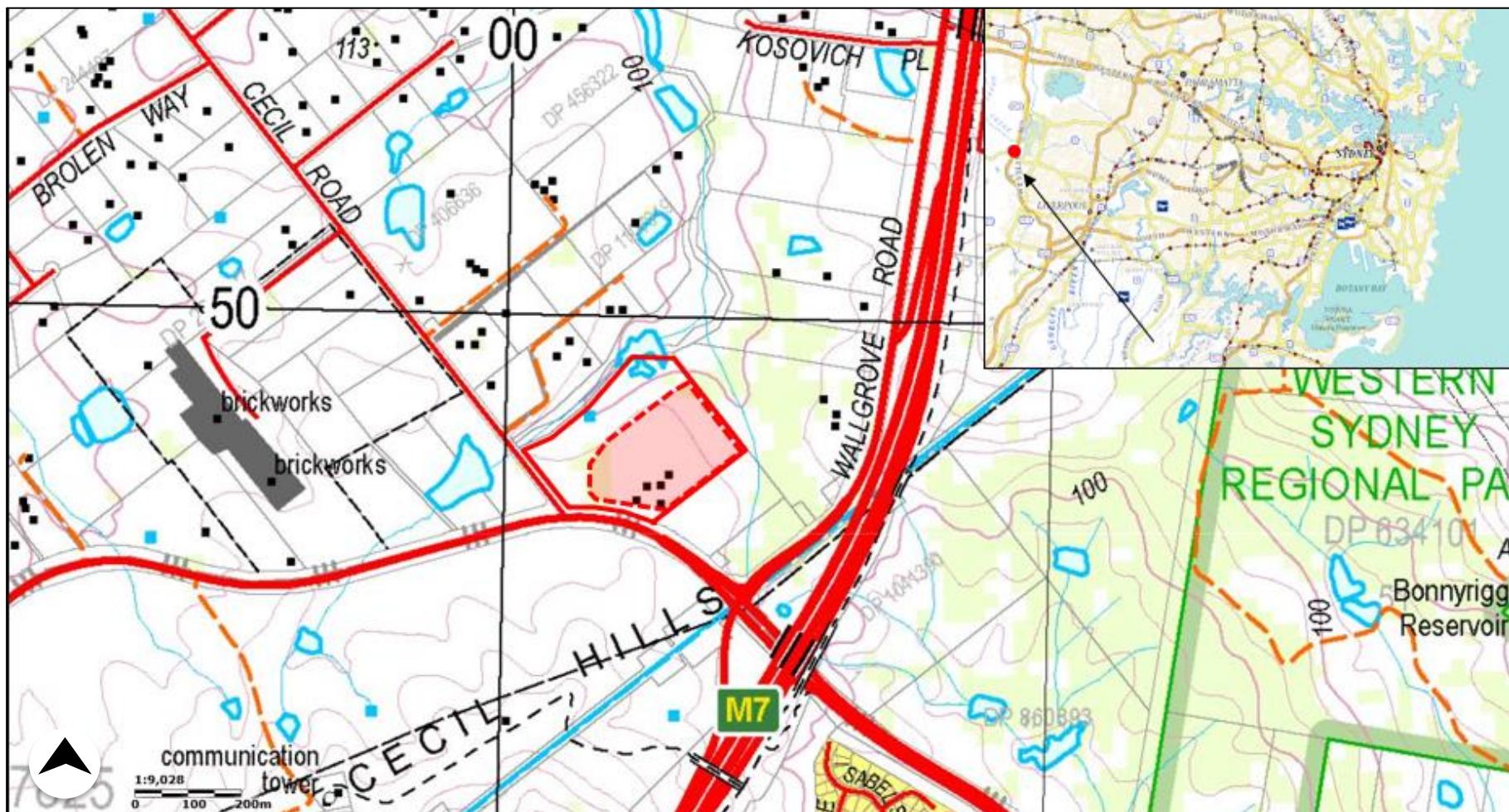


Figure 3-2 **Topographic map with site location.**
Study area indicated in red. Six Maps, LPI Online, accessed 11/04/2018.

4.0 PROPOSED DEVELOPMENT

The proposed activity is a State Significant Development (SSD) # 8859 for the subdivision of the subject site 1111-1141 Elizabeth Street, Cecil Park, into 12 allotments (Figure 4.1 and Figure 4.2) with 26,621.7SQM having been acquisitioned by TfNSW.

The proposed works are to include bulk earthworks, stormwater infrastructure, lead in services, the clearing of vegetation with environmental works including rehabilitation of riparian corridors and landscaping. In addition, access streets to the subdivision are to be constructed from the proposed Wallgrove Road upgrade by TfNSW.

The proposed development will impact and harm any objects and/or deposits of Aboriginal and/or archaeological significance that may be present. Test excavation has been proposed under the Code of Practice (DECCW 2010), to assess the level of disturbance of the site and the potential harm that may be the result of the proposed activity. The results of said excavation will assist in minimising harm to Aboriginal objects and/or places, if present.

No formal areas of exclusion have been identified in the current plans. There will be no excavation works along the proposed Wallgrove Road acquisition easement located on the western end of the study site (see Figure 4.1).

Table 4.1 Detail of the proposed subdivision.

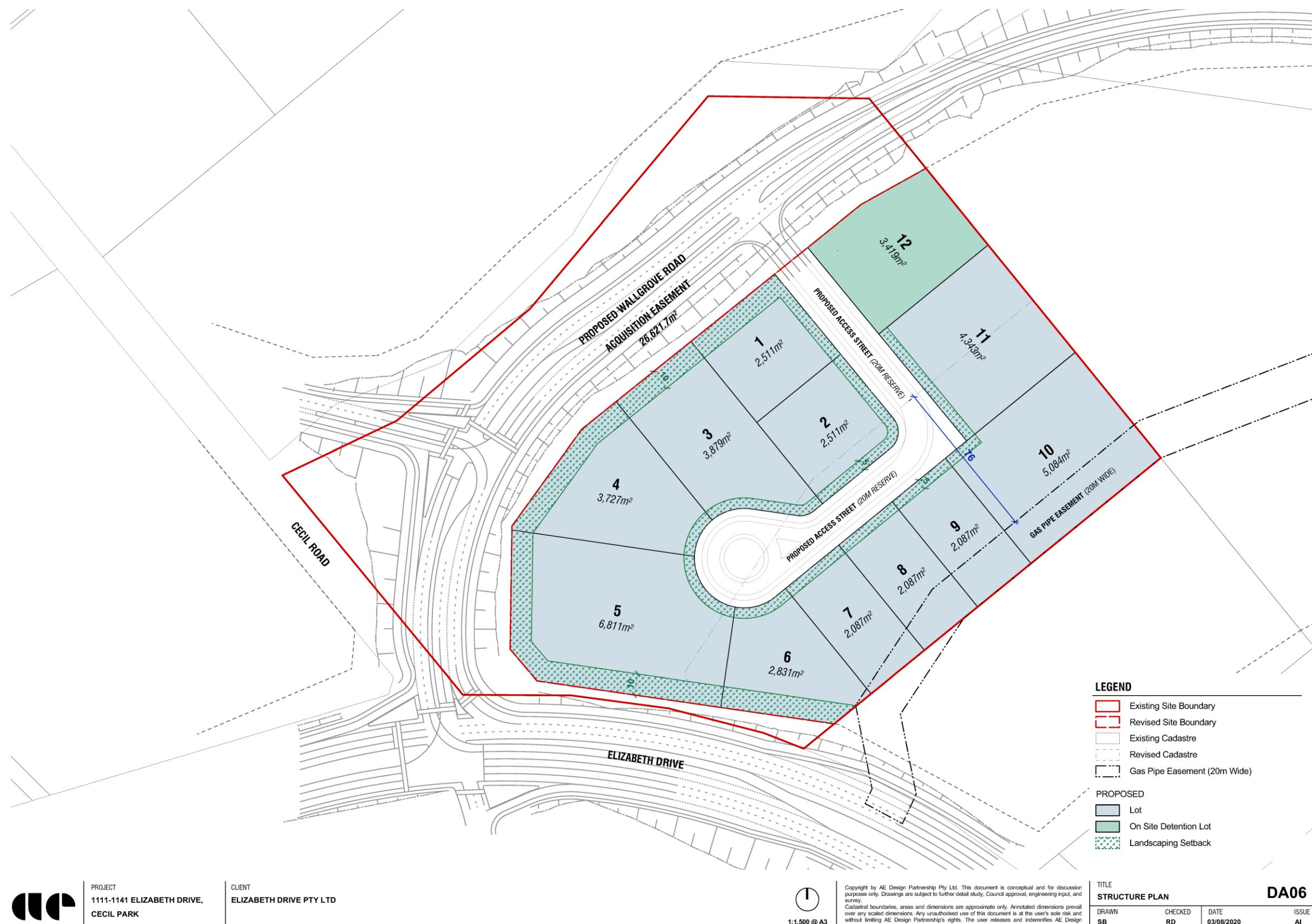
Allotment No.	Size (m2)	Allotment No.	Size (m2)
1	2,511	7	2,087
2	2,511	8	2,087
3	3,879	9	2,087
4	3,727	10	5,084
5	6,811	11	4,343
6	2,831	12	3,419

4.1 ECOLOGICAL SUSTAINABLE DEVELOPMENT AND INTERGENERATIONAL EQUITY

The ability of any development to be completely ecologically sustainable will be limited by definition. However, the proponents of this subdivision appear to have made significant efforts to meet the needs of the current generation without compromising the ability of future generations to meet their own needs. This has been accomplished by proposing a plan on a manageable and affordable scale while still protecting and conserving the archaeological resources. This is being accomplished by a program of subsurface test excavation with the possibility of further salvage excavation if needed as well as extensive consultation with the relevant Aboriginal community.

Inter-generational equity refers to the equitable sharing of resources between current and future generations. The planet's current generation should ensure that future generations have the same opportunities and resources available. This idea is being accomplished by designing a building with as little disturbance to the ground

surface as possible and as such any archaeological or cultural material that may be present in these areas either identified or unidentified will be left intact and persevered for future generations.



PROJECT
1111-1141 ELIZABETH DRIVE,
CECIL PARK

CLIENT
ELIZABETH DRIVE PTY LTD

1:1,500 @ A3

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TITLE
STRUCTURE PLAN **DA06**
DRAWN BY: SB CHECKED BY: RD DATE: 03/08/2020 ISSUE: AI

Figure 4-1 Proposed Structure Plan DA06.
AE design Partnership (August 2020).

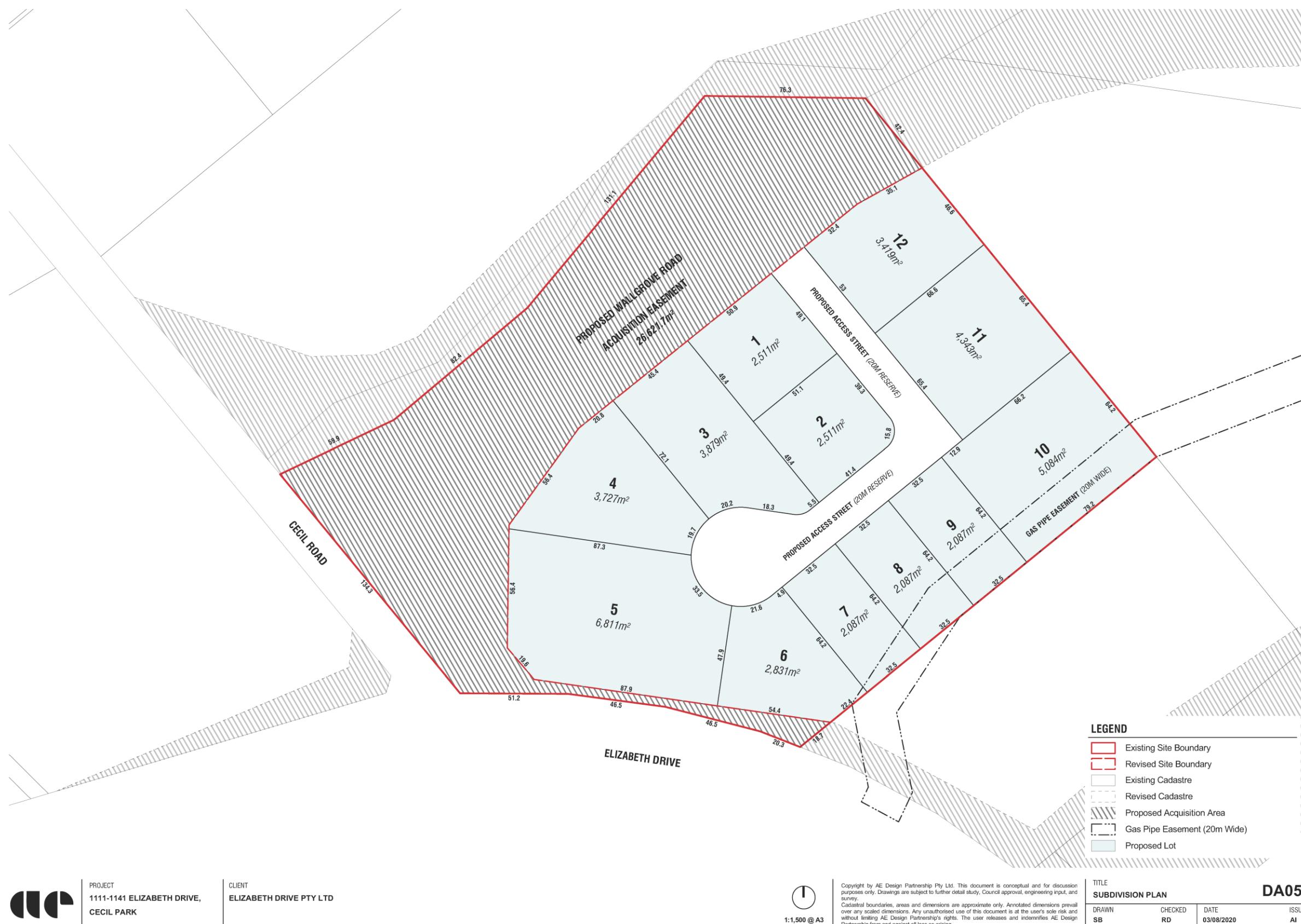


Figure 4-2 Proposed Subdivision Plan DA05
AE design Partnership (August 2020)

5.0 ENVIRONMENTAL CONTEXT

To adequately understand and assess the potential Aboriginal archaeological resource that may be present within the study area it is vital to understand the environment in which the Aboriginal inhabitants of the study area carried out their activities. The environment that Aboriginal inhabitants lived in is a dominant factor in shaping their activity and therefore the archaeological evidence created by this activity. Not only will the resources available to the Aboriginal population have an influence on the evidence created, but the survival of said evidence will be influenced by the environment.

5.1 TOPOGRAPHY

The study area extends over one topographic zone, the Luddenham (lu) Soil Landscape (Figure 5.1). This soil landscape is often located towards the south and west in the Cumberland Lowlands. This is an erosional landscape subject to moderate sheet erosion and water erosion causing surface movement and potential mass movement.

The topography consists of low rolling to steep low hills with a local relief of 50 -120m and slopes ranging between 5-20%. Narrow ridges and hillcrests in the area are found to grade into moderately inclined side-slopes with narrow drainage lines.

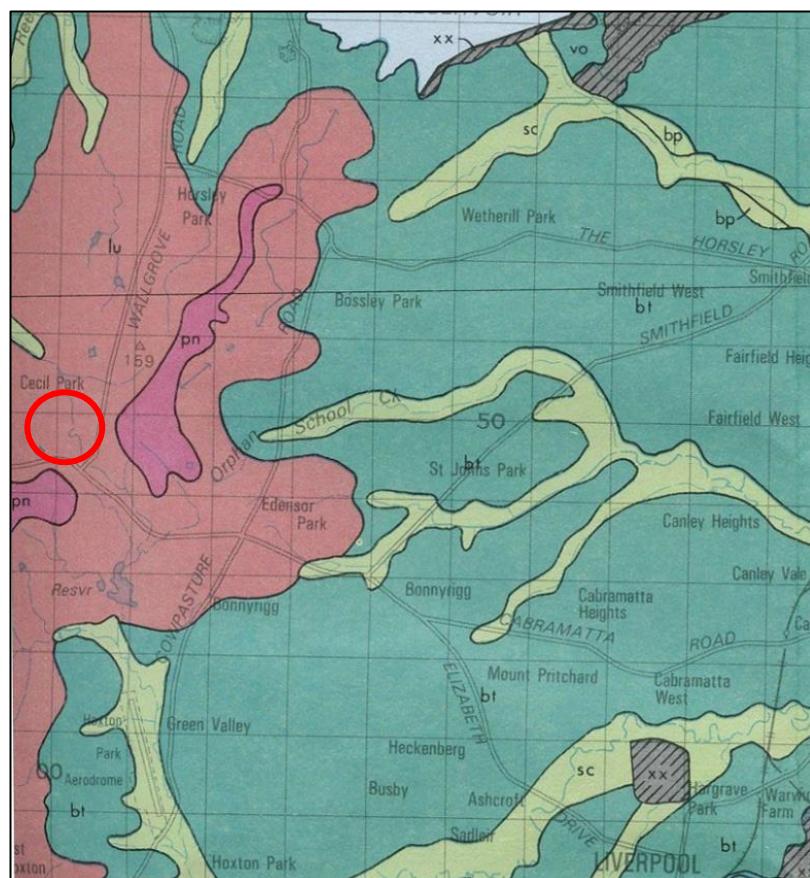


Figure 5-1 **Approximate study area (outlined in red) on soil map.**
Bannerman & Hazelton (1990) & AMAC (2018).

5.2 GEOLOGY AND SOILS

The geology of the study area consists of both Wianamatta Group Ashfield Shale as well as Bringelly Shale formations which are dominant geological formations of the Sydney Basin. The Ashfield Shale consists of laminate and dark grey shale while the Bringelly Shale consists of calcareous claystone and laminate. These two shales can be found along with Minchinbury Sandstone which is a fine – medium grained lithic quartz sandstone in the area.

The soils are found to be shallow – moderately deep (<100 cm – 150 cm) dark podzolic soils in shallow areas or massive earthy clays. Along crests and upper slopes these soils are moderately deep red and, along slopes, yellow podzolic soils. Located within drainage lines and lower slopes are softer prairie soils.

Table 5.1 Description of dominant soil material

Dominant Soil Material	Soil Horizon	Description
Iu1	A1 Horizon	Friable dark brown loam to silt loam or silty clay loam. Soil can range in colour from brownish black to brown. It has a strong structure with subangular blocky peds. When uncompacted, peds can break down into crumbs. It is subject to compacting and hardsetting when dry. Shale fragments and charcoal can occur, roots are also common.
Iu2	A2 Horizon	Hardsetting brown clay loam to fine sandy clay loam. Soil can range in colour from brown to dull yellowish brown as well as reddish brown. It has a weakly pedal structure, can be earthy and porous. It is hardsetting when exposed at the surface. Shale fragments, charcoal and roots are present.
Iu3	B Horizon	Whole coloured medium clay. Soil can range in colour from reddish brown to bright reddish brown as well as bright yellowish brown. It has a strong structure and smooth faced, dense ped fabric. Shale fragments are common, however, roots and charcoal are absent.
Iu4	B/C Horizon	Mottled grey plastic medium clay. Soil can range in colour from light grey to light reddish grey. Yellow and red mottles are common. It is usually moist and very plastic. It has a strongly pedal structure and dense, smooth-ped fabric. Found in deep subsoils. Shale rock fragments and gravels are common, all other inclusions are absent.
Iu5	B Variation	Apedal brown sandy clay to light clay. Soil can range in colour from brown to dull reddish brown and dull yellowish brown. It has a weak subangular blocky structure and a dense earthy fabric. Roots are

common as well as weathered shale fragments, no other inclusions occur.

Table 5.2 Table of expected Luddenham soil profiles based on landform

Crest

- up to 10 cm of friable dark brown loam (**Iu1**) overlies
- <40 cm of sandy clay (**Iu5**)
- Directly overlies deeply weathering shale bedrock or sometimes >200 cm mottled grey plastic clay (**Iu4**)

*N.B The total soil profile consists of >200 cm. In places **Iu1** is absent. The boundaries between the soil horizons are sharp and clear.*

Upper Slopes and Mid Slopes

- <10 cm of sandy clay (**Iu1**) can occur on surface.
- up to 40 cm of clay loam (**Iu2**) overlies
- sometimes where Minchinbury Sandstone is present up to 60 cm of **Iu5** can occur between **Iu2** and **Iu3**
- >50 cm of medium or heavy clay (**Iu3**) overlies
- <90 cm of grey mottled clay (**Iu4**)

N.B The total soil profile consists of >100 cm. The boundaries between the soil horizons are clear but can be gradual.

Lower Slopes

- Up to 50 cm of loamy sand overlies
- >100 cm of sandy clay (**Iu5**).

In other locations the following profile can be found;

- Up to 40 cm of clay loam (**Iu2**) overlies
- <50 cm sandy clay (**Iu5**)
- >100 cm of whole coloured medium clay (**Iu3**). This occasionally is underlain by
- >150 cm mottled grey plastic clay (**Iu4**)

N.B The total soil profile consists of > 200cm. The boundaries between the soil horizons are clear sometimes gradual.

Poor Drainage

- Greyish brown loam or clayey sand (**Iu1**)

N.B The soil profile is shallow <50 cm. It contains small amounts of gravels and charcoal.

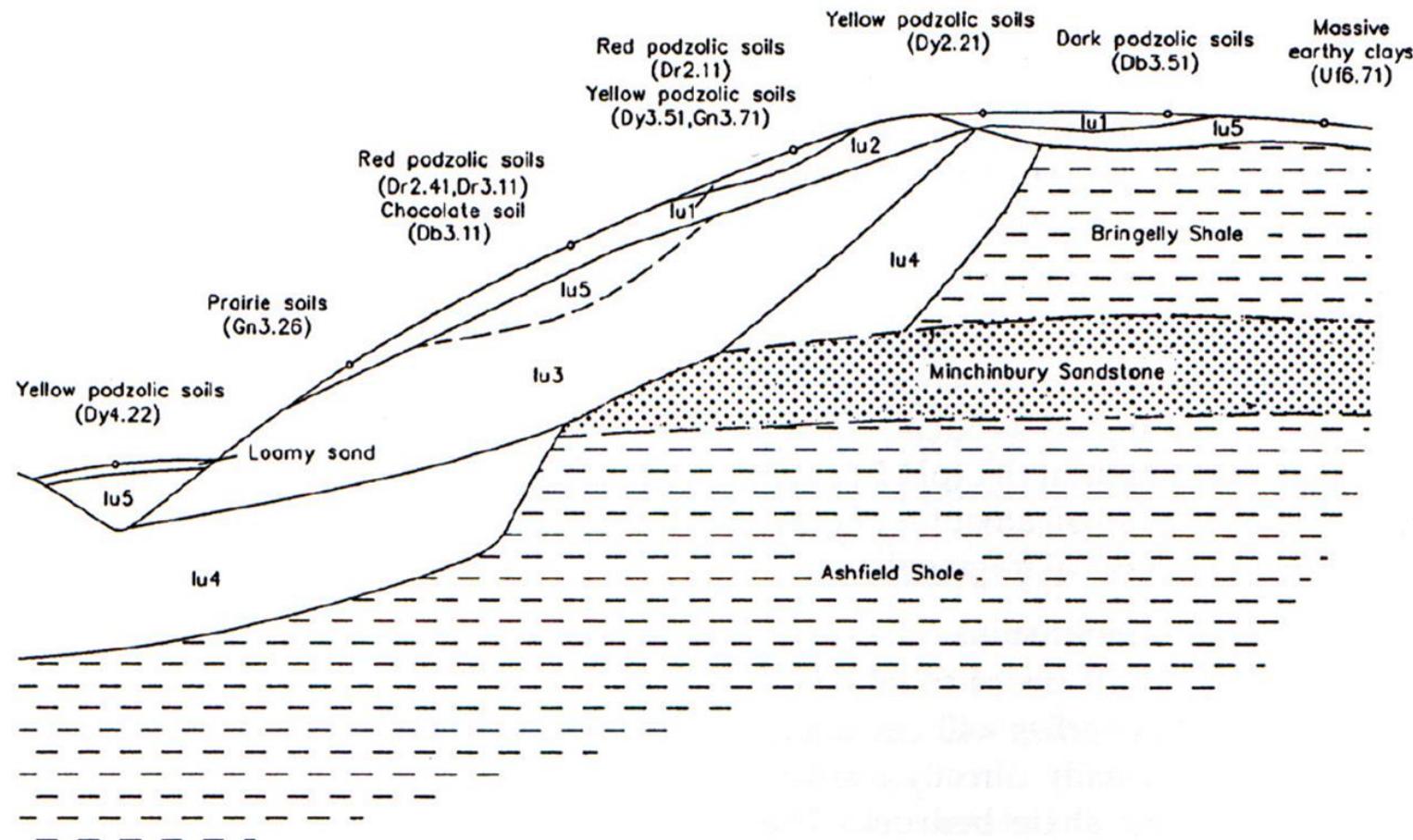


Figure 5-2 Cross Section of soil landscape illustrating relationships between landscape features and dominant soil materials.
Soil Landscapes of the Sydney 1:100 000 sheet (Bannerman and PA Hazelton 1990).

5.3 WATERCOURSES

The study area lies near two high order streams, Prospect Reservoir which is dammed approximately 5.9km to the northeast and one of the 2 upper canal systems that supply Sydney (Figure 5.3) and runs underground past the study site approximately 220m to the southeast. Located to the northeast is Eastern Creek with its many watercourses. There are a number of drainage channels and manmade dams within the vicinity as a result of European occupation and past land use. These watercourses would have provided valuable resources.

5.4 VEGETATION

The vegetation found in the study area is no longer in a native state and is comprised of a variety of introduced and noxious types of vegetation. This movement away from the natural vegetation is a result of previous land clearing for farming and development. These lands were cleared soon after European settlement due to the relatively high agricultural value of the soils upon which they are situated.

The native vegetation of this area probably comprised of cleared open dry sclerophyll forests that are associated with the Wianamatta and Bringelly Shale Groups. These vegetative communities principally contain Spotted Gum (*Eucalyptus maculata*), Grey Box (*E. moluccana*), Broad-leaved Ironbark (*E. fibrosa*), Narrow- leaved Ironbark (*E. crebra*), Forest Red Gum (*E. tereticornis*) and Woollybutt (*E. Longifolia*)

Understorey species included Blacktorn (*Bursaria spinosa*), Coffee Bush (*Breynia oblongifolia*), Forest oak (*Allocasuarina torulosa*), Hickory (*Acacia implexa*), Hairy Clerodendrum (*Clerodendrum tomentosum*), as well as grasses such as Speargrass (*Aristida vagans*), Bordered Panic (*Entolasia marginata*), Paddock Lovegrass (*Eragrostis leptostachya*) and Kangaroo Grass (*Themeda australis*). For the most part this indigenous vegetation has been cleared for grazing, urban residential and light industry land use throughout the Cumberland Plain (Walker 1975, p. 11 – 13.

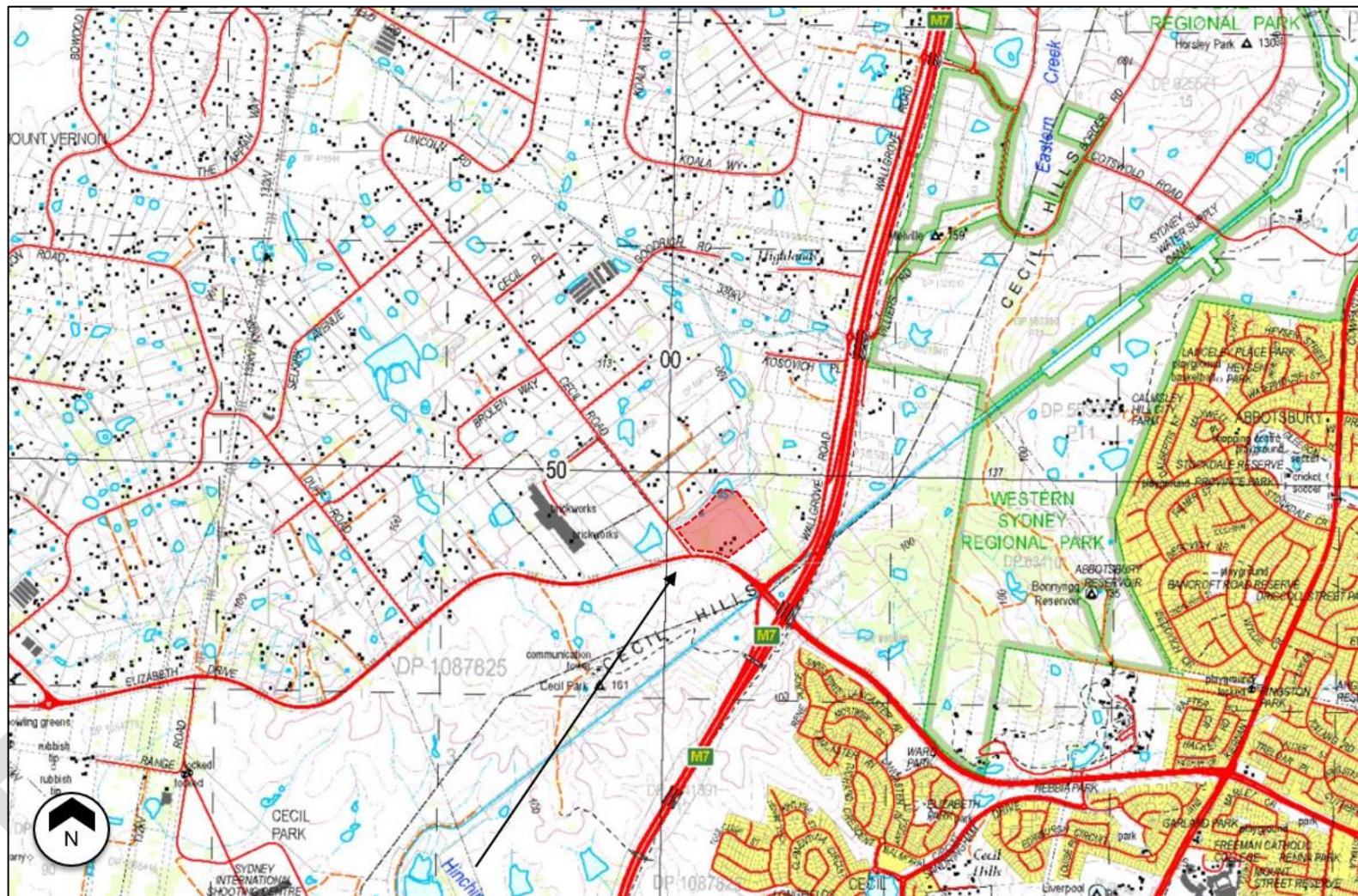


Figure 5-3 Topographic Map indicating watercourses in blue.
Study site indicated in red with black arrow. Six Maps (accessed 21/02/18), AMAC (2018).

6.0 BACKGROUND INFORMATION

Pre-field work research consisted of an analysis and synthesis of the background data to determine the nature of the potential archaeological and cultural heritage resource in the region.

A search of the Heritage NSW AHIMS was undertaken and the results examined. The site card for each site within 1000m in all directions from the centre of the study area was inspected (where available) and an assessment made of the likelihood of any of the sites being impacted by the proposed development.

The Heritage NSW library of archaeological reports (Hurstville) was searched and all relevant reports were examined. Searches were undertaken on the relevant databases outlined in Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);

Further to this the following sources were examined:

- Heritage NSW archaeological assessment and excavation reports and cultural heritage assessments;
- Heritage NSW Library;
- State Library of NSW including the Mitchell Library;
- Local libraries and historical associations;
- National Library of Australia.
- The National Heritage List;
- The Commonwealth Heritage List;
- The NSW State Heritage Inventory;
- The National Native Title Register;
- The Register of Declared Aboriginal Places;
- Prevailing local and regional environmental plans;
- Environmental background material for the study area.

6.1 ARCHAEOLOGICAL CONTEXT

It is generally accepted that Aboriginal occupation of Australia dates back at least 40,000 years (Attenbrow 2002 p.20 - 21 & Kohen et al 1983). The result of this extensive and continued occupation which includes the Sydney region has left a vast amount of accumulated depositional evidence and the Cumberland Lowlands is no exception. The oldest date generally considered to be reliable for the earliest occupation around the region comes from excavations at Parramatta which contain objects or features which have been dated to $30,735 \pm 407$ BP (McDonald et al 2005).

The majority of reliably dated archaeological sites within the region are less than 5,000 years old which places them in the mid to late Holocene period. A combination of reasons has been suggested for this collection of relatively recent dates. There is an argument that an increase in population and 'intensification' of

much of the continent took place around this time, leading to a great deal more evidence being deposited than was deposited as a result of the sparser prior occupation period. It is also the case that many archaeological sites along the past coastline may have been submerged as the seas rose approximately to their current level around 6,000 years ago. This would have had the effect of covering evidence of previous coastal occupation. In addition, it is also true that the acidic soils which are predominate around the Sydney region do not allow for longer-term survival of sites (Hiscock 2008 p. 106).

Different landscape units not only influence the preservation of sites but can determine where certain site types will be located. Across the whole of the Sydney Basin, the most common Aboriginal archaeological site type is occupation evidence within Rock Shelters. However, the most common Aboriginal archaeological site type in the Cumberland Lowlands is Open Artefact Scatters or Open Campsites, which are locations where two or more pieces of stone show evidence of human modification. These sites can sometimes be very large, with up to thousands of artefacts and include other habitation remains such as animal bone, shell or fireplaces [known as *hearths*] (Attenbrow 2002 p. 75 – 76). Many hundreds of artefact sites have been recorded within the Cumberland Lowlands. This is despite the fact that at least 50% of the Cumberland Lowlands has already been developed to such an extent that any archaeological evidence which may have once been present has been destroyed.

6.2 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS NEAR THE STUDY AREA

As part of the research process of this report the library of Archaeological assessments, test excavation and salvage excavation reports, which is located at the offices of Heritage NSW at Hurstville, was consulted. This list is by no means exhaustive and merely represents some of the more relevant recent studies that have taken place within the vicinity of the study area in the opinion of the author of this document.

AHMS (2012) – Cultural Heritage Assessment - Old Wallgrove Road Upgrade, Eastern Creek

In 2012, Archaeological & Heritage Management Solutions (AHMS) conducted a Cultural Heritage Assessment (Stage 3) and issued the Final Report for the Old Wall Grove Road Upgrade (Roberts Road to M7 Motorway), Eastern Creek for NSW Roads & Maritime Services. This assessment identified 40 Aboriginal objects and indicated that the low-density scatter was present across the lower slope near Eksdale Creek with the area heavily disturbed, silcrete dominated the assemblage. The study included ethnographic and cultural information in Aboriginal consultation in accordance with OEH's consultation procedures (DECCW, 2010).

AMBS (2009) – Aboriginal Heritage Assessment – Middleton Grange Release Area

In 2009, Liverpool City Council (LCC) commissioned Australian Museum Business Services (AMBS) to undertake an Aboriginal Heritage Assessment of the Landscape Transition Zone (LTZ) at Middleton Grange, as part of the Southern Hoxton Park Release Area Master Plan. The results of the survey indicated that 3 new Aboriginal sites were identified and 19 artefacts found and concluded that the site is considered to have low to moderate archaeological sensitivity.

CHC (2006) – Archaeological Assessment -Southern Sydney Freight Line

In 2005, Cultural Heritage Connections Pty Ltd (CHC) were commissioned by Parsons Brinckerhoff to undertake, as part of an environmental assessment, an Aboriginal archaeological assessment for the proposed Southern Sydney Freight Line (SSFL). This was a desktop study with Aboriginal consultation and 2 archaeological sites were identified for which further consultation was advised and a permit application for a Section 90 of the National Parks and Wildlife Act 1974 be sought if further investigation is required.

ASR (2006) – Archaeological Investigation – Sixteenth Avenue, West Hoxton

In 2005, Archaeological Surveys and Reports Pty Ltd (ASR) were commissioned by Wyndam Prince Pty Ltd to undertake an archaeological assessment of 'PAD 8,' for Danallam Developments Pty Ltd at Sixteenth Avenue, West Hoxton. The site, PAD 8, was recorded in 2001 by Jo McDonald Cultural Heritage Management Pty Ltd as a location requiring further sub-surface investigation. The investigation identified no artefactual material in PAD 8 and subsequently informed the Site Registrar that the PAD was a 'non-site.'

AHMS (2005) – Aboriginal Archaeological Survey and Impact Assessment – Catholic Health Care Services Limited (CHCS), Emmaus Village, 85 bakers Lane, Kemps Creek

In 2005, the Catholic Health Care Services Limited (CHCS), engaged Archaeological & Heritage Management Solutions (AHMS) to undertake an Aboriginal Archaeological Survey and Impact Assessment in the proposed development at 85 Bakers Lane Kemps Creek. The survey identified 4 locations containing Aboriginal objects and a number of PADs containing Aboriginal sites and/or isolated objects in surface and sub-surface deposits. It was recommended that archaeological testing be carried out at these sites.

AHMS (2004) – Aboriginal Heritage Impact Assessment – Cowpasture Road Upgrade and Realignment, Hoxton Park

In 2003, the Roads and Traffic Authority (RTA) engaged Archaeological & Heritage Management Solutions (AHMS) to undertake an Aboriginal Heritage Impact Assessment (AHIA) for the proposed upgrade and realignment of a section of Cowpasture Road, Liverpool. The survey identified 10 Open Sites (artefact scatters) and 6 Isolated Finds (isolated artefacts). An Aboriginal Heritage Impact Permit (AHIP) was recommended for the sites of archaeological potential.

ASR (2002) – Archaeological Investigation – Old Wall grove Road, Horsley Park

In 2002, Archaeological Surveys and Reports Pty Ltd (ASR) were engaged by R.W. Corkery & Co. Pty Ltd to conduct an archaeological investigation for The Austral Brick Company Pty Ltd as part of an Environmental Impact Statement for the development of a new extraction area at Old Wall grove Road, Horsley Park. The survey identified 2 isolated artefacts and an area of Potential Archaeological Deposits (PAD). In addition, 2 locations were identified as areas of Potential Archaeological Sensitivity (PAS). While these 2 areas are not recorded on the Aboriginal Sites Register, it was recommended that the PAS areas warrant further investigation if further development was considered.

GLALC (1998) – Aboriginal Survey – South Creek, Kemps Creek.

In 1998, Liverpool Council commissioned Gandangara LALC to conduct an Aboriginal site survey for proposed flood mitigation works as part of a drainage channel to accommodate flooding stemming from South Creek. No artefacts were found in the study site during the survey. However, just outside the study site an isolated stone silcrete artefact was located and was documented as a Possible Archaeological Deposit (PAD). GLALC recommended should any changes to the development plan take place, further investigation by representatives of GLALC would be required at the Developers expense.

Brayshaw & McDonald (1992) – Archaeological Survey –Bringelly and Rossmore

In 1992, EDAW (Australia) Pty Ltd, on the behalf of Prospect Electricity, commissioned Brayshaw & McDonald Pty Ltd to conduct an archaeological survey for the proposed extension to a 33kV transmission line from an existing line on Herbert Street, Kemps Creek to the sub-station at Bringelly. The survey identified one archaeological site and recorded 11 artefacts considered to be a low-density surface scatter of stone artefacts. It was recommended that should any excavation take place at the southern end of the extension routes archaeological monitoring should be advised to ensure no sub-surface archaeological material is present.

Pam Dean-Jones Archaeological Services (1991) – Archaeological Survey - Adams Road, Luddenham

In 1991, R.A. Cole Town Planning Pty Ltd engaged Pam Dean-Jones Archaeological Services to conduct a archaeological survey for proposed clay shale extraction at Adams Road, Luddenham. The survey identified one archaeological site with surface scatter of 22 artefacts comprising of flaked stone. However, none are considered to be in situ due to the extensive disturbance across the site. The report recommended that NPW (NSW) be notified should any archaeological sites be identified during development works.

Denis Byrne & Hilary du Cros (1985) -Archaeological Survey - Prospect Creek, Fairfield

In 1985, EBC Consultants Pty Ltd commissioned Denis Byrne & Hilary du Cros to undertake a survey for Aboriginal archaeological sites, requested by the National Parks and Wildlife Service (NSW), at Prospect Creek between Widemere Road and Fairfield Street. Results of the survey identified 9 isolated artefacts considered to be in a secondary context due to the history of ground disturbance in the area. A scatter of shells found along a gravelled track on the north side of creek were considered to be introduced with the gravel and advised that they were a non-archaeological feature. The report recommended that NPW (NSW) be notified should any archaeological sites be identified during development works.

The practical ramifications of the results of the above mentioned archaeological assessments and excavations indicates that there is a low - moderate potential for Aboriginal archaeological objects and/or deposits to be present within any intact original soil profiles located within study area.

6.3 AHIMS SEARCH RESULTS

The Archaeological Heritage and Information Management System Database (AHIMS) is located at the Heritage NSW Offices at Hurstville in New South Wales. This database comprises information about all the previously recorded Aboriginal archaeological sites registered with Heritage NSW. Further to the site card information that is present about each recorded site, the assessments and excavation reports that are associated with the location of many of these sites are present in the library of reports.

The location of these sites) must be viewed as purely indicative as errors in the recording of the locations of sites often occurs due to the disparate nature of the recording process, the varying level of experience of those locating the sites and the errors that can occur when transferring data. If possible, sites that appear to be located near a study area should be relocated.

An AHIMS extensive 1km search was conducted on the 10th September 2020 (ID 534418). This search resulted in 9 registered sites within 1000 m of the study area. The following table is comprised of the results listed from the extensive search.

Table 6.1 AHIMS Search Results

Site ID	Site name	Site status	Site features
45-5-2561	GLC1	Valid	Artefact
45-5-2563	DLC2	Valid	Artefact
45-5-2468	P-CP14	Valid	Artefact
45-5-2476	IF10	Valid	Artefact
45-5-2477	IF11	Valid	Artefact
45-5-2721	PAD-OS-7	Valid	Artefact
45-5-2773	HC/ED1	Valid	Artefact
45-5-4022	Artefact Scatter PAD 2023-846	Valid	Artefact; PAD
45-5-4935	M12-AS-03	Valid	Artefact
45-5-5300	Cecil Hill Ridge Place (CHRP) PAD	Valid	Artefact; PAD

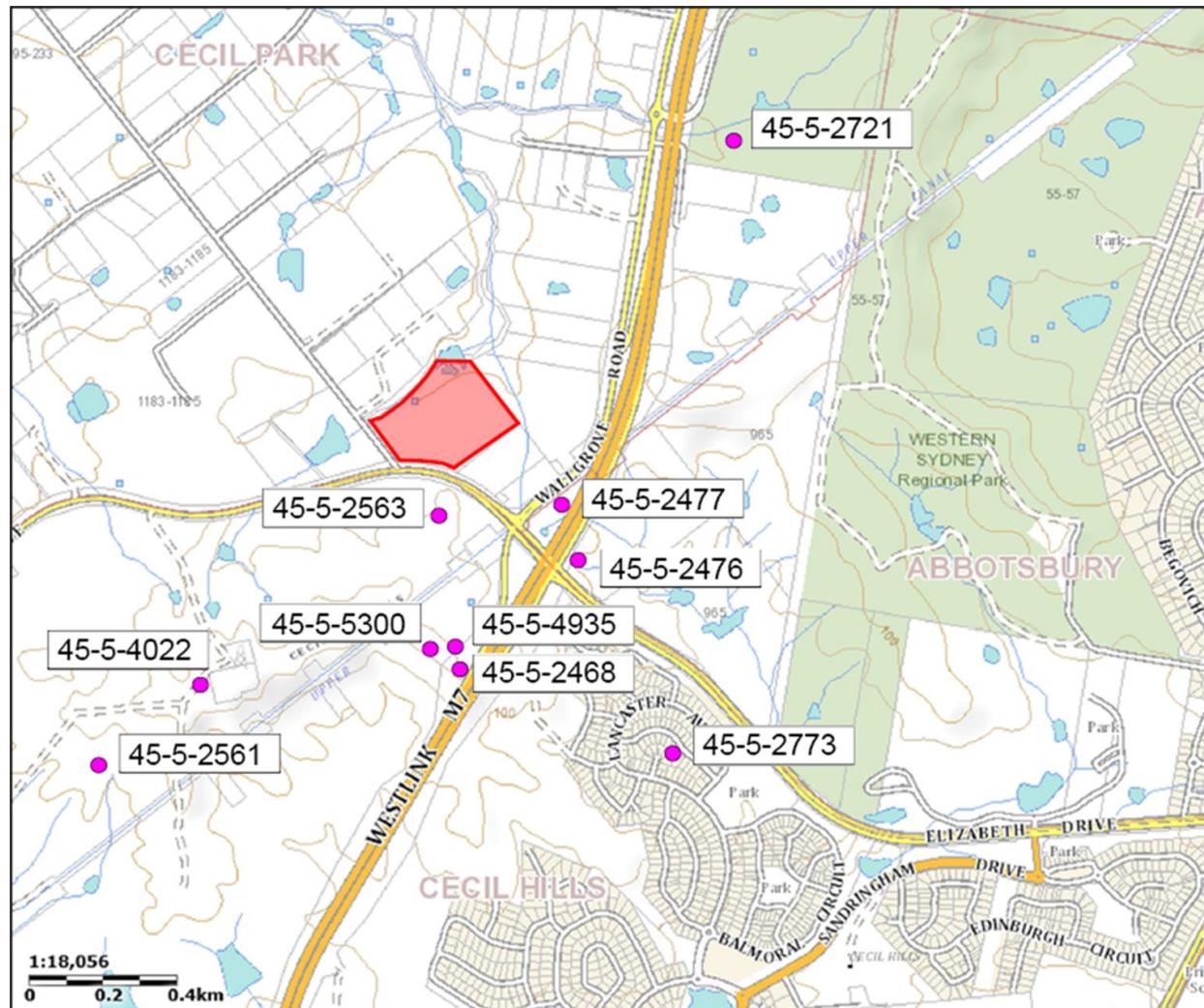


Figure 6-1 AHIMS Search Results.

6.4 OTHER SEARCH RESULTS

Results for other statutory databases searched are given below;

Heritage Listings/ Register/ Other	Result
National Heritage List	N/a
Commonwealth Heritage List	N/a
NSW State Heritage Register	N/a
Register of Declared Aboriginal Places	N/a
National Native Title Register	N/a
Fairfield Citywide Development Control Plan 2013 – Potential Investigation Areas	Located in potential investigation area



Figure 6-2 Potential Investigation Areas within Fairfield City Council.
Study Area indicated in yellow. Fairfield Citywide DCP 2013, Appendix G: Figure 1 Potential Investigation Areas within Fairfield City Council.

7.0 TEST EXCAVATION

Test excavation was undertaken by Streat Archaeological Services in association with AMAC Group in response to the proposed subdivision and prospective future developments and its impact on potential intact Aboriginal archaeological and cultural deposits and/or objects. The study area was considered to have low-moderate potential in containing Aboriginal objects.

Previous reports have identified the area as a resource rich zone due to the sites proximity to reliable fresh water and distance to Eastern Creek and Ropes Creek, which are known to contain concentrated densities of Aboriginal objects and features of archaeological and cultural heritage. It is likely that Aboriginal movement and land use would be channelled to this location and therefore the site may hold information regarding cultural activities of the area.

Test excavations were carried out by Benjamin Streat as director of Indigenous archaeology and archaeologist Yolanda Pavincich, as well as representatives from the following Registered Aboriginal Parties;

Organisation	Representative
A1 Indigenous Services	C. Hickey
Amanda Hickey Cultural Services	A. Hickey-DeZwart
Cullendulla	C. Smith
Darug Aboriginal Land Care	S. Wong,
Didge Ngunawal Clan	B. Pittman
Murrabidgee Mullangari Aboriginal Corp.	R. Johnson
Goobah	B. Smith

Test excavation was undertaken over four days 26/03/18 – 29/03/18. The programme was conducted under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* and consisted of the excavation of 30 test trenches (50cm x 50cm).

The footprint of the proposed subdivision and associated works will encompass the majority of the site, excluding the area towards the northwest along the riparian zone. No impact is planned for this area and as such no testing took place along said area.

In review of the test excavation results, of which a high level of disturbance was evident however intact soils were found to be present in areas towards the eastern and western boundary. The study area was absent of any Aboriginal objects and/or deposits or features of cultural significance. Therefore, further investigation is not warranted and works may proceed with caution.

7.1 AIMS

The purpose of subsurface test excavation is to identify the nature and extent of any intact archaeological deposit and/ or objects which may be situated within the study area and its significance.

It aims to collate additional information regarding any site characteristics which may enhance our understanding of the local and/or regional prehistory of the area. The results of the test excavation aid in the formalisation of appropriate management recommendations and conservation goals for the proposed development and any archaeological material recovered.

The methodology and recommendations presented in the following section of the report take into account the following:

- Legislation which protects Aboriginal cultural and archaeological objects and places in New South Wales;
- Research and assessment carried out by the author/s of this report and previous reports;
- Results of previous archaeological assessment and excavation in the vicinity of the study area;
- The impact of the proposed development on any Aboriginal archaeological material that may be present;

7.2 TEST EXCAVATION UNDER THE CODE OF PRACTICE

As detailed in the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW 2010). The purpose for test excavation;

“...is to collect information about the nature and extent of sub-surface Aboriginal objects, based on a sample derived from sub-surface investigations. Test excavations contribute to the understanding of site characteristics and local and regional prehistory and they can be used to inform conservation goals and harm mitigation measures for the proposed activity”

As the proposed test excavation is not being carried out in the following areas;

- in or within 50 m of an area where burial sites are known or are likely to exist
- in or within 50 m of a declared Aboriginal place
- in or within 50 m of a rock shelter, shell midden or earth mound
- in areas known or suspected to be Aboriginal missions or previous Aboriginal reserves or institutes
- in areas known or suspected to be conflict or contact sites.

It is therefore excluded from the definition of harm and as such will not require an Aboriginal Heritage Impact Permit and can be completed under the Code of Practice (DECCW 2010).

As set out in the Code of Conduct for the Investigation of Archaeological Objects in NSW:

“The test excavation should be sufficiently comprehensive to allow characterisation of the Aboriginal objects present without having a significant impact on the archaeological value of the subject area” (DECCW 2010)

Any test excavation carried out under this requirement must cease when:

- suspected human remains are encountered;
- enough information has been recovered to adequately characterise the objects present, with regard to their nature and significance.

The Code of Conduct for the Investigation of Archaeological Objects in NSW 'enough information' means that the sample of excavated material clearly and self-evidently demonstrates the deposit's nature and significance, and may include things like:

- locally or regionally high object density
- presence of rare or representative objects
- presence of archaeological features or locally or regionally significant deposits, stratified or not.

Decisions regarding the nature and significance of the site and choices about discontinuing the test excavation program shall be made by the excavation director in consultation with the registered Aboriginal stakeholders and Heritage NSW if required. Information will be reviewed on a daily basis and the excavation director reserves the right to cease all excavation if he/she believes the nature and extent of the site is understood in accordance with the Code of Conduct for the Investigation of Archaeological Objects in NSW.

7.3 TESTING METHODOLOGY

The following measures will be taken to establish the nature and extent of any such material discovered during test excavations under the Code of Practice (DECCW 2010).

The proposed development does have the potential to disturb any Aboriginal archaeological deposits and/or objects which are or may be present. Therefore, in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974 (DECCW 2010), it is recommended a programme of test excavation be conducted before the development can proceed.

The first priority in test excavations, and recording Aboriginal objects during test excavations, must always be to avoid or minimise, as far as practicable, the risk of harm to the objects under investigation. This means due care must be taken when excavating and collecting objects.

In compliance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010) the following test excavation methodology will be conducted;

- Test excavation units will be placed on a systematic grid appropriate to the scale of the area – either PAD or site – being investigated e.g. 10 m intervals, 20 m intervals, or other justifiable and regular spacing.
- Any test excavation point will be separated by at least 5 m.
- Test excavations units will be excavated using hand tools only.
- Test excavations will be excavated in 50 cm x 50 cm units.
- Test excavations units may be combined and excavated as necessary to understand the site characteristics, however: the maximum continuous

surface area of a combination of test excavation units at any single excavation point conducted in accordance with point (above) will be no greater than 3 m². The maximum surface area of all test excavation units will be no greater than 0.5% of the area – either PAD or site – being investigated.

- The first excavation unit will be excavated and documented in 5 cm spits at each area – either PAD or site – being investigated. Based on the evidence of the first excavation unit, 10 cm spits or sediment profile/stratigraphic excavation (whichever is smaller) will then be implemented.
- Test excavation units will be excavated to at least the base of the identified Aboriginal object-bearing units and will continue to confirm the soils below are culturally sterile.
- Photographic and scale-drawn records of the stratigraphy/soil profile, features and informative Aboriginal objects will be made for each single excavation point.
- Test excavations units will be backfilled as soon as practicable.
- Following test excavation, an Aboriginal Site Impact Recording form will be completed and submitted to the AHIMS Registrar as soon as practicable

7.3.1 Sieving

The excavated soil from each spit is to be placed in buckets of uniform size (9-10kg limit); these buckets will be counted, and all material excavated from the test excavation units will be sieved using a 5 mm aperture wire-mesh sieve. All archaeological material that is recovered from sieving will be placed in a zip lock bag and labelled with the site number, date, trench and spit. All of the bags will then be placed in a larger zip lock bag for processing.

7.3.2 Recording

A photographic record will be kept of the progress of each test trench as well as photographic and scale-drawn records of the stratigraphy/soil profile and features will be made for each single excavation point.

Details pertaining to individual spits will be recorded through the completion of site forms. The details on the form include site name, pit number, location and landform, area, spit number, spit depth, soil horizon, artefacts, stratigraphic profile as well as additional notes relating to the soil deposits encountered.

Personal records are also to be noted in the director's field journal. Any artefacts recovered shall be recorded under the parameters set out in the Code of Conduct for the investigation of Archaeological objects in NSW and will be stored as outlined in the care and control agreement.

7.3.4 Care and Control Agreement

Any archaeological material recovered shall be subject to a care and control agreement established after the nature and significance of the archaeological or cultural material is understood as per requirement 26 of the Code of Conduct for the investigation of Archaeological objects in NSW. Any artefacts recovered shall be subject to an as yet unestablished care and control agreement. A secure temporary storage location in accordance with requirement 26 of the Code of Conduct for the investigation of Archaeological objects in NSW, shall be established (AMAC Offices)

pending any agreement being reached as to the long-term management of the salvaged Aboriginal objects. The excavation director is responsible for ensuring that procedures are put in place so that Aboriginal objects are not harmed. The location of the secure temporary storage location will be submitted to AHIMS with a site update record card for the site(s) in question.

If long term management of any objects recovered has not been decided in a timely fashion, the objects will be lodged with the Australian Museum

7.4 TEST PIT LOCATION

Test trench locations were placed with reference to known or suspected locations of Aboriginal archaeological deposits, the location of development excavation and areas of known disturbance as well as services.

The order of excavation was established on site as logistics and site access were factors that needed to be considered, as well as ensuring the investigation of all landforms were performed accordingly in order to maximise the results.

The study area was divided into six transects. Due to the scale of the study area the transects assisted in ensuring a systematic approach was undertaken.



Figure 7-1 Site plan with Aboriginal test trenches (not to scale).

Test trenches indicated in yellow. Red dashed line indicates subdivision boundary with the area in green to remain a reserve and excluded from the subdivision. AMAC (2018).

7.5 RESULTS

The testing programme involved the excavation of 30 test trenches (50cm x 50cm). These were situated evenly across the site in order to obtain information and data that could systematically determine a distribution pattern and/or density pattern within a localised scale of the site.

The soil profile encountered was generally consistent of the Cumberland Plains, of which shallow clayey loamy duplexes were observed. There were, however, some soil variations in areas of disturbance, predominately caused from agricultural and erosional activity. Due to past agricultural land use, a reformed topsoil was evident across the study area, particularly within the paddocks located at the centre of the study area.

The soil profile in these areas found a reformed topsoil directly overlaying the B horizon. Test trenches 11, 16, 23, 27, 30 exhibited higher levels of disturbance as well as the inclusion of asbestos (ATT 16 and ATT 30). The excavation of these test pits ceased and the test pits were abandoned.

It is clear and observable that the A1 horizon was found to be absent in majority of the study area, however, an A2 horizon was evident. The A horizon is found to be the artefact bearing deposit. The A2 horizon was predominately located along the eastern boundary of which were not impacted by agricultural land use and were located on a slight downward slope (5-10%).

The soils observed through testing are consistent with the Luddenham soil landscape (lu) in which on slopes <40cm of a clay loam A2 horizon (lu2) can be found overlaying >50cm B horizon made up of reddish-brown medium clay (lu3) and/or B variation horizon of a sandy clay (lu5).

No Aboriginal archaeological and cultural material/ deposits were located as a result of the programme of test excavation. A high level of disturbance was observed with intact soils being found to be sterile.

Further investigation is not warranted and works may proceed with caution.

Table 7.1 Test Trench Summary

Test Trench No.	Transect	No. Spits	Final depth	Description	No. Artefacts
1	1	4	35cm	Reformed topsoil: brown silty loam B variation horizon: Dull red brown sandy clay	0
2	1	3	25cm	Reformed topsoil: brown silty loam B variation horizon: Dull red brown sandy clay	0
3	1	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
4	1	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
5	2	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
6	2	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
7	2	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
8	2	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
9	2	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
10	3	1	5cm	B horizon: Red brown clay	0
11	3	3	25cm	Reformed topsoil: brown silty loam B horizon: Red brown clay Excavation ceased due to water-table.	0
12	3	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
13	3	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
14	3	3	25cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
15	4	2	15cm	Reformed topsoil: brown silty loam	0

Test Trench No.	Transect	No. Spits	Final depth	Description	No. Artefacts
				B horizon: Red brown clay	
16	4	2	15cm	Abandoned due to disturbance/ asbestos	0
17	4	5	45cm	Reformed topsoil: brown silty loam Fill: Orange/yellow coarse sand B/C horizon: mottled red/brown clay. Plasticine texture, shale/sandstone inclusions.	0
18	4	2	15cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
19	4	3	25cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
20	1	4	35cm	Reformed topsoil: dull yellow/ red brown silty loam A2 Horizon – Hardsetting dull reddish-brown clay loam B horizon: Red brown clay	0
21	1	3	25cm	Reformed topsoil: dull yellow/ red brown silty loam A2 Horizon – Hardsetting dull reddish-brown clay loam B horizon: Red brown clay	0
22	2	3	25cm	Reformed topsoil: dull yellow/ red brown silty loam A2 Horizon – Hardsetting dull reddish-brown clay loam B horizon: Red brown clay	0
23	3	-	-	Abandoned due to disturbance	0
24	4	3	25cm	Reformed topsoil: brown silty loam B horizon: Red brown clay	0
25	5	3	25cm	A2 Horizon – Hardsetting dull reddish-brown clay loam B horizon: Red brown clay	0
26	5	3	25cm	B horizon: Red brown clay	0
27	5	1	5cm	Abandoned due to disturbance	0
28	6	2	15cm	B horizon: Red brown clay	0
29	6	3	25cm	A2 Horizon – Hardsetting dull reddish-brown clay loam B horizon: Red brown clay	0
30	6	-	-	Abandoned due to disturbance/asbestos	0

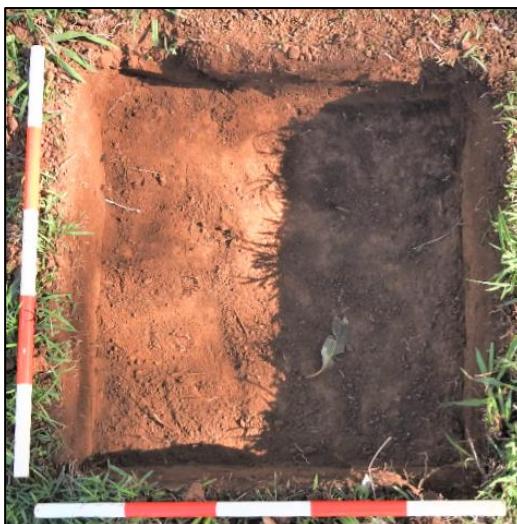
7.5.1 Test Trench Photographs



ATT1: Final Shot
Facing North [DSCN1838]



ATT2: Final Shot
Facing North [DSCN1829]



ATT3: Final Shot
Facing North [DSCN1824]



ATT4: Final Shot
Facing North [DSCN1821]



ATT5: Final Shot
Facing North [DSCN1841]



ATT6: Final Shot
Facing North [DSCN1834]



ATT7: Final Shot
Facing North [DSCN1818]



ATT8: Final Shot
Facing North [DSCN1867]



ATT9: Final Shot
Facing North [DSCN1875]



ATT10: Final Shot
Facing North [DSCN1849]



ATT11: Final Shot
Facing North [DSCN1844]



ATT12: Final Shot
Facing North [DSCN1813]



ATT13: Final Shot
Facing North [DSCN1858]



ATT14: Final Shot
Facing North [DSCN1871]



ATT15: Final Shot
Facing North [DSCN1807]



ATT16: Final Shot
Facing North [DSCN1851]



ATT17: Final Shot
Facing North [DSCN1854]



ATT18: Final Shot
Facing North [DSCN1862]



ATT19: Final Shot
Facing North [DSCN1879]



ATT20: Final Shot
Facing North [DSCN1888]



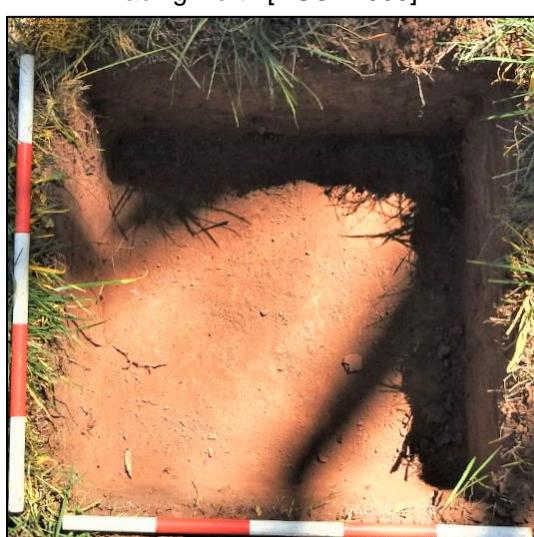
ATT21: Final Shot
Facing North [DSCN1902]



ATT22: Final Shot
Facing North [DSCN1905]



ATT23: Final Shot
Facing North [DSCN1896]



ATT24: Final Shot
Facing North [DSCN1891]



ATT25: Final Shot
Facing North [DSCN1907]



ATT26: Final Shot
Facing North [DSCN1924]



ATT27: Final Shot
Facing North [DSCN1898]



ATT28: Final Shot
Facing North [DSCN1910]



ATT29: Final Shot
Facing North [DSCN1919]



ATT30: Final Shot
Facing North [DSCN1915]

7.5.2 Stratigraphic Analysis

This section of the report is a summary of the soil profiles encountered. It aims to identify and ascertain the stratigraphic integrity of the site.

The soil profile encountered was generally consistent of the Cumberland Plains, of which shallow clayey loamy duplexes were observed. There were, however, some soil variations in areas of disturbance, predominately caused from agricultural and erosional activity. Due to past agricultural land use, a reformed topsoil was evident across the study area, particularly within the paddocks located at the centre of the study area.

The soil profile in these areas found a reformed topsoil directly overlaying the B horizon. Test trenches 11, 16, 23, 27, 30 exhibited higher levels of disturbance as well as the inclusion of asbestos (ATT 16 and ATT 30). The excavation of these test pits ceased and the test pits were abandoned.

It is clear and observable that the A1 horizon was found to be absent in majority of the study area, however an A2 horizon was evident. The A horizon is found to be the artefact bearing deposit. The A2 horizon was predominately located along the eastern boundary of which were not impacted by agricultural land use and were located on a slight downward slope (5-10%).

The soils observed through testing are consistent with the Luddenham soil landscape (lu) in which on slopes <40cm of a clay loam A2 horizon (lu2) can be found overlaying >50cm B horizon made up of reddish-brown medium clay (lu3) and/or B variation horizon of a sandy clay (lu5).

The following soil profile was observed;

Areas within paddocks/disturbed areas:

- Reformed topsoil: brown silty loam
- B horizon: Red brown clay (lu3) or B variation horizon: Dull red brown sandy clay (lu5)

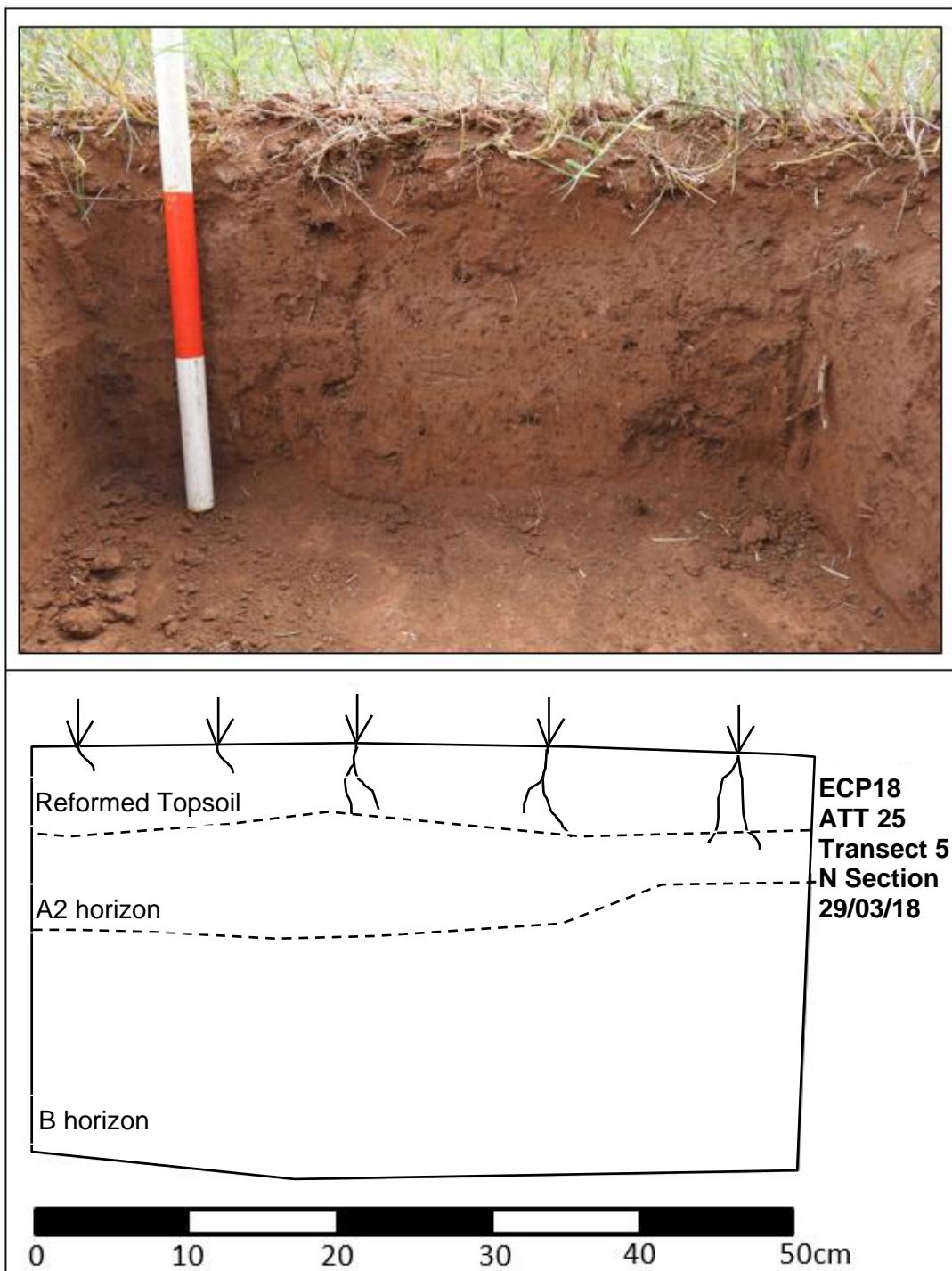
Areas where intact soils were evident (northern boundary):

- Reformed topsoil: dull yellow/ red brown silty loam
- A2 Horizon – Hardsetting dull reddish-brown clay loam (lu2)
- B horizon: Red brown clay (lu3)

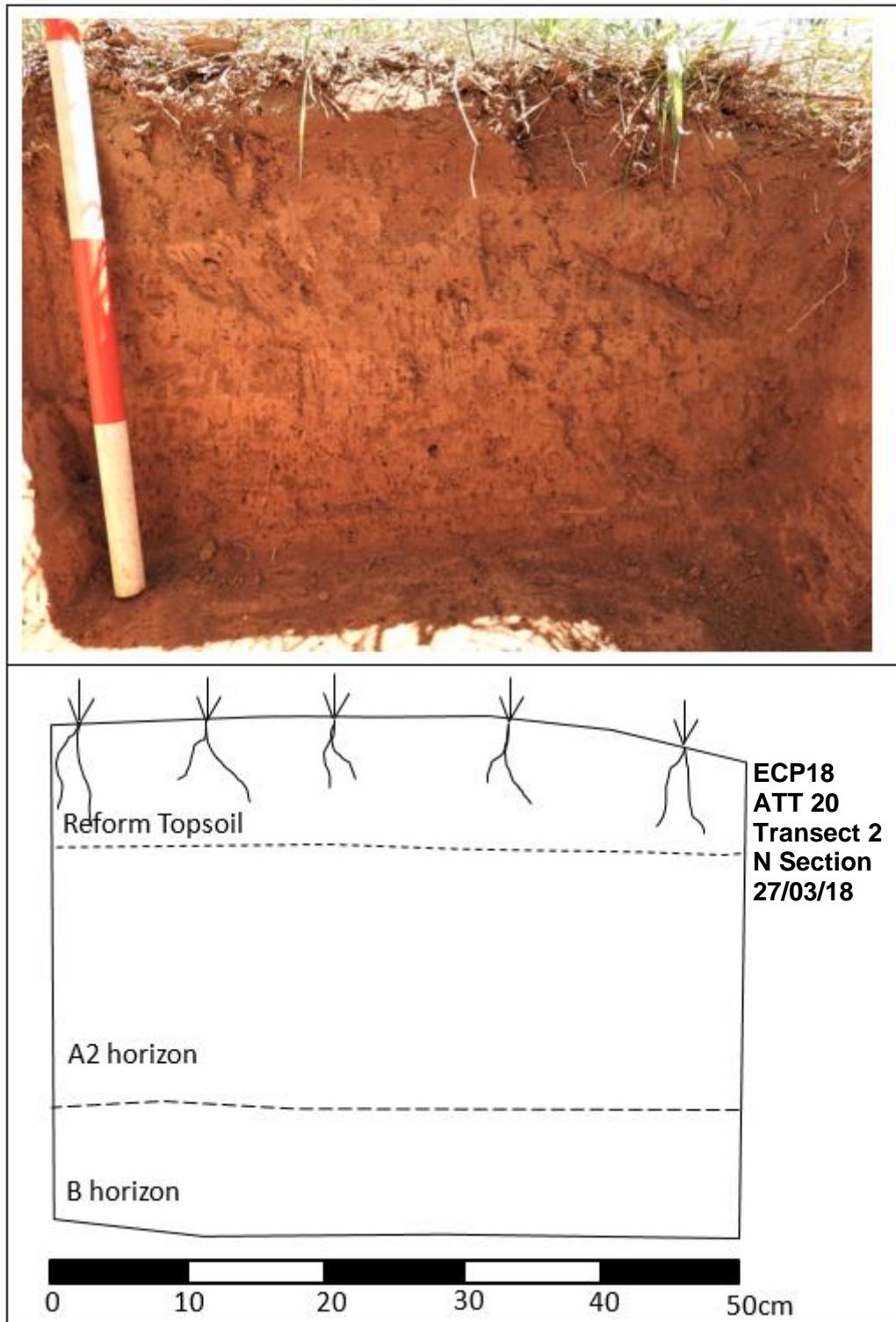
Test trenches remained relatively shallow with a maximum excavation depth of 45cm. Excavation of the test trenches ceased once the sterility of the soil could be confirmed.

7.5.2.1 Selected Sections

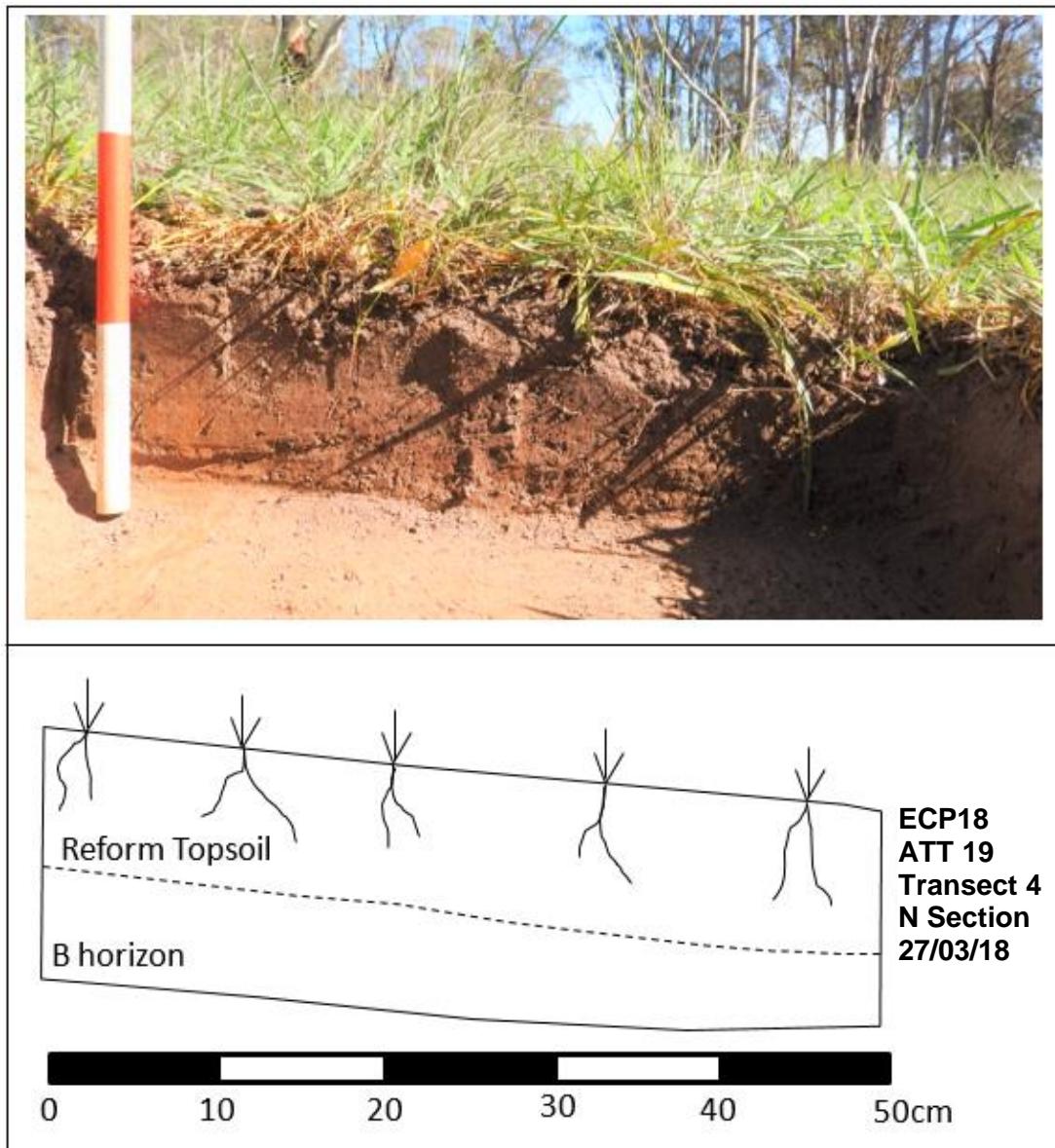
Test Trench 25 – North Section



Test Trench 20 – North Section



Test Trench 19 – North Section



7.6 DISCUSSION

A background analysis of the environmental and archaeological context, revealed that parts of the study area were likely to contain Aboriginal archaeological material, however, test excavation revealed no Aboriginal objects.

As the proposed development is intending to impact the entirety of the study area, all landscape units both identified as potentially disturbed and/ or intact were tested as part of the programme of test excavation. All test trenches were found to be sterile and were excavated to a significant depth to confirm their sterility. Significant portions of the A horizon were found to be absent due to agricultural and erosional activities.

The results of this exercise should form the basis of decisions for ongoing management and further action of which further investigation is not warranted, however, caution is necessary.

7.7 RESEARCH CONTEXT

The research questions are based on the information that has been gathered from previous excavations within and within the vicinity of the study area as well as making an attempt to place the site in a regional context and offer some explanation for the activities that may have taken place within the study area.

7.7.1 Response to research questions

No artefacts were located as a result of the programme of test excavation, therefore the following research questions could not be addressed.

- Are archaeological or cultural materials present in the Holocene Age deposits?
- If so how do these artefact densities compare at a local and regional level?
- Are rare or representative archaeological or cultural materials present?
- Are locally or regionally significant archaeological or cultural material present in the Holocene age deposits?
- Is it possible to assign a temporal framework to any of the excavated material?
- What was the nature and extent of the activity that took place within the study area and how does the study area compare with other sites in the immediate vicinity and similar landforms to the study area?
- What raw materials were chosen for the manufacture of stone implements?
- Is the area suitable to be set aside for preservation of Aboriginal archaeological material?

8.0 SIGNIFICANCE ASSESSMENT

The processes of assessing significance for items of cultural heritage value are set out in *The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance: the Burra Charter* (amended 1999) formulated in 1979 and based largely on the Venice Charter of International Heritage established in 1966.

Archaeological sites may be significant according to four criteria, including scientific or archaeological significance, cultural significance to Aboriginal people, representative significance which is the degree to which a site is representative of archaeological and/or cultural type, and value as an educational resource. In New South Wales the nature of significance relates to the scientific, cultural, representative or educational criteria and sites are also assessed on whether they exhibit historic or cultural connections.

The criteria for formulating significance values are set out below:

- a) An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
- b) An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of NSW (or the cultural or natural history of a local area).
- c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
- d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
- e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
- f) An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
- g) An item is important in demonstrating the principal characteristics of a class of NSW's: cultural or natural places; or cultural or natural environments (or a class of the local areas' cultural or natural places; or cultural or natural environments).

8.1 ARCHAEOLOGICAL SIGNIFICANCE

8.1.1 Educational Significance

The educational value of any given location will depend on the importance of any archaeological material located, on its rarity, quality and the contribution this material can have on any educational process (Australia ICOMOS, 1999 p. 11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no educational significance can be assigned to the study area.

8.1.2 Scientific Significance

The scientific value of any given location will depend on the importance of the data that can be obtained from any archaeological material located, on its rarity, quality and on the degree to which this may contribute further substantial information to a scientific research process. (Australia ICOMOS, 1999 p.11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no scientific significance can be assigned to the study area.

8.1.3 Representative Significance

The representative value of any given location will depend on rarity and quality of any archaeological material located and on the degree to which this representativeness may contribute further substantial information to an educational or scientific research process. (Australia ICOMOS, 1999 p.11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no representative significance can be assigned to the study area.

8.2 SOCIAL AND CULTURAL SIGNIFICANCE

As defined in the 'Burra Charter' (ICOMOS, 1999) cultural significance is broken into three parts: aesthetic, historic and scientific value for past, present or future generations. Cultural significance is a concept which assists in estimating the value of any given place. Places that are likely to be of significance are those which can contain information which may assist with the understanding of the past or enrich the present, and which will be of value to future generations. The meaning of these terms in the context of cultural significance is outlined below. It should be noted that they are not mutually exclusive, (Australia ICOMOS, 1999 p.12).

8.2.1 Historic Significance

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment. (Australia ICOMOS, 1999 p.11).

No historical significance has been assigned to the study area by any participating Aboriginal Stakeholders.

8.2.2 Scientific Significance

The scientific value of any given location will depend on the importance of the data that can be obtained from any archaeological material located, on its rarity, quality and on the degree to which this may contribute further substantial information to a scientific research process. (Australia ICOMOS, 1999 p.11).

No scientific significance has been assigned to the study area by any participating Aboriginal Stakeholders.

8.2.3 Aesthetic Significance

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use. (Australia ICOMOS, 1999 p.11).

No aesthetic significance has been assigned to the study area by any participating Aboriginal Stakeholders.

9.0 IMPACT ASSESSMENT

This section aims to evaluate and discuss the potential archaeological impact of the proposed development.

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. Although, the A2 horizon was found to be present, in review of the results and level of disturbance located across majority of the study area, there is a nil-low possibility of their being artefacts present and as such works may proceed with caution.

Site No. / Unit	Type of Harm	Degree of Harm	Consequence of Harm
N/a	N/a	N/a	N/a

9.1 POTENTIAL HARM TO ABORIGINAL OBJECTS AND CULTURAL HERITAGE

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. Although, the A2 horizon was found to be present, in review of the results and level of disturbance located across majority of the study area, there is a nil-low possibility of their being artefacts present and as such works may proceed with caution.

9.2 ASSESSING HARM

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. Although, the A2 horizon was found to be present, in review of the results and level of disturbance located across majority of the study area, there is a nil-low possibility of their being artefacts present and as such works may proceed with caution.

9.3 AVOIDING AND MINIMISING HARM TO ABORIGINAL OBJECTS

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. Although, the A2 horizon was found to be present, in review of the results and level of disturbance located across majority of the study area, there is a nil-low possibility of their being artefacts present and as such works may proceed with caution.

9.4 JUSTIFICATION OF HARM TO ABORIGINAL OBJECTS

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. Although the A2 horizon was found to be present, in review of the results and level of disturbance located across majority of the study area, there is a nil-low possibility of their being artefacts present and as such works may proceed with caution.

10.0 MANAGEMENT AND MITIGATION

The management recommendations presented in the following section of the report take into account the following:

- Legislation outlined in this report which protects Aboriginal cultural and archaeological objects and places in New South Wales;
- Research and assessment carried out by the author/s of this report;
- Results of previous archaeological assessment and excavation in the vicinity of the study area;
- The concerns and views of the Aboriginal stakeholders listed in this report;
- The impact of the proposed development on any Aboriginal archaeological material that may be present;
- The requirements of the consent authority (Fairfield City Council).

10.1 RECOMMENDATIONS

The findings from the test excavation indicate the site to be of nil-low archaeological significance, intact A2 horizon was present, although majority of the study area was disturbed from past agricultural land use. Test excavation resulted in no Aboriginal objects and/or deposits of cultural significance being located, therefore the development should be allowed to proceed with caution.

The recommendations have been formulated after consultation with RAPs, the proponent and the Heritage NSW:

- Consultation with the registered Aboriginal stakeholders should continue. Stakeholders have been given the opportunity to comment on the recommendations of this report and these comments are included in this report
- An Aboriginal Cultural Heritage Management Plan should be devised as a final document for the study area when State Significant Development (SSD) status (SSD #8859), in order to manage any unexpected Aboriginal archaeological and cultural constraints that may arise
- Archaeological test excavation in accordance with Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010) revealed no Aboriginal archaeological objects or deposits: the subdivision as shown (Figures 4.1) should be allowed to 'proceed with caution'
- After this and before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site as to their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development.

If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place:

- All work is to cease in the immediate vicinity of the deposits and/or objects

- The area is to be demarcated
- Heritage NSW, a qualified archaeologist and the participating RAPs are to be notified.

Should any human remains be located during the following development:

- All excavation in the immediate vicinity of any objects of deposits shall cease immediately
- The NSW police and Heritage NSW's Enviroline be informed as soon as possible
- Once it has been established that the human remains are Aboriginal ancestral remains, Heritage NSW and the relevant Registered Aboriginal Parties will identify the appropriate course of action.

GLOSSARY

Term	Definition
Aboriginal/ Aborigine	These terms apply to indigenous Australians throughout time.
Aboriginal Object	A term now used (formerly 'relic') within the NSW <i>National Parks and Wildlife Act, 1974</i> to refer to "...any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains."
AHIP	Aboriginal Heritage Impact Permit, issued under Part 6 of the National Parks and Wildlife Act 1974 , where harm to an Aboriginal object or Aboriginal place cannot be avoided.
Alluvial	Describes material deposited by, or in transit in flowing water.
AMAC	Archaeological Management and Consulting Group.
Artefact	Any object, usually portable, that has been made or shaped by human hand.
Assemblage	A collection of artefacts found in close proximity with one another often excavated together.
Axe grinding Grooves	Areas on a stone surface where other items such as stone tools, wood or bones have been sharpened.
Basalt	A dark coloured, basic volcanic rock.
Bioturbation	Reworking of sediments through the action of ground dwelling life forms. This can also include soil cracking and root activity.
Broken Flake	A flake fragment which displays only part of the diagnostic features of a complete flake.
BP	Before present (AD1950).
Burial	Sites containing the physical remains of deceased Aboriginal people.
Ceremonial Sites	Places or objects of ceremonial, religious or ritual significance to Aboriginal people.
Chert	A hard siliceous rock suitable for flaking into tools.
DCP	Development Control Plan.
DP	Deposited Plan.
Erosion	Process where particles are detached from rock or soil and transported away principally via water, wind and ice.
Flake	A piece of stone, detached by striking a core with another stone.
Flaking/Knapping	The process of making stone tools by detaching flakes from a piece of stone.
Friable	Easily crumbled or cultivated.
Hard setting	Soil which is compact and hard. It appears to have a pedal structure when dried out.
Heritage Division	Formerly known as the Heritage Branch
Holocene	The period of time since the last retreat of the polar icecaps, commencing approximately 10,000 – 110,000

Intensification	Increased social and economic complexity.
Landscape Unit	An area of land where topography and soils have distinct characteristics, are recognisable, describable by concise statements and capable of being represented on a map.
Laminite	A thinly bedded, fine grained sedimentary rock.
LEP	Local Environment Plan.
LGA	Local Government Area.
Lithics	A term used to describe stone and stone artefacts.
Loam	A medium textured soil of approximate composition of 10- 25% clay, 25-50% silt and 2% sand.
Loose	A soil which is not cohesive.
Matrix	Finer grained fraction, typically a cementing agent within soil or rock in which larger particles are embedded.
Midden	Aboriginal occupation site consisting chiefly of shells, which can also include bone, stone artefacts and other debris.
NPW Act	National Parks and Wildlife Act 1974
OEH	NSW Office of Environment and Heritage (formerly known as the DECCW)
Open Campsite	A surface accumulation of stone artefacts and/ or other artefacts exposed on the ground surface.
Potential Archaeological Deposit (PAD)	An area where no surface archaeological remains are visible but where it has been assessed that there is some potential for sub-surface archaeological remains to be present.
Ped	An individual, natural soil aggregate.
Pedal	Describes a soil in which some or all of the soil material occurs in the form of peds in a moist state.
Plastic	Describes soil material which is in a condition which allows it to undergo permanent deformation without appreciable volume change or elastic rebound and without rupture.
Pleistocene	The epoch of geological time starting 1.8 million years ago.
Quartz	Common mineral with naturally sharp edges and poor fracturing properties. Colour ranging from clear, to milky white and pink.
Quartzite	Homogenous medium to coarse grained metamorphosed sandstone.
Rock Painting	Encompassing drawing, paintings or stencils that have been placed on a rock surface usually within a rock shelter.
Rock Engraving	Pictures which have been carved, pecked or abraded into a rock surface, usually sandstone and predominantly open, flat surfaces.
Sandstone	A detrital sedimentary rock with predominantly sand sized particles.
Scarred/ Carved Tree	A tree from which bark has been deliberately removed.
Sclerophyll	Denoting the presence of hard stiff leaves, typically used to classify forest and indicative of drier conditions.
Sedimentation	Deposition of sediment typically by water.
Silcrete	A sedimentary rock comprising of quartz grains in a matrix of fine grained – amorphous silica.

Silt	Fine soil particles in size ranges of 0.02 – 0.002mm.
Slope	A landform element inclined from the horizontal at an angle measured in degrees or as a percentage.
SHI	State Heritage Inventory
SHR	State Heritage Register
Subsoil	Subsurface material comprising the B and C horizons of soils with distinct profiles.
Stone Resource Site	A geological feature in the landscape from which raw material for the manufacture of stone tools was obtained.
Texture	The coarseness or fineness of a soil as measured by the behaviour of a moist ball of soil when pressed between the thumb and forefinger.
Topsoil	A part of the soil profile, typically the A1 Horizon, containing material which is usually darker, more fertile and better structured than the underlying layers.
Weathering	The physical and chemical disintegration, alteration and decomposition of rocks and minerals at or near the earth's surface by atmospheric and biological agents.

REFERENCES

ABORIGINAL HERITAGE AND INFORMATION MANAGEMENT SYSTEM.

2011 & 2012 www.environment.nsw.gov.au/awssapp

ARCHAEOLOGICAL HERITAGE MANAGEMENT SOLUTIONS.

2004 Aboriginal Heritage Impact Assessment – Cowpasture Road Upgrade and Realignment, Hoxton Park

2005 *Emmaus Village, Kemps Creek NSW; Aboriginal Heritage Assessment of Proposed Extension of Aged – Care Facilities*. Report for Catholic Health Care Services.

2012 *Cultural Heritage Assessment (STAGE 3) Report: Old Wallgrove Road Upgrade (Roberts Road to M7 Motorway), Eastern Creek*. Report for NSW Roads & Maritime Services.

ARCHAEOLOGICAL SURVEYS & REPORTS.

2002 *Archaeological investigation of Lot 2, DP 120673, the site of a proposed new clay and shale extraction area; Old Wallgrove Road, Horsley Park, west of Sydney NSW*. Report for Austral Brick Company Pty Ltd.

2006 *The subsurface investigation of 'PAD 8,' Lot 274, DP 2475; Sixteenth Avenue, West Hoxton, west of Liverpool, NSW*. Report for Danallam Developments Pty Ltd.

ATTENBROW, V.

2002 *Sydney's Aboriginal Past: Investigating the archaeological and historical records*. UNSW Press, Sydney.

AUSTRALIA ICOMOS.

1999 *The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter)*. Australia ICOMOS, Canberra.

AUSTRALIAN HERITAGE COMMISSION.

2002 *Ask First: A guide to respecting Indigenous heritage places and values*. Australian Heritage Commission, Canberra.

AUSTRALIAN INSTITUTE OF ABORIGINAL AND TORRES STRAIT ISLANDER STUDIES.

2000 Aboriginal Australia. Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra.

AUSTRALIAN MUSEUM BUSINESS SERVICES.

2009 *Middleton Grange Landscape Transition Zone: Aboriginal Heritage Assessment*. Report for Liverpool City Council.

BANNERMAN, S.M AND HAZELTON P.A.

1990 *Soil Landscapes of the Penrith 1:100 000 Soil Sheet*. Soil and Conservation Service of NSW.

FAIRFIELD CITY COUNCIL.

2013 *Development Control Plan*. Fairfield City Council, NSW.

2013 *Local Environmental Plan*. Fairfield City Council, NSW.

BRANAGAN, D, C. HERBERT AND T. LANGFORD-SMITH.

1979 *The Sydney Basin: An outline of the Geology and Geomorphology*. University of Sydney, Sydney.

BRAYSHAW, H.

1992 *Archaeological survey of the proposed 33kV transmission line between Bringelly and Rossmore, NSW*. Report for EDAW Australia.

BURKE, H AND C. SMITH.

2004 *The Archaeologists Field Hand Book*. Allen & Unwin, St Leonards, NSW.

BYRNE, D. AND H. DU CROS.

1985 *Survey for Aboriginal archaeological sites on the margins of Prospect Creek at Fairfield, NSW*. Report for EBC Consultants Pty Ltd.

CHAPMAN, G. A. AND C. L MURPHY.

1989 *Soil landscapes of the Sydney 1:100 000 sheet*. Soil Conservation Service of NSW, Sydney.

BURKE, H AND C. SMITH.

2004 *The Archaeologists Field Hand Book*. Allen & Unwin, St Leonards, NSW.

BYRNE, D. AND H. DU CROS.

1985 *Survey for Aboriginal archaeological sites on the margins of Prospect Creek at Fairfield, NSW*. Report for EBC Consultants Pty Ltd.

CHAPMAN, G. A AND C. L MURPHY.

1989 *Soil landscapes of the Sydney 1:100 000 sheet*. Soil Conservation Service of NSW, Sydney.

COMMONWEALTH HERITAGE LIST.

2011

www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=search_results;state=NSW:list_code=CHL;legal_status=35

CULTURAL HERITAGE CONNECTIONS.

2006 *Southern Sydney Freight Line; Aboriginal Archaeological Assessment*. Report Parsons Brinckerhoff Pty Ltd.

DEAN- JONES, P.

1991 *Proposed clay/shale extraction, Lot 3 DP 623799, Adams Road, Ludden; Archaeological survey*. Report for R.A Cole Town Planning Pty Ltd.

DECC

2005 *Aboriginal Scarred Trees in New South Wales: A Field Manual*. Department of Environment and Climate Change, Sydney.

DECCW

2010 *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974*. Department of Environment, Climate Change and Water, Sydney.

2010 *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974*. Department of Environment, Climate Change and Water, Sydney.

2010 *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974*. Department of Environment, Climate Change and Water, Sydney.

2010 *Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents*. Department of Environment, Climate Change and Water, Sydney.

DEPARTMENT OF PLANNING.

2005 *The NSW Comprehensive Coastal Assessment Tool Kit*. NSW Government.

FAIRFIELD CITY COUNCIL

2013 *Development Control Plan*. Fairfield City Council, NSW.

2013 *Local Environmental Plan*. Fairfield City Council, NSW.

FOLEY, R.A.

1981 A model of Regional Archaeological Structure. *Proceedings of the Prehistoric Society* 47: 1-17.

GANDANGARA LALC

1998 *Aboriginal Survey – South Creek, Kemps Creek*

GOODWIN, L.

1999 Two steps forward, one back. Some thoughts on settlement models for the North Coast of New South Wales. In *Australian Coastal Archaeology* edited by Jay Hall and Ian J McNiven. ANH Publications, Canberra.

GUNTHER, B.

1998 *Aboriginal site survey for the proposed drainage flood channel at South Creek (Kemps Creek)*. Report for Liverpool City Council.

HALL, R AND K. LOMAX.

1996 A Regional Landscape Approach to the Management of Stone Artefact Sites in Forested Uplands in Eastern Australia. *Australian Archaeology* 42: 35-38.

HARDY, V. AND B. STREAT.

2008 *An Aboriginal Heritage Assessment of SADA Coal Washery, Glenlee New South Wales*, Unpublished Report for SADA Coal submitted to DECCW.

HISCOCK, P.

2008 *Archaeology of Ancient Australia*. Routledge, London & New York.

HOLDAWAY, S. AND N. STERN.

2004 *A Record in Stone: The Study of Australia's Flaked Stone Artefacts*. Aboriginal Studies Press, Melbourne.

KOETIGG, M.

1990 *Test Excavations at Londonderry: Supplementary Report to the Assessment of Aboriginal Sites in the Proposed Waste Depot Site in Londonderry, New South Wales*. Report to Metropolitan Waste Management Authority.

KOHEN, J.

1993 *The Darug and Their Neighbours: The traditional owners of the Sydney Region*. Darug Tribal Aboriginal Corporation, Sydney.

1986 *Prehistoric Settlement in the Western Cumberland Plain: Resources, Environment and Technology*. PhD Thesis, School of Earth Sciences, Macquarie University, Sydney.

1983 *Excavations and Surface Collections in the Western Cumberland Plain*. Report to National Parks and Wildlife Service.

MCBRYDE, I.

1976 *Subsistence patterns in New England Prehistory*. University of Queensland Occasional Papers in Anthropology. 6: 48–68.

MCDONALD, J.

2007. *Salvage Excavation of Four Archaeological Sites in the Caddies Creek Precinct Rouse Hill Regional Centre, NSW*. Report to Lend Lease GPT (Rouse Hill) Pty Ltd.

2002 (June), Rouse Hill Infrastructure Project (Stage 30 Development Areas 2, 5, 20,22 and 24B, Second Ponds Creek Area, Archaeological Assessment of Indigenous & European Heritage Issues. Report to RHI Pty Ltd.

1992 Chapter 2: Aboriginal Usage of the Hawkesbury-Nepean In Prehistory. In *Hawkesbury-Nepean Historic Environmental Changes Study*.

MULVANEY, J. AND J. KAMMINGA.

1999 *Prehistory of Australia*. Allen & Unwin, St Leonards, NSW.

NATIONAL HERITAGE LIST.

2011 www.environment.gov.au/heritage/places/national/index.html

NATIONAL NATIVE TITLE TRIBUNAL.

2011 www.nntt.gov.au

NEW SOUTH WALES HERITAGE BRANCH.

2011 *New South Wales Heritage Register*. www.heritage.nsw.gov.au/07_subnav_04.cfm

NEW SOUTH WALES GOVERNMENT.

1974 *National Parks and Wildlife Act*. New South Wales Government, Sydney.

1979 *Environmental Planning and Assessment Act*. New South Wales Government, Sydney.

1983 *Land Rights Act*. New South Wales Government, Sydney.

1993 *Native Title Act*. New South Wales Government, Sydney.

1999 *Environmental Protection and Biodiversity Conservation Act*. New South Wales Government, Sydney.

NEW SOUTH WALES NATIONAL PARKS AND WILDLIFE SERVICE.

1997 *Aboriginal Cultural Heritage: Standards and Guidelines Kit*. NSW National Parks and Wildlife Service.

OFFICE OF ENVIRONMENT & HERITAGE NSW

2017 OEH STANDARD REQUIREMENTS CORRESPONDENCE FOR SECRETARY'S
ENVIRONMENT ASSESSMENT REQUIREMENTS (SEARS).

STRAHLER, A.N.

1957 Quantitative analysis of watershed geomorphology. *American Geophysical Union Transaction*, 33: 913-920.

UMWELT.

2004B. Assessment of Aboriginal Cultural Heritage Conservation Area Options for Glendell Open Cut Mine. Report to Glendell Joint Venture.

WALKER, P.H.

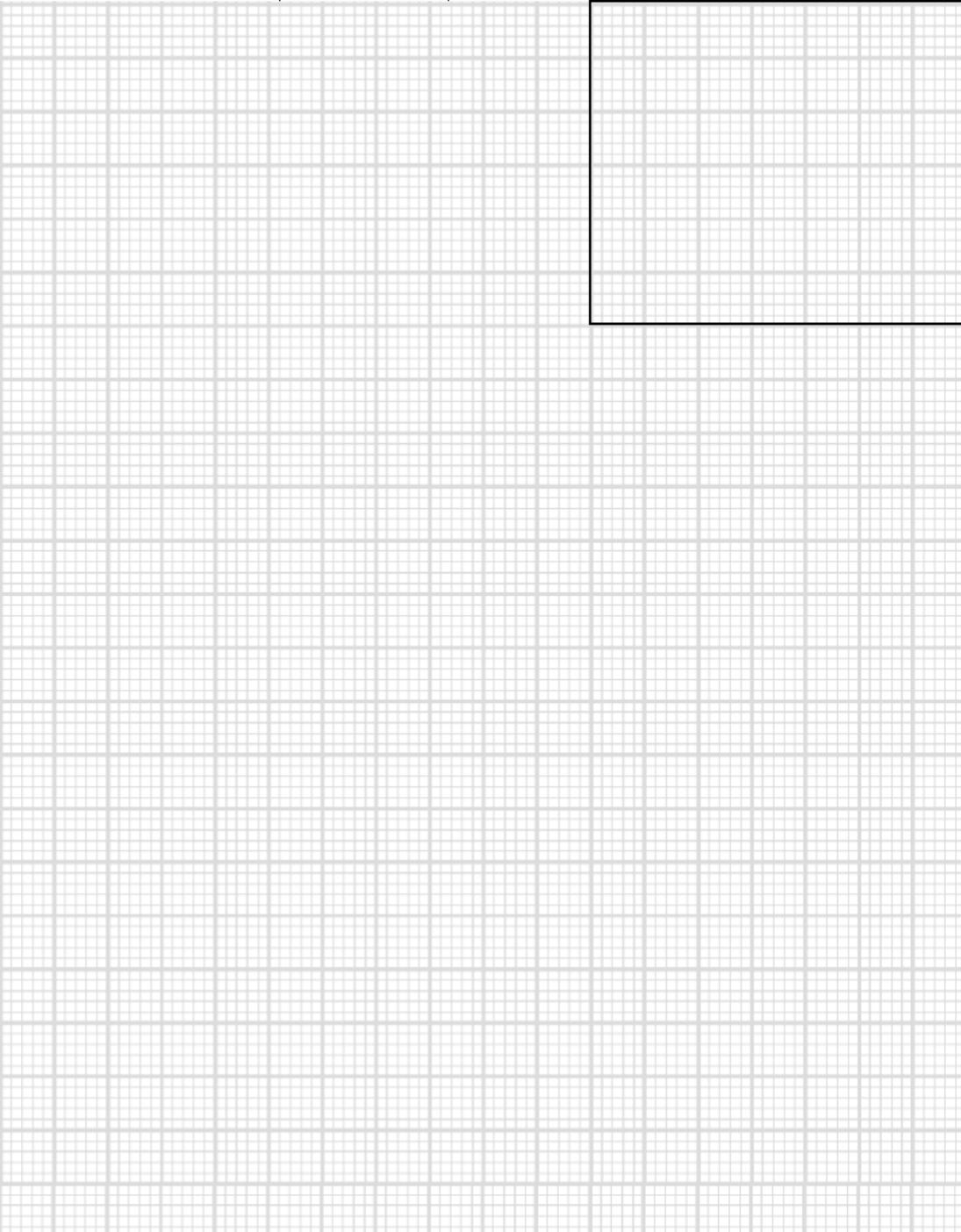
1975 *A Soil Survey of The Cumberland Plain*. NSW Department of Agriculture.

APPENDICES

APPENDIX ONE – SAMPLE TEST TRENCH CONTEXT FORM

AMAC Group Aboriginal Archaeology Recording Form - Test Excavation					ECP18						
Excavator	Recorded By	Date:	Area	Pit Number							
Dimensions	Transect (GPS)		Location/Landform	Pit GPS:							
0.5m x 0.5m 1m x 1m	<input type="checkbox"/> <input checked="" type="checkbox"/>										
Description of Pit: (e.g. Historical Features, Natural Features)											
Split No.	Split Depth (mm)	Soil Horizon	Notes (e.g. Matrix, Colour (mottled), Horizontal boundary (diffuse, sharp, clear), texture (grainy, smooth, plasticine, spongy), Moisture (dry, moist), Compaction (loose, weak, firm.), Inclusions (grass roots, rocks, charcoal etc))	Artifacts (NPW)	No. of Bucket s						
Additional Notes: (e.g. section collapse, contamination etc)				Sample Charcoal (C14)							
				Split:							
				Sample Soil (TL / OSL)							
				Split:							
Photographs:											
Image	Notes	Dir	Image	Notes	Dir	Image		Notes	Dir		
Sketches:											
		N			N			N			N
Description:			Description:			Description:			Description:		

LEVELS				Pit Number:
Location of Datum:	Level 1.	RL (=HOI - Lvl)	Level 6.	RL (=HOI - Lvl)
Datum:	2.		7.	
Backsight (BS):	3.		8.	
Height Of Instrument (HOI) (= Dat + BS):	4.		9.	
	5.		10.	



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