

## 2155 Sutton Road Sutton – Aboriginal Archaeological Report



### Report Prepared for PHL Surveyors Pty Ltd

By Lyn O'Brien Past Traces Pty Ltd

LGA: Yass Valley Council

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## Document Control

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## ACKNOWLEDGEMENTS

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- ❖ Ms Alice Williams
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- ❖ Corroboree
- ❖ Gulganya
- ❖ Ngambri Local Aboriginal Land Council
- ❖ Mr Alan Longhurst (PHL Surveyors)
- ❖ Mr Paul Keir

## ABBREVIATIONS

ACHAR	Cultural Heritage Assessment Report
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AR	Archaeological Report
DECCW	NSW Department of Environment, Climate Change and Water now DPI&E
DP	Deposited Plan
DPI&E	NSW Department of Planning, Industry and Environment
GPS	Global Positioning System
GSV	Ground Surface Visibility
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
MGA	Map Grid of Australia
OEH	NSW Office of Environment and Heritage now DPI&E
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal Party
SU	Survey Unit

# CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 PROJECT BRIEF .....	1
1.2 RESTRICTED AND CONFIDENTIAL INFORMATION .....	1
1.3 ASSESSMENT OBJECTIVES .....	2
1.4 INVESTIGATORS AND CONTRIBUTORS.....	2
1.4.1 Lyn O'Brien .....	2
1.5 ABORIGINAL CONSULTATION.....	2
<b>2 ABORIGINAL ARCHAEOLOGICAL CONTEXT .....</b>	<b>6</b>
2.1 ABORIGINAL GROUPS WITHIN THE PROJECT AREAS .....	6
2.2 PREVIOUS ARCHAEOLOGICAL WORK .....	6
2.2.1 Regional Overview .....	7
2.2.2 Local Overview.....	8
2.3 AHIMS SEARCH AND SITE ANALYSIS.....	9
2.4 HISTORICAL CONTEXT .....	10
<b>3 LANDSCAPE CONTEXT.....</b>	<b>13</b>
3.1 GEOLOGY AND TOPOGRAPHY .....	13
3.2 SOILS.....	13
3.3 FLORA AND FAUNA .....	16
3.4 LANDSCAPE CONTEXT .....	16
3.5 PREDICTIVE MODEL.....	17
<b>4 ARCHAEOLOGICAL FIELD SURVEY.....</b>	<b>19</b>
4.1 ARCHAEOLOGICAL SURVEY AIMS.....	19
4.2 FIELD SURVEY SAMPLING STRATEGY .....	19
4.3 FIELD SURVEY METHODS .....	20
4.4 ARCHAEOLOGICAL SURVEY RESULTS .....	22
4.4.1 Ground Surface Visibility (GSV) and Levels of Disturbance .....	24
4.4.2 Survey Coverage .....	27
4.5 NEW HERITAGE SITE RECORDINGS .....	28
4.5.1 PADST1 : MGA Zone 55 (centre point 704983.6105923) .....	28
4.5.2 PADST2 : MGA Zone 55 (centre point 704889.6105735) .....	28



4.5.3	PADST3 : MGA Zone 55 (centre point 704983.6105694) .....	29
4.6	SUMMARY OF ARCHAEOLOGICAL SURVEY RESULTS .....	29
<b>5</b>	<b>SUBSURFACE TESTING OF PADS .....</b>	<b>32</b>
5.1	AIMS OF THE SUBSURFACE TEST EXCAVATIONS.....	32
5.2	EXCAVATION METHODOLOGY .....	32
5.3	ANALYSIS OF CULTURAL MATERIAL .....	33
5.4	RESULTS OF SUBSURFACE TESTING PROGRAMME .....	33
5.4.1	PADST1 : MGA Zone 55 (centre point 704983.6105923) .....	33
5.4.2	Testpit 27.....	36
<b>6</b>	<b>ARCHAEOLOGICAL SIGNIFICANCE ASSESSMENT .....</b>	<b>39</b>
6.1	INTRODUCTION TO THE ASSESSMENT PROCESS .....	39
6.2	SCIENTIFIC SIGNIFICANCE ASSESSMENT .....	39
6.3	CULTURAL SIGNIFICANCE .....	40
6.4	STATEMENT OF ARCHAEOLOGICAL SIGNIFICANCE .....	40
<b>7</b>	<b>IMPACT ASSESSMENT .....</b>	<b>41</b>
7.1	DEVELOPMENT IMPACTS .....	41
7.2	SUSTAINABLE DEVELOPMENT PRINCIPLES .....	41
7.2.1	Intergenerational Equity.....	41
7.2.2	Cumulative Impacts .....	42
<b>8</b>	<b>MANAGEMENT AND MITIGATION STRATEGY .....</b>	<b>43</b>
8.1	MANAGEMENT RECOMMENDATIONS.....	43
<b>9</b>	<b>REFERENCES.....</b>	<b>46</b>

## FIGURES

Figure 1.	Project Location in Regional Context	4
Figure 2.	Project Area Boundary.	5
Figure 3.	Previously recorded sites within the project area	11
Figure 4.	Extract of Parish Map – 2nd edition 1882.	12
Figure 5.	Geology of project area	14
Figure 6.	Soil landscape	15
Figure 7.	Survey Units and landforms	21

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Figure 8. Pedestrian transects and landforms	23
Figure 9. Results of Field Survey	31
Figure 10. Location of test pits	36
Figure 11. AHIP Area	45

## EXECUTIVE SUMMARY

PHL Surveyors have engaged Past Traces Pty Ltd to undertake an Aboriginal Cultural Heritage Assessment for the proposed rural subdivision at Lot 1 DP32236 located at 2155 Sutton Road Sutton. These works consist of the division of the land parcel into 23 housing lots, of which 1-20 located in the northwest portion are residential housing lots. Within the southern section, Lots 21, 22 and 23 remain as rural residential lots and do not constitute a change in landuse. The works associated with the proposal consist of the following:

- ❖ Installation of 20 housing lots within the project area
- ❖ Construction of house lots, access roads and fire trails
- ❖ Installation of infrastructure such as electricity and communications
- ❖ Installation of boundary fences and landscaping.

The project area is shown on Figure 1 in a regional context and in detail on Figure 2.

A Due Diligence assessment was undertaken by Past Traces over the project area in 2017 which identified three areas of potential archaeological deposit (PAD), and recommended that if impacts were to occur at any of the PAD locations then an Aboriginal Cultural Heritage Assessment (ACHAR) should be undertaken. As one of the areas of PAD (PADST1) will be impacted by the proposal the project has now progressed to a detailed ACHAR.

This ACHAR assessment commenced with a search of the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database and review of previous heritage assessments from the region. The AHIMS search was undertaken on the 6/6/2017 which revealed no previously recorded heritage sites within the project area and 7 sites within the immediate 1km vicinity. These 7 sites consisted of 6 artefact scatters and 1 isolated find of stone artefacts. This search was updated in 2019 with no changes to the AHIMS records for the area.

A field survey was undertaken over the project area as part of the due diligence survey in 2017 which identified three areas of PAD along the lower slopes in association with a tributary creekline which runs through the project area.

Redesign of the proposed subdivision has been undertaken since 2017 and now avoid impacts at two of the areas of PAD. As the remaining area of PAD will be impacted by the development, subsurface testing was required to determine the presence, extent and significance of deposits. The testing was completed in August 2019 and revealed two artefacts in a single test pit. As this site will be impacted, an Aboriginal Heritage Impact Permit (AHIP) will be required for construction to occur.

Consultation with the Aboriginal community has been undertaken to assist the heritage team in assessing significance of any identified heritage sites and to provide guidance in the development of culturally appropriate management strategies. Consultation was in accordance with the *Consultation Guidelines for Proponents NSW* (DECCW 2010a). Aboriginal representatives participated in the field survey undertaken in June 2018 in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).

As a result of the background research, Aboriginal heritage field survey, test pitting program and consultation with the local Aboriginal community, there are no items of significance that would preclude development of the project area on condition that the following heritage recommendations are implemented.

- ❖ No impacts may occur to the identified Aboriginal Heritage site unless an Aboriginal Heritage Impact Permit (AHIP) has been granted allowing harm to occur.
- ❖ The project area contains a single Aboriginal heritage sites. As the heritage site will be impacted, an AHIP approved by NSW Department of Planning, Industry and Environment (DPI&E) covering the area will be required. An application for an AHIP should be submitted to DPI&E prior to any works commencing. The AHIP area is shown in Figure 12.
- ❖ It is an offence to disturb an Aboriginal site without an AHIP as all Aboriginal objects are protected under the NSW *National Parks and Wildlife Act 1974*. Should any Aboriginal objects be encountered during works then works must cease and a heritage professional contacted to assess the find. Works may not recommence until cleared by DPI&E.
- ❖ In the unlikely event that human remains are discovered during the construction, all work must cease. DPI&E, the local police and the appropriate Local Aboriginal Land Council (LALC) should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal.
- ❖ Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the RAPs for the project and may include further field survey.
- ❖ Continued consultation with the RAPs for the project should be undertaken. RAPs should be informed of any major changes in project design or scope, further investigations or finds.
- ❖ No further heritage investigations are required should the AHIP be approved, except in the event that unanticipated Aboriginal Objects and/or human remains are unearthed during any phase of the Project.

# 1 INTRODUCTION

## 1.1 PROJECT BRIEF

PHL Surveyors have engaged Past Traces Pty Ltd to undertake an Aboriginal Cultural Heritage Assessment for the proposed rural subdivision at Lot 1 DP32236 located at 2155 Sutton Road Sutton. These works consist of the division of the land parcel into 23 housing lots, of which 1-20 located in the northwest portion are residential housing lots. Within the southern section, Lots 21, 22 and 23 remain as rural residential lots and do not constitute a change in landuse. The works associated with the proposal consist of the following:

- ❖ Installation of 20 housing lots within the project area
- ❖ Construction of house lots, access roads and fire trails
- ❖ Installation of infrastructure such as electricity and communications
- ❖ Installation of boundary fences and landscaping.

The project area is shown on Figure 1 in a regional context and in detail on Figure 2.

The proposed works will involve the substantial displacement and removal of soil and the importation of materials. Ground disturbance has the potential to impact on Aboriginal heritage sites and objects which are protected under the *NSW National Parks and Wildlife Act 1974* or historical sites which are protected under the *NSW Heritage Act 1977*. The purpose of the assessment is therefore to investigate the presence of any heritage sites and to assess the impacts and management strategies that may mitigate any impacts, including application for an AHIP if impacts are unavoidable.

The aim of this assessment is to inform the proponent of their responsibilities in regards to cultural heritage sites that exist within the project area and allow for design to minimise or avoid impacts. This report will provide supporting documentation if an AHIP is required. The Archaeological report (AR) details the investigation and assessment of cultural heritage undertaken for the project. Reporting will follow the guidelines of NSW Department of Planning, Industry and Environment (DPI&E) in particular the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010a).

Consultation with the Aboriginal community has been undertaken to assist the heritage team in assessing significance of any identified heritage sites and to provide guidance in the development of culturally appropriate management strategies. Consultation was in accordance with the *Consultation Guidelines for Proponents NSW* (DECCW 2010a). Aboriginal representatives participated in the testing program undertaken in August 2019 in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).

## 1.2 RESTRICTED AND CONFIDENTIAL INFORMATION

Information in this report is restricted due to cultural sensitivities. Appendix 1 contains information which is confidential and not to be made public. This is clearly marked on the title page for the Appendix.

Any figures within the report which show the location of heritage sites is restricted and not to be made available to the general public. If required to be displayed, this information should be redacted.

## 1.3 ASSESSMENT OBJECTIVES

The following is a summary of the major objectives of the assessment:

- ❖ Identify and consult with Registered Aboriginal Parties (RAPs).
- ❖ Review previous heritage reports to recognise patterns in Aboriginal site distribution.
- ❖ Search AHIMS register to identify listed Aboriginal cultural heritage sites within the project area.
- ❖ Develop a predictive site location model.
- ❖ Conduct a field survey of the project area to identify heritage sites and to assess the archaeological potential and levels of previous disturbance.
- ❖ Through consultation with the Aboriginal community assess the significance of identified heritage sites.
- ❖ Undertake sub surface testing of the identified sensitive landforms that occur within the project area to determine their archaeological potential.
- ❖ Identify the impacts of the proposed development on heritage sites within the project area.
- ❖ Develop management strategies for the identified heritage sites within the project area

## 1.4 INVESTIGATORS AND CONTRIBUTORS

### 1.4.1 Lyn O'Brien

This report has been prepared by Lyn O'Brien, Director of Past Traces Pty Ltd. With over 15 years' experience in the heritage profession, Lyn O'Brien has developed effective solutions to heritage issues that ensure successful outcomes for each project she works on. Since completing her BA (Hons) in Archaeology at the Australian National University (ANU) in 1996, Lyn has held a variety of consulting positions, from field assistant through to regional manager/senior archaeologist, accumulating skills and experience in field techniques, project management and liaison, negotiation and consultation. As a senior archaeologist Lyn has extensive experience managing major and small scale projects, conducting numerous field surveys and excavations and authoring reports across both Aboriginal and Historical archaeology.

## 1.5 ABORIGINAL CONSULTATION

Consultation with the Aboriginal community has been undertaken to assist the heritage team in assessing significance of any identified heritage sites and to provide guidance in the development of culturally appropriate management strategies. Consultation was in accordance with the *Consultation Guidelines for Proponents NSW* (DECCW 2010a). Aboriginal representatives participated in the field survey undertaken in June 2018 and provided input into the management recommendations.

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* guideline (DECCW 2010a) outlines the following process to be undertaken:

- ❖ Notification of project proposal to Aboriginal stakeholders and invitation to register interest.
- ❖ Presentation of information about the proposed project and methodology to be followed.

- ❖ Gathering information about cultural significance from registered stakeholders by inviting comments, and input into management recommendations and significance
- ❖ Review of draft cultural heritage assessment report to ensure views are adequately captured and recommendations incorporated into report.

The consultation log for the project detailing the consultation steps completed and a full list of RAPs is provided in the Aboriginal Cultural Heritage Assessment Report (ACHAR) to which this AR is appended.

As outlined above, Aboriginal community feedback has been sought during the design of the heritage assessment methodology and findings. The RAPs for the project provided information in relation to cultural values and site significance.

Representatives of the Aboriginal community (Ngambri Local Aboriginal Land Council (LALC), Gulganya Aboriginal Corporation and Buru Ngunawal Aboriginal Corporation) were present during the sub surface testing fieldwork and provided feedback on the project and significance assessment.



Each draft of the AR was forwarded on its completion to the RAPs and responses received included within the ACHAR.





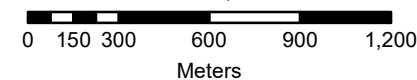
**Figure 1: Regional Context**

**Legend**

-  Study Area
-  Watercourse



1:25,000

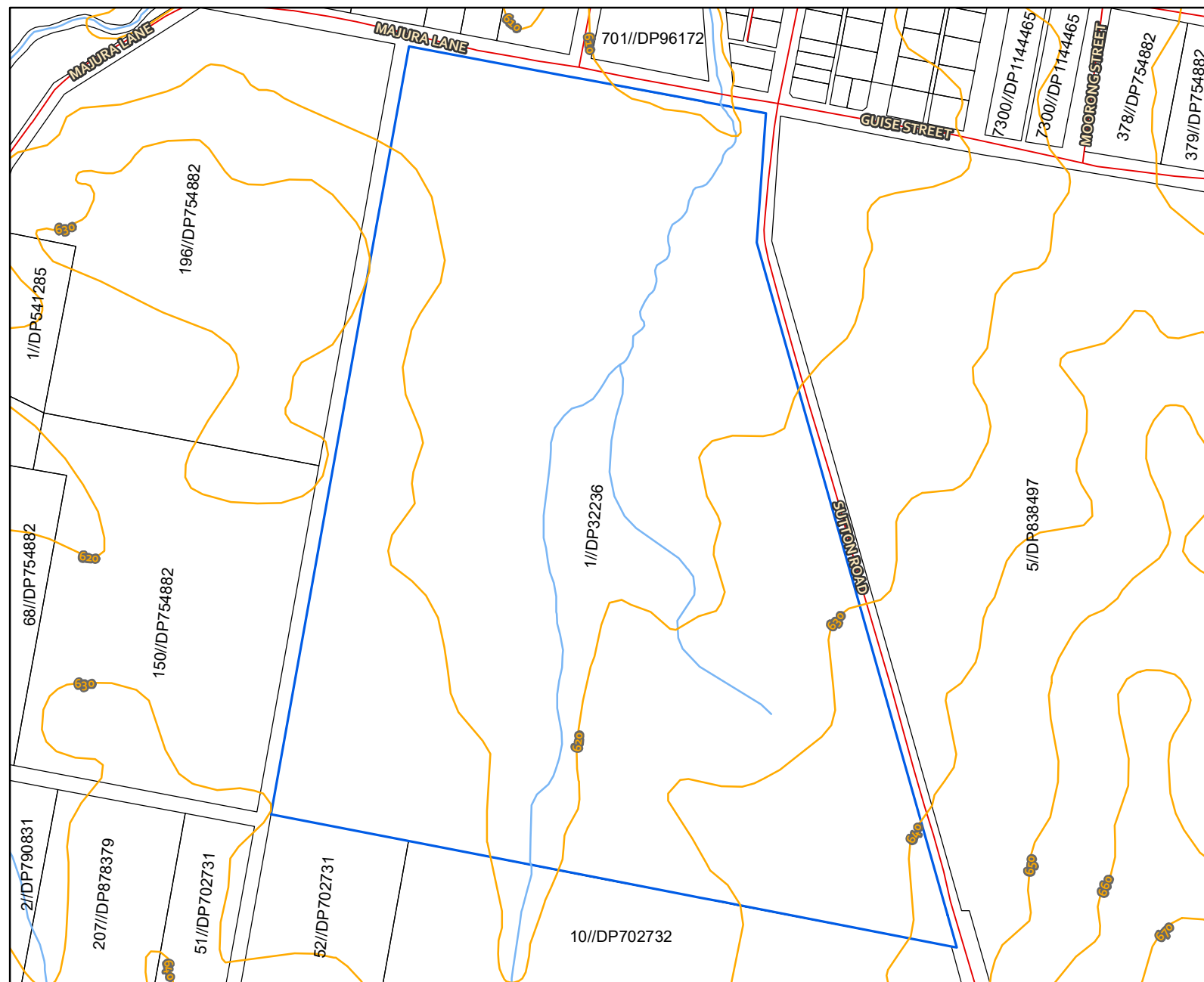


Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Dept. Finance, Services  
& Innovation 2018

**PastTraces**  
Heritage Consultants





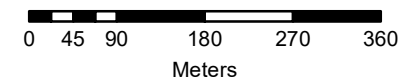
**Figure 2: Study Area**

**Legend**

- Contour - 10m
- Watercourse
- Roads
- Study Area
- Cadastre



1:7,750



Coordinate System:  
GDA 1994 MGA Zone 55

## 2 ABORIGINAL ARCHAEOLOGICAL CONTEXT

A desktop assessment has been undertaken to review the existing archaeological record for the project area, and the wider region in accordance with Requirements 1 to 4 of the Code of Practice. This information has been used to identify previously recorded sites and to develop an Aboriginal site prediction model for the project area.

### 2.1 ABORIGINAL GROUPS WITHIN THE PROJECT AREAS

The major language group identified in the Sutton region by Norman Tindale in his seminal work on Aboriginal tribal boundaries are the Ngunnawal people. The Ngunawal (Ngunnawal) were also known as the Yass tribe, Lake George Blacks or Molonglo tribe. The boundaries of the Ngunawal ran to the south east where they met the Ngarigo at the Molonglo and the Gundungara to the north of Lake George (Tindale 1974). This distribution with minor amendments is still accepted and the review of tribal boundaries undertaken in the 1990s (Horton 1996) confirmed these earlier linguistic divisions.

One of the best sources for observations of the Indigenous inhabitants of the Sutton/ Gundaroo region are the notes by Govett (1977) and Bennett (1834) on the Aboriginal people that they encountered. Both of these early settlers lived in the district from the 1830s and noted many features and traditions of Aboriginal life. Their observations must be viewed as from a white perspective and filtered through his cultural traditions as with all cross cultural ethnography but despite these limitations are a valuable reference for the region. Their reflections on the Aboriginal life of the region provide a glimpse of a functioning hunter and gatherer lifestyle with a cycle of repeated visits to areas at times of seasonable resource availability and a ceremonial life that imposed duties and responsibilities on members of the group.

The flat, rolling topography of the region and the lack of natural physical barriers (such as impassable gorges or rivers) would have facilitated contact and movement through the region and the surrounding Aboriginal people. Broad ridgelines were often used for travelling distances through country, avoiding steep valleys and river gorges to reach resource areas. Lake George is an important spiritual and meeting place for Aboriginal groups with many pathways leading to the edges of the Lake. Travel to Lake George may have crossed through the region linking pathways to the Canberra and Queanbeyan areas.

Disease followed the settlement of the area and may have preceded it with the smallpox epidemic originating in Sydney in 1789 possibly spreading throughout the region (Flood 1980:32). This disease would have decimated the Aboriginal population and was followed by Influenza in 1846. The notable decline of the number of the Aboriginal people was noted in 1845 at Bungonia and in 1848 at Goulburn by the Bench of Magistrates (Tazewell 1991:244).

### 2.2 PREVIOUS ARCHAEOLOGICAL WORK

Heritage assessments have been undertaken in increasing frequency due to the level of increased development and increased legislative requirements. As a result a number of cultural heritage surface surveys and sub-surface excavations have been conducted throughout the Sutton and Bywong region. Review of this body of work allows for the development of regional settlement models; landscape usage; the use of resources; group movements; and site locations for the region.

### 2.2.1 Regional Overview

The Project Area is located within the Southern Tablelands. Regional models of aboriginal landscape and resource use, along with models of intensity of utilization and number of Aboriginal occupants have been developed for the region which shows a focus on the occupation of creek terraces, ridgelines and sites in proximity to water.

A co-relation between permanent water courses and larger campsites was noted by Flood (1980) along with focused occupation along smaller creek lines within 100m of water. Wider models of the larger region (Southern Tablelands) have also been formulated (Koettig 1983, Attenbrow 1984; Koettig and Lance 1986; Packard 1986; Fuller 1989). The wider regional pattern of Aboriginal occupation reflects higher site size and frequency in areas proximate to major permanent creek lines with smaller sites along smaller water resources. Whilst sites have been found to occur throughout the landscape, away from water sources, these tend to be small artefact scatters or isolated finds. The large number of completed surveys cannot be listed but the most relevant of these studies for the wider Sutton/Bywong region are summarized below.

Witter in 1980 completed a large scale assessment for the Dalton to Canberra gas pipeline. This pipeline traversed a range of landforms and passed 2km to the west of the Gundaroo Township. 43 Aboriginal sites consisting of small artefact scatters or isolated finds were located. Witter concluded that Aboriginal sites in the region would be most likely located in close proximity to water sources.

Hughes, Barz and Hiscock in 1984 completed an assessment of the Bungendore Sand Quarry Lake George NSW. This sand quarry is the location for numerous dense artefactual sites containing a range of Holocene flaked tools. The area is located within aeolian sand deposits and would have in the past been on the shoreline of Lake George. The predictive model developed followed from previous work and conforms to a model of Lake George as a repeated focus of resource utilization throughout a long period of time developed by McBryde (1975) and Baker and Feary (1984).

Packard (1986) completed a survey of sand bodies in the region when he was commissioned by the National Parks and Wildlife Service to investigate the recognized archaeological potential of sand deposits in the region. He located a number of large artefact scatters (+50 artefacts), small surface scatters and isolated finds on sand bodies. The sites were generally located on midslopes in conjunction with water courses and reflected camp sites with generalised utilisation activities. He concluded that higher potential for sites on mid-slopes and crests with access to water resources was applicable to areas containing sand deposit landscapes. His findings showed that most sites were located within 500 m of a permanent or semi-permanent water course. Sites were mostly level, few displaying slopes steeper than 5 degrees and none steeper than 7.

A number of additional studies of sand bodies have been undertaken since Packard's work all confirming the importance of sand bodies for the recovery of large high density Aboriginal sites (Lance 2009, CHMA 2009, Way 2017).

NSW Archaeology completed the heritage assessment for the Yass Valley Wind Farm (2009). This survey covers 1237ha and located 583 stone artefact sites. All sites were recorded along the crests of hills or upper slopes. This may be a result of the focus on these landforms where wind turbines were proposed. An overall site location model of usage of ridgelines for travel through country was developed. All sites were low density and this site type was considered most common for the region.

These findings for the Yass Valley windfarm have been supported by other wind farm studies in the region including Woodlawn (Biosis 2014), Gunning (NSW Archaeology 2007, NOHC 2009) and Collector (NSW Archaeology 2012).

Cultural Heritage Management Australia (CHMA 2013) was engaged by Yass Valley Council to conduct an Aboriginal Heritage assessment across the entire Yass Valley Local Government Area (LGA). The project used a variety of published works, primary sources, oral history and archaeological investigation to document previously unrecorded Aboriginal cultural heritage sites across the LGA. This large area study confirmed the applicability of the predictive models for the region and the predominance of artefact scatters, isolated finds and scarred trees as the most common site types in the region.

### 2.2.2 Local Overview

A number of heritage assessments have been undertaken for the Sutton area. These studies have been commissioned mainly due to rural residential subdivisions or upgrades to the Federal Highway which runs to the south of the township and provide a consistent base line of site location and type for the region.

Koettig in 1981 surveyed the route of the proposed duplication of the Federal Highway from Collector to the ACT Border. This survey area is located approximately 600m to the south of the current project area. Koettig located 33 sites with one CAB29 in the immediate vicinity (see Figure 2) consisting of 28 surface artefacts along the ridgeline. Collection was recommended prior to the construction of the Sutton Road Interchange. A site locational model focused on ridgelines and drainage areas was concluded for the region.

Site CAB29 was subject to surface collection and analysis by Koettig in 1984. At this time 64 artefacts were recorded and collected, located on the ridgeline crest and extending along the crest northwards. These artefacts were not considered to be associated with any subsurface deposits and no subsurface excavation were undertaken. The majority of the artefacts were manufactured on quartz, followed by silcrete materials. This pattern is common for the Southern Tablelands region.

Navin Officer completed an assessment of the Federal Highway options west of Sutton Road in 1996 located six artefact scatters and six isolated finds. The majority of artefacts were constructed on quartz and located on lower slopes.

Hughes in 1998 surveyed the 324ha Sutton Acres and Goolabri Park residential subdivision. The survey located 11 sites, consisting of one small artefact scatter on a ridge crest and ten isolated finds of which three were placed on spur crests and the remainder along basal slopes adjacent to creek lines.

Archaeological Heritage Surveys (AHS) completed an assessment of the proposed 1.3ha rural tourist facility on Sutton Road in 2002. Three small artefact scatters and one isolated find were recorded on basal slopes east of Amungula creek. Quartz was the main material used with small amounts of chert and silcrete.

AHS undertook an assessment of a residential subdivision over Lot 4 DP101009 to the west of Sutton village in 2003. The project area covered an area of approximately 318 ha and is located directly northwest of the current project area. The survey identified thirteen Aboriginal sites and seven areas of high potential along spur lines and creek lines. The sites consisted of ten small surface scatters and three isolated artefacts, the majority of which were located on basal slopes of spur lines or on spur crests. Two sites were located adjacent to a tributary to McLaughlin Creek. Saunders concluded that the majority of scatters are located near creek lines, particularly on adjacent reasonably level elevated ground (spur lines) and low gradient basal slopes. A program of collection of surface artefacts and excavation of areas of PAD was recommended. No further work appears to have been undertaken for this development.

Bowen Heritage Management (2014) completed an assessment for a rural residential subdivision to the west of Sutton Village and to the north of the current study area. This survey was along the creek flats of McLaughlin Creek a 3<sup>rd</sup> order stream and located a number of heritage surface scatters and three areas of PAD. The areas of PAD were all located on level terraces close to McLaughlin's Creek. No testing of these PADs has been completed to date.

AHS (2014) completed an Aboriginal due diligence assessment for a proposed subdivision of Lot 3 DP1074706 Sutton. Three Aboriginal sites had previously been recorded by Hughes (1998) – 57-2-0193, 57-2-0194 and 57-2-0206. One additional small artefact scatter consisting of three quartz flakes and one chert flake was recorded on a low crest near a first order drainage line by AHS with the remainder classified as holding low potential.

Ecological completed an assessment for the Woodbury ridge Subdivision in 2018 directly to the east of the current project area. This assessment covered the 183ha proposed for development and classified the area long the frontage to the Yass River as holding potential for subsurface sites. No surface sites were recorded and the remainder of the property was classified as holding low potential for heritage sites.

These previous assessments for the region have returned consistent results and confirmed the importance of level areas or low rises adjacent to water ways for site location. As a result the areas of level terrace or rises in the vicinity of creek lines are considered to hold moderate to high potential (dependant of degree of disturbance) for unrecorded sites, which may range in size from single artefacts to larger scatters. Based on this information from these previous reports a predictive locational model for the project area has been developed and is discussed in Section 3.5.

## 2.3 AHIMS SEARCH AND SITE ANALYSIS

An extensive search of the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database was undertaken in accordance with Requirement 1b of the Code of Practice. The extensive search, completed originally on the 6/6/2017 and checked on the 12/8/2019, revealed no previously recorded heritage sites within the project area with an additional 7 sites within a 1km radius. The surrounding sites consist of one isolated find and six small artefact scatters. These sites are concentrated on ridge crests and creek contexts.

The location of these sites is shown in Figure 3 in relation to the project area. These sites are listed in Table 1 and a copy of the extensive search report is attached for reference at Appendix 1.

Table 1. AHIMS sites within project area

Site ID	Site name	Easting	Northing	Site features	Recorders
57-2-0047	C-AB29 Sutton Rd/Federal Hwy	705500	6104300	Artefact scatter	Margrit Koettig 1981
57-2-0306	WS6	703750	6106420	Isolated Find	Ms.Trish Saunders 2003
57-2-0301	WS1	703750	6106420	Artefact scatter : 34	Ms.Trish Saunders 2003
57-2-0045	C-AB27 Macs Reef Rd	706250	6104600	Artefact scatter: -	Margrit Koettig 1981

Site ID	Site name	Easting	Northing	Site features	Recorders
57-2-0046	C-AB28 Macs Reef Rd	706180	6104400	Artefact scatter: -	Margrit Koettig 1981
57-2-0940	Sutton Road 5 (SR5)	705149	6106951	Artefact scatter: -	Bowen Heritage Management 2014
57-2-0941	Sutton Road 6 (SR6)	705089	6106860	Artefact scatter: -	Bowen Heritage Management 2014

It is clear from these results that the dominant site type in the region are occurrences of stone artefacts, either as isolated finds or in clusters as small artefact scatters. The recorded sites are located on areas of raised terrace or lower slopes in association with creek lines which conforms to the predictive model for the placement of sites in the region.

## 2.4 HISTORICAL CONTEXT

The first documented case of Europeans visiting the Bungendore/Wamboin area is by the explorer Joseph Wild (in August 1820) followed closely by Charles Throsby who, in October 1820, was in search of the Murrumbidgee River. Of the general Bungendore area, Throsby stated it was “a beautiful clear plain...that is as finest country as ever was seen...and a fine rich black soil fit for any purpose either grazing or agriculture” (Gunning and District Historical Society 1992: 33). In 1824, the explorer Allan Cunningham travelled through the district noting the outstation of “Bungendow” owned by Captain Richard Brooks.

At this point in Australia’s European history, while exploration was reasonably extensive, there were attempts by the government to contain official settlement to the area around Sydney. Governor Darling famously established the “limits of location” in 1826, which was effectively an arbitrary line around the Sydney region, bounded by the Manning River in the north, the Lachlan River in the west and the Moruya River in the South. This imaginary line designated the area within which European settlers could officially be granted land. The limits of location were then extended in 1829 to include an area known as the Nineteen Counties, which included County Murray (including modern day Queanbeyan Palerang) on the Limestone Plains.

The Guise family were major landholders in the area and they moved to their property at Jerribiggery on the Yass River just north of Sutton in 1826. In 1829 they completed ‘Bywong’ station. Richard and William expanded their holdings rapidly in the 1830’s over 280 000 acres in the Gundaroo/Gunning area. The area of Sutton was part of the property of Bywong Station (see Fig 4).

Sutton was first surveyed by Robert Hoddle in 1835 and classed as a land reservation. The village of Sutton was proclaimed in 1853. Gold was discovered in the region in the 1880 and the village of Sutton became a major centre. After the closure of the Bywong Gold field in 1896, the local population decreased and returned to a pastoral economy.





Figure 3 : AHIMS Sites

### Legend

- AHIMS Sites
- Study Area



1:15,750

0 95 190 380 570 760  
Meters

Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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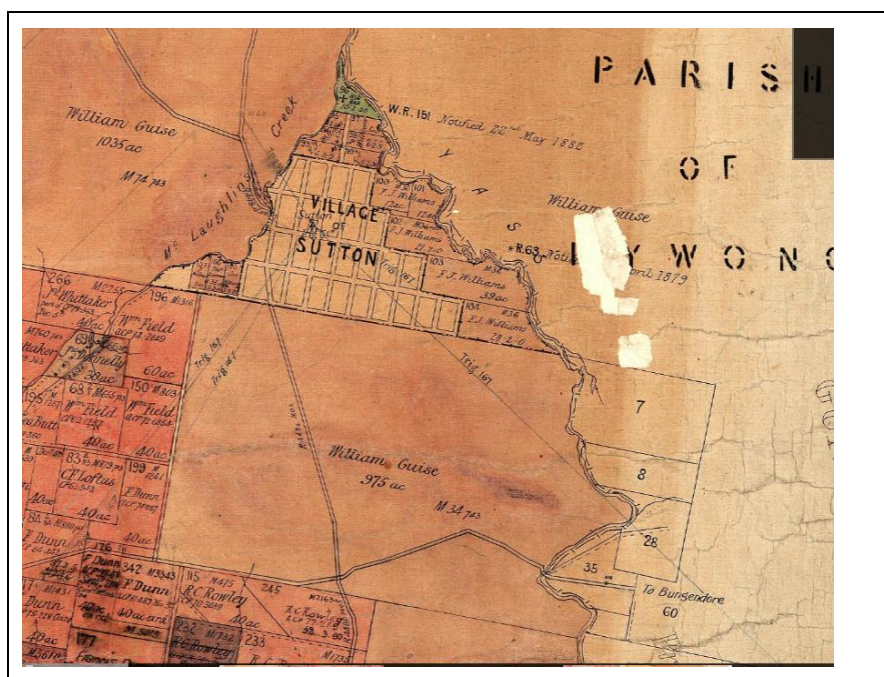


Figure 4. Extract of Parish Map – 2nd edition 1882.



## 3 LANDSCAPE CONTEXT

### 3.1 GEOLOGY AND TOPOGRAPHY

The project area is located within the far south western end of the Lake George Basin. The Lake George Basin comprises part of the Cullarin Uplands which lies between the Lake George Range in the east to the Canberra Lowlands in the west. This section of the Cullarin Uplands consist mainly of undulating hilly terrain with fanning low ridgelines and large floodplains and terrace ground formed through alluvial valley soil deposits from major creek lines.

The geology of the area is of Late Ordovician Adaminaby Beds consisting of marine metasediments. These metasediments occur with interbedded sandstone, siltstone, shale, chert, and minor black shale (Jenkins 2000:136).

The terrain consists of waning slopes and alluvial fans on drainage lines. Local relief is shallow with slopes ranging from 3 – 10%. As soils are highly erosional, gully erosion, sheet erosion and salinity are common. The Geology of the project area is shown on Figure 5.

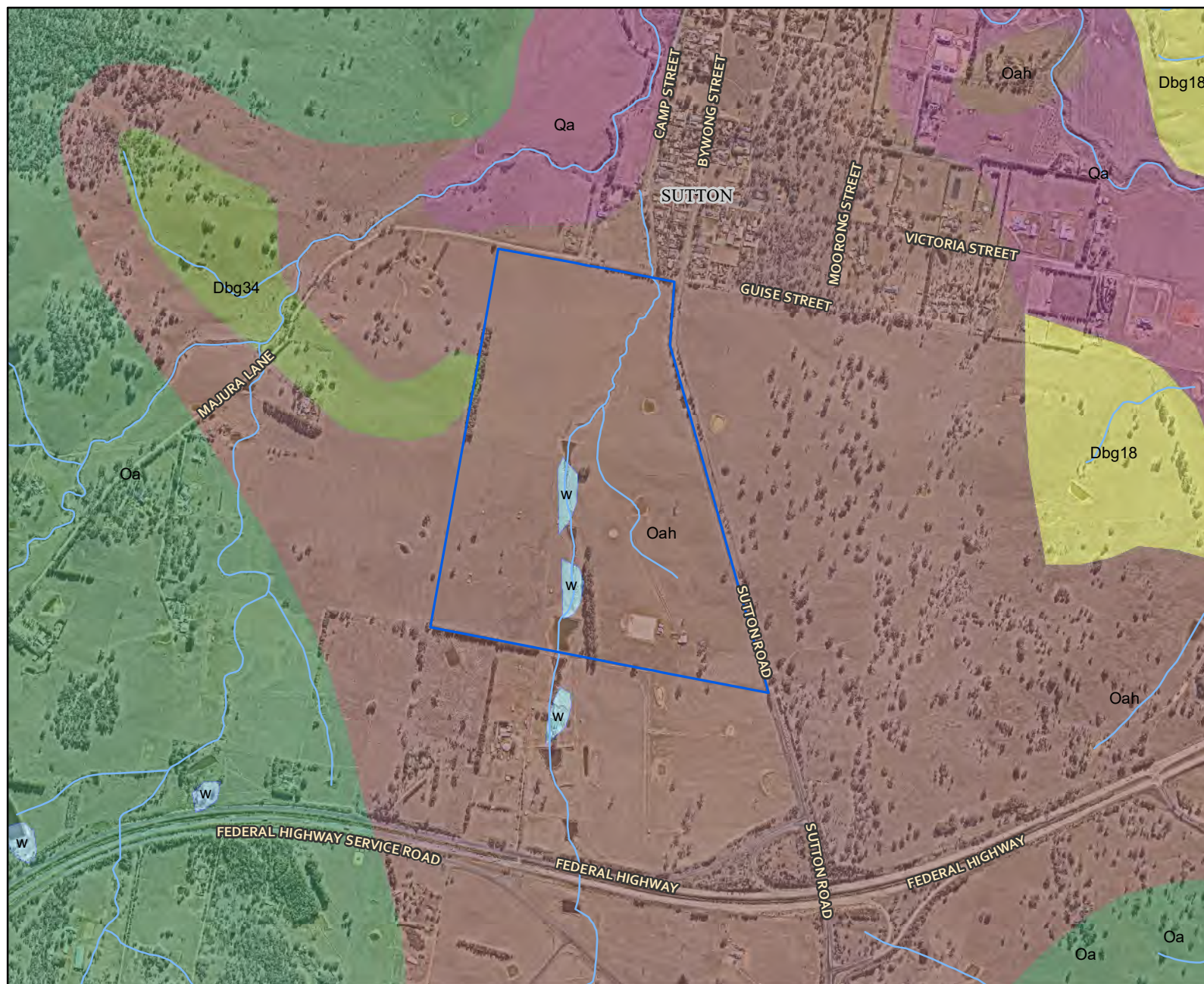
### 3.2 SOILS

Soils in the majority of the Project area consist of the Winnunga Soil Landscape (Jenkins 2000). The section along the tributary creekline consist of the Ginninderra Creek Soils. All soils are highly erodible with no deep deposits over basal layers. This distribution of soils is shown on Figure 6 and is described as follows:

- ❖ Winnunga Soils - the Winnunga soil landscape is transferral and located on waning slopes. Soils consist of shallow moderately well drained Tenosols on crest and upper slope with Red Chromosols and Brown Chromosols on middle slopes with Mottled Sodosols are found on lower slopes and areas of low drainage. These soils are thin, highly erodible and overlay the base shales, tuffs and gravels. The substrate will degrade into a yellow/red clay level before reaching the base bedrock (2000:136).
- ❖ Ginninderra Creek Soils – the Ginninderra Creek soil landscape is classified as an alluvial soil landscape located on flat to gently sloping alluvial flats. This soil landscape is the result of the imperfectly drained areas that occur throughout the landscape. Soils consist deep Sodic Brown Chromosols on margins of unit with alluvial soils on floodplain elements (2000:72).

The locations of the identified soil landscapes in relation to the project area is shown on Figure 6.

**Figure 5: Geology**



## Legend

- Study Area
- Watercourse

## Geology

- ADAMINABY GROUP - spotted hornfels/metasediment (contact metamorphic)
- ADAMINABY GROUP - turbiditic sequence; sandstone, mudstone, shale; quartzite, quartz phyllite, phyllite, slate
- BEGA BATHOLITH - granodiorite, adamellite and quartz-feldspar porphyry
- BEGA BATHOLITH - minor granitoid stocks
- UNGROUPED QUATERNARY - alluvium, fluvial deposits: gravel, sand, silt and clay
- Water

N

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0 95 190 380 570 760  
Meters

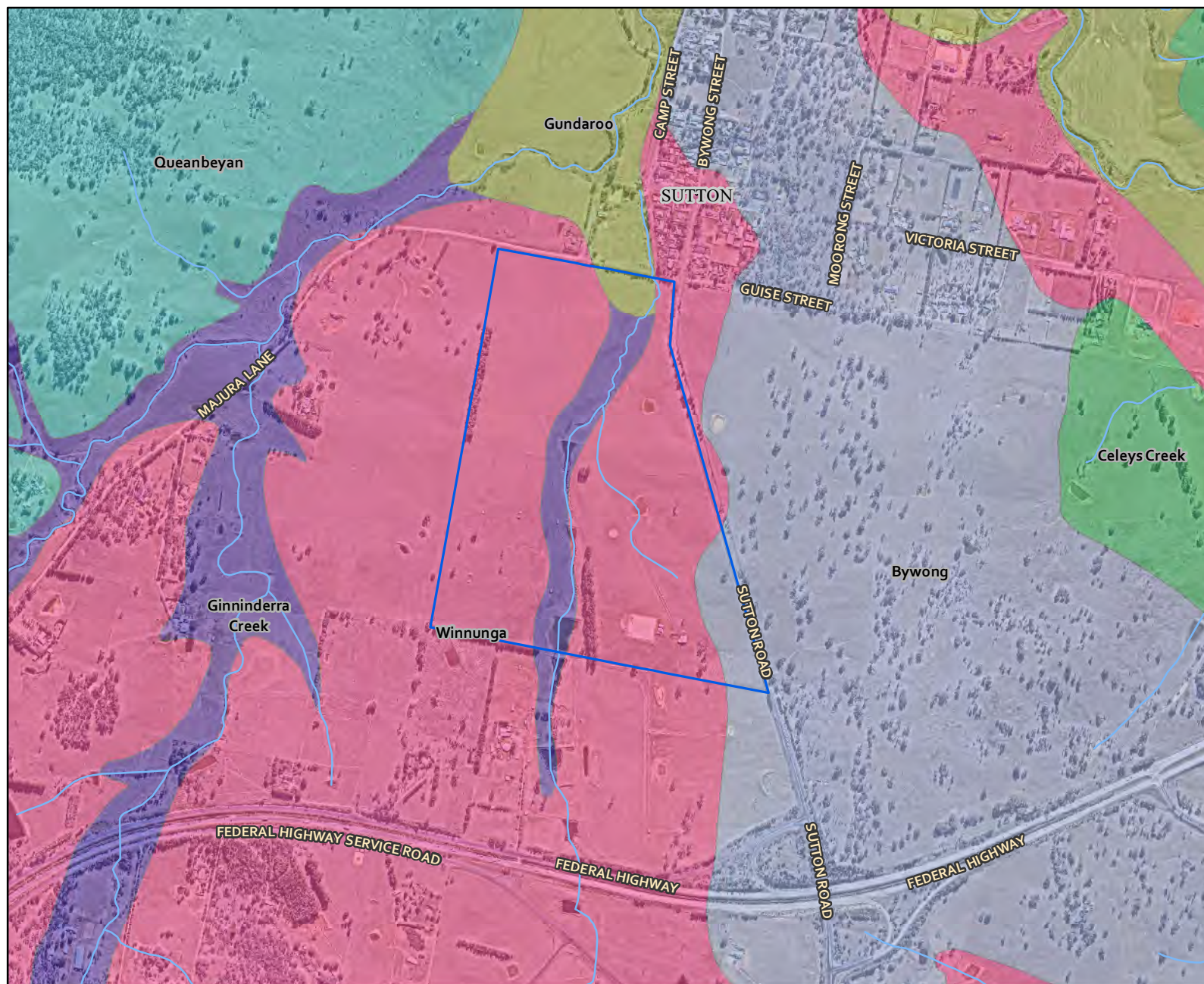
Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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Figure 6: Soils



### Legend

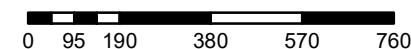
- Study Area
- Watercourse

### Soil Landscape

- Bywong
- Celeys Creek
- Ginninderra Creek
- Gundaroo
- Queanbeyan
- Winnunga



1:15,750



Meters

Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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### 3.3 FLORA AND FAUNA

The natural vegetation across the proposal area has been totally cleared and is now considered as a modified environment. Grass coverage appears to have been subject to pasture improvement and provides constant coverage over the thin soils. The boundary has been planted with pine windbreaks and along the creekline in the southern sections. The natural vegetation of the area prior to clearing and pasture improvement would most likely have consisted of temperate grasslands on the creek edges with native grasses under an understory of Eucalypts across the undulating slopes (Jenkins 2000:136).

The grassy woodland and creek line environment supported a wide range of edible plant and fauna species. Fauna present would range from fish, turtles, frogs, small marsupials (i.e. possums), to avian species and macropods. A range of lizards also inhabit this environment that would have been utilised by Aboriginal groups. Grass seeds and rushes from the flood zones may have been gathered for use in fibre production and ground into food supplies (Percival and Stewart 1997).

The project area would have provided a range of resources that may have been utilised by the Aboriginal community in the past and the broad, open country would have facilitated access and travel across the area.

### 3.4 LANDSCAPE CONTEXT

The landscape elements within the project area affect the findings of archaeological potential, based on the conditions for use and occupation of the landscape and the availability of resources present in the region. The presence or absence of landscape features, degree of slope and exposure to wind or cold drainage all affect the assessment of potential and influence predictive modelling for the presence of Aboriginal sites. In this instance, the project area is confined to side slopes and creek flats.

The study area covered the 73ha with survey concentrated on areas of impact on the north eastern section, proposed road alignment, and areas of potential based on predictive modelling. These areas were the basal slopes along the tributary to McLaughlin Creek which flows through the centre of the project area and the midslopes to the ridge crest to the west. The majority of the project area and all of the high impact areas are located amidst gently undulating lower and middle slopes to the tributary creek line.

Gradual gradient middle slope areas and rolling hill crests are generally considered to be amorphous and common through the landscape. These landforms do not hold any attractive features making them a focus of occupation, unless associated with changes in vegetation or proximity to larger water courses. Creek flat areas and lower slopes in close proximity to water sources are considered to hold moderate to low potential for Aboriginal heritage sites based on their aspect (level to gently sloping). Most common site placements are located on level terraces above the creek line, set back from the immediate creek bank. These areas have often suffered high levels of disturbance from previous farming activities which have impacted directly (damming, stock impacts) or indirectly (erosion, invasive weeds).

Based on previous assessment, ridge crests and high spur lines would appear to hold the highest potential for larger sites. This landform is not present within the current project area. Crests and spur lines are located to the south west and north east of the project area.

From review of aerial photos of the project area it would appear that no landforms or areas of high potential are located within the project area. The creek line (1<sup>st</sup> order waterway according to Strahler Classification system) would not have provided a consistent source of water in the past prior to its damming

and areas of potential may be present along its basal slopes depending on past impacts. It would appear most probable that the area would have been traversed in the course of group movements and hunting and gathering activities, but that large camp sites are unlikely in the project area.

Archaeological traces of these activities would consist of isolated artefacts or small artefact scatters which can occur anywhere throughout the landscape. The mapping of previous sites in the region suggests that the area of creek lines would be a focus of activity as water is a main resource. Being prone to flooding this landform may have held banks of rushes and may have been water laden during periods of rainfall resulting in 'boggy' ground. Preferred resting or camping locations would then be located on small rises of dry ground probably situated on alluvial terraces. These areas (generally classified as PADs) have been investigated in previous studies in the Sutton region, consistently returning the low density presence of Aboriginal artefacts.

The landforms across the project area are classified as a stable landscape on the slopes and a narrow aggrading one within creek flats and floodplains. Soils appear to have suffered only low impacts from pastoral activities within this floodplain area, but are thin in profile and highly erodible along the creekline banks.

The landscape of the project area suggests that Aboriginal groups would have travelled across and utilised the area. A known highly significant cultural feature (Lake George) is located to the north which would have been highly visited by Aboriginal people and campsites would be common along its length. The environment of Lake George would have provided 'refugia' during periods of climatic variation and drought, and groups travelling to Lake George followed traditional pathways (pers. comm Tyrone Bell 2018).

Traditional pathways are known to occur along the ridgelines to the northwest of the project area, but according to the RAPs for the project these pathways did not extend into or across the project area.

The Yass River located 1.5km to the west of the project area and McLaughlin's Creek 250m to the northwest would have been a focus of activity for the Aboriginal population and heritage sites would be expected to occur in higher densities across these more favourable areas rather than the level slopes of the project area, with an intermittent creek line for water supply.

### 3.5 PREDICTIVE MODEL

The spatial distribution of Aboriginal sites in the local area suggests that the area of McLaughlin's Creek would have been a focus for Aboriginal groups present in the area and thus focused away from the project area. Within the project area the tributary creekline is the area with the highest potential for the presence of sites or areas of PAD, depending on degree of disturbance. The lower densities of sites and artefacts found in previous studies in the area (AHS 2003, BHM 2014, Ecological 2018) is most likely a result of Aboriginal people moving through these areas for travel to Lake George and for food gathering, but not returning frequently to any one site or staying for a long term basis.

Based on this body of previous heritage work, the landscape context and previous disturbance to the area a site prediction model has been developed for the project (Table 2). This site prediction model is based on:

- ❖ Landscape features within the project area
- ❖ Probability of site type to be present



- ❖ Natural resources that may have been used by Aboriginal people within the project area
- ❖ Opportunities for movement through the landscape
- ❖ Soil properties.

**Table 2 Site Prediction Model**

Probability	Site Type	Definition	Landform
<b>Moderate/Low</b>	Isolated finds and surface scatters of stone artefacts	Stone artefacts ranging from single artefact to high numbers	Creek lines and spur crests. A minor creekline is present within the study area.
<b>Moderate/Low</b>	Potential Archaeological Deposits (PADS)	Area considered on landform to hold higher potential for unidentified subsurface deposits	Varies, but most frequent on elevated terraces along creek lines and spur lines - may be present depending on degree of disturbance
<b>Nil</b>	Culturally Modified Trees (CMTs)	Trees which have been modified by scarring, marking or branch twining	Wherever old remnant trees remain - cleared across project area
<b>Nil</b>	Rock Engravings	Images engraved on flat rock surfaces	Escarpments, rock platforms or rock shelters - not present
<b>Low</b>	Stone arrangements	Arrangements of stones by human intention, including circles lines or patterns.	Crest lines or large ceremonial areas on creek flats, but may occur on any landform
<b>Nil</b>	Stone quarries/Ochre sources	Quarry sites where resources have been mined.	Any landform.
<b>Nil</b>	Axe grinding grooves	Grooves in stone caused by the grinding of stone axes	Usually in creek lines, as water is used as abrasive with sand - not present
<b>Nil</b>	Burials	Burials of Aboriginal persons	Usually requiring deep sandy soils on eastern facing slopes – not present
<b>Nil</b>	Aboriginal places	A place that hold spiritual, traditional or historical significance to Aboriginal people	Any landform, identified through consultation with RAPs and historical sources

## 4 ARCHAEOLOGICAL FIELD SURVEY

A site visit and field survey of impact areas was undertaken on the 7<sup>th</sup> June 2017 as part of the Due Diligence Assessment to verify the findings of the desktop review of landforms and disturbance. The aim of the investigation was to identify heritage objects or places of potential archaeological Deposit (PAD). Based upon the background research, known Aboriginal site patterning, current aerial photography, existing ground disturbances and consultation with the land owner, a survey methodology was developed targeting the areas of impact or landforms with high potential.

The methodology involved a pedestrian survey across the areas of impact for the northern half of the property in accordance with the requirements of the Code of Practice. All of the impacts from the proposed development are confined within this northern section. Special attention was given to areas where ground surface visibility existed. All surveyed areas and items of interest were recorded on a topographic map of the study area (using a GPS and GDA 94 coordinates), along with levels of visibility, erosion, soil conditions, evidence of disturbance and the extent of any PAD areas.

In the southern section of the subdivision, where the existing land use will continue and no impacts are expected, the survey concentrated on the creek margins and basal slopes as areas of higher potential. Areas of exposures on vehicle tracks and fence lines were also examined. Survey units are shown on Figure 7. The pedestrian transects walked as part of the field survey shown in Figure 8.

### 4.1 ARCHAEOLOGICAL SURVEY AIMS

The principle aims of the survey were to:

- ❖ Provide the heritage team an opportunity to view the Project Area and to identify landforms and levels of previous disturbance.
- ❖ Complete pedestrian survey of the Project Area focused on areas of construction impacts and visually inspecting areas and landforms with the potential for Aboriginal heritage.
- ❖ Identify and record any heritage sites visible on the ground surface.
- ❖ Identify and record areas of potential archaeological deposits (PADs).

### 4.2 FIELD SURVEY SAMPLING STRATEGY

The project area covers a range of landforms. Survey Units were based on topographical divisions which covered several of these landforms within each unit. Where fence lines divided the topography the enclosed paddock was allocated a separate survey unit. As a result the project area was divided into four main survey units. The distribution of survey units and landforms is shown in Figure 7.

Low density scatters and isolated Aboriginal stone artefacts have been previously located in lower slope landforms along McLaughlin's Creek (AHS 2003, BHM 2014), mainly within 100m of the creek line and on elevated landforms to escape cold air drainage. This type of landscape feature is considered to hold moderate/low potential for unrecorded heritage sites, with the entire creek frontage considered sensitive for archaeological sites. As a result, the entire length of the creek frontage was examined, including the southern section, where no land use change will occur due to the development.

The predictive model indicates a significant difference in the potential among the different land forms, particularly with distance from the creekline and lower potential along the long undulating side slopes. Despite this difference, the survey aimed to achieve the greatest coverage possible of all landforms and survey units. All landforms within the project area were sampled during the field survey though ground surface visibility (GSV) varied due to grass length and erosional exposures at the time of survey.

All survey units were sampled with spaced pedestrian transects with the estimated % of survey units (SU) surveyed ranging from a high of 48% on creek flats to 3.5% on lower slopes due to grass coverage and lower levels of surface exposures. A detailed discussion of survey coverage and results of the pedestrian survey is provided in Section 4.4.

The area of each Survey Unit is provided in Table 3.

Table 3. Survey Units (m<sup>2</sup>)

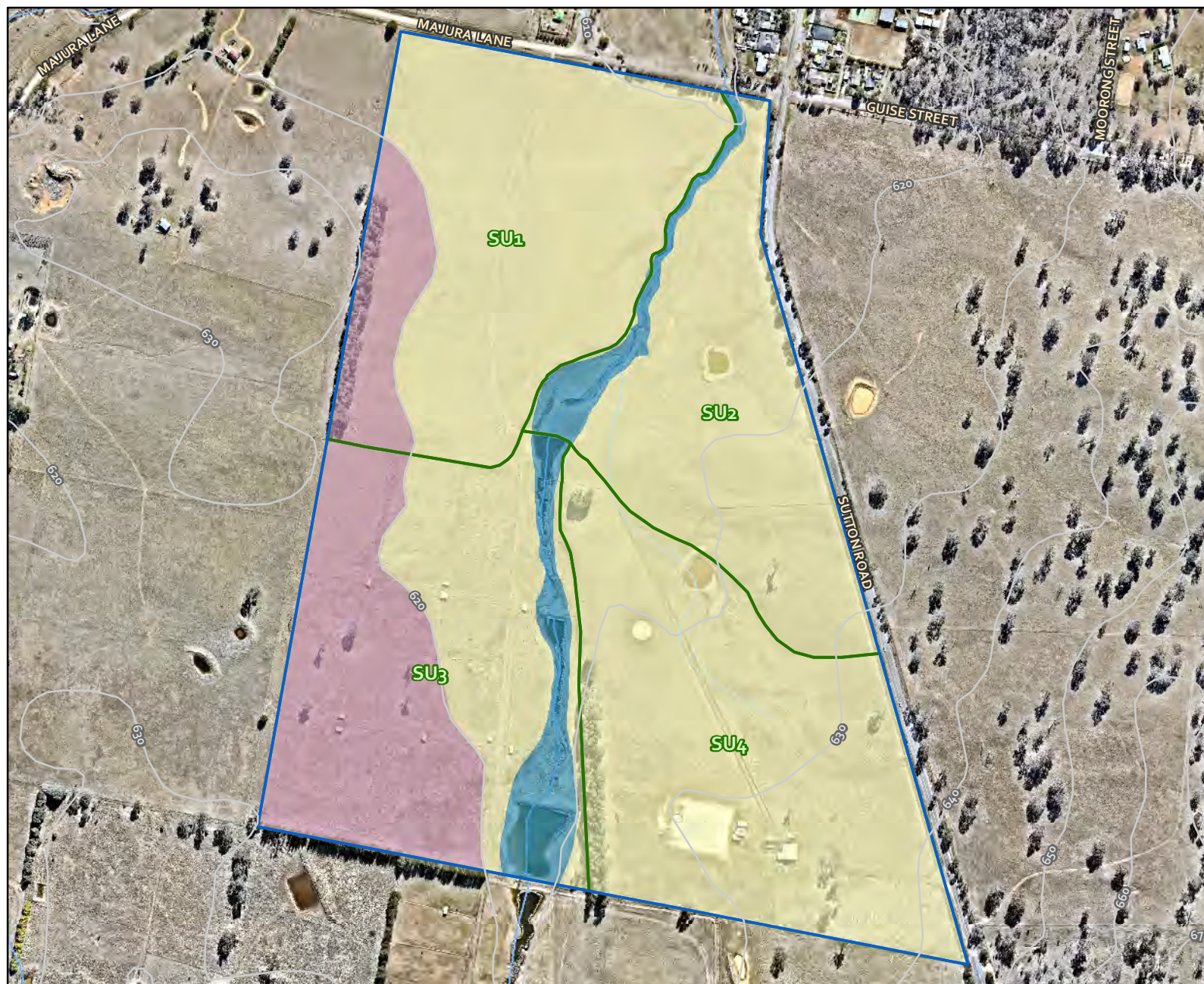
Survey Unit	Creekflat	Lower slopes	Middle slopes	Total
SU1		159050	31994	191045
SU2	14048	128113		142161
SU3	26356	74311	99842	200509
SU4		197638		197638
(blank)				
Grand Total	40405	559112	131837	731353

### 4.3 FIELD SURVEY METHODS

The archaeological survey was conducted on foot by Lyn O'Brien of Past Traces. The survey was conducted in accordance with the archaeological survey requirements of the Code of Practice (DECCW 2010). Information that was recorded during the survey included:

- ❖ Aboriginal sites identified during the survey.
- ❖ Survey coverage.
- ❖ Natural resources utilised by Aboriginal people.
- ❖ Landforms
- ❖ Photographs of the project area
- ❖ Ground surface visibility (GSV) and areas of exposure.
- ❖ Levels of disturbance





**Figure7: Landforms and Survey Units**

### Legend

- Watercourse
- Contour - 10m

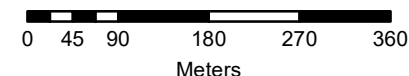
- Study Area
- Survey Unit

### Landform

- Creekflat
- Lower Slopes
- Middle Slopes



1:7,500



Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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## 4.4 ARCHAEOLOGICAL SURVEY RESULTS

Field survey was conducted walking transects at an average spacing of 20m across the project area. The survey was undertaken at a time when surface visibility was high across the project area and grass length was very low. Regular exposures were present across the Project Area consisting of the following:

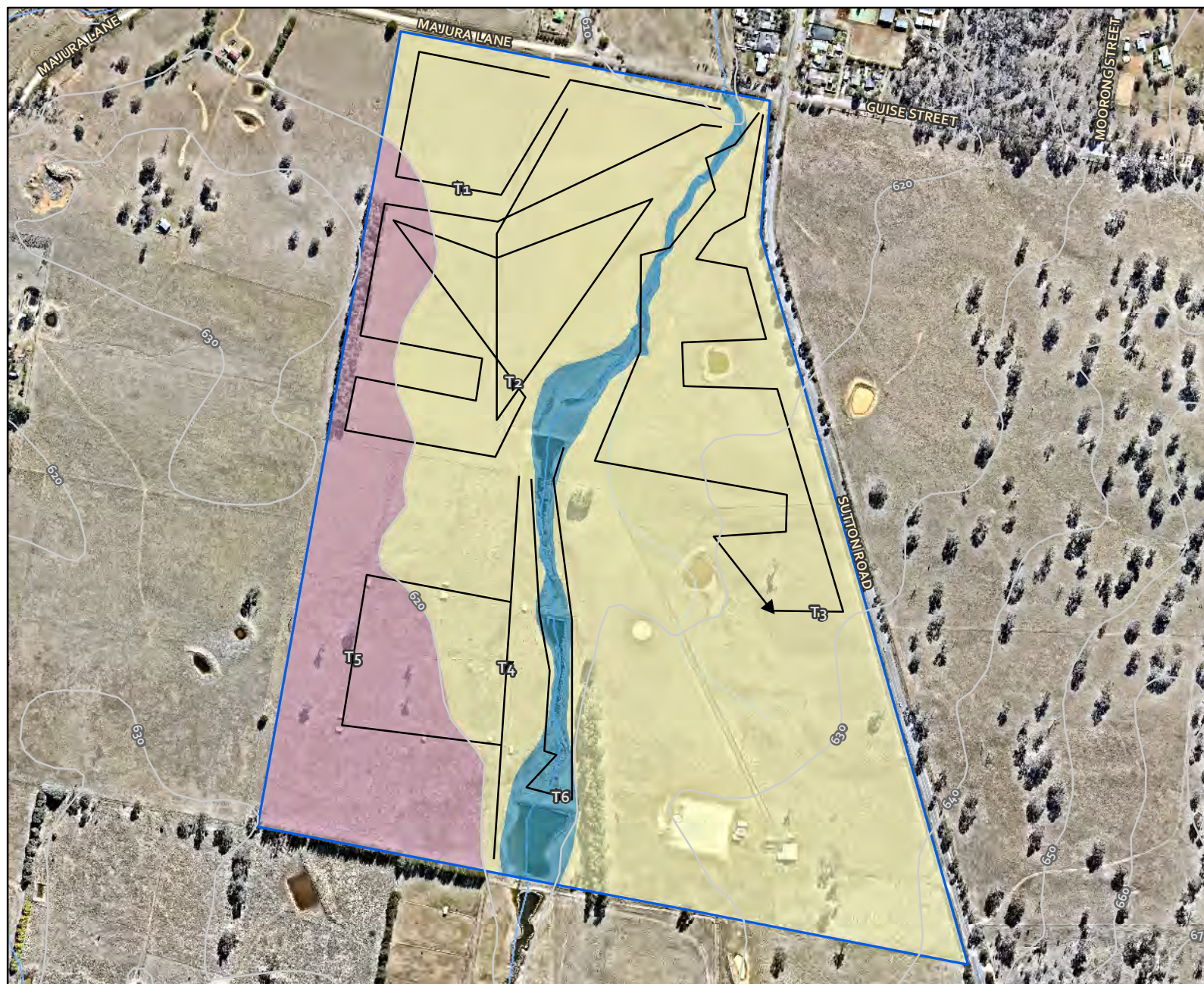
- ❖ Vehicle access roads – Vehicle impact tracks run from the main entrance gate on Majura Lane, bisecting the project area separating into two in the northern section. These tracks provided long areas of linear exposure across all the main landforms particularly at gate entrances at fence lines.
- ❖ Animal tracks – various confined stock impact tracks across the grassed areas were present with large areas of exposure at congregation points under trees.
- ❖ Creek line – creek line exposures were present along both banks of the tributary creek line.
- ❖ Erosion – areas of erosion and sparser grass coverage were present throughout the Project Area particularly on middle slope and creek edge landforms.

Transects were positioned to cover all landforms present within the Project Area. Landforms consisted of simple slopes (upper, middle and lower) and open creek flats in the vicinity of the creek line. These pedestrian transects, and landforms within the Project Area are shown on Figure 8. Transect details are provided in Table 4.

Table 4. Transect Details Survey 2018

Transect	Transect Length (m)			
	Creekflat	Lower Slopes	Mid Slopes	Total Length
T1		789.40	66.59	855.99
T2		2170.71	648.83	2819.55
T3	175.59	1972.10		2147.69
T4		502.48		
T5		192.88	408.81	601.69
T6	348.82	609.04		957.87
Total length (m)	524.41	6236.62	1124.23	7885.26





**Figure 8: Landforms and Transects**

### Legend

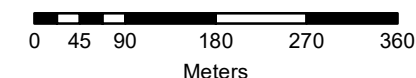
- Watercourse
- Contour - 10m
- Transects
- Study Area

### Landform

- Creekflat
- Lower Slopes
- Middle Slopes



1:7,500



Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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#### 4.4.1 Ground Surface Visibility (GSV) and Levels of Disturbance

Ground Surface Visibility (GSV) is the percentage of ground that can be visibly assessed. GSV varies by the degree of grass coverage across the ground surface, presence of leaf litter, branches and the presence of natural gravels. Exposures are areas that provide high levels of GSV and usually result from erosion, stock impacts, clearing, previous construction or vehicle trails. The higher the rate of exposures and the background GSV of a survey unit (SU) the higher the effectiveness of the field survey.

Background GSV varied through the project area, due to the degree of erosion and grass coverage. GSV was highest along the creek flat landforms where erosional features were prevalent. In these areas the degree of soil clearly visible is estimated at 45-60%. GSV was lowest across the undulating lower slopes where grass coverage was constant, though still allowing for bare earth to be visible. In these areas the GSV decreased to an average of 25%.

The GSV, degree of disturbance and rate of exposures for each landform is provided in Table 5 below. Plates 1 to 12 show indicative areas of landforms and exposures within the project area.

Table 5. Ground Surface Visibility Rating

Landform	GSV	Degree of Disturbance	Mechanism of disturbance
<b>Creek flat</b>	60%	High	Vegetation clearing in past, animal trail impacts, some vehicle trails at crossing points, erosion on bank edge
<b>Lower slopes</b>	25%	Low	Vegetation clearing in past. Grass coverage with several erosion exposures. GSV within exposures 90%. Exposure high at 15%. Ploughing undertaken.
<b>Mid slopes</b>	25%	Low	Vegetation clearing in past, confined areas of erosion on slopes, vehicle trails and animal trails evident. Exposures at 25%. Pasture improvement undertaken historically.





Plate 1. SU1 -lower slopes looking east



Plate 2.SU1 – GSV



Plate 3. SU1 – middle slopes looking north



Plate 4. SU1 – middle slopes looking southeast



Plate 5. SU2 – looking northwest



Plate 6.SU2 – exposure along creekline





Plate 7: SU3 – impacted areas



Plate 8 :SU4 – area of impact along creekline



Plate 9: typical creek line exposure



Plate 10: exposures SU2



Plate 11: erosional scour SU1



Plate 12: exposure at transmission line

The presence of erosion across the project area was assessed visually. Soil structures were assessed to be stable, aggrading or eroding across the project area as defined in Speight 1990. No large areas of active erosion were identified despite areas having been impacted in isolated scours on slopes and sparse grass coverage within areas of lower slopes. This would concur with description of the soils of the area as being stable. Areas of erosion were present along the creekline banks and this feature is classified as erosional. It is concluded that the soils within the landforms appear to have been impacted on exposed areas of side slopes with potential for soil deposits to be present within the project area on level areas where sediments can accumulate and along level areas of lower slopes.

#### 4.4.2 Survey Coverage

The factors of GSV, level of disturbance, the number of survey participants and the spacing of transects all combine to provide estimates of survey coverage and effectiveness.

A single team member completed the field survey at approximately 20m spacing, inspecting an area of 2m on each side during the pedestrian walkover, considered to be the maximum distance of effective coverage (Burke and Smith 2004). The physical area inspected with the GSV and exposure rate for each Survey Unit and Landform taken into account provides the survey coverage.

The landform summary and a summary of effective survey coverage for the Project Area is provided in Table 6 and 7. These calculations are based on the formula provided in Requirement 10 of the Code of Practice.

Table 6. Survey Coverage

Landform	SU Area (m2)	GSV %	Exposure %	Effective Coverage Area (SU area x GSV% x Exp%)	Effective coverage (Eff coverage area/SU Area x 100)
Creek flat	40886	60%	80%	19625	48
Lower slopes	55862	25%	15%	2094	3.75
Mid slopes	131837	25%	25%	8239	6.25

Table 7. Landform Summary

Landform	Area (m2)	effective coverage area (m2)	% of landform surveyed	no of sites	No of PAD
Creek flat	40886	19625	48	0	0
Lower slopes	55862	2094	3.75	0	3
Mid slopes	131837	8239	6.25	0	0



## 4.5 NEW HERITAGE SITE RECORDINGS

The field survey identified no aboriginal heritage sites within the project area. Three areas of PAD were identified, two outside of the proposed areas of impact, with the remaining PAD impacted under the current subdivision layout.

The areas of PAD identified by the field survey are detailed below under their site designations and shown on Figure 9.

### 4.5.1 PADST1 : MGA Zone 55 (centre point 704983.6105923)

PADST1 is located on a large area of level terrace to the west of the tributary creek line. This level area is currently the location of the polo cross field and high GSV was present through this section of lower slopes. The PAD extends for an area of 100m x 100m centred on 704983.6105923 (MGA Zone 55). The location of the PAD area is shown in Figure 9 and the following plates.



Plate 13. PAD ST1 looking north



Plate 14. ST1 looking southwest

### 4.5.2 PADST2 : MGA Zone 55 (centre point 704889.6105735)

PADST2 is located on a level terrace on the western bank of the tributary creekline. Although disturbance is high in this area (transmission line and vehicle track across creek line with formed access) this area of PAD extends for 50 x 50m. The location of the PAD area is shown in Figure 9 and Plates 15 and 16.





Plate 15 : looking northwest



Plate 16: looking east

#### 4.5.3 PADST3 : MGA Zone 55 (centre point 704983.6105694)

PADST3 is located on a level terrace on the eastern bank of the tributary creekline and opposite to PADST2. Although disturbance is high in this area with the vehicle track across creek line with formed access, this area of PAD also extends for 50 x 50m. The location of the PAD area is shown in Figure 9 and Plates 17 and 18.



Plate 17 : PADST3 on far side of creek



Plate 18: ST3

## 4.6 SUMMARY OF ARCHAEOLOGICAL SURVEY RESULTS

The area of the proposed works has been subject to low levels of prior disturbance across the entire project area. This disturbance is evident in the form of vehicle access road, creek crossing, removal of all native trees, planting of pine windbreaks, construction of electricity easement and pasture improvement. Stock impacts are present in the form of impact trails, particularly evident at creek crossings. Ground surface visibility is estimated to be fair to moderate across the project area, higher in the northern portion due to grazing by livestock. Surface visibility is estimated to be 25% on the mid slopes and as high as 60% across some areas of basal slopes in the eastern section. Grass levels were low due to stock grazing, allowing areas of bare ground to be seen across the landforms.

Exposures across the project area consisted of the graded access road that provided clear coverage at 90%, only limited by the occurrence of natural gravels. In addition, vehicle impact trails were present across all areas, stock impact trails were also present and areas of erosion were recorded. Small areas of erosion were present amongst the pine covered hill slopes with large exposed areas due to stock impacts.

No surface sites were located and one area of PAD (PADST1) was identified on a level terrace to the west of the tributary creek line within the area of impact. The PAD extends for an area of 100m x 100m centred on 704983.6105923 (MGA Zone 55). The location of the PAD area is shown in Figure 9.

In summary, the survey resulted in the following findings;

- ❖ No previously recorded Aboriginal heritage sites are present within the project area.
- ❖ No Aboriginal heritage sites were identified by the field survey
- ❖ Three areas of PAD were identified within the project area, one of which will be impacted under the current subdivision layout.
- ❖ Soils appeared to be erosional or stable (vestigial) in nature dependant on landform. Soils appeared thin and overlaying shale bedrock at surface or shallow levels.
- ❖ GSV was generally high across the project area due to very low levels of grass coverage and large areas of erosion scours.
- ❖ Subsurface testing is therefore required in the PADST1 to determine the presence, extent, and significance of any deposits in these areas as impacts will occur in these areas. PAD ST2 and ST3 are not located near any proposed works and will not be impacted.

As a result of the field survey it is concluded that it is unlikely that any unidentified cultural heritage sites are located within the Project Area, due to the high level of GSV present across the study area at the time of field survey and the disturbed nature of most of the project area (along the existing access roads). The PADs identified are in accordance with the predictive model for the region being located on level terraces in proximity to the tributary creekline.





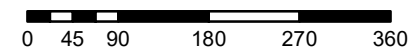
**Figure 9: Results of  
Field Survey**

**Legend**

- PAD Locations
- Watercourse
- Contour - 10m
- Study Area
- PAD



1:7,500



Meters

Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

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## 5 SUBSURFACE TESTING OF PADS

An area of PAD, PADST1 has been identified during the field survey which requires testing to determine the presence, extent and significance of subsurface deposits. The subsurface testing was carried out in the following areas in 2019 and in accordance with the methodology detailed in section 5.2.

### 5.1 AIMS OF THE SUBSURFACE TEST EXCAVATIONS

Subsurface testing was undertaken to determine the presence, significance and extent of any archaeological subsurface deposit which may be present within the identified area of potential archaeological deposit (PAD).

The aims of the testing programme are to:

- ❖ Determine whether sub surface deposits are present
- ❖ Determine the extent and nature of the deposits.
- ❖ Identify the degree of disturbance within the PAD area by examining the soil profile and stratigraphy.
- ❖ Analyse any Aboriginal material recovered
- ❖ In consultation with RAPs determine the significance of any cultural material.
- ❖ Develop management strategies for any heritage items identified by the subsurface testing program.

### 5.2 EXCAVATION METHODOLOGY

The following excavation methodology was developed consisting of a series of test pits measuring 50 x 50cm to be excavated across the identified area of sensitivity to determine the presence of subsurface deposits and to locate any areas of differing density of artefacts.

The following methodology was followed:

- ❖ Five Transect lines of 50 x 50cm test pits were placed across the PAD area at 20m distance. Each test pit was spaced 10m apart along these transect lines. Based on previous research in the project area and the soil profile, cultural material is most likely to occur in the upper layers prior to 50cm depth. As a result each test pit was excavated to a maximum of 50cm or if cultural material was located to a culturally sterile layer below the artefactual layers. This equals 30 test pits.
- ❖ Pits were hand excavated with recording of spit levels, presence of artefacts, and any stratigraphic features. Each test pit was photographed at end and pH measurements for each excavation level recorded.
- ❖ Spit intervals were 50mm for the first spit then 100mm unless cultural or stratigraphic features required this interval to be varied as set out in the Code of Practice.
- ❖ All excavated material was dry sieved through a 5mm mesh. The excavation and sieving stations were under the direction of heritage staff assisted by representatives of the RAPs.



- ❖ Any cultural material recovered was labelled with its location and depth, recorded, analysed and reburied in accordance with the Code of Practice in each excavated square.
- ❖ If any of the following were present then excavation would have ceased:
  - Human bone material;
  - Dense or significant archaeological material
  - Bedrock layer is reached.
- ❖ As soon as possible after completion test pits were backfilled with excavated soil.

### 5.3 ANALYSIS OF CULTURAL MATERIAL

A basic analysis of lithic variables such as raw material, size, primary and secondary flaking characteristics (platform and termination type, degree of retouch) was undertaken on recovered lithics from subsurface contexts for the study area as an assemblage.

On completion of the lithic analysis the items were reburied at the bottom of each excavation square in accordance with the requirements of the Code of Practice (OEH 2010).

Lithic categories are based as follows:

- ❖ Flakes – dorsal and ventral face, platform and termination
- ❖ Retouched flakes – negative scars removed after ventral face creation (flake detachment)
- ❖ Flaked pieces – negative scars on dorsal face but ambiguous ventral face and striking platform
- ❖ Cores – one or more negative scars but no positive scars
- ❖ Angular shatter – indistinct scar faces assumed to be cultural based on association with cultural material

### 5.4 RESULTS OF SUBSURFACE TESTING PROGRAMME

The subsurface testing program was undertaken from the 29<sup>th</sup> and 30<sup>th</sup> of July 2019 in accordance with the testing methodology. Results of the test pitting programme are provided below with the remainder of the test pit photos and sections for each testpit provided in Appendix 2.

#### 5.4.1 PADST1 : MGA Zone 55 (centre point 704983.6105923)

PADST1 is located on a large area of level terrace to the west of the tributary creek line. This level area is currently the location of the polo cross field and high GSV was present through this section of lower slopes. The PAD extends for an area of 100m x 100m centred on 704983.6105923 and was assessed to hold moderate potential due to its location and landform.

A program of 30 test pits were plotted along five parallel transects at 10m intervals. The test pits were excavated to the underlying clay strata in a 50cm x 50cm test pit. A 10m spacing was chosen as the most effective spacing to test the large area and to firstly determine if any artefacts were present. The location of the excavated test pits is shown in Figure 10.

A total of two artefacts (quartz flakes) were recovered from only 1 (TP27) of the 30 excavated test pits. The artefacts were located within the top 10cm of deposit (Spit 1a and 1b) within a sandy/light brown fine silty loam which overlays the shale and yellow/orange base clay. This overlaying silt was present in all test pits.

The basal clay levels were consistently reached at 20 – 30cm. Results for test pit 27 is provided in the following section and results (photos and stratigraphy) for each test pit is provided in Appendix 2.

The location of the test pits across the area of PAD is shown in Plate 19 and 20, listed in Table 8 and mapped on Figure 10.



Plate 19. Looking east



Plate 20. Looking south

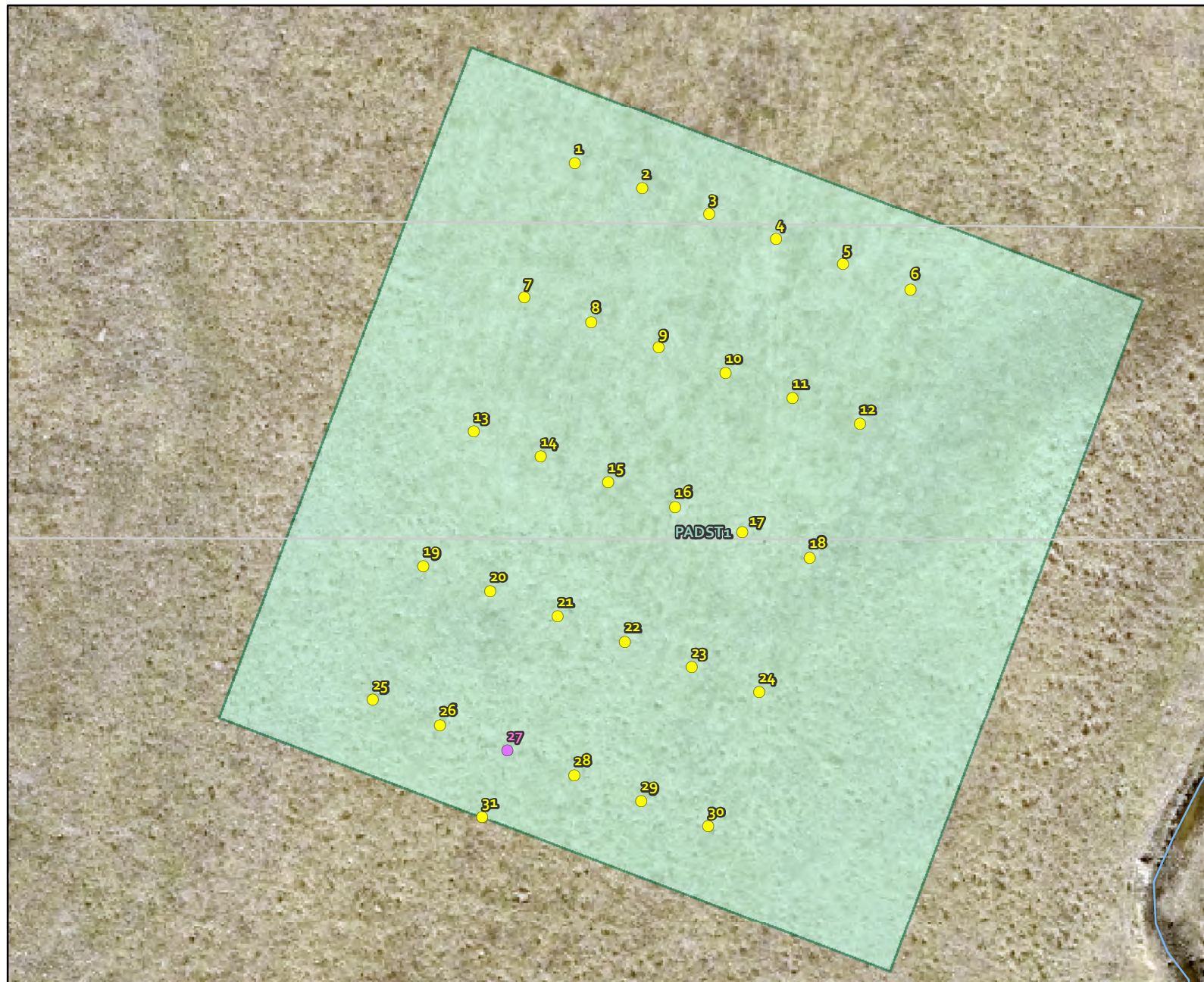
Table 8. Testpit locations (MGA Zone 55)

Testpit No	Easting	Northing
1	704968	6105971
2	704978	6105968
3	704987	6105964
4	704996	6105960
5	705006	6105957
6	705015	6105953
7	704961	6105952
8	704971	6105949
9	704980	6105945
10	704989	6105942

Testpit No	Easting	Northing
11	704999	6105938
12	705008	6105935
13	704954	6105934
14	704964	6105930
15	704973	6105927
16	704982	6105923
17	704992	6105920
18	705001	6105916
19	704947	6105915
20	704957	6105911
21	704966	6105908
22	704975	6105904
23	704985	6105901
24	704994	6105897
25	704940	6105896
26	704950	6105893
27	704959	6105889
28	704968	6105886
29	704978	6105882
30	704987	6105879
31	704955	6105880



**Figure 10: Location of Test Pits**

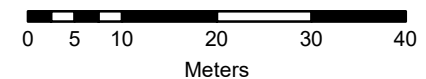


**Legend**

- Test Pit - No
- Test Pit - Artefacts
- Watercourse
- Study
- PAD



1:800



Coordinate System:  
GDA 1994 MGA Zone 55

Imagery: © Nearmap

**PastTraces**  
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### 5.4.2 Testpit 27.

A representative stratigraphy of the testpits from PADST1 is shown in the profile of Testpit 27. This testpit was the only location to hold artefactual material, but apart from this exception, the soil profile was consistent with all of the excavated testpits across the area of PAD.

The stratigraphy of test pit 27 is shown in Table 9. The soils within the test pit consisted of silty loam overlain on a compacted silty clay base. Test pit photos and sections from the remaining 29 test pits are provided in Appendix 2.

Table 9. Testpit 27 Section

Spit	Comment/Description	
1a – 0-5cm	Sandy/Orange/Light Brown silt loam fine grained topsoil with grass rootlets – highly friable, loose compaction.	
1b – 5-10cm	As above – silty loam.	
2 – 10-20cm	Light orange/sandy loam with orange/yellow clay lenses	
3 – 20-30cm	ceased on orange clay at 25 cm.	

Two artefacts were identified within Spit 1 at a depth of 5-10cm within an orange/light brown sandy loam with small gravels throughout. Details of the recovered artefact is provided below in Table 10 and the artefact is shown in Plate 21.

Table 10. Details of recovered artefacts

Artefact Type	Material	Dimensions (mm)	Comments
Flake	quartz	20 x 14 x 5	Flaked platform, feather termination, 2 neg scars. Usewear on Right Lateral Margin.
Flake	quartz	19 x 12 x 6	Facetted platform, feather termination, sharp backing retouch along Right Lateral Margin.



Plate 21. Recovered artefacts

Both of the recovered artefacts were manufactured on quartz. Quartz routinely predominates throughout the region as the most common material (Packard 1986, AHS 2003). Lance (2009) has suggested that quartz was mainly used due to its great availability and its more intractable nature.

With the recovery of only two artefacts no statistical analysis can be undertaken. Flakes and quartz are the most common artefact type and material recorded through the Sutton region and in this density are considered to be background scatter – the material remains of the continual, intermittent utilisation of the area by Aboriginal people over a prolonged period of time.

## 6 ARCHAEOLOGICAL SIGNIFICANCE ASSESSMENT

### 6.1 INTRODUCTION TO THE ASSESSMENT PROCESS

The NSW heritage assessment criteria is set out in the NSW Heritage guideline Assessing Heritage Significance (NSW Heritage 2001) and requires assessment against the four values in the Australia ICOMOS Burra Charter (2013) generally accepted as heritage best practice.

These values are (as defined in NSW Heritage 2001):

- ❖ **Historical significance** refers to historic values. Items which demonstrate strong associations to a particular event, historical theme, people or philosophies, regardless of the intactness of the item or any of its structures hold varying levels of significance.
- ❖ **Aesthetic significance** refers to items which demonstrate creative, aesthetic or technical excellence, innovation or achievement. Aesthetic items may also have been the inspiration for creative achievement.
- ❖ **Social/cultural significance** refers to items which are esteemed by the community for their cultural values; which if damaged or destroyed would cause the community a sense of loss; and/or items which contribute to a community's sense of identity.
- ❖ **Scientific significance** refers to the assessment of whether a site has the ability to reveal valuable archaeological, technical, or scientific information.

For assessing the significance of Aboriginal sites the two main sections that are applicable are cultural values to the Aboriginal community and archaeological (scientific) values (ICOMOS 2013).

There are two criteria generally used in assessing the scientific significance of heritage sites:

- ❖ Research potential – the potential of a site to provide information which is of value in the scientific analysis of research questions.
- ❖ Representativeness – an assessment of whether the artefact or place is a good representative of its type.

Cultural value to the Aboriginal community can only be assessed by discussion with RAPs and feedback provided in response to the site identifications.

### 6.2 SCIENTIFIC SIGNIFICANCE ASSESSMENT

The following archaeological significance assessment is based on Requirement 11 of the *Code of practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010). Using the Burra Charter assessment criteria of representativeness, condition and research potential, a rating of scientific significance was determined for the identified heritage sites. Table 11 provides the results of the archaeological significance assessment.

Site ST1 is small, consists of only two artefacts which are common flakes on quartz the most common material in the region. This information and site location will further support existing information but will not provide new or innovative research themes. The site holds low scientific significance.

Table 11 : Scientific significance assessment of ST1

AHIMS	Site name	Research Potential	Representativeness	Condition	Scientific Significance
Pending	ST1	Low	Common	fair	Low

### 6.3 CULTURAL SIGNIFICANCE

All heritage sites are important to Aboriginal people and all represent the past occupation and use of the region by Aboriginal people. As a reminder of the widespread nature of Aboriginal occupation, site provide a physical guide to usage, and points for education, discussion and if important enough cultural transmission of knowledge.

Aboriginal communities do not accept the western view of site importance with all sites being considered to be of overall importance within the landscape.

The Aboriginal RAPs have stated that the site still hold significances and that impacts should be minimised whenever possible.

### 6.4 STATEMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Stone artefact site ST1 located within the study area represents a common site type found throughout New South Wales and consists of common materials and artefact type. The recorded site is considered to hold low cultural and scientific values. Due to the nature of the site it is not considered to hold a regional level of significance warranting conservation.



## 7 IMPACT ASSESSMENT

### 7.1 DEVELOPMENT IMPACTS

The proposed development requires a high level of disturbance within the Project Area. The proposed rural subdivision will cause disturbance in the form of soil excavation, vegetation removal, infrastructure installation, heavy vehicle and plant movement across the site and revegetation following completion of works. Impacts will be confined to the areas of building envelopes, access roads and associated infrastructure all within the northern section of the project area.

The types of activities that will impact the ground surface and sub-soils include:

- ❖ Excavation of house footings
- ❖ Installation of underground services, such as sewerage, water, gas and telecommunications
- ❖ Construction of access roads and fire trails

Areas away from the proposed building envelopes in the southern section will continue under their current usage with no additional impacts from the proposed subdivision into additional blocks.

Design of the development has been undertaken to try to avoid impact to the heritage sites, removing impacts from PADS ST2 and ST3. However, due to the nature of the development, impacts will occur in the northern section to the newly identified site of ST1.

The assessed statement of impact for the Aboriginal archaeological sites in the Project Area has been summarised in Table 12.

Table 12: Summary of potential archaeological impact

AHIMS	Site name	Type of Harm	Degree of Harm	Impact of Harm
Pending	ST1	Direct	Total	Removal of value

### 7.2 SUSTAINABLE DEVELOPMENT PRINCIPLES

Australia's *National Strategy for Ecologically Sustainable Development (1992)* defines ecologically sustainable development as: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'. The impacts of any development should be addressed and assessed against these principles.

#### 7.2.1 Intergenerational Equity

Intergenerational equity is a concept that says that humans 'hold the natural and cultural environment of the Earth in common both with other members of the present generation and with other generations, past and future' (Weiss, 1990, p. 8). This concept can be explained as the belief that resources and assets (such as cultural heritage sites) do not belong to anyone but are held in trust for all future generations

Within Aboriginal communities intergenerational equity is maintained by the transmission of cultural knowledge, traditions and continued access and visitation to cultural sites. Loss of cultural knowledge, heritage sites or access to sites is detrimental to the current and future communities.

Destruction of cultural heritage sites may impact on future generations if by the action the cultural record is significantly altered or a continuing traditional link is broken. Assessing these impacts can be addressed by understanding the significance of sites, the range and variety of the site type that is present in the area and the role that the site plays with the Aboriginal community. Sites may play various roles as teaching sites, ceremonial areas or areas for cultural traditions (birthing trees, scarred trees, rock shelters for example).

These issues have been discussed with the RAPs for the project and what the effect of their destruction would be to the Aboriginal community. Responses to this question were that the sites were on private land and relatively common, consisting of artefact scatters, that the use of the area was well known to the community (and the importance of Lake George and connection routes) and this would continue to be passed on. The impact of destruction would be negligible, though the destruction of any site should be avoided where possible. No further mitigation or options could be suggested by the community apart from those contained in the recommendations in the following section, which have been devised to incorporate their views and developed after consultation with the RAPs.

### **7.2.2 Cumulative Impacts**

Developments in the Sutton area are planned for the future and the cumulative impacts by the continued destruction of sites is of concern to the community and should be addressed by continued assessments and focus on preserving sites that are either intact, contain many artefacts, or are significant to the community. The determination of which sites warrant conservation should be undertaken by heritage professionals and the Aboriginal community through a process of consultation and involvement. When sites are impacted by developments, the retention of cultural information through incorporation of place names and signage within developments should be considered to inform the public and retain connection to the Aboriginal past use of the landscape.

The cumulative impact of future developments at Sutton Road, would appear to be limited, due to the predictive model which indicates that the area holds low archaeological potential. However, any future housing developments will need to be assessed for their heritage impacts during the development assessment process and consultation with the Aboriginal community undertaken.

## 8 MANAGEMENT AND MITIGATION STRATEGY

Avoidance of impact to archaeological and cultural heritage sites through design of the development is the primary mitigation and management strategy, and should be implemented where practicable. In cases where avoidance and conservation is not practical, the salvage of artefacts, gathering of information through collection (especially where impact cannot be avoided) and interpretation are management options.

For this project, the small size of the area of identified PAD (with deposits) and the low significance of the site does not warrant exclusion from the area of impact in the form of a conservation area. The nature of the site being common, consisting of common artefact types and materials and being low in significance does not warrant this class of treatment to ensure their preservation. The location of the building envelope will result in the destruction of the site.

As impacts are unavoidable within the site location an Aboriginal Heritage Impact Permit (AHIP) will need to be applied for to allow construction to progress. The AHIP area details are provided in Table 13 and shown in Figure 11.

Table 13. AHIP Co-ordinates

Location	Easting	Northing
Corner 1	704933.7	6105914
Corner 2	704983.8	6105914
Corner 3	704983.8	6105864
Corner 4	704934.1	6105864
Centre	704933.7	6105914

### 8.1 MANAGEMENT RECOMMENDATIONS

Based on results of the archaeological program and consultation with the Registered Aboriginal Parties the following recommendations have been developed in regards to Aboriginal Cultural Heritage values and heritage sites located within the Project Area. Following the implementation of these heritage recommendations development of the area should be able to proceed.

The management recommendations for the project are:

- ❖ The project area contains an Aboriginal heritage site (ST1) which will be impacted by the location of the housing subdivision. As the heritage site is to be impacted, an AHIP approved by NSW Department of Planning, Industry and Environment (DPI&E) covering the area will be required. An application for an AHIP should be submitted prior to any works commencing. The AHIP area is shown in Figure 11.
- ❖ No impacts may occur to any of the identified Aboriginal Heritage site ST1 unless an Aboriginal Heritage Impact Permit (AHIP) has been granted allowing harm to occur.
- ❖ It is an offence to disturb an Aboriginal site without an AHIP as all Aboriginal objects are protected under the *NSW National Parks and Wildlife Act 1974*. Should any Aboriginal



objects be encountered during works then works must cease and a heritage professional contacted to assess the find. Works may not recommence until cleared by OEH.

- ❖ In the unlikely event that human remains are discovered during the construction, all work must cease. OEH, the local police and the appropriate Local Aboriginal Land Council (LALC) should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal.
- ❖ Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the RAPs for the project and may include further field survey.
- ❖ Continued consultation with the RAPs for the project should be undertaken. RAPs should be informed of any major changes in project design or scope, further investigations or finds.
- ❖ No further heritage investigations are required should the AHIP be approved, except in the event that unanticipated Aboriginal Objects and/or human remains are unearthed during any phase of the Project.

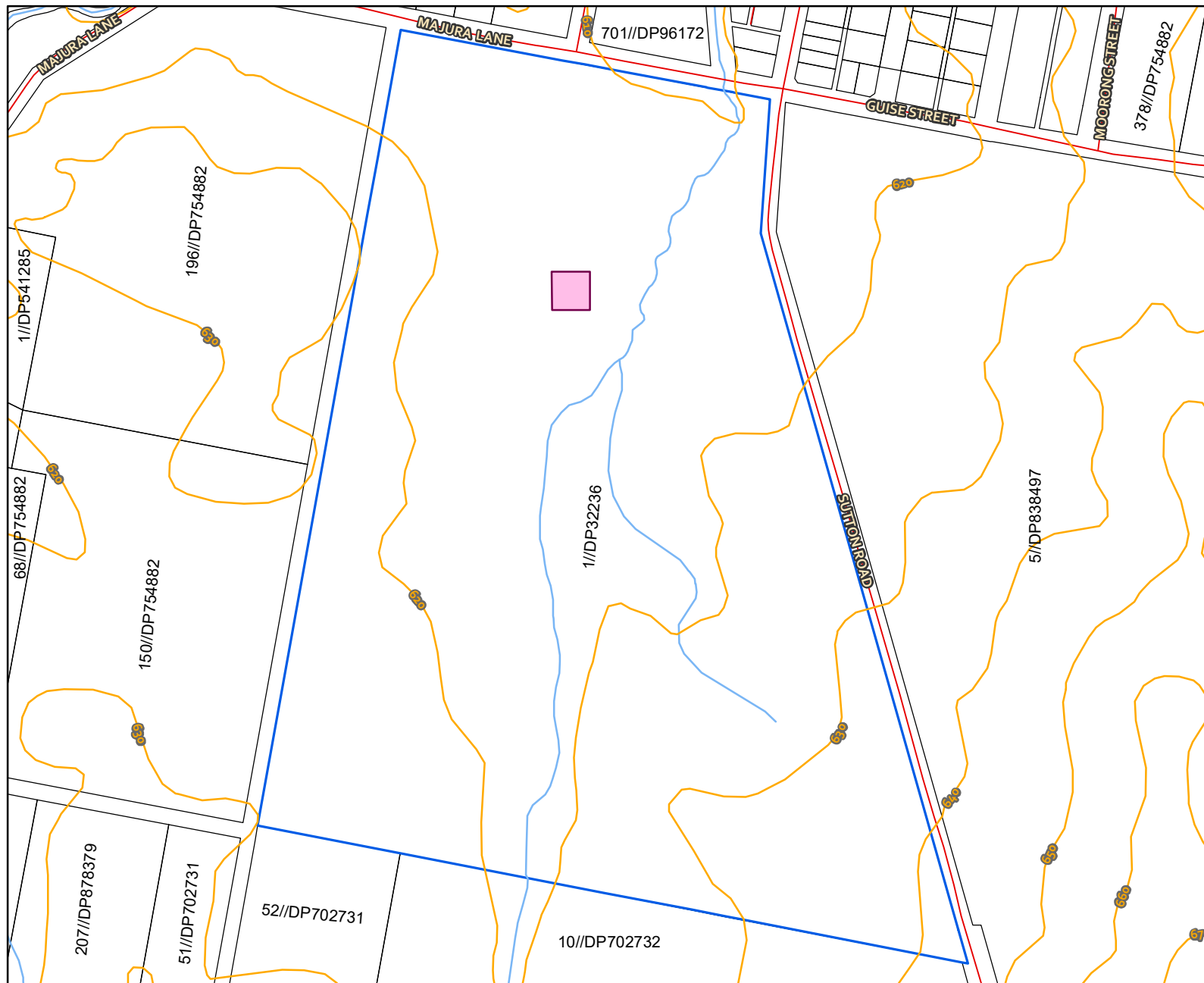


Figure 11: AHIP Area -  
Land to which AHIP applies

### Legend

- Contour - 10m
- Roads
- Watercourse
- AHIP Area
- Study Area
- Cadastre



1:7,500

0 45 90 180 270 360  
Meters

Coordinate System:  
GDA 1994 MGA Zone 55

**PastTraces**  
Heritage Consultants

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## **A.1 AHIMS SITE SEARCH**





# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 006  
Client Service ID : 284958

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-2-0047	C-AB29 Sutton Rd/Federal Hwy	AGD	55	705500	6104300	Open site	Valid	Artefact : -	Open Camp Site	497,811
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0306	WS6	AGD	55	703750	6106420	Open site	Valid	Artefact : 1		98663
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0301	WS1	AGD	55	703750	6106420	Open site	Valid	Artefact : 34		98663
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0045	C-AB27 Macs Reef Rd	AGD	55	706250	6104600	Open site	Valid	Artefact : -	Open Camp Site	497
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0046	C-AB28 Macs Reef Rd	AGD	55	706180	6104400	Open site	Valid	Artefact : -	Open Camp Site	497
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0940	Sutton Road 5 (SR5)	GDA	55	705149	6106951	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							
57-2-0941	Sutton Road 6 (SR6)	GDA	55	705089	6106860	Open site	Valid	Artefact : -		
	<a href="#">Contact</a>	<a href="#">Recorders</a>	<a href="#">Permits</a>							

Report generated by AHIMS Web Service on 06/06/2017 for Lyn O'Brien for the following area at Lot : 1, DP:DP32236 with a Buffer of 1000 meters. Additional Info : heritage assessment.

Number of Aboriginal sites and Aboriginal objects found is 7

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

