yass valley council

the country the people

# Aboriginal Consultative Committee Meeting

**Tuesday 11 February 2020**
**4.00pm**
**Yass Valley Council Chambers**
**209 Comur Street, Yass**

# ABORIGINAL CONSULTATIVE COMMITTEE

## NOTICE OF MEETING

A meeting of the Aboriginal Consultative Committee will be held in Yass Valley Council Chambers 209 Comur Street, Yass, on Tuesday 11 February 2020, commencing at **4.00pm**

## AGENDA

**Page No.**

**Acknowledgement of Country**

**1. Apologies**

**2. Declarations of Interests**

**3. Confirmation of Minutes**

Minutes of Aboriginal Consultative Committee Meeting held on 13 August 2019
Notes of discussions held on 3 December 2019

**4. Presentations**

Inspector Matthew Hinton – report on police activities

**5. Staff Reports**

5.1 Inclusions on the State Heritage Register relating to Yass Gorge..... 12

**6. Next Meeting**

Members: Cr Turner, Cr McManus, Bradley Bell, Ken Bell, Lillian Bell, Pam Bell, Bob Buffington, Karen Denny, Rhonda Mercieca, Debbie Wallace.

# Minutes of the
# Aboriginal Consultative Committee Meeting

**Tuesday 13 August 2019**
4.00pm
Yass Valley Council Council Chambers
209 Comur Street, Yass

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# Minutes of the Aboriginal Consultative Committee Meeting held on 13 August 2019

## Present

Cr Michael McManus (Chair), Cr Kim Turner, Brad Bell, Karen Denny.

## Also present

Lillian Bell, Bob Buffington (from 4.10pm), Gabby Ianelli (Media & Communications Officer - to 4.20pm), Helen Maskell-Knight (Community Planner).

## Acknowledgement of Country

Cr McManus acknowledged the Ngunnawal people as the traditional custodians and paid respect to the Elders and their descendants.

## 1. Apologies

Apologies were received from Ken Bell, Pam Bell, Rhonda Mercieca, Alyssa Bell.

## 2. Declarations of Interest

Nil

## 3. Confirmation of Minutes

**COMMITTEE DECISION**

***That the minutes of the Aboriginal Consultative Committee Meeting held on 4 June 2019, copies of which had been circulated to all Councillors, be taken as read and confirmed.***

***(K Denny/K Turner)***

## 4. Presentations

Nil

## 5 Staff Reports

### 5.1 SIGNING OF OAK HILL & YASS ABORIGINAL CEMETERY PLAN OF MANAGEMENT

**SUMMARY**

The Oak Hill & Yass Aboriginal Cemetery Plan of Management has been in preparation since 2016 and is now ready for signature.

**COMMITTEE DECISION**

***That the Oak Hill & Yass Aboriginal Cemetery Plan of Management be signed at the meeting, the occasion be photographed and the wider community informed.***

Cr McManus expressed appreciation to those who had participated in the Plan's development.

## 5.2 ANNUAL REPORT

### SUMMARY

The *Standard Committee Constitution & Instrument of Delegation* provides for the preparation of an Annual Report.

**COMMITTEE DECISIONS**

***That the Annual Report for 2018/19 be adopted for presentation to Council.***

***That inactive members of the Committee be thanked for their contributions and advised that their membership has concluded.***

***That nominations be invited for new members of the Committee.***

***(B Bell/K Denny)***

## 5.3 COMMITTEE MEETINGS IN 2019-20

### SUMMARY

Setting dates for Aboriginal Consultative Committee meetings for the year would facilitate the management of committee business.

**COMMITTEE DECISIONS**

***That meetings of the Aboriginal Consultative Committee be scheduled for 4.00 pm on:***

- ***8 October 2019***
- ***3 December 2019***
- ***11 February 2020***
- ***7 April 2020***
- ***9 June 2020***

***That Yass Police be invited to send a representative to future meetings of the Committee.***

***That Council endorse a representative of Yass Police as an ex-officio member of the Committee.***

***That Mr David Maxwell from the Ginninderry Joint Venture and Mr Wally Bell, Chair of Ginninderry Aboriginal Advisory Group (GAAG), be invited to the 8 October meeting to consider how best to achieve a focus on Ngunnawal heritage for development on the NSW side of the border.***

***(K Denny/B Bell)***

## 6. General Business

### SUMMARY

Members advised concern about the location of the proposed Yass to Murrumbateman pipeline being close to waterways and Aboriginal pathways. It was noted that the Cultural Heritage Assessment report prepared for Council advised that no Aboriginal sites had been identified in the area proposed for the pipeline and that the area was of low archaeological significance.

Members also advised that surveying and other activity was being undertaken behind the Yass Showgrounds – a ceremonial site – and that there are surface scrapings along the Yass Gorge leading down to the Old Blacks Camp.

**COMMITTEE DECISIONS**

***That Council be asked to provide written advice to the Committee regarding:***

- ***whether the processes and consultation guidelines prescribed by the Office of Environment and Heritage were followed in preparing the Cultural Heritage Due Diligence Assessment of the Yass to Murrumbateman Pipeline Project;***
- ***the actions taken to address Aboriginal heritage issues in the course of completing the assessment; and***
- ***any development proposed for the area bounded by Therry Street, Meehan Street and the Yass River.***

***(B Bell/K Turner)***

## 7. Next Meeting

Tuesday 8 October at 4.00 pm in Yass Valley Council Chambers.

The meeting closed at 5.00 pm.

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# Notes from the Aboriginal Consultative Committee Meeting

**Tuesday 3 December 2019**

4.00pm

Yass Valley Council Chambers

209 Comur Street, Yass

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# Notes from the Aboriginal Consultative Committee Meeting held on 3 December 2019

**Present**

Cr Kim Turner (Chair), Cr Michael McManus, Brad Bell, Karen Denny.

**Also present**

Alyssa Bell, Inspector Matt Hinton, Sergeant Dave Cowell, Helen Maskell-Knight (Community Planner)

**Acknowledgement of Country**

Cr Turner acknowledged the traditional owners and their descendants and Brad Bell welcomed those present.

## 1. Apologies

Apologies were received from Lillian Bell, Bob Buffington, Debbie Wallace, Pam Bell, Ken Bell.

**Note:**
*As there were insufficient members present to form a quorum the meeting was adjourned until the next scheduled meeting of the Committee in 2020. The members in attendance determined to continue with the presentations and informal discussions on the agenda items.*

## 2. Presentations

Inspector Matt Hinton made a presentation outlining the importance to police of relationship-building to their role in the Yass community. He identified a desire to establish support mechanisms for people in contact with the criminal justice system and provided brochures which outlined how police wished to engage. Inspector Hinton advised that he and Sergeant Cowell were the points of contact for the Aboriginal community.

Inspector Hinton advised that the police were involved in several community initiatives and programs which provided both community support and relationship-building opportunities, among them the 'Fit for Life' Program for secondary school students which started in Yass in August 2019.

Brad Bell advised that there was a significant drug problem in the community, affecting both Aboriginal and non-Aboriginal people, and encouraged the police to be active in addressing it.

Inspector Hinton and Sergeant Cowell were invited by Onerwal representatives to make informal visits to the Onerwal LALC office to break down perceived barriers and to build on these visits with initiatives such as drug education programs.

Inspector Hinton agreed with the proposal that a report from Yass Police be a standing item on the Committee's meeting agenda.

## 3. Declarations of Interest

Nil

## 4. Confirmation of Minutes

**COMMENTS**

***That the minutes of the Aboriginal Consultative Committee Meeting held on 13 August 2019, which had been circulated were confirmed.***

***(McManus/Denny)***

## 5. Business Arising

Nil

## 6. Staff Reports

### 6.1 APPOINTMENT OF COMMITTEE MEMBERS AND NEW CHAIR

**SUMMARY**

This report advises of Council's appointment of a new Chair of the Aboriginal Consultative Committee and two additional committee members at its 28 August 2019 meeting.

**COMMENTS**

***That the appointments to the Committee be noted.***

***(K Denny/McManus)***

### 6.2 ASSESSMENT OF THE IMPACT ON ABORIGINAL HERITAGE OF THE YASS TO MURRUMBATEMAN PIPELINE AND WORKS NEAR YASS GORGE

**SUMMARY**

This report responds to the request made at the 13 August 2019 meeting of the Aboriginal Consultative Committee for advice on the Aboriginal heritage assessments undertaken in relation to the Yass to Murrumbateman Pipeline and works in the vicinity of the Yass Gorge.

**COMMENTS**

***That:***

1. ***The reports on the Aboriginal heritage assessments for the Yass to Murrumbateman Pipeline and works in the vicinity of Yass Gorge be noted.***
2. ***The State Heritage Register be checked to establish what parts of the Yass Gorge are on the register and a report be provided to a future meeting of the Committee.***
3. ***Council be requested to invite oversight of the Pipeline and Yass Gorge construction work by a representative of the Aboriginal community.***
4. ***All of Council's major projects include an assessment of Aboriginal heritage impact and consultation with the Local Aboriginal Land Council.***
5. ***Council's Annual Capital Works Program be provided to the Committee each year to facilitate engagement with the Aboriginal community.***
6. ***Council ensure compliance with Aboriginal Participation in Construction Guidelines.***

***(B Bell/M McManus)***

## 7. Next Meeting

Tuesday 11 February 2020, at 4.00pm in Yass Valley Council Chambers, 209 Comur Street, Yass

The meeting closed at 5.30 pm.

## 5.1 INCLUSIONS ON THE STATE HERITAGE REGISTER RELATING TO YASS GORGE

### SUMMARY

This report responds to the request made at the informal meeting of the Aboriginal Consultative Committee on 3 December for advice as to what parts of Yass Gorge are on the State Heritage Register.

### RECOMMENDATION

*That the report be noted.*

### FINANCIAL IMPLICATIONS

Nil.

### POLICY & LEGISLATION

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (2010)
- *Guide to investigations, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011)

### REPORT

No part of the Yass Gorge is on the State Heritage Register.

The former Town Camp is listed as Item A288 on the Local Environment Plan (LEP). The Town Camp LEP citation and the report prepared in relation to raising the dam wall are attached.

Only the area owned by Council has been included in the LEP and this area does not reflect the boundaries of the camp (see map below).

At Council's request, the site has been assessed under the Local Land Services Cultural Heritage Assessments program, but nothing has been found.

Earlier community intentions to nominate the Town Camp as an Aboriginal Place do not seem to have progressed.

**ATTACHMENTS:**
A. Town Camp LEP citation ⇩
B. Report on raising the Yass Dam wall ⇩

# Yass Valley Council

SHI number
**2750065**
Study number
**55**

**Item name:** Town Camp (former)

**Location:** Yass Valley

**Address:**

**Planning:** Southern & Western

**Suburb/nearest town:** Yass 2582

**Local govt area:** Yass Valley

**Parish:** Hume

**State:** NSW

**County:** Murray

**Other/former names:**

**Area/group/complex:**

**Group ID:**

**Aboriginal area:** Ngunawal

**Curtilage/boundary:**

**Item type:** Archaeological-Terrestrial **Group:** Aboriginal **Category:** Historic site

**Owner:** Local Government

**Admin codes:** **Code 2:** **Code 3:**

**Current use:**

**Former uses:** Aboriginal settlement

**Assessed significance:** Local **Endorsed significance:** Local

**Statement of significance:**

**Historical notes of provenance:**

**Themes:**

| National theme | State theme | Local theme |
|---|---|---|
| 2. Peopling | Aboriginal cultures and interactions with | |

**Designer:**

**Builder:**

**Year started:** **Year completed:** **Circa:** No

**Physical description:**

**Physical condition level:**

**Physical condition:**

**Archaeological potential level:**

**Archaeological potential Detail:**

**Modification dates:**

**Recommended management:**

**Management:**

| Management category | Management name |
|---|---|
| Statutory Instrument | List on a Local Environmental Plan (LEP) |

**Further comments:**

# Yass Valley Council

SHI number
**2750065**
Study number
**55**

**Item name:** **Town Camp (former)**

**Location:** Yass Valley

**Criteria a): [Historical significance]** The site is associated with the history of Aboriginal occupation in the Shire, and government policies in the late 19th and early 20th centuries which saw the forcible relocation of Aboriginal people out of town camps such as this and into government reserves.

**Criteria b): [Historical association significance]**

**Criteria c): [Aesthetic/ Technical significance]**

**Criteria d): [Social/Cultural significance]**

**Criteria e): [Research significance]**

**Criteria f): [Rarity]**

**Criteria g): [Representative]**

**Intactness/Integrity:**

**References:**

| Author | Title | Year |
|---|---|---|

**Studies:**

| Author | Title | Number | Year |
|---|---|---|---|
| Giovanelli and McCann | Yass Shire Rural Areas Heritage Study | 55 | 2003 0 |

**Parcels:**

| Parcel code | Lot number | Section number | Plan code | Plan number |
|---|---|---|---|---|

**Latitude:** **Longitude:**

**Location validity:** **Spatial accuracy:**

**Map name:** **Map scale:**

**AMG zone:** **Easting:** **Northing:**

**Listing:**

| Name | Title | Number | ListingDate |
|---|---|---|---|
| Yass Valley LEP 2013 | Local Environmental Plan | A288 | 19/07/2013 |

**Data entry:** Data first entered: 04/06/2003 Data updated: 09/03/2017 Status: Completed

# Yass Valley Council

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**Item name:** Town Camp (former)

**Location:** Yass Valley

**Image:**

**Caption:** Town Camp.
**Copy right:** Yass Valley Council
**Image by:** Peter Kabaila
**Image date:** 05/09/2006
**Image number:**
**Image url:** http://www.environment.nsw.gov.au/maritimeheritageapp/resources/Heritage/shi/275/2750065b2.jpg
**Thumbnail url:** http://www.environment.nsw.gov.au/maritimeheritageapp/resources/Heritage/shi/275/t_2750065b2.jpg

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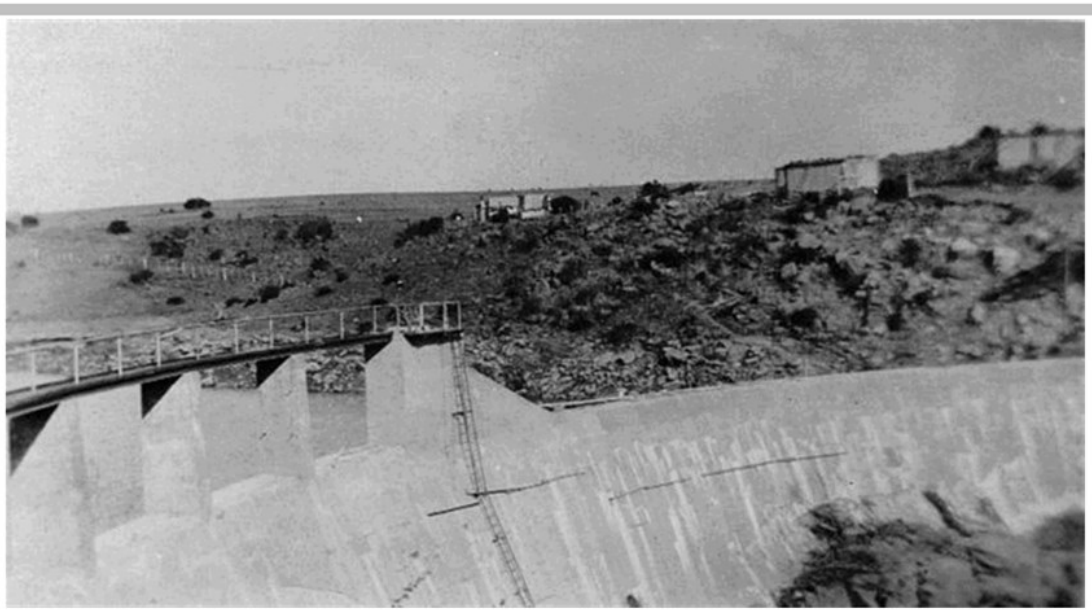

**Caption:** Yass Weir 1927 few Aborigines Humpies in background. Ten Iron Huts erected at "Hollywood" so that Aborigines could mve from her (sic). (Whitehurst Collection NLA)
**Copy right:** Yass Valley Council
**Image by:**
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# Yass Dam Raising
# Yass NSW
# Indigenous and Non-Indigenous Cultural Heritage Assessment

February 2009

A Report to Lara Hess
NSW Department of Commerce
McKell Building 2-24 Rawson Place
Sydney NSW 2000

*Julie Dibden*
*New South Wales Archaeology Pty Limited*
*PO Box 2135 Central Tilba NSW 2546*
*Ph/fax 02 44737947 mob. 0427074901*
julie@nswarchaeology.com.au

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## 1. SUMMARY

### 1.1 Introduction

New South Wales Archaeology Pty Ltd was commissioned by the NSW Department of Commerce (NSW DoC) in September 2008 to undertake a cultural heritage assessment of the proposed Yass Dam Raising Project.

Yass Valley Council is investigating options to augment their water supply to increase a secure yield; raising the Yass Dam by 3 metres is the preferred option under investigation. It is proposed to raise the level of the dam wall crest using ground anchors. The raised dam would result in additional inundation extending approximately 10 kilometres up stream of the dam wall.

Additional works associated with the project include upstream works at four road culverts to improve fish passage.

This report has been prepared as a specialist study for the environmental assessment under Part 5 of the Environmental Planning and Assessment Act 1979.

### 1.2 The Methodology

An investigation for Indigenous and Non-Indigenous cultural heritage within the proposal area has been conducted by representatives of NSW Archaeology Pty Ltd, Buru Ngunawal Aboriginal Corporation, Onerwal Local Aboriginal Land Council and Buranya Corporation.

The study has sought to identify and record any Aboriginal objects and items of European heritage which may be present in the proposal area, to assess the archaeological potential of the landform elements present and to formulate management recommendations based on the results of background research, a field survey and site significance assessment.

A landscape based approach and methodology has therefore been implemented during this study. The proposal area has been divided into a number of Survey Units each of which has been defined on the basis of a combination of environmental variables. In this study Survey Units have been defined according to a combination of landform element, gradient and aspect. Survey Units are utilised as a framework of recording and analysis.

Field work was undertaken in November 2008. The field survey was focused on investigating zones of proposed impact which were subject to a comprehensive assessment. These areas are defined below:

- The additional inundation area associated with the dam raising was surveyed and assessed on both sides of the Yass River between the Dam wall and Pearses Bridge;
- The four upstream culvert sites; and
- The proposed construction areas located on either side of the dam wall.

The New South Wales National Parks and Wildlife Service has prepared a draft document which provides a series of guidelines regarding the assessment and management of Aboriginal cultural heritage in New South Wales. This report has been prepared in accordance with these draft guidelines (NSW NPWS 1997). Additionally the study has been conducted in accordance with the Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants (NSW DEC 2004).

### 1.3 Previously Recorded Sites

Two searches of the New South Wales DECC Aboriginal Heritage Information Management System (AHIMS) have been conducted:

- Site search AHIMS #23821 encompasses the Yass dam area including the additional inundation areas. A total of 33 registered Aboriginal are listed in this search (noting however that one site is duplicated: both #51-4-0030 and #51-4-0038 are the one site: Y23). These previous site recordings are not situated within the proposed impact areas. Several site recordings are however located in close

proximity to the dam wall and accordingly have the potential to be impacted as a result of construction activities. These sites are discussed further below in Section 7.

- Site search AHIMS #23822 encompasses the area upstream of the dam including the four culvert areas. One Aboriginal object is listed in this search; its location is away from the four areas of proposed impact.

1.4 Results

Four locales containing stone artefacts were recorded. Artefact density calculations based on surface indicators indicate that all artefact locales contain low density artefact distributions. The four sites are unlikely to contain associated subsurface deposit and are assessed to be of low significance. Three trees bearing scars were also recorded in the inundation area. The cause of the three scars is uncertain however, based on their characteristics and morphology are assessed to be likely to have been caused by natural processes rather than human extraction.

The Survey Units present in the study area associated are each assessed to be of low or very low archaeological potential based on various factors including nature of the topography, erosional processes and steep gradients.

The proposed inundation area and culvert sites are assessed to be of low archaeological potential and sensitivity.

The proposed construction works area, as defined in a revised plan, located on the west side of the dam wall, is all assessed to be of low sensitivity and no sites were recorded. Initially the east side of the dam wall was proposed as an alternative works construction site. Given the proximity of this area to the Riverside Camp (#51-1-0043) – otherwise known locally to the Indigenous community as the *old black's camp*, and the likelihood that an access road would to traverse a part of the camp, the proponent has removed this area from the area of proposed impacts.

1.5 Recommendations

It is recommended that (see Sections 12 and 13 for a full listing of recommendations):

- The proponent should give due consideration to the discussion in regard to management and mitigation of Aboriginal artefact locales and Survey Units as outlined in Section 12 of this report.

- The proposed areas are assessed to be of low archaeological potential and sensitivity. Accordingly, no further archaeological assessment is considered necessary in relation to the proposed impacts.

  The four locales containing Aboriginal stone artefacts recorded in the proposal area do not surpass any scientific significance thresholds which would act to preclude impacts which may ensue as a result of the proposal. Accordingly, if impacts to any of the stone artefact locales recorded in the proposal area are proposed unmitigated impacts are justified. S90 Consent would need to be sought from DECC.

  It is noted however that one of the recorded artefact locales is situated outside areas of proposed impact. Accordingly this artefact locale will not sustain impacts relating to the proposal.

- It is recommended that all construction works are sited on the western side of the dam wall and that the area located on the east side of the wall be exempt from all construction impacts.

*Acknowledgements*

Gratitude is extended to the following people for their assistance in this project:

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Eric Bell and Greg Hatfield, Buranya Corporation
Michael Owen, Yass Valley Council
Lara Hess and Margaret Balandin, NSW Department of Commerce
Steve Free and Phil Boot, NSW Department of Environment and Climate Change

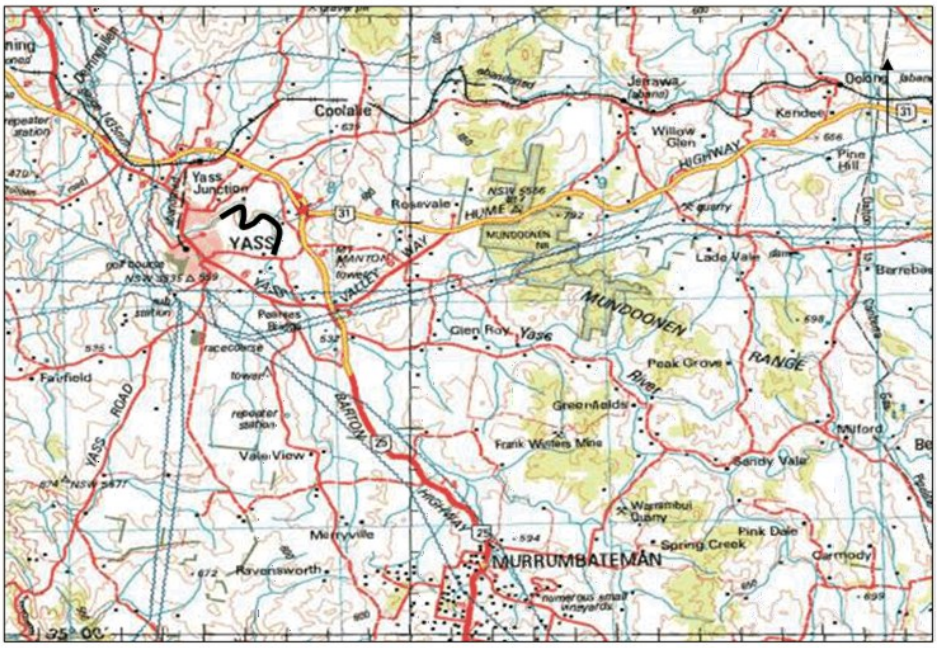


Figure 1. Location of the proposal area in a local context (Goulburn 1:250,000 topographic map).

## 2. INTRODUCTION

### 2.1 Introduction

Yass Valley Council is investigating options to augment their water supply to increase a secure yield; raising the Yass Dam by 3 metres is the preferred option under investigation. It is proposed to raise the level of the dam wall crest using ground anchors. The raised dam would result in additional inundation extending approximately 10 kilometres up stream of the dam wall (Figure 1).

Additional works associated with the project include upstream works at four road culverts to improve fish passage.

New South Wales Archaeology Pty Ltd has been commissioned by the NSW Department of Commerce to undertake a cultural heritage assessment of the proposed Yass Dam Raising Project. The scope of the cultural heritage assessment has been defined as follows:

- The area directly surrounding the dam wall including a construction area located on the west side of the dam. *It is noted that initially the location and extent of a construction works area had not been finalised; accordingly alternative sites on both sides of the dam wall were assessed. However subsequently a construction compound location has since been finalised. In light of the sensitivity of the area on east side of the wall relating to an old Aboriginal camping area the west side of the wall has been chosen as the construction site.*

- The area inundated by the raised storage level and consideration of increased flood levels due to the raising; and

- Four upstream culvert sites.

This report documents the results of the investigation.

In accordance with the NSW NPWS guidelines for archaeological reporting this report aims to document:

- the proposed impacts;
- the involvement in the project of the Aboriginal community;
- the methodology implemented during the study;
- the environmental setting of the study area in order to establish background parameters;
- a review of archaeological and relevant literature and heritage listings on the NSW DECC Aboriginal Heritage Information Management System;
- a synthesis of local and regional archaeology;
- a predictive model of site location relevant to the proposal area;
- a review of heritage databases (Australian Heritage Council, NSW Heritage Council and local heritage listings).
- the archaeological sensitivity of the landforms subject to proposed impacts;
- the field survey strategy and results; and
- a series of recommendations based on the results of the investigation.

The field work component of this project has been conducted by Julie Dibden, Rebecca Parkes, NSW Archaeology Pty Ltd, Karen Denny, Buru Ngunawal Aboriginal Corporation, Greg Hatfield, Buranya Corporation, and Paulina Sili, and Julie Payne, Onerwal Local Aboriginal Land Council. This report has been written by Julie Dibden.

## 3. PARTNERSHIP WITH THE ABORIGINAL COMMUNITY

This project has been undertaken in accordance with the NSW DECC Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants (IGACC) (NSW DEC 2004). The NSW DECC requires proponents to undertake consultation with the Aboriginal community "…as an integral part of the impact assessment" process (NSW DEC 2004).

The NSW DECC manages Aboriginal cultural heritage in NSW in accordance with the National Parks and Wildlife Act 1974. Part 6 of the Act provides protection for Aboriginal objects and Aboriginal Places. When an activity is likely to impact Aboriginal objects or declared Aboriginal Places approval of the Director-General of the NSW DECC under s90 or s87 of the NPW Act is required. The decision as to whether or not to issue s90 Consent or a s87 Permit is based on the supply to the NSW DECC by a proponent of adequate information to enable the Director-General to make a decision (NSW DEC 2004).

When administering its approval functions under the NPW Act the NSW DECC requires applicants to have consulted with the Aboriginal community about the Aboriginal cultural heritage values (cultural significance) of Aboriginal objects and places present in the area subject to development (NSW DEC 2004).

The NSW DECC requires consultation with the Aboriginal community because it recognises the following:

- That Aboriginal heritage has a cultural and archaeological significance and that both should be the subject of assessment to inform its decision process;
- That Aboriginal people are the primary determinants of the significance of their heritage;
- That Aboriginal community involvement should occur *early* in the assessment process to ensure that their values and concerns can be taken into account and so that their own decision making structures can function;
- That the information arising from consultation allows consideration of Aboriginal community views about significance and impact and allows for management and mitigation measures to be considered in an informed way (NSW DEC 2004).

The community consultation process as outlined in the IGACC document aims to improve the assessment process by providing the Aboriginal community with an opportunity to:

- Influence the design of the assessment of cultural and scientific significance;
- Provide relevant information about cultural significance values of objects/places;
- Contribute to the development of cultural heritage management recommendations; and
- Provide comment on draft assessment reports (NSW DEC 2004).

The role of the Aboriginal Community is outlined by the NSW DEC (2004) as follows:

- The Aboriginal community is the primary determinant of the significance of their heritage;
- The Aboriginal community may participate in the process via comment on the assessment methodology and contribution of cultural knowledge; and
- The Aboriginal community may comment on cultural significance of potential impacts and/or mitigation measures.

Fulfilment of the consultation requirements as outlined in the IGACC document has been undertaken as follows:

1. Notification and Registration of Interests

   New South Wales Archaeology Pty Ltd, on behalf of the proponent, has actively sought to identify stakeholder groups or people wishing to be consulted about the project and has invited them to register their interest as follows:

   Written notification about the project dated 30 September 2008 has been supplied to the following bodies:

   - Onerwal Local Aboriginal Land Council
   - Native Title Services

- Yass Valley Council
- The NSW Department of Environment and Climate Change

The Registrar of Aboriginal Owners was not notified of the project given that the proposal area is not situated within a National Park which possesses a register of Aboriginal owners.

In addition an advertisement has been placed in the Yass Tribune. The closing date of registration of interest was noted as 16th October 2008.

Following advice received from Yass Valley Shire Council in correspondence dated 9 October 2008, and the NSW DECC dated 10 October 2008, additional letters were sent to the following groups and individuals notifying them of the project:

- Buraanya Corporation;
- Ngunnawal Local Aboriginal Land Council;
- Yass Valley Indigenous Consultative Committee;
- Ngunnawal Heritage Aboriginal Corporation;
- Yurwang Gundana Consultancy Heritage Services;
- Buru Ngunawal Aboriginal Corporation; and
- Carl and Tina Brown.

The following groups and individuals registered an interest in this project:

- Buraanya Corporation;
- Onerwal Local Aboriginal Land Council (by phone);
- Yurwang Gundana Consultancy Heritage Services (by phone);
- Buru Ngunawal Aboriginal Corporation; and
- Ngunnawal Heritage Aboriginal Corporation.

In accordance with Part C of the NSW DECC Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants, and Yass Valley Council's consideration of these registrations of interest, the following groups were engaged to assist with the fieldwork component of the project:

- Buraanya Corporation;
- Onerwal Local Aboriginal Land Council; and
- Buru Ngunawal Aboriginal Corporation.

A copy of the draft report will be provided to all stakeholders for their review and comment.

## 4. PROPOSED IMPACTS

The information contained in this section of the report is provided in accordance with the NSW NPWS (1997) guidelines for archaeological survey reporting. A full description of the proposal and its potential impact on the landscape and heritage resource is described below.

This information includes a summary of the impact history of the study area. These prior and existing land uses have caused significant changes to geomorphological processes in the area, with an associated effect on the archaeological resource.

### 4.1 Proposed Impact

The Yass Dam was built in 1927 and has a capacity of 1,125 megalitres. Over the past 10 years water demands have increased and drought has affected the catchment yield; the Yass water supply is dependent on the Yass River. The potential for water shortages has been recognised and an integrated water cycle management study has been undertaken for Yass Valley Council.

Yass Valley Council is investigating options to augment their water supply to increase a secure yield; raising the Yass Dam by 3 metres is the preferred option under investigation. It is proposed to raise the level of the dam wall crest using ground anchors. The raised dam would result in additional inundation extending approximately 10 kilometres upstream of the dam wall.

The additional inundation resulting from the dam raising will entail fluvial impacts to land surfaces resulting from increased water levels (Figure 2). At the dam area immediately upstream from the wall a vertical height of 3 metres increased inundation will occur while further upstream this height will decrease in accordance with the increased elevation of the Yass River (Plates 1 and 2). That is, the vertical height of increased inundation at approximately 5 kilometres upstream will be in the order of 1 metre (Plate 3); at Pearses Bridge at c. 8 kilometres upstream the vertical height of the increased inundation will be c. 20 cm (Plate 4).

The lateral extent of the increased inundation is determined by the nature of the topography; where the landforms adjacent to the river are low lying and of low gradient the lateral inundation is greatest, while on the other hand where the landforms are elevated and of steeper gradients the lateral extent of the proposed inundation is minimal to negligible. It is noted that the majority of the terrain adjacent to the river is elevated and steep and accordingly increased lateral inundation will be minimal along the majority of the river affected by the proposal.

A construction works areas is proposed on the west side of the dam wall (Figure 3). The impacts associated with the construction area are largely confined to areas of existing excavation and disturbance (Plate 5). The various components of the proposed works area are shown in Figure 3.

An existing access track extends to the west end of the wall from a street immediately adjacent to the existing pumphouse building (this is shown as the blue dashed lines in Figure 3). This track will require upgrading, and widening by several metres is proposed. At approximately a third of the way along the track numerous facilities are proposed including a large vehicle turning area and vehicle parking area, offices and contractors works area. Immediately adjacent the west end of the dam wall a small truck turning bay is proposed; this is coincident with an existing parking bay cut into the hillslope. The hammerhead tower crane is proposed to work either within the scoured river bed itself (downstream of the wall), or from a barge on the river upstream.

Additional works associated with the project include upstream works at four road culverts to improve fish passage (Figure 8). It is likely that the existing culverts will be removed and new box culverts installed at each of the four locations. The culverts will be designed to allow the free passage of environmental flows and to cater for fish passage. The culverts would be less than 10 metres in length.

The culvert sites are identified as follows:

- Matong - the culvert crosses the Yass River on private property at this location (Plate 6;
- Zamenoff - the culvert crosses the Yass River on private property at this location (Plate 7);
- Greenwood Road - the culvert crosses the Yass River as a component of a Council road at this location (Plate 8);
- Greenfield - the culvert crosses the Yass River on private property at this location (Plate 9).

4.2 Impact History

The proposed impacts relating to the Yass Dam Raising Project are situated primarily on farm land. The impact history of the area is therefore related to previous and current farming activities including grazing and cultivation. Given that the most common Aboriginal objects expected to be present within the proposal area are stone artefacts located in or on ground surfaces, the following review is focused on describing the impact to soils and soil profiles which has resulted from agriculture practice.

Land clearance commenced in the region with its occupation by early settlers during the early to mid 1800s. Following clearance the arable land was utilised for both grazing and various cultivation endeavours including pasture improvement and cropping, while hilly land has been used exclusively for grazing. Currently the majority of the proposed impact areas including the low crests, hill slopes and valleys are cleared and contain scattered and isolated trees or small stands only. Weedy shrubs are common along the river bank.

As a result of the long history of grazing and cultivation the proposal area is located within a degraded landscape; similarly to other parts of Australia, vegetation, soils and geomorphological processes have been dramatically changed by clearing, cropping and grazing (Wasson *et. al* 1998). Tree clearance and the grazing of sheep and cultivation in the Southern Tablelands has resulted in increased runoff and erosion, both on hill slopes and valley floors, much of which commenced very soon after initial European occupation (Wasson *et. al* 1998). These erosional processes have lead to significant changes to landscape processes. More recently dryland salinity has become a problem in the area as a result of earlier vegetation clearance.

Post Settlement Alluvium (PSA) is widely reported as covering the floodplains of creeks and streams in the region (Wasson *et. al* 1998). It is found to measure up to 1 - 3 metres in thickness and has been incised by modern channels rather than deposited overbank by these channels (see Plate 10).

While hillslope erosion (sheet and rill) and sediment accumulation in catchments of the region prior to European settlement is measurable, rates of erosion are considered to have been low (Olley *et.al* 2003). Similarly to stream incision and erosion, hillslope erosion increased significantly during the first 50 or so years of occupation.

Valley floors are likely to have been severely eroded with changes to soil structure in the early years of grazing due to stock trampling, removal of vegetation (via grazing and drought processes – *the period between 1830 - 185- was a time of below average rainfall*) and within the drainage lines themselves by the onset of gullying (Dorrough *et. al* 2004; Olley *et. al* 2003). It is recognised that the effects of grazing on soils is most pronounced where livestock congregate close to watering points (Lunt *et. al* 2007) in valley floors (Plate 11).

Erosion in the region continues to be a problem in the region due to dryland salinity (Seddon *et. al* 2007). Salinity cause bare scalds and gullying. Land clearance and subsequent erosional processes are likely to have resulted in varying levels of prior impacts to Aboriginal objects. Trees hosting evidence of cultural scarring are likely to have been completely destroyed while Aboriginal objects located in or on the ground will have been disturbed and/or moved, resulting in loss of their original depositional context (both spatially and vertically). Erosional processes act to both expose archaeological materials and more significantly, to cause their erosion and either their ultimate destruction/removal and/or to seriously compromise the integrity of archaeological deposit.


Figure 2. Location of proposed inundation area (supplied by Department of Commerce).

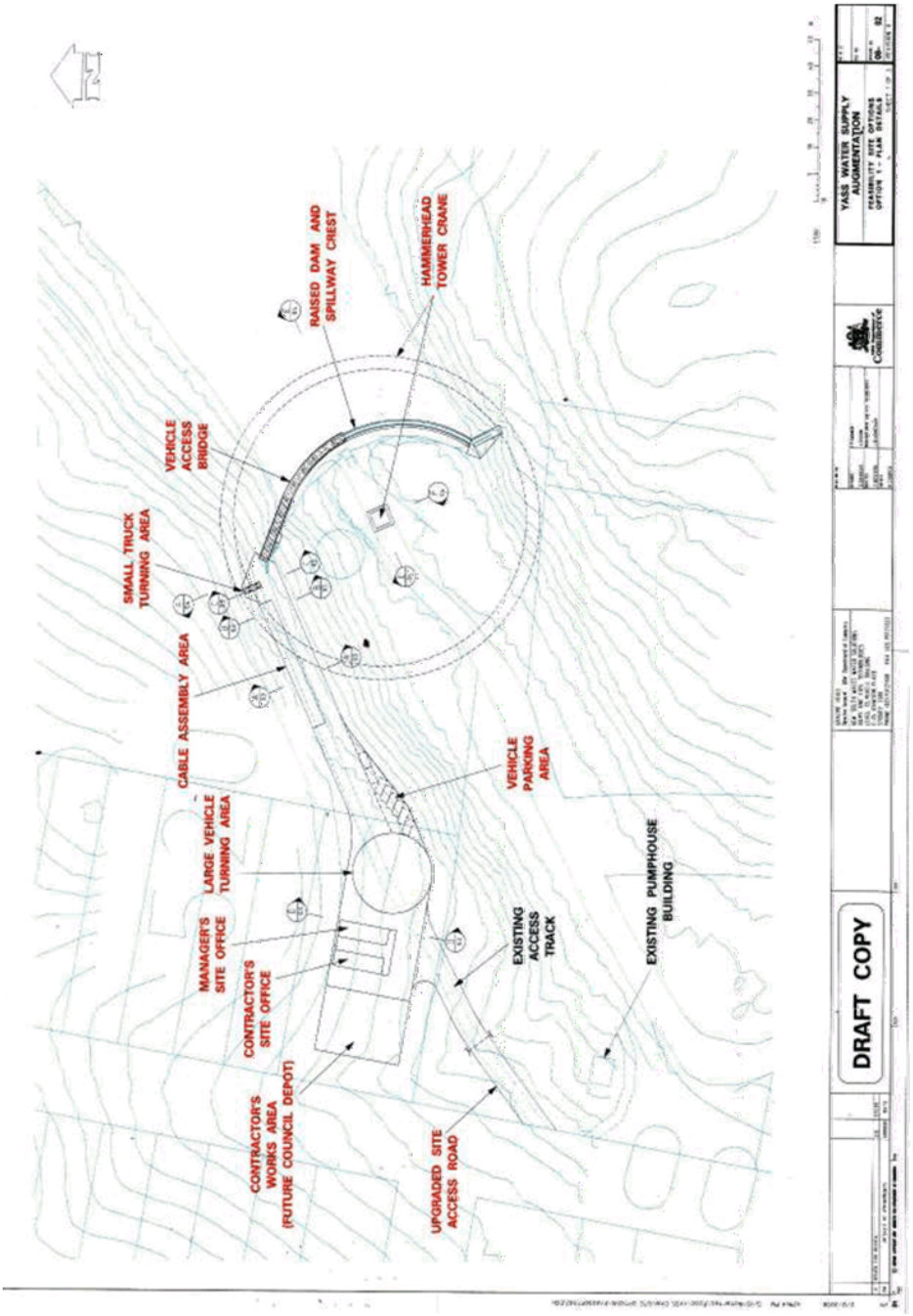


Figure 3. Proposed construction works area on west side of wall (supplied by DoC).

Plate 1. Northwest side of Yass River at c. 0.8 km upstream from dam wall; looking west. Note the steep, cliff like slope to river. The area of inundation at this location is in the order of c. 3m however on the northwest side the lateral extent of inundation in this area will be minimal.

Plate 2. South side of Yass River at c. 0.8 – 1 km upstream from dam wall looking east. Note the gentler slope to river. The area of inundation at this location is in the order of c. 3m and according the lateral extent of inundation in this area will be in the order of c. 10-15 metres.

Plate 3. North side of Yass River at c. 5 km upstream from dam wall. Note slope to river. The area of inundation at this location is in the order of c. 1m and accordingly lateral extent of inundation, after water breaches the c. 1m high river bank, will be minimal.

Plate 4. South side of Yass River at c. 8 km upstream from dam wall near Pearses Bridge. Note slope to river. The area of inundation at this location is in the order of c. 0.2m and accordingly lateral extent of inundation, after water breaches the c. 1m high river bank, will be negligible.

Plate 5. West side of dam wall showing existing cutting for track and vehicle parking.

Plate 6. Matong culvert.

Plate 7. Zamencff culvert

Plate 8. Greenwood Road culvert.

Plate 9. Greenfield culvert (also SU22/L1 on far side of culvert).

Plate 10. Active entrenchment of the Yass River c. 4 km upstream of the dam wall. Photo shows the sharp contact c. 60 cm below the ground surface between a recent deposit of Post Settlement Alluvium and a truncated B horizon.

Plate 11. Stock trampling along river bank.

## 5. STUDY METHODOLOGY

This cultural heritage study has included the following components:

- A NSW DECC Aboriginal Heritage Information Management System site search to determine whether or not previously recorded sites are present on the proposal area and to give consideration to the type of sites known to be present within the local area.
- A review of Non-Indigenous heritage databases.
- A review of local and regional archaeological reports and other relevant documents in order to provide a contextual framework to the study and heritage management process.
- A review of impacts relating to the proposal aimed at determining the potential nature and extent of impacts to any potential Aboriginal objects and Non-Indigenous heritage items which may be present.
- A comprehensive field survey of the proposal area aimed at locating Aboriginal objects and Non-Indigenous heritage items, recording survey coverage data and assessing the archaeological potential of the landforms present.
- Documentation of survey results.
- An analysis of survey results.
- A site significance assessment.
- The formulation of management recommendations ensuing from the above.

### 5.1 Literature Review

Background research has been conducted to determine if known Aboriginal heritage sites are located in the proposal area and to assist in the construction of a relevant model of site type and location.

The following information sources were accessed for this study:

- ❑ NSW DECC Aboriginal Heritage Information Management System
- ❑ Relevant archaeological reports held in the NSW DECC Cultural Heritage Unit
- ❑ Mapping provided by the proponent

### 5.2 Field Survey and Methodology

Field work was undertaken in November 2008.

The field survey was designed to encompass all areas of proposed impacts, and inclusive of the proposed increased inundation area (Figure 2), works area as mapped in Figure 3 and the culvert sites (Figure 8). Field survey entailed a foot survey and was undertaken by five people; the survey coverage achieved was accordingly intensive. Survey coverage is described in Section 8 of this report.

The field survey was aimed at locating Aboriginal objects and Non-Indigenous heritage items. An assessment was also made of prior land disturbance, survey coverage variables (ground exposure and archaeological visibility) and the potential archaeological sensitivity of the land.

The approach to recording artefacts located on the ground in the current study has been a 'nonsite' methodology: the elementary unit recorded is an artefact rather than a site (*cf* Dunnell 1993; Shott 1995). The rationale behind this approach is that artefacts may be directly observed however 'sites' are a construction within an interpretative process. Given that it can be expected that full archaeological visibility will not be encountered during the survey the process of identifying site boundaries (if they exist at all) will not be possible.

However, it can be expected that artefacts will be distributed across the proposal area in a virtual continuum albeit it varying density. Therefore in respect of stone artefact distribution the notion of site is itself a meaningless concept and cannot encompass or reflect the actual distribution of artefacts across the landscape. Given that artefacts are continuous in distribution and not discrete 'site' occurrences artefact distribution is better conceptualised in continuous terms.

The density and nature of the artefact distribution will vary across the landscape in accordance with a number of behavioural factors which resulted in artefact discard. While cultural factors will have informed the nature of land use, and the resultant artefact discard, environmental variables are those which can be utilised archaeologically in order to analyse the variability in artefact density and nature across the landscape. Accordingly in this study while the artefact is the elementary unit recorded it is the Survey Unit which is utilised as a framework of recording and analysis (Wandsnider and Camilli 1992). The study area has been divided into a number of Survey Units each of which have been defined on the basis of a combination of environmental variables including landform element, gradient and aspect.

The field survey entailed a foot survey and was comprehensive. The survey methodology entailed walking parallel transects across individual Survey Units. This methodology enabled direct visual inspection of as much of the ground surface of each Survey Unit as practicable. Generally ground exposures were minimal in area (size) although present in innumerable instances as bare earth patches, animal tracks and erosional features.

Except for erosional features which provided a view of a deep soil prolife, in the majority of Survey Units archaeological visibility in ground exposures was assessed to be very low to negligible. This assessment is based on a consideration of the geomorphological processes in the landforms encountered which generally resulted in either aggraded or eroded contexts. Accordingly the potential archaeological soil profile was usually predicted to be either buried at a depth generally deeper than that of the ground exposures, or conversely to be absent as a result of erosional processes.

The field recording and mapping has been conducted using a mobile GIS system. The location of Indigenous and Non-Indigenous locales and Survey Units has been made using ArcGIS software and a Trimble GPS. The field data has been recorded in a number of Microsoft Access databases formulated specifically for the current project. Three separate forms were used for recording Survey Unit data, Aboriginal Object data and Historical features data. The data collected forms the basis for the documentation of survey results outlined in Section 9. The variables recorded are defined below:

**Survey Unit Variables**

Landscape variables utilised are conventional categories taken from the *Australian Soil and Land Survey Field Handbook* (McDonald *et. al* 1998):

Landform elements: (measuring 40 m or more across): slope and position in a toposequence are key attributes – Landform morphological type is the primary basis for defining Survey Unit boundaries. The following landform elements were recorded:

*Morphological type*:

- Crest – element that stands above all or almost all points in the adjacent terrain – smoothly convex upwards in downslope profile. The margin is at the limit of observed curvature.
- Simple slope: - element adjacent below crest or flat and adjacent above a flat or depression.
- Flat: - planar element, neither crest or depression and is level or very gently inclined.
- Open depression: - extends at same elevation or lower beyond locality where it is observed.

*Slope class and value*:

- Level 0 - 1%.
- Very gentle 1 - 3%.
- Gentle 3 – 10%.
- Moderate 10 – 32%.
- Steep 32 – 56%.

*Geology*

The type of geology was recorded and as well the abundance of rock outcrop – *as defined below*. The level of visual interference from background quartz shatter was noted.

- No rock outcrop – no bedrock exposed.
- Very slightly rocky - <2% bedrock exposed.
- Slightly rocky – 2-10% bedrock exposed.
- Rocky – 10-20 % bedrock exposed.
- Very rocky – 20-5-% bedrock exposed.
- Rockland - >50% bedrock exposed.

*Soil*
Soil type and depth was recorded. The potential for soil to contain subsurface archaeological deposit (based on depth) was recorded as Low, Moderate or High.

*Geomorphological processes*
The following gradational categories were recorded:

- eroded
- eroded or aggraded
- aggraded

*Geomorphological agents*
The following geomorphological agents were recorded:

- gravity: *collapse or particle fall*
- precipitation: *creep; landslide; sheet flow*
- stream flow: *channelled or unchannelled*
- wind
- biological: *human; nonhuman*

Survey coverage variables were also recorded; these are described further below in Section 9.

The archaeological sensitivity of each Survey Unit was defined according to assessed artefact density as either very low, low, low/moderate or moderate.

***Aboriginal Object Recording***

For the purposes of defining the artefact distribution in space it has been labeled as a locale (eg. Survey Unit 1/Locale 1). The area in which artefact have been observed has been noted and if relevant a broader area encompassing both visible and predicted subsurface artefacts has been defined.

Artefact density has been defined in arbitrary categories as follows;

- Very low: <1 artefact per square metre;
- Low: between 1 and 10 artefacts per square metre;
- Low/moderate: between 11 and 30 artefacts per square metre;
- Moderate: between 31 and 50 artefacts per square metre.

In addition to recording artefact density a general description of the artefact types observed is noted.

## 6. LANDSCAPE CONTEXT

A consideration of the landscape is necessary in archaeological work in order to characterise and predict the nature of Aboriginal occupation across the land (NPWS 1997). In Aboriginal society landscape could be both the embodiment of Ancestral Beings and the basis of a social geography and economic and technological endeavour. The various features and elements of the landscape are/were physical places that are known and understood within the context of social and cultural practice.

Given that the natural resources that Aboriginal people harvested and utilised were not evenly distributed across landscapes Aboriginal occupation and the archaeological manifestations of that occupation will not be uniform across space. Therefore, the examination of the environmental context of a study area is valuable for predicting the type and nature of archaeological sites which might be expected to occur. Factors which typically inform the archaeological potential of a landform include the presence or absence of water, animal and plant foods, stone and other resources, the nature of the terrain and the cultural meaning associated with a place.

Additionally, geomorphological and humanly activated processes need to be defined as these will influence the degree to which archaeological sites may be visible and/or conserved. Land which is heavily grassed will prevent the detection of archaeological material while land which has suffered disturbance may no longer retain artefacts or stratified deposits. A consideration of such factors is necessary in formulating site significance and mitigation and management recommendations.

The following sections provide information in regard to the landscape context of the study area.

### 6.1 Topography, geology, geomorphology and vegetation

The Yass Dam is situated on the eastern outskirts of Yass on the Southern Tablelands of New South Wales; the area is part of the Eastern Uplands of southeastern Australia (Jennings and Mabbutt 1977). The Eastern Uplands consists of a wide plateau which extends from the coastal escarpment on the east, to the slopes of its western side. The landscape has low relative relief, lies generally below 600m altitude and slopes generally less that 5° with about 20% of the area contains steeper hills and ranges. The area has a strongly seasonal thermal climate (Jennings and Mabbutt 1977).

The oldest rocks in the local area are volcanics associated with the Douro Group, namely the Hawkins Volcanics, deposited during the mid Silurian (approx 420 mya) (Branagan and Packham 2000). The Hawkins Volcanics are dominated by welded rhyodacitic ignimbrites, which formed as a result of explosive volcanism within a terrestrial environment. This group of rocks covers a wide area, extending from south of Canberra and northwards to Dubbo and form part of the Yass-Cowra Zone.

The topographic context of the dam area is shown on Figure 4. The upstream culvert sites inspected during this assessment are located further to the east and are shown on Figure 8. The topography within the proposal area is comprised of generally low, rolling hills dissected by deeply incised streams including the Yass River. The landform elements located within the zones of proposed impact include low crests, simple slopes and drainage depressions (Plate 2).

The dominant soils are red and yellow podzolic lithosols on crests and hillslopes, and red and yellow earths in valleys (Wasson *et. al* 1998). As discussed earlier in Section 4 soils within the proposal area are eroded as a result of a long history of European land usage. This has significant ramifications in regard to the stability and integrity or otherwise of artefact bearing soil formations in the proposal area both on crests and within valleys. Soils within valleys are both alluvial and colluvial and while undoubtedly disturbed are of significant depth. In areas adjacent to drainage lines Post Settlement Alluvium is likely to be present above the original, eroded land surface (see Plate 11).

Prior to European land clearance the proposal area would have been covered with woodland tree species and can accordingly be characterised as a woodland resource zone. The local area possesses moderate biodiversity and the Yass River itself is likely to have provided Aboriginal people with reasonably reliable and abundant water and a variety of aquatic fauna. The riverine environment is likely to have been utilised by people on regular basis. The proposal area is currently utilised for the grazing of livestock. The dominant vegetation is mixed native-exotic pasture. Eucalypts are present as isolated paddock trees and occasionally along the river banks.

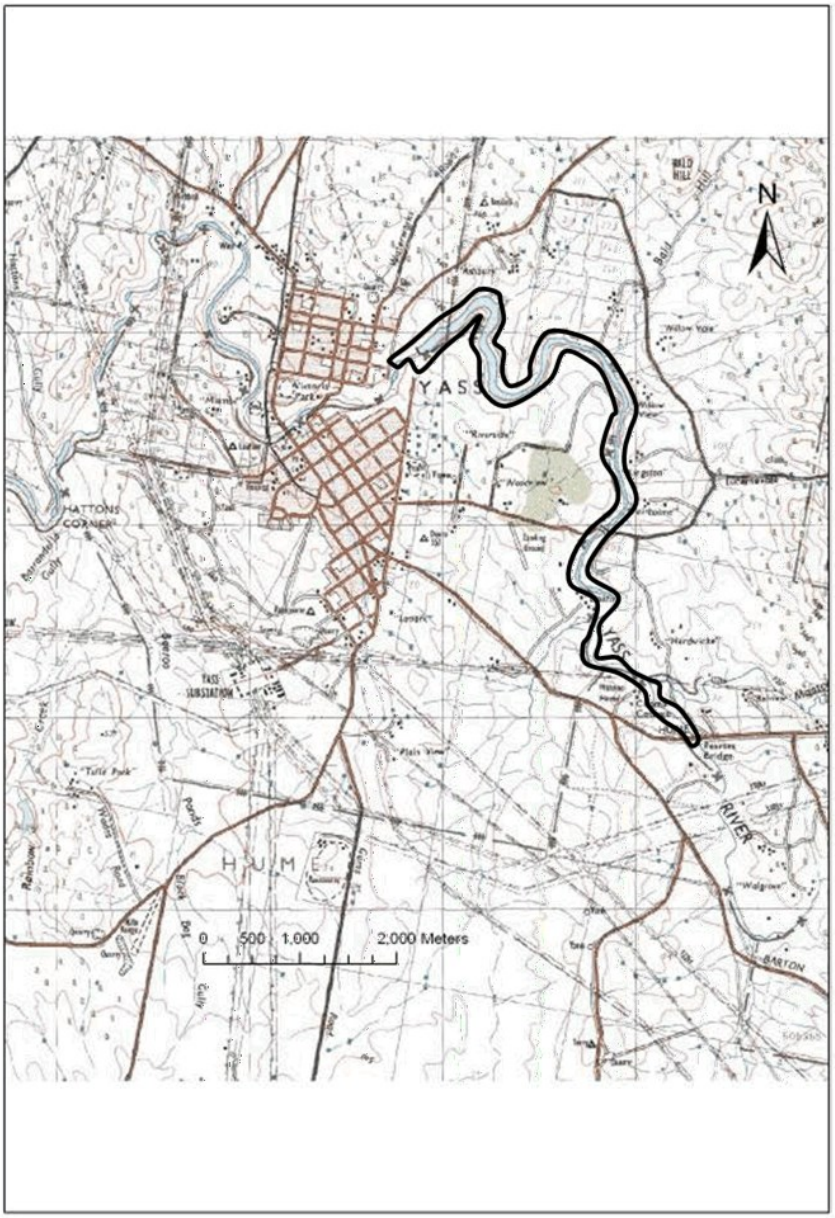


Figure 4. Topographic context of the Yass Dam (Yass 1:50,000 topographic map).

## 7. ARCHAEOLOGICAL CONTEXT

### 7.1 Social geography

On the basis of archaeological research it is known that Aboriginal people have occupied Australia for at least 40,000 years and possibly as long as 60,000 years (Mulvaney and Kamminga 1999: 2). By 35,000 years before present (BP) all major environmental zones in Australia, including periglacial environments of Tasmania, were occupied (Mulvaney and Kamminga 1999:114).

Radio carbon dating of cultural deposits from the Willandra Lakes, in western NSW, indicates occupation of that area for more than 30,000 years. Human occupation of south east NSW dates from at least 20,000 years ago as evidenced by dated sites including Burrill Lake (Lampert 1971) and two sites near Buchan in Victoria; Cloggs Cave (Flood 1980) and New Guinea 2 (Ossa *et al* 1995). The Bulee Brook 2 site in the south coast hinterland ranges, excavated by Boot (1994) provides evidence that occupation of this zone had occurred by at least 18,000 years ago. Pleistocene occupation sites are however few with the majority of recorded sites dating from the mid to late Holocene. It is nevertheless reasonable to assume that the Yass area was occupied and utilised by Aboriginal people from the late Pleistocene onwards.

At the time of early occupation Australia experienced moderate temperatures. However, between 25,000 and 12,000 years BP (a period called the Last Glacial Maximum) dry and either intensely hot or cold temperatures prevailed over the continent (Mulvaney and Kamminga 1999: 114). At this time the mean monthly temperatures on land were 6-10°C lower; in southern Australia coldness, drought and winds acted to change the vegetation structure from forests to grass and shrublands (Mulvaney and Kamminga 1999: 115-116).

During the Last Glacial Maximum at about 24-22,000 years ago, sea levels fell to about 130 metres below present levels and accordingly, the continent was correspondingly larger. With the cessation of glacial conditions, temperatures rose with a concomitant rise in sea levels. By ca. 6000 BP sea levels had more or less stabilised to their current position. With the changes in climate during the Holocene Aboriginal occupants had to deal not only with reduced landmass, but changing hydrological systems and vegetation; forests again inhabited the grass and shrublands of the Late Glacial Maximum. As Mulvaney and Kamminga (1999: 120) have remarked:

> *When humans arrived on Sahul's shores and dispersed across the continent, they faced a continual series of environmental challenges that persisted throughout the Pleistocene. The adaptability and endurance in colonising Sahul is one of humankinds' inspiring epics.*

Arguably it is this recognition within the archaeological community, as well as other factors, which contributed to the primary focus of research in Australia throughout the 1960s, 1970s and 1980s which examined the relationship between Aboriginal people and their environment and the mechanisms of adaptation in what was *apparently* a land of harsh conditions and scanty, or at best seasonal resources. The bulk of archaeological research that has been undertaken in the region of the south west slopes and western plains has been focused on examining these issues.

Prior to the 1960s most archaeological research was aimed at defining change in the archaeological record; this was before direct dating techniques became available and accordingly the issue of time was handled by identifying differences in archaeological materials in archaeological deposit – specific artefacts in different layers of deposits were used to define different cultural periods. With the application of direct dating techniques in 1960s research shifted away from the use of artefacts for defining different time periods, towards seeking to explain the nature of different artefacts and assemblages of artefacts and food remains in terms of adaptation to the environment. The 1960s also saw a shift towards the use of explicit scientific methods of reasoning in archaeological practice. This impetus influenced archaeologists to focus on research topics which were believed to be answerable within a scientific methodology. Topics dealing with subsistence, technology and environmental adaptation were addressed. The following section outlines research conducted within the region.

Witter (1980) constructed a model of site distribution for the area situated between Canberra and Dalton. He argued that large lowland camps were found exclusively in river valleys or gently sloping land while medium sized lowland camps were found mainly on escarpments and saddles. Witter (1980) suggested that mid to late Holocene occupation of the area was focused around both tributary and major stream valleys. He argued that seasonal movement entailed occupation of the tributary valleys and lower slopes during winter in order to be

above cold air drainage but below cooler elevations. Additionally these locations would have provided reliable water and the exploitation of a diversity of resource zones. During summer the larger valley bottoms and higher elevated zones would have been used.

Witter (1980) constructed two models of Holocene adaptation which he termed Riverine Oriented and Plateau Oriented. Witter (1980) defined the Riverine model as a subsistence regime based on the semi-arid plains which was focused on the exploitation of aquatic plants such as *Typha* and *Triglochia* and animals such as fish and crustacea. This economy was focused on the plains woodlands close to major rivers with seasonal usage of semi-arid and dry temperate uplands. Witter (1980) defined the Plateau subsistence regime as based on Acacia as a vegetable staple. This economy was focused on ridges slopes and flats, however with camp sites tethered to water.

Pearson (1981) completed a regionally based investigation of Aboriginal and early European settlement patterns in the Upper Macquarie River region. He excavated three rock shelters which revealed Aboriginal occupation of the area dating from 7000 years BP. Pearson characterised Aboriginal site patterning as follows;

- Aboriginal sites were strongly related to water sources. Distance to water varied from 10 to 500 m and generally the average distance to water decreased as site size increased.
- Sites were located on hilly and undulating landforms rather than on river flats or the banks of waterways. However, the regional incidence of landform variation biased this sample;
- Site location was influenced by good drainage and views over water course and river flats;
- Most sites were located in open woodland contexts with smaller numbers being present in grassland or forest contexts;
- Burial sites and grinding grooves were situated close to habitation areas;
- Ceremonial sites were located away from habitation areas;
- Stone arrangements were located away from campsites in isolated places; they are associated with small hills and knolls or flat land;
- Quarry sites were located were suitable sources were present and reasonably accessible.

Based on an exploration of early historical material Pearson (1981) argued that the region was inhabited by a small number of clan groups each of which comprised of 80 to 150 people. These larger groupings were divided into smaller 'daily' units of up to 20 people. Pearson (1981) suggests that the 'daily' units made short moves between camp sites which resulted in elongated site formation such as continuous artefact scatters along creeks. Pearson presented ethnographic evidence which suggested that camp sites were not used for longer than three nights and that large sites therefore probably represented accumulations of short term visits.

Pearson (1981) also considered the issue of the reliance upon food staples. He argued that rather than a reliance of a singular food type, a wider based economy was practised with the implication that such a non-specialised economy would probably not have been affected by periodic shortfalls in certain foods and that human movement would have been similarly unaffected.

According to Witter and Hughes (1983), the low hill areas of the Lachlan catchment contained sites which are generally situated on valley flanks. They have noted that sites are widely distributed with a higher frequency of sites situated along water course than in less well drained areas away from creeks and rivers. They posited a model suggesting that the economic focus was within major streams and valleys with occasional usage of the dryer inland zones. Witter and Hughes (1983) suggested that during dry periods occupation was confined to major stream valleys and that in wetter times people would have moved along temporarily watered headwater streams and onto plateau areas.

White (1986) conducted a general study of the Wiradjuru in which the Witter model (as outlined above) was applied. White (1986) however, explored the basic notions of Riverine and Plateau further, emphasizing the regional division by stressing the comparative importance of less seasonally influenced terrestrial hunting in the east. In the Western Slopes region riverine plains "…interfinger with the higher land", and White argued that the economy in such country probably consisted of an annual regime which was dependant on the use of both riverine and plateau environments.

The Yass region was occupied by Aboriginal speakers of at least two languages, Wiradjuri and Ngunawal. G.A. Robinson (in Mackaness 1941) noted that the people of Yass were called Onerwal [Ngunawal] (White and Cane 1986). The proposal area is located within the current boundaries of the Onerwal Local Aboriginal land Council. White and Cane (1986) provide a review of traditional Aboriginal life in the area; it is not repeated here.

However Aboriginal life throughout the period of European occupation is of relevance to this study given the proximity of components of the impact area to Aboriginal late 19th century and 20th century town camps. As noted by White and Cane (1986), during the period of European occupation Aboriginal society changed from autonomy and economic independence to both economic dependence on, and enforced settlement by, the European settlers. It is possibly the later situation which is now most recalled by Aboriginal people who were either directly affected, or now remembered on behalf of earlier generations; the local *black's camps* and reserves in Yass, and elsewhere, are now focal places in the memory of these times.

White and Cane (1986) have defined three phases of this history, the latest which will be elaborated below, being the period of *enforced movements and eventual dispersal* between 1885 and 1955. Prior to this period and when Europeans began to occupy the district, Aboriginal people moved seasonally between an autonomous economic practice based on hunting, fishing and so on, and engagement with the settler society whereby European foodstuffs were obtained; it is probable that during that time Europeans and Aborigines forged a mutually beneficial relationship entailing amongst other things, the exchange of labour, foods and protection. While engaging with settler society this practice was done so largely on their own terms. From 1851 Reserves of land were set aside for Aboriginal people however these areas were avoided as they favoured living on stations located in their own country or the outskirts of towns such as Yass (White and Cane 1986).

White and Cane (1986) note that reports in the Yass Courier of 1857 and 1858 refer to *the Blacks Camp* which may refer to the same Yass River Camp used later in the 19th century and earlier 20th century. With the passing of the Robertson Land Acts in 1861, closer settlement by small-scale free selectors reduced the capacity for Aboriginal people to maintain their occupation of country. However from this time Aboriginal people began to acquire their own parcels of land by purchase or gazettal, and to farm it.

By the 1880s the European community began to demand that Aboriginal people around the town should be controlled. A parcel of land measuring 6 ½ acres at Oak Hill near the water works was set aside. With timber and iron provided by the Aborigines Protection Board 13 houses were built in 1888. One year later the land area of Oak Hill was reduced to 2 ½ acres. The following year 2 ½ was returned to the reserve (White and Cane 1986). By 1890 78 people were recorded as living at this site in 12 houses and four bark huts.

Similarly to earlier times the occupation of the Oak Hill site was mutually beneficial to both Aborigines and Europeans. Aboriginal people were able to have ready access to the town economy, continue to live in family groups while being separate from whites, and work within the local economy; on the other hand Europeans were happy to have Aborigines away from town but close enough to have access to Aboriginal labour (White and Cane 1986).

However in 1899 pressure mounted to remove the Aboriginal people from Yass. Inducements to encourage people to move to other reserves failed and by 1909 the Edgerton site, located 20 kilometres from Yass, was selected by the Aborigines Protection Board. While some people moved to Edgerton, others petitioned to remain at Oak Hill. This request was refused and the North Yass site was revoked. By 1916 however Edgerton was abandoned with the people having moved back into Yass and camped at Yass Junction with the men working on railway works (White and Cane 1986). People moved back to Oak Hill and at a location at the bottom of the hill called *The Rocks* on the Yass River (White and Cane 1986).

This period until 1930, continued to be one of great difficulty for Aboriginal people, both elsewhere in the state but specifically at Yass (White and Cane 1986). It was during this time that children were removed from their families; between 1900 and 1915 fifteen children were removed from Aboriginal families in Yass. With the proposal to construct water works at Oak Hill at around 1925 Aboriginal people were again asked to leave the site. A new reserve was established in an attempt to remove people. This site known as *Hollywood* is located south of Yass near the cemetery; in 1834 people were moved to the new site, although one or two families remained at Oak Hill.

The Hollywood site was a failure from many points of view and by 1840 Aborigines had begun to return to North Yass; this was objected to by whites. However the situation for the remaining families at Hollywood was becoming untenable also due to the recognition of its inadequate situation (White and Cane 1986). Thereafter a period of resettlement including placing people in a limited number of houses in the town and movement to other reserves located well away from Yass began; Oak Hill also continued to be occupied.

7.2 Previously Recorded Sites

Two searches of the NSW DECC Aboriginal Heritage Information Management System (AHIMS) have been conducted:

- Site search AHIMS #23821 encompasses the Yass dam and inundation area. A total of 33 registered Aboriginal are listed in this search (noting however two site duplications: #51-4-0030 and #51-4-0038 are both site Y23; similarly it is believed that #51-4-0044 and 51-4-0001 are both the Oak Hill site). These previous site recordings are not situated within the proposed impact areas. Two site recordings are however located in close proximity to the dam wall and accordingly have the potential to be impacted as a result of construction activities. These sites are discussed further below.

  It is also noted that the Oak Hill Camp site (#51-1-0044), is now an Aboriginal Place, although the AHIMS site search does not indicate this new status. It is also noted that The Bell family (Buru Ngunawal Aboriginal Corporation) are currently seeking in an Aboriginal Place nomination for the area situated on the east side of the dam wall, encompassed by what they call *the old black's camp*.

- Site search AHIMS #23822 encompasses the area upstream of the dam including the four culvert areas. One Aboriginal object is listed in this search; its location is away from the four areas of proposed impact.

A list of previous site recordings from both site searches is set out in Table 1.

The AHIMS register only includes sites which have been reported to NSW DECC. Accordingly, this search cannot be considered to be an actual or exhaustive inventory of Aboriginal sites situated within the local area. Generally, sites are only recorded during targeted surveys undertaken in either development or research contexts. It can be expected that additional sites will be present within the local area but that to date they have not been recorded and/or reported to NSW DECC.

Common sites recorded in the region include stone artefacts described as either isolated finds, open artefact scatters or camp sites. The distribution of each site type is related to variance in topography and ground surface geology. Rare site types include rock shelter, scarred trees, quarry and procurement sites, burials, stone arrangements, carved trees and traditional story or other ceremonial places.

Sites located in close proximity to proposed impact areas and considered to be significant to the Aboriginal community are described below:

- Site #51-1-0043 *Riverside Camp*

  This site is located on the east side of the Yass River to the east of the Yass Dam wall. It was recorded in 1995 by Phil Boot and is described as being located on a flat rocky knoll overlooking the Yass River.

  The site is known locally as *the Blacks Camp* (Ruth Bell pers. comm. 27/11/08). Boot (source: site card) described the site as comprised of a group of hut platforms/mounds which date to late 1800s. The area was occupied by Aboriginal people until the early 1900s and huts were constructed of timber and iron. Aboriginal burials are also believed to be present in the area.

  Following discussions with the proponent all proposed impacts relating the construction works area will now be located away from the east side of the river. **This site will not be impacted as a result of the proposal**.

- Site #51-1-0044 *Oak Hill Camp*

  This site is located on the west side of the Yass River and at some distance from the dam wall (c. 900m) in the vicinity of the Yass Water Works. The site has been recorded on numerous occasions during the past 32 years including the original site card recording: 1976, Sullivan (1982), Koettig (1986) during an assessment relating to proposed water supply works, White and Cane (1986), Black Mountain Projects:1995 and Boot:1995 (see AHIMS site card).

  Similarly to the Riverside Camp, the Oak Hill camp is located on a ridge crest and is comprised of hut platforms and grave sites (the history of occupation of Oak Hill is described below). Bones, subsequently reported as those of Aboriginal child, were found at the site in the early 1920s during the construction of the waterworks (White and Cane 1986). The site has been described by a local resident (see White and Cane 1986: 54) as a major burial site and Aboriginal people interviewed in 1986 by White and Cane provided more detailed and specific information.

All proposed impacts associated with the proposal are located away from this site. **This site will not be impacted as a result of the proposal.**

| Site ID | Name | easting | northing | Site Type | recorder |
|---|---|---|---|---|---|
| 51-1-0043 | Riverside Camp | 675800 | 6142750 | Mound (oven) | Boot - 1995 |
| 51-1-0044 | Oak Hill Camp | 675700 | 6144200 | Mound (oven) | Boot - 1995 |
| 51-4-0001 | Ashby | 675671 | 6143972 | Burial | Sullivan - 1982 |
| 51-4-0004 | Kingston - Y3 | 679390 | 6142550 | Open camp site | Silcox - 1983 |
| 51-4-0005 | Kingston - Y4 | 678800 | 6142833 | Open camp site | Silcox - 1983 |
| 51-4-0006 | Willow - Y5 | 678100 | 6144000 | Open camp site | Silcox - 1983 |
| 51-4-0007 | Willow - Y6 | 677760 | 6144050 | Open camp site | Silcox - 1983 |
| 51-4-0011 | Y13 – Yass | 677800 | 6140850 | Open camp site | Silcox - 1985 |
| 51-4-0012 | Y12 - Yass Bypass | 678050 | 6141300 | Open camp site | Silcox - 1985 |
| 51-4-0013 | Y11 - Yass Bypass Route | 678650 | 6143950 | Open camp site | Silcox - 1985 |
| 51-4-0015 | Cooma Cottage | 678100 | 6140200 | Contact, mission | Mackay - 1986 |
| 51-4-0019 | Yellow Creek Road - Y14 | 675910 | 6144180 | Open camp site | Koettig - 1986 |
| 51-4-0020 | Yellow Creek Road - Y15 | 675880 | 6144130 | Open camp site | Koettig - 1986 |
| 51-4-0021 | Yellow Creek Road - Y16 | 675600 | 6144000 | Open camp site | Koettig - 1986 |
| 51-4-0022 | Yellow Creek Road - Y17 | 675610 | 6143990 | Open camp site | Koettig - 1986 |
| 51-4-0023 | Yellow Creek Road - Y18 | 675620 | 6143900 | Open camp site | Koettig - 1986 |
| 51-4-0030 | Y23 | 680100 | 6138200 | Open camp site | Silcox - 1993 |
| 51-4-0046 | Edgerton Reserve Cemetery | 675900 | 6145000 | Burial | Howe-Piening 1998 |
| 51-4-0067 | EY-A1 | 676045 | 6140780 | Open camp site | Dearling - 2003 |
| 51-4-0068 | YCE 1 | 675488 | 6144599 | Open camp site | Thompson |
| 51-4-0069 | YCE 2 | 675414 | 6144614 | Open camp site | Thompson |
| 51-4-0070 | YCE 3 | 675392 | 6144647 | Open camp site | Thompson |
| 51-4-0071 | YCE 4 | 675173 | 6144526 | Open camp site | Thompson |
| 51-4-0072 | YCE 5 | 675186 | 6144530 | Open camp site | Thompson |
| 51-4-0073 | YCE 6 | 675281 | 6144628 | Open camp site | Thompson |
| 51-4-0074 | YCE 7 | 675358 | 6144663 | Open camp site | Thompson |
| 51-4-0083 | YCE 8 | 675150 | 6144685 | Open camp site | Thompson |
| 51-4-0084 | YCE 9 | 675204 | 6144722 | Open camp site | Thompson |
| 51-4-0102 | PAD East Yass | 676040 | 6143600 | PAD | Saunders |
| 51-5-0039 | Y21 | 680050 | 6138250 | Open camp site | Silcox - 1988 |
| 51-5-0040 | Y19 | 679650 | 6140150 | Open camp site | Silcox - 1988 |
| 51-5-0041 | Y20 | 680000 | 6138450 | Open camp site | Silcox - 1988 |
| 51-5-0042 | Sandy Vale | 693900 | 6132000 | Open camp site | Packard |

Table 1. AHIMS sites listed in search area.

The following discussion in Section 7.3 will present a review of previous archaeological work in the region for the purposes of producing a predictive model of site type and location relevant to the study area.

7.3 Archaeology – The local area

A number of studies have been undertaken in the Yass area primarily in response to statutory requirements for environmental impact assessment. The following discussion includes a review of archaeological work and its results conducted within the regional area.

Packard (1984) conducted an investigation of the association of Aboriginal archaeological sites with modern areas of salinisation and salt scalding in the Yass River Basin. Of the 61 known salting sites, 35 were included in the analysis. Site location was found to range in elevation from 560 m-755 m asl, slope gradient less than 5° and most of the sites had northwest, north or easterly aspects (Packard 1984:50). A wide range of artefact and stone types was found at most of the sites, suggesting that a range of activities had been carried out (Packard 1984:54).

Witter (1980) surveyed a proposed natural gas pipeline route from Dalton to Canberra. The survey crossed the Yass River and hilly country in the centre of the Upper Yass River catchment. Witter recorded 11 open campsites and 32 isolated finds. The majority of artefacts were comprised of quartz. Witter (1981) subsequently excavated one site and collected a total of 400 artefacts from six others. Backed blades were a prominent element in these collections. Silcrete was the principal raw material. Other raw materials included felsite, volcanics and quartz. Witter (1981:46) concluded that quartz was probably the predominant stone type utilised in the region.

Koettig and Silcox (1983) surveyed the route of the proposed freeway bypass north and east of Yass. Eight artefact scatters and 50 isolated finds were found within the 14 km x 200 m survey area. Seven of the sites were located on low ridges and slopes and one on creek flats. All of the sites were found within 200 m of a watercourse.

In 1985 Silcox and Koettig surveyed the route of the proposed alternate Yass bypass, together with the proposed Barton Highway extension. The survey located three surface and two subsurface artefact scatters and six isolated finds. Eighty percent of the sites were situated on ridgeline slopes or crests within 200 m of creeks. Surface artefact densities ranged from $1/30^2$ to $1/40m^2$. Subsurface densities averaged $18/m^2$. Ninety percent of the artefacts were unmodified flakes and flaked pieces; quartz was the dominant raw material.

Silcox and Koettig (1988) subsequently carried out a survey and test excavations within a 6 km proposed alternative route for the Barton Highway extension at Yass. Five isolated finds and a surface scatter of >150 artefacts were recorded during the survey, with two additional sites located during subsurface testing. One site yielded 21 artefacts from a series of ten test pits. Artefacts comprised flakes, flaked pieces, cores and a backed blade. Fifty seven percent of the artefacts were of silcrete. Other raw materials recorded were quartz, indurated mudstone, volcanic and chert.

Witter and Hughes (1983) began a survey of transmission lines from Wagga Wagga to Yass. The survey was completed by Packard and Hughes (1983). Two 'land systems' were identified in the study area: gently rolling hills, largely cleared of timber, and major stream valleys. Archaeological sites were rare in the hills and occurred mainly in areas close to major valleys. The initial survey located four Aboriginal sites, 13 isolated finds and a possible Aboriginal scarred tree. Packard and Hughes (1983) recorded five small artefact scatters, eight isolated finds and two possible Aboriginal scarred trees. Artefactual material was principally debitage. Quartz was the most common lithic material, with negligible percentages of acid volcanics and chert. Sites were located mainly in ploughed paddocks near creeks.

Koettig (1986a) investigated a proposed water pipeline route between Bowning and Yass and located two small artefact scatters and two Aboriginal scarred trees near Derringullen Creek. Subsequent subsurface testing at Derringullen Creek located a low density subsurface archaeological deposit (Koettig 1986b).

During a survey of a proposed fibre optic cable route between Cootamundra, NSW, and Hall, ACT, Kuskie (1992) located a small artefact scatter on a broad elevated terrace on the southern side of the Yass River. The site comprised a retouched chert flake, a chert flaked piece and a broken acid volcanic flake.

An Aboriginal burial site associated with the Oak Hill camp was investigated by Sullivan (1982), Koettig (1986c) and White and Cane (1986). The investigations concluded that the site is an important historical Aboriginal burial place and recommended that it be protected from any further disturbance. Koettig (1986c) recommended further investigation. Koettig's (1986c) study area also included areas east of Coolalie Road and west of Yellow Creek Road. Five very small artefact scatters and two isolated finds were recorded on knolls, spurs, slopes and creek banks. Broken flakes were the most commonly recorded artefact. Bipolar cores were also present. Principal raw materials were silcrete and quartz.

Saunders (2000) recorded an Aboriginal open campsite of eight stone artefacts located by Ngunawal ACT and District Aboriginal Council of Elders Association monitors in the Powertel fibre optic cable easement approximately 20m south of the Yass River and 200m north of Yass River Road, northwest of Gundaroo. Saunders also recorded an Aboriginal artefact scatter located by Ngunawal ACT and District Aboriginal Council of Elders Association monitors 50m north of Dalton Open Camp Site (NPWS Site 51-5-003). The monitors collected 50 stone artefacts from the site.

Navin Officer Heritage Consultants (2001) investigated the site of the Yass substation located in an area of low gradient slopes, drainage lines and alluvial flats along the middle reaches of Booroo Ponds Creek. A small low density artefact scatter was located along a spur crest. The scatter comprised three flakes and a flaked piece. Raw materials were volcanic, silcrete and chert. The spur crest in the vicinity of the exposed artefacts was considered to have archaeological potential.

Jo McDonald Cultural Heritage Management Pty Ltd (2003) undertook a survey of the Gunning Wind Farm, situated on the Cullerin Range. The Gunning Wind Farm proposal area consists of range crest and valley topography elevated at 840 meters (asl). Four sites containing stone artefact scatters and three isolated artefacts were recorded across the proposal area (Jo McDonald Cultural Heritage Management Pty Ltd 2003). One of the scatters was identified as a quartz quarry; blocky quartz was found to outcrop at the site. The majority of recorded artefacts were identified as quartz, however, quartzite, silcrete and red agate was also recorded. Steep hill tops were considered to be of low archaeological potential, while elevated contexts close to water were considered to be of higher sensitivity.

Austral Archaeology Pty Ltd (2005) conducted a program of subsurface test excavation at the proposed Gunning Wind farm site. The works entailed grader scrapes and no artefacts were recovered.

Dibden (2006a) recorded nine locales containing stone artefacts during an assessment of the proposed Conroys Gap Wind farm located to the south of Yass. Artefact density calculations based on surface indicators indicate that all artefact locales contain low density artefact distributions. The Survey Units present in the study area were each assessed to be of low or very low archaeological potential based on various factors including nature of the topography, steep gradients and the distance from reliable water.

Dibden (2006b) recorded four locales containing stone artefacts were recorded during the study of the proposed Cullerin Wind Farm, situated north of Yass.

Austral Archaeology Pty Ltd (2008) surveyed a transmission line associated with the Gunning Wind farm and a number of other small discrete impact proposals. 25 sites were recorded defined as 13 open artefacts scatters, 9 isolated finds, two areas of PAD and a scarred tree. The majority of finds were located on ridgetops which Austral Archaeology Pty Ltd (2008) suggest reflects the use of these landforms for vantage points and movement through country. Austral Archaeology Pty Ltd (2008) argued that the diversity of the raw materials, lack of conjoined artefacts and related materials found in proximity suggested sporadic use over a long time rather than focused activities which might be expected to have taken place in more permanent habitation site.

Based on the above review and a consideration of the elevation, geology, hydrology and topography of the study area the type of sites known to occur in the region and the potential for their presence within the study area are listed as follows.

7.4 Predictive Model of Site Type and Location

Stone artefact scatter sites are in the most common site type found within the region. As reviewed above larger sites are found in areas adjacent to rivers in valley flanks, and on elevated landforms above the flats and banks along water ways. The proposed impacts relating to the proposal are all located within the drainage depression of the Yass River either on flats, banks or the lower sections of slopes. These areas are not known to be archaeologically sensitive. Furthermore given previous impacts relating to European land usage the impact areas are eroded.

The type of sites known to occur in the region and the potential for their presence within the study area are listed as follows:

**Stone Artefacts**

Stone artefacts are found either on the ground surface and/or in subsurface contexts. The raw materials used for artefact manufacture in the local area will commonly be silcrete, volcanics and quartz.

Stone artefacts will be widely distributed across the landscape in a virtual continuum, with significant variations in density in relation to different environmental factors. Artefact density and site complexity is expected to be greater near reliable water and the confluence of a number of different resource zones.

The majority of the proposed works areas and inundation area is situated within landforms elements which are unlikely to be archaeologically sensitive such as river channels, steep slopes or flats. Furthermore the majority of landforms are eroding. Accordingly stone artefacts are predicted to be present in low densities only and generally are unlikely to be *in situ*.

**Grinding Grooves**

Grinding grooves are found in rock surfaces and result from the manufacture and maintenance of ground edge tools. Grinding grooves are only found on sedimentary rocks such as sandstone. Given the absence of suitable rock exposures in the study area grinding groove sites are unlikely to be present.

**Rock Shelter Sites**

Rock shelters sites are unlikely to be present in the study area given the absence of large vertical stone outcrops.

**Scarred and Carved Trees**

Scarred and Carved trees result from either domestic or ceremonial bark removal. Carved trees associated with burial grounds and other ceremonial places have been recorded in the wider region. In an Aboriginal land use context this site type would most likely have been situated on flat or low gradient landform units in areas suitable for either habitation and/or ceremonial purposes.

Bark removal by European people through the entire historic period and by natural processes such as fire blistering and branch fall make the identification of scarring from a causal point of view very difficult. Accordingly, given the propensity for trees to bear scarring from natural causes their positive identification is impossible unless culturally specific variables such as stone hatchet cut marks or incised designs are evident and rigorous criteria in regard to tree species/age/size and it specific characteristics in regard to regrowth is adopted.

Nevertheless, the likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires. Generally scarred trees will only survive if they have been carefully protected (such as the trees associated with Yuranigh's grave at Molong where successive generations of European landholders have actively cared for them).

The study area has been extensively cleared. While not impossible this site type is unlikely to have survived and therefore be extant in the study area.

**Stone Quarry and Procurement Sites**

A lithic quarry is the location of an exploited stone source (Hiscock & Mitchell 1993:32). Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur.

**Burials**

In the Yass district traditionally Aboriginal people buried their dead in dug graves in rocky soils, usually on the tops of stony hills (White and Cane 1986). Other practices included the disposal of dead in caves (such as that on the Murrumbidgee near Burrinjuck described by Bennett in 1834), hollow trees and in graves dug into antbeds.

White and Cane (1986) note that traditional burial practices continued throughout the early period of European occupation into the 1870s. The possibility of burials being present in the areas of proposed direct impact is low generally.

## 8. NON-INDIGENOUS HERITAGE

### *Historical Context*

The district around the Yass River was discovered by Hamilton Hume in 1821. Hume then travelled through the area again in 1824 as part of his famous expedition with Captain William Hovell. A government land grant was awarded to Hume in recognition of his exploration efforts and Hume selected an area on the Yass River in 1829 (Irving 1982). He later bought Cooma Cottage and 100 acres of Cornelius Brown's original 960 acre grant. Hume (d. 1873) and his descendants lived at Cooma Cottage until at least the late 1870s. During Hume's lifetime the cottage underwent numerous renovations and extensions. By the 1890s the house was in use as a sanatorium for consumptives. It is currently owned by the National Trust and is operated as a museum.

By the time that Hume was settling on the Yass River there was already a substantial European settlement in the area comprising agriculturalists, trades people and shop keepers. Businesses had set up initially on the southern side of the Yass River and then also on the northern side at a location known as the Mudflat. The government survey of the settlement took place in 1834 and a gaol and courthouse were built in 1836, which was the same year that a post office agency was established (Irving 1982).

Yass was effectively at the Limits of Location for early settlers. The land beyond Mount Bowning was outside the area of official government settlement and was at the time characterised by squatter runs. On an expedition outside the 19 counties in 1836, Major Mitchell noted:

> *"1836, Oct. 27 ...we had arrived on the Murrumbidgee River, 75 miles below where the river quitted the settled districts...I found the upper portion of this fine stream fully occupied as cattle stations..."*

One of the reasons why Yass developed so quickly as a settlement is that by the late 1830s it was an important point on the main route between Sydney and Melbourne (YDHS 2008). In 1850 however, flooding destroyed a number of houses and businesses, which resulted in a shift in the town centre to higher ground and a push for a suitable bridge to be built to link the northern and southern settlements. After two attempts at bridge construction that proved unsuccessful due to flooding and so forth, the Hume Bridge was built in 1872 (Irving 1982). With the introduction of the Robertson Land Acts in 1861 there was an increase in settlement in the district. In particular there was an increase in sheep runs and the wool industry began to develop in earnest (STNSW 2008).

In 1873 Yass became a municipality, affirming the town's role as an administrative centre and stimulating further growth in the town, including construction of the famous court house that was designed by Colonial Architect James Barnet (Irving 1982).

Despite the efforts of local residents, the railway from Sydney initially bypassed the town because of the prohibitive cost associated with the two bridges necessary to cross and recross the Yass River. Nevertheless, the Yass Railway Committee did have some success in ensuring that the Yass Junction station was established at a location that would allow relatively easy construction of a branch line at a later date. The first train from Sydney arrived at Yass Junction on the 3rd July 1876. Not one of the Yass residents went to welcome the train due to their disgust with the fact that the town had effectively been bypassed. Efforts to build a tramline linking the town with the railway station began in 1878. Following many years of government lobbying a tramline was finally opened in 1892 and upgraded to a train line in 1917. Passenger services ended in 1958 and thirty years later the use of the line for freight also ceased (Carlos 2008).

Merino sheep have played an important role in Yass from very early on in the history of the district. Hume himself bred merinos and others such as George Merriman at the Ravensworth Stud were instrumental in the development of the wool industry. Wheat production has also played a significant role with the construction of the first steam mill in 1842, which was built for Hamilton Hume. Wheat was sent from the local district to Sydney and exported overseas. The wheat industry was however eclipsed by the wool industry in the early twentieth century and milling had ceased by the 1950s (STNSW 2008).

8.1 Previously Recorded Sites

Searches have been conducted for previous heritage listings in and around the Yass River study area; these searches have included all of the relevant heritage registers for items of local through to world significance. Details of these searches are provided below.

*Australian Heritage Database*

This database contains information about more than 20 000 natural, historic and Indigenous places.

The database includes places in:

- the World Heritage List
- the National Heritage List
- the Commonwealth Heritage list
- the Register of the National Estate

and places under consideration for any one of these lists. A search of this database (27th November 2008) revealed that there are 32 items listed on the Register of the National Estate as being in the Yass area; a summary of the search results is provided below in Table 2. The only items listed as being present in or adjacent the Yass River study area are the 'Cooma Cottage complex' and the 'Cooma Cottage, Hardwicke and Douro Landscape Area'. It should however be noted that Cooma Cottage is not visible from the actual inundation zone proposed along the river.

| Heritage Item | Location | Register and Status |
|---|---|---|
| ANZ Bank Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| CBC Bank, Residence, Fences, Hitching Posts and Stables Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Comur Street Group 129-153 Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Cooma Cottage, Hardwicke and Douro Landscape Area Hume Hwy | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Cooma Cottage, Stables, Outbuildings and Surrounds Hume Hwy | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Derringullen Creek Area Hume Hwy | Yass, NSW, Australia | Register of the National Estate (Registered) |
| F L Kelly and Company (former) Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Grampian Street Group 24, 30, 32 Grampian St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Hattons Corner Area | Yass, NSW, Australia | Register of the National Estate (Registered) |
| House 120 Rossi St | Yass, NSW, Australia | Register of the National Estate (Indicative Place) |
| Indigenous Place | Yass, NSW, Australia | Register of the National Estate (Indicative Place) |
| Kerrowgair 24 Grampian St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Linton and Garden Glebe St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Mundoonen Nature Reserve Hume Hwy | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Police Residence and Cells 53 Rossi St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Public School Group Laidlaw St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Rathluba 32 Grampian St | Yass, NSW, Australia | Register of the National Estate (Registered) |

| Heritage Item | Location | Register and Status |
|---|---|---|
| Ronnoco 60-66 Rossi St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Rose Cottage and Kitchen 73 Meehan St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| St Clements Anglican Church Church St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| St Clements Rectory 17 Church St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| State Bank Rural Bank (former) Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| The Elms 30 Grampian St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Upper Lake Burrinjuck Area Wee Jasper Yass Rd | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Westpac Bank Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Courthouse Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Courthouse Group Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Junction Railway Station Faulder Rd | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Police Station 51 Rossi St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Post Office Group Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Post Office Including Hitching Posts Comur St | Yass, NSW, Australia | Register of the National Estate (Registered) |
| Yass Urban Conservation Area | Yass, NSW, Australia | Register of the National Estate (Registered) |

Table 2. Australian Heritage Database search results.

The following is taken from the Department of Environment, Heritage, Water and the Arts website (DEHWA 2007)

*Status of the Register of the National Estate - February 2007*

The Australian Heritage Council can no longer add places to or remove places or a part of a place from the Register of the National Estate (Register).

In 2006, the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act), and the Australian Heritage Council 2003 were amended to, among other things, stop changes to the Register.

Places may be protected under appropriate States, Territories and Local Governments heritage legislation. Under an agreement between the Commonwealth and States and Territories it is intended that Registered places will be considered for inclusion in appropriate Commonwealth, State / Territory heritage lists.

Registered places can be protected under the EPBC Act if they are also included in another Commonwealth statutory heritage list. For example, Registered places owned or leased by the Commonwealth are protected from any action likely to have a significant impact on the environment.

There is no provision in the EPBC Act for Register of the National Estate places to be transferred to the National Heritage List or the Commonwealth Heritage List.

*Indicative*

Data provided to or obtained by the Australian Heritage Council or the former Australian Heritage Commission has been entered into the database.

*Identified*

The former Australian Heritage Commission has assessed the values of this place and decided that it should be entered in the Register. The place had not reached the Interim List stage by 1 January 2004 when the Commission was abolished.

*Interim list*

The place was in the Interim List at 1 January 2004 when the Australian Heritage Commission was abolished. The place had been publicly proposed for entry in the Register.

*Registered*

The place is in the Register of the National Estate. Although some places may be legally registered because they are within a larger registered area they may not necessarily possess intrinsic significance.

*Removed from Register*

The place has been removed from the Register

*Destroyed*

The place has been destroyed before being assessed or listed.

*Rejected*

The Australian Heritage Council or the former Australian Heritage Commission has assessed the place and found that it does not warrant entry in the Register in its own right.

*Duplicate record*

The place has another record in the database.

*Identified through state processes*

The place is entered in a state/territory heritage register. The Australian Heritage Commission had formally recognised the standards of historic assessment of the relevant state or territory heritage body and acknowledged that the place has National Estate historic values.

Of itself listing on the Register of the National Estate does not afford legal protection for a heritage item. None of the abovementioned identified items listed on the Register of the National Estate are included in another Commonwealth statutory heritage list and as such are not afforded protection under the EPBC Act.

*State Heritage Inventory*

The *NSW heritage databases* contain over 20,000 statutorily-listed heritage items in New South Wales. This includes items protected by heritage schedules to local environmental plans (LEPs), regional environmental plans (REPs) or by the State Heritage Register.

The information is supplied by local councils and State agencies and includes basic identification details and listing information. Consequently listings should be confirmed with the responsible agency.

A search of this database (27th November 2008) revealed that there are 14 items that are listed as being present in the Yass region (Table 3). It should be noted that there are no items listed as being present within the proposal area, although the abovementioned Cooma Cottage is located a few hundred metres to the south of the Yass River.

| Item Name | Address | Suburb | LGA | Significance |
|---|---|---|---|---|
| Binalong Railway Station Group | | Binalong | Yass Valley | Local |
| Bowning Station Railway Group | Main Southern Railway | Bowning | Yass Valley | State and Local |
| Burrinjuck Dam | | Burrinjuck | Yass Valley | State |
| Burrinjuck Dam Site (Greater) | | Burrinjuck | Yass Valley | State |
| Burrinjuck Dam Site – Barren Jack Creek Water Supply | | Burrinjuck | Yass Valley | State |
| Cooma Cottage | Yass Valley Way | Yass | Yass Valley | State |
| Wee Jasper Bridge over Gooradigbee River | Main Road 278 | Wee Jasper | Yass Valley | State |
| Yass District Hospital | Meehan Street | Yass | Yass Valley | Local |
| Yass Fire Station | 90 Meehan Street | Yass | Yass Valley | Local |
| Yass Footbridge | At Station | Yass | Yass Valley | Local |
| Yass Junction Railway Station group | Main Southern Railway | Yass Junction | Yass Valley | State and Local |
| Yass Post Office | 101 Comur Street | Yass | Yass Valley | State |
| Yass Town rail bridge over Yass River | Yass Town Tramway | Yass | Yass Valley | State and Local |
| Yass Town Railway Station and yard group | Yass Town Tramway | Yass | Yass Valley | State and Local |

Table 3. State Heritage Inventory search results

*The NSW Heritage Act (1977)*

The purpose of the NSW Heritage Act 1977 is to ensure that the heritage of New South Wales is adequately identified and conserved. In practice the Act has focused on items and places of non-indigenous heritage to avoid overlap with the NSW National Parks & Wildlife Act, 1974, which has primary responsibilities for nature conservation and the protection of Aboriginal objects and places in NSW. In recent years, however, the Heritage Council has targeted these other areas, working with relevant state agencies such as NPWS to identify gaps in the protection of Aboriginal and natural heritage places (for example the Cyprus Hellene Club was protected under the Heritage Act as a place of historic significance to Aboriginal people amongst other values).

Section 4 of the Act considers a heritage item to include *any place, building, work, relic, movable object, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value.*

The Heritage Amendment Act 1998 came into effect in April 1999. This Act instigated changes to the NSW heritage system, which were the result of a substantial review begun in 1992. A central feature of the amendments was the clarification and strengthening of shared responsibility for heritage management between local government authorities, responsible for items of local significance, and the NSW Heritage Council. The Council retained its consent powers for alterations to heritage items of state significance.

The Heritage Act is concerned with all aspects of conservation ranging from the most basic protection against damage and demolition, to restoration and enhancement. It recognises two levels of heritage significance, State significance and Local significance across a broad range of values.

Generally this Act provides protection to items that have been identified, assessed and listed on various registers including State government section 170 registers, local government LEPs and the State Heritage Register. The Interim Heritage Order provisions allow the minister or his delegates (local government may have delegated authority) to provide emergency protection to threatened places that have not been previously identified. The only 'blanket' protection provisions in the Act relate to the protection of archaeological deposits and relics greater than 50 years old.

*The Heritage Council of NSW*

The role of the Heritage Council is to provide the Minister with advice on a broad range of matters relating to the conservation of the heritage of NSW. It also has a role in promoting heritage conservation through research, seminars and publications. The membership of the Heritage Council is designed to reflect a broad range of interests and areas of expertise.

*Interim Heritage Orders*

Under the provisions of Part 3 of the Act, the Minister can make an interim heritage order (IHO). A recommendation with respect to an order can come from the Heritage Council, either based on a request for the Minister, or the Council's own considerations. The Minister can also authorise Local Councils to make IHOs

within their area. An interim conservation order may remain in force for up to 12 months, until such time as it is revoked or the item is listed on the State Heritage Register. A heritage order may control activities such as demolition of structures, damage to relics, places or land, development and alteration of buildings, works or relics.

*The State Heritage Register*

Changes to the Heritage Act in the 1998 amendments established the State Heritage Register which includes all places previously protected by permanent conservation orders (PCOs) and items identified as being of state significance in heritage and conservation registers prepared by State Government instrumentalities. Sites or places which are found to have a state level of heritage significance should be formally identified to the Heritage Council and considered for inclusion on the State Heritage Register.

*National Trust of Australia (NSW) Register*

The National Trust of Australia (NSW) is a non-government Community Organisation which promotes the conservation of both the built and natural heritage (for example, buildings, bushland, cemeteries, scenic landscapes, rare and endangered flora and fauna, and steam engines may all have heritage value). The Trust has approximately 30,000 members in New South Wales.

Following its survey and assessment of the natural and cultural environment, the Trust maintains a Register of landscapes, townscapes, buildings, industrial sites, cemeteries and other items or places which the Trust determines to have heritage significance and are worthy of conservation. Currently there are some 11,000 items listed on the Trust's Register. They are said to be 'Classified'.

The Trust's Register is intended to perform an advisory and educational role. The listing in the Register has no legal force. However, it is widely recognised as an authoritative statement of the heritage significance of a place. The Trust does not have any control over the development or demolition of the Classified Places or Items in its Register.

While the National Trust Register does not provide any statutory obligations for protection of a site as such, the acknowledgment of a place being listed on the Register as a significant site lends weight to its heritage value. Also, the fact that the actual data for sites may be minimal does not diminish the significance of a place. In fact, many sites were listed with only basic data added, especially in the early developmental stages of the Register.

The Trust, over the last few years has been upgrading the information for places listed, with criteria for assessment for listing based on the Australian Heritage Commission Criteria of assessment for entry to the Register of the National Estate.

A search of the National Trust of Australia (NSW) Register (1st December 2008) revealed that there are over 50 item in the Yass Valley LGA that are currently listed with the National Trust (Table 4, Appendix xx). Of those, only four items are in or adjacent the study area; they are the Cooma Cottage group and its components comprising Cooma Cottage, Douro, Hardwicke and the visual catchment.

| Item name | Address |
|---|---|
| ST. CLEMENT'S ANGLICAN RECTORY (PART OF ST. CLEMENT'S ANGLICAN CHURCH GROUP, CARD 2 OF 2) | CHURCH STREET |
| ST. CLEMENT'S ANGLICAN CHURCH (PART OF THE ST. CLEMENT'S ANGLICAN CHURCH GROUP - CARD 1 OF 2) | CHURCH STREET, CORNER ROSSI STREET |
| ANZ BANK (PART OF BANK GROUP - CARD 2 OF 5) | COMUR STREET |
| COURTHOUSE INCLUDING GROUNDS, TREES, FRONT AND SIDE FENCES AND HITCHING POSTS IN STREET (PART OF COURTHOUSE GROUP - CARD 2 OF 3) | COMUR STREET |
| F.L. KELLY & COMPANY (STOCK AND STATION AGENTS), FORMERLY YASS MECHANICS' INSTITUTE (PART OF THE BANK GROUP - CARD 5 OF 5) | COMUR STREET |
| POST OFFICE, INCLUDING HITCHING POSTS (PART OF POST OFFICE GROUP - CARD 2 OF 3) | COMUR STREET |

| Item name | Address |
|---|---|
| STATE BANK, FORMERLY RURAL BANK OF NEW SOUTH WALES, FORMER BANK OF NEW SOUTH WALES, INCLUDING FENCES (PART OF BANK GROUP - CARD 4 OF 5) | COMUR STREET |
| BANK GROUP, COMPRISING ANZ BANK, WESTPAC BANK, STATE BANK, AND E.L.KELLY & COMPANY (BANK GROUP - CARD 1 OF 5) | COMUR STREET 129-153 |
| WESTPAC, FORMERLY BANK NEW SOUTH WALES, FORMER AJS BANK, INCLUDING RESIDENCE, HITCHING POST ON FOOTPATH, FENCES TO STREET AND STABLES AT REAR OF PREMISES (PART OF BANK GROUP - CARD 3 OF 5) | COMUR STREET 141 |
| WESTPAC, FORMERLY BANK OF NEW SOUTH WALES, FORMER AJS BANK, INCLUDING RESIDENCE, HITCHING POST ON FOOTPATH, FENCES TO STREET AND STABLES AT REAR OF PREMISES (PART OF THE BANK GROUP - CARD 3 OF 5) | COMUR STREET 141 |
| COMMERCIAL HOTEL | COMUR STREET, CORNER LEAD STREET |
| CBC BANK & RESIDENCE, INCLUDING FENCES AND HITCHING POSTS, AND STABLES AT REAR (PART OF POST OFFICE GROUP - CARD 3 OF 3) | COMUR STREET, CORNER MEEHAN STREET |
| POST OFFICE GROUP, COMPRISING POST OFFICE AND CBC BANK & RESIDENCE, (POST OFFICE GROUP - CARD 1 OF 3) | COMUR STREET, CORNER MEEHAN STREET |
| COURTHOUSE GROUP, COMPRISING COURTHOUSE AND FORMER POLICE CONSTABLE'S RESIDENCE (COURTHOUSE GROUP - CARD 1 OF 3) | COMUR STREET, CORNER ROSSI STREET AND 5 ROSSI STREET |
| DEVONIA | DE MESTRE STREET 7 |
| FIELD HOUSE | FIELD LANE |
| LINTON | GLEBE STREET 22 |
| KERROWGAIR, FORMERLY PARK VILLA (PART OF GRAMPIAN STREET GROUP, CARD 2 OF 4) | GRAMPIAN STREET 24 |
| GRAMPIAN STREET GROUP, COMPRISING KERROWGAIR, THE ELMS, AND RATHLUBA (GRAMPIAN STREET GROUP - CARD 1 OF 4) | GRAMPIAN STREET 24, 30 & 32 |
| THE ELMS, FORMERLY RICHMOND VILLA, (PART OF GRAMPIAN STREET GROUP, CARD 3 OF 4) | GRAMPIAN STREET 30 |
| RATHLUBA, (PART OF GRAMPIAN STREET GROUP, CARD 4 OF 4) | GRAMPIAN STREET 32 |
| COOMA COTTAGE GROUP, COMPRISING COOMA COTTAGE, DOURO, HARDWICKE AND VISUAL CATCHMENT (COOMA COTTAGE GROUP, CARD 1 OF 4) | HUME HIGHWAY |
| COOMA COTTAGE, INCLUDING STABLES, OUTBUILDINGS AND 100 ACRES OF LAND (PART OF COOMA COTTAGE GROUP, CARD 2 OF 4) # | HUME HIGHWAY |
| DOURO (PART OF COOMA COTTAGE GROUP, CARD 3 OF 4) | HUME HIGHWAY |
| HARDWICKE (PART OF COOMA COTTAGE GROUP, CARD 4 OF 4) | HUME HIGHWAY |
| COTTAGE | HUME STREET 1 |
| PUBLIC SCHOOL (PART OF PUBLIC SCHOOL GROUP, CARD 2 OF 3) | LAIDLAW STREET |

| Item name | Address |
|---|---|
| PUBLIC SCHOOL GROUP, COMPRISING PUBLIC SCHOOL AND SCHOOL RESIDENCE (PUBLIC SCHOOL GROUP, CARD 1 OF 3) | LAIDLAW STREET |
| SCHOOL RESIDENCE, FORMERLY SCHOOLMASTER'S HOUSE (PART OF PUBLIC SCHOOL GROUP, CARD 3 OF 3) | LAIDLAW STREET |
| COTTAGE | LAIDLAW STREET 15 |
| ROSEBANK, FORMERLY SPOTTED DOG INN | LAIDLAW STREET 31 |
| RAILWAY STATION | MAIN SOUTH RAILWAY LINE |
| RAILWAY STATION | MAIN SOUTH RAILWAY LINE |
| ST. AUGUSTINE'S CHAPEL, FORMERLY CHURCH | MEEHAN STREET |
| ROSE COTTAGE | MEEHAN STREET 73 |
| CONVENT OF MERCY (MOUNT CARMEL SCHOOL) | MEEHAN STREET, CORNER DUTTON STREET |
| CONVENT OF MERCY (MOUNT CARMEL SCHOOL) | MEEHAN STREET, CORNER DUTTON STREET |
| METHODIST CHURCH | ROSSI STREET |
| METHODIST CHURCH | ROSSI STREET |
| HOUSE | ROSSI STREET 120 |
| HOUSE | ROSSI STREET 120 |
| FORMER POLICE CONSTABLE'S RESIDENCE, INCLUDING GARDEN AT FRONT AND PINE TREES (PART OF COURTHOUSE GROUP - CARD 3 OF 3) | ROSSI STREET 5 |
| FORMER POLICE CONSTABLE'S RESIDENCE, INCLUDING GARDEN AT FRONT AND PINE TREES (PART OF COURTHOUSE GROUP - CARD 3 OF 3) | ROSSI STREET 5 |
| ROSSI STREET GROUP, COMPRISING FORMER POST OFICE, HOUSE, FORMER YASS COURIER OFFICE AND HOUSES (ROSSI STREET GROUP, CARD 1 OF 1) | ROSSI STREET 60, 62, 64-66 AND 68-70 |
| ROSSI STREET GROUP, COMPRISING FORMER POST OFICE, HOUSE, FORMER YASS COURIER OFFICE AND HOUSES (ROSSI STREET GROUP, CARD 1 OF 1) | ROSSI STREET 60, 62, 64-66 AND 68-70 |
| GRAVE OF THOMAS LAIDLAW | ROSSI STREET, 100 M WEST OF NO. 99 |
| GRAVE OF THOMAS LAIDLAW | ROSSI STREET, 100 M WEST OF NO. 99 |
| BLACKBURN | RYE PARK ROAD, APPROX. 8 KM NORTH OF YASS JUNCTION |
| BLACKBURN | RYE PARK ROAD, APPROX. 8 KM NORTH OF YASS JUNCTION |
| BLOOMFIELD | WEE JASPER ROAD |
| BLOOMFIELD | WEE JASPER ROAD |
| YASS TOWN TRAMWAY | YASS JUNCTION-YASS TOWN RAILWAY LINE |
| YASS TOWN TRAMWAY | YASS JUNCTION-YASS TOWN RAILWAY LINE |
| YASS URBAN CONSERVATION AREA | YASS URBAN CONSERVATION AREA: BOUNDED BY THE YASS RIVER, CHURCH, POLDING AND ADELE STREETS, INCORPORATING THE YASS RAILWAY STATION AND STATION YARD, ALONG DUTTON STREET, INCORPORATING THE TRAINLINE TO THE YASS RIVER. |
| YASS URBAN CONSERVATION AREA | YASS URBAN CONSERVATION AREA: BOUNDED BY THE YASS RIVER, CHURCH, POLDING AND ADELE STREETS, INCORPORATING THE YASS RAILWAY STATION AND STATION YARD, ALONG DUTTON STREET, INCORPORATING THE TRAINLINE TO THE YASS RIVER. |

Table 4. National Trust of Australia (NSW) Register search results

8.2 Historical Themes

A historical theme is a way of describing a major historical event or process that has contributed to the history of NSW. Historical themes provide the background context within which the heritage significance of an item can be understood. Themes have been developed at National and State levels, but corresponding regional and local themes can also be developed to reflect a more relevant historical context for particular areas or items.

In the table below is a summary of themes that are applicable to the Yass study area.

| Australian Theme | NSW Theme | Local Theme |
|---|---|---|
| Peopling Australia | Aboriginal cultures and interactions with other cultures | Day-to-day life |
| | | Mythological and ceremonial |
| | | Natural resources |
| | | Contact period |
| Developing local, regional and national economies | Agriculture | Fencing |
| | | Sheds |
| | | Pasture |
| | | Water provision |
| | | Farmsteads |
| | | Shearing |
| | | Machinery |
| | Commerce | Banking |
| | | Trade routes |
| | | Shops |
| | | Inns |
| | Communication | Postal services |
| | | Telephone and telegraph services |
| | | Newspapers |
| | | Transport networks |
| | Environment – cultural landscape | Tree plantings |
| | | Picnic areas |
| | | Fishing spots |
| | Events | Floods |
| | Exploration | Camp sites |
| | | Exploration routes |
| | | Water sources |
| | Industry | Mills |
| | | Shearing sheds |
| | | Workshops |
| | | Transport network |
| | Pastoralism | Pastoral homesteads |
| | | Sheds and yards |
| | | Travelling stock reserves |
| | | Fencing and boundaries |
| | | Pastoral workers' camps |
| | | Water sources |
| | Technology | Communication networks |
| | Transport | Railways |
| | | Early roads |
| | | Private tracks |
| | | Coaches and teamsters |
| | | Bridges |
| Building settlements, towns and cities | Towns, suburbs and villages | Town plan |
| | | Neighbourhoods |
| | Land tenure | Fencing and other boundary markers |
| | Utilities | Water distribution |
| | | Garbage disposal |
| | | Sewage/septic systems |
| | | Provision of electricity |
| | | Bridges |
| | | Culverts |
| | Accommodation | Inns and hostels |
| | | Domestic residences |
| | | Temporary encampments |
| | | Homesteads |
| | | Humpies |
| Developing Australia's cultural life | Domestic life | Domestic artefact scatters |
| | | Residences |
| | | Food preparation |
| | | Gardens |
| | | Domesticated animals |
| | Leisure | Show ground |
| | | Picnic/camping areas |

| Australian Theme | NSW Theme | Local Theme |
|---|---|---|
| | | Racecourse |
| | | Scenic lookouts |
| | | Town hall |
| | | Tourism |
| | Religion | Churches |
| | Social institutions | Public hall |
| | | Social groups/associations |
| | Sport | Sports grounds |
| | | Sports teams |
| Marking the phases of life | Birth and death | Graves |
| | Persons | Individual monuments |
| | | Significant individuals/families |
| | | Place names |

Table 5. National, state and local historical themes that are applicable to the study area and surrounds.

8.3 Predictive Statements

As the above table indicates there is an enormous array of themes and hence potential site types that might occur in and around the study area. Nonetheless, many of these correspond to heritage items in urban contexts. Given that there are no known historical villages or towns within the proposal area it is unlikely that most of these themes will be represented within the proposed area of inundation and other areas of direct impacts. There is however potential for sites associated with agriculture, such as fences and sheep dips. Other likely sites or site elements include tree plantings. More generally there is the potential for river crossings and associated roads and paths. The crossings themselves may be evidenced either as existing bridges, bridge abutments or submerged fords.

Overall, the potential for heritage items to occur in areas of direct inundation is relatively low. It is more likely that potential heritage items might be located adjacent the areas of direct impacts.

## 9. SURVEY RESULTS

### 9.1 Survey Coverage Variables

Survey Coverage Variables are a measure of ground surveyed during the study and the type of archaeological visibility present within that surveyed area. Survey coverage variables provide a measure with which to assess the effectiveness of the survey so as to provide an informed basis for the formulation of management strategies.

Specifically, an analysis of survey coverage is necessary in order to determine whether or not the opportunity to observe stone artefacts in or on the ground was achieved during the survey. In the event that it is determined that ground exposures provided a minimal opportunity to record stone artefacts it may be necessary to undertake archaeological excavation for determining whether or not stone artefacts are present. Conversely, if ground exposures encountered provided an ideal opportunity to record the presence of stone artefacts, the survey results may be considered to be adequate and accordingly no further archaeological work may be required.

Two main variables were used to measure ground surface visibility during the study; the area of ground exposure encountered and the quality and type of ground visibility (archaeological visibility) within those exposures.

The two survey coverage variables estimated during the survey are defined as follows:

Estimated Ground Exposure – an estimate of the total area of ground inspected which contained exposures of bare ground; and

Estimated Archaeology Visibility – a percentage estimate of the average levels of potential archaeological surface visibility within those exposures of bare ground.

Based on the two visibility variables as defined above, a net estimate (Net Effective Exposure) of the archaeological potential of exposure area within a survey unit or set of units has been calculated. The Effective Survey Coverage (ESC) calculation is defined and required by the NSW DECC. The ESC provides an estimate of the proportion of the total study area which provided a net 100% level of ground surface visibility (with archaeological potential).

Thirty nine Survey Units was defined and recorded during the study. The Survey Units and Effective Survey Coverage are described in Table 6 and Table 8 below; their location is shown on Figures 5, 6, 7 and 8.

| Survey Unit | Landform | Slope | Aspect | Rock Abundance | Geomorphology | Erosion Types | Disturbance Levels | Disturbance Impacts |
|---|---|---|---|---|---|---|---|---|
| SU1 | simple slope | gently inclined | W | No rock outcrop | eroded or aggraded | surface wash; gullying; creep | moderate | cover artefacts; disturb spatially gross |
| SU2 | simple slope | gently inclined | SW | Rocky | eroded or aggraded | surface wash | moderate - natural | |
| SU3 | open depression | very gently inclined | | Very slightly rocky | eroded or aggraded | sheet; surface wash | moderate | cover artefacts; disturb spatially gross |
| SU4 | flat | very gently inclined | SW | No rock outcrop | aggraded | surface wash; sheet | low | cover artefacts |
| SU5 | simple slope | moderately inclined | SW | Very slightly rocky | eroded or aggraded | sheet; surface wash | moderate | cover artefacts |
| SU6 | simple slope | moderately inclined | SW | Slightly rocky | aggraded | sheet; surface wash; creep | low | cover artefacts |
| SU7 | open depression | very gently inclined | open | No rock outcrop | aggraded | sheet; surface wash; gullying | moderate | cover artefacts - moderate spatial vertical |
| SU8 | simple slope | steep | S | Rocky | eroded or aggraded | creep; sheet; surface wash | moderate | moderate spatial vertical - remove artefacts; cover artefacts |
| SU9 | simple slope | moderately inclined | SE | Very slightly rocky | | sheet; surface wash | moderate | cover artefacts |
| SU10 | simple slope | gently inclined | S | Very slightly rocky | aggraded | sheet; surface wash | moderate | cover artefacts |
| SU11 | simple slope | gently inclined | W | | aggraded | sheet; surface wash | moderate | cover artefacts |
| SU12 | simple slope | gently inclined | SW | | aggraded | sheet; surface wash | moderate | moderate spatial vertical |
| SU13 | simple slope | very steep | SE | Rocky | eroded | creep | moderate | remove artefacts |
| SU14 | simple slope | moderately inclined | NW | Very rocky | eroded | sheet; surface wash | moderate | moderate spatial vertical - cover artefacts |
| SU15 | simple slope | gently inclined | N | Rocky | eroded | sheet; surface wash | moderate | moderate spatial vertical - cover artefacts |
| SU16 | simple slope | steep | E | Slightly rocky | eroded | creep; surface wash; sheet | moderate | remove artefacts |
| SU17 | simple slope | gently inclined | NE | Very slightly rocky | eroded or aggraded | sheet; surface wash | moderate | cover artefacts |
| SU18 | simple slope | moderately inclined | W | Very slightly rocky | eroded | sheet; surface wash; creep | moderate | remove artefacts |
| SU19 | simple slope | moderately inclined | N | Very slightly rocky | eroded or aggraded | sheet; surface wash; creep | moderate | moderate spatial vertical - cover artefacts |

| Survey Unit | Landform | Slope | Aspect | Rock Abundance | Geomorphology | Erosion Types | Disturbance Levels | Disturbance Impacts |
|---|---|---|---|---|---|---|---|---|
| SU20 | simple slope | moderately inclined | NE | Very slightly rocky | eroded or aggraded | sheet; surface wash; creep | moderate | moderate spatial vertical - cover artefacts |
| SU21 | simple slope | moderately inclined | SE | Slightly rocky | eroded | sheet; surface wash; creep | moderate | remove artefacts |
| SU26 | simple slope | gently inclined | W | No rock outcrop | eroded or aggraded | creep; sheet; surface wash - Old road alignment | moderate - gravel pit and other excavation | moderate spatial vertical - cover artefacts |
| SU27 | simple slope | gently inclined | S | Very slightly rocky | eroded or aggraded | sheet; surface wash; creep | moderate | cover artefacts |
| SU28 | simple slope | steep | S | Very slightly rocky | eroded | sheet; surface wash; creep | high | remove artefacts |
| SU29 | simple slope | moderately inclined | W | Very slightly rocky | eroded or aggraded | sheet; surface wash; creep | moderate | moderate spatial vertical - cover artefacts |
| SU30 | lower slope | gently inclined | NW | Very slightly rocky | eroded or aggraded | gullying | high | remove artefacts |
| SU31 | lower slope | gently inclined | NE | No rock outcrop | aggraded | sheet; surface wash; creep | moderate | cover artefacts - moderate spatial vertical |
| SU32 | simple slope | moderately inclined | S | Very slightly rocky | eroded | sheet; surface wash; creep | moderate | moderate spatial vertical - remove artefacts; cover artefacts |
| SU33 | lower slope | gently inclined | SW | No rock outcrop | aggraded | sheet; surface wash; creep | moderate | moderate spatial vertical - cover artefacts |
| SU34 | simple slope | gently inclined | NE | No rock outcrop | eroded or aggraded | sheet; surface wash; creep | moderate | cover artefacts |
| SU35 | crest | steep | NE | No rock outcrop | eroded | sheet; surface wash; creep | High | remove artefacts |
| SU36 | simple slope | gently inclined | N | No rock outcrop | eroded or aggraded | creep; sheet; surface wash - also stream flow | moderate | remove artefacts - moderate spatial vertical |
| SU37 | flat | very gently inclined | E | No rock outcrop | aggraded | gullying - orig soil prob removed and surface buried | moderate | moderate spatial vertical |
| SU38 | simple slope | moderately inclined | N | No rock outcrop | eroded or aggraded | sheet; surface wash; creep | High | moderate spatial vertical - cover |

| Survey Unit | Landform | Slope | Aspect | Rock Abundance | Geomorphology | Erosion Types | Disturbance Levels | Disturbance Impacts |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | artefacts |
| SU39 | simple slope | moderately inclined | E | Very slightly rocky | eroded or aggraded | sheet; surface wash; creep | moderate | moderate spatial vertical - remove artefacts; cover artefacts |

Table 5. Summary of Survey Units.

Aboriginal object recordings in each Survey Unit are listed below in Table 6.

| SU # | Locale # | Site Type | Easting | Northing | Area Sq m | Exposure | Exposure area | Ground Exposure % | Archaeol -ogical Visibility % | Artefact number | Predicted Density | Integrity | Subsurface potential at locale | Proposed impacts |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SU13 | L1 | stone artefact | 676448 | 6144598 | 1 | animal tracks bare earth | 50 x 20 | 20 | 60 | 1 | very low | moderately disturbed | No | Nil |
| SU15 Plate 12 | L1 | stone artefact | 676519 | 6144462 | 1 | animal tracks | 20 x 2 | 70 | 50 | 1 | low | moderately disturbed | No | Yes in inundation area |
| SU17 Plate 13 | L1 | stone artefacts | 676580 | 6143805 | 25 | erosion | 5 x 0.5 | 80 | 70 | 2 | low | moderately disturbed | No | Immediately adjacent to inundation area |
| SU22 Plate 9 | L1 | stone artefacts | 694977 | 6132813 | 25 | bare earth | 20 x 10 | 80 | 80 | 2 | low | highly disturbed | No | In area of proposed culvert works at Greenfield |

Table 6. Aboriginal site recordings.

| Survey Unit | Exposure Type | Area - sq m | Ground Exposure % | Ground Exposure sq m | Archaeological Visibility % | Net Effective Exposure sq m | ESC % | Deposit Potential | Predicted Density |
|---|---|---|---|---|---|---|---|---|---|
| SU1 | bare earth; animal tracks burrows | 8092 | 5 | 404.6 | 20 | 80.9 | 1 | Yes | low |
| SU2 | bare earth | 5577 | 5 | 278.8 | 20 | 55.8 | 1 | No | very low |
| SU3 | bare earth; animal tracks burrows; erosion | 1719 | 5 | 86.0 | 20 | 17.2 | 1 | Yes | very low |
| SU4 | bare earth; animal tracks burrows | 2322 | 5 | 116.1 | 0 | 0.0 | 0 | Yes | low |
| SU5 | bare earth | 11260 | 5 | 563.0 | 10 | 56.3 | 0.5 | Yes | very low |
| SU6 | bare earth; animal tracks burrows; erosion | 11307 | 5 | 565.4 | 5 | 28.3 | 0.25 | Yes | very low |
| SU7 | bare earth; erosion | 4292 | 2 | 85.8 | 5 | 4.3 | 0.1 | Yes | low moderate |
| SU8 | bare earth; animal tracks burrows; erosion | 6416 | 5 | 320.8 | 2 | 6.4 | 0.1 | Yes | very low |
| SU9 | bare earth; animal tracks burrows; erosion | 12680 | 2 | 253.6 | 5 | 12.7 | 0.1 | Yes | very low |
| SU10 | bare earth; animal tracks burrows | 12813 | 5 | 640.6 | 5 | 32.0 | 0.25 | Yes | very low |
| SU11 | bare earth; animal tracks burrows | 10118 | 2 | 202.4 | 5 | 10.1 | 0.1 | Yes | very low |
| SU12 | bare earth; animal tracks burrows; erosion | 2803 | 5 | 140.1 | 10 | 14.0 | 0.5 | No | very low |
| SU13 | bare earth | 36000 | 10 | 3600 | 20 | 720 | 2 | No | very low |
| SU14 | bare earth; animal tracks burrows; erosion | 18074 | 10 | 1807.4 | 60 | 1084.4 | 6 | No | very low |
| SU15 | bare earth; animal tracks burrows | 3238 | 5 | 161.9 | 50 | 80.9 | 2.5 | No | low |
| SU16 | bare earth; animal tracks burrows | 4372 | 2 | 87.4 | 20 | 17.5 | 0.4 | No | negligible |
| SU17 | bare earth; animal tracks burrows; vehicle | 14043 | 1 | 140.4 | 20 | 28.1 | 0.2 | Yes | low |
| SU18 | bare earth; animal tracks burrows; erosion | 17487 | 2 | 349.7 | 50 | 174.9 | 1 | Yes | low |
| SU19 | bare earth; animal tracks burrows | 12042 | 1 | 120.4 | 10 | 12.0 | 0.1 | Yes | very low |
| SU20 | bare earth; animal tracks burrows | 32038 | 1 | 320.4 | 10 | 32.0 | 0.1 | Yes | low |
| SU21 | bare earth; animal tracks | 5545 | 5 | 277.2 | 20 | 55.4 | 1 | Yes | very low |

| Survey Unit | Exposure Type | Area - sq m | Ground Exposure % | Ground Exposure sq m | Archaeological Visibility % | Net Effective Exposure sq m | ESC % | Deposit Potential | Predicted Density |
|---|---|---|---|---|---|---|---|---|---|
| | burrows; erosion | | | | | | | | |
| SU22 Greenfield | erosion | 2500 | 10 | 250 | 5 | 12.5 | 0.5 | No | low |
| SU23 Council | nil | 2500 | 0 | 0 | 0 | 0 | 0 | No | negligible |
| SU24 Zamenoff | Erosion; bare earth | 2500 | 5 | 126 | 10 | 12.5 | 0.5 | Yes | low |
| SU25 Matong | erosion | 2500 | 5 | 125 | 10 | 12.5 | 0.5 | No | low |
| SU26 | bare earth; animal tracks burrows; erosion | 11636 | 5 | 581.8 | 60 | 349.1 | 3 | Yes | low |
| SU27 | animal tracks burrows | 5166 | 2 | 103.3 | 15 | 15.5 | 0.3 | Yes | low |
| SU28 | bare earth; animal tracks burrows | 4060 | 2 | 81.2 | 10 | 8.1 | 0.2 | Yes | negligible |
| SU29 | bare earth; animal tracks burrows | 4831 | 1 | 48.3 | 10 | 4.8 | 0.1 | Yes | very low |
| SU30 | bare earth | 9835 | 1 | 98.4 | 5 | 4.9 | 0.05 | No | negligible |
| SU31 | bare earth; animal tracks burrows | 5742 | 5 | 287.1 | 1 | 2.9 | 0.05 | Yes | very low |
| SU32 | animal tracks burrows | 3919 | 1 | 39.1 | 10 | 3.8 | 0.1 | Yes | negligible |
| SU33 | other | 24047 | 0 | 0.0 | 0 | 0.0 | 0 | Yes | low |
| SU34 | animal tracks burrows | 13262 | 1 | 132.6 | 10 | 13.3 | 0.1 | Yes | low |
| SU35 | bare earth; animal tracks burrows; erosion | 5969 | 5 | 298.4 | 10 | 29.8 | 0.5 | No | negligible |
| SU36 | bare earth; animal tracks burrows | 10519 | 2 | 210.4 | 10 | 21.0 | 0.2 | Yes | very low |
| SU37 | bare earth | 14172 | 2 | 283.4 | 10 | 28.3 | 0.2 | Yes | very low |
| SU38 | animal tracks burrows; erosion | 10117 | 1 | 101.2 | 5 | 5.1 | 0.05 | Yes | low |
| SU39 | bare earth; animal tracks burrows; erosion | 8139 | 2 | 162.8 | 5 | 8.1 | 0.1 | Yes | very low |

Table 7. Effective Survey Coverage.

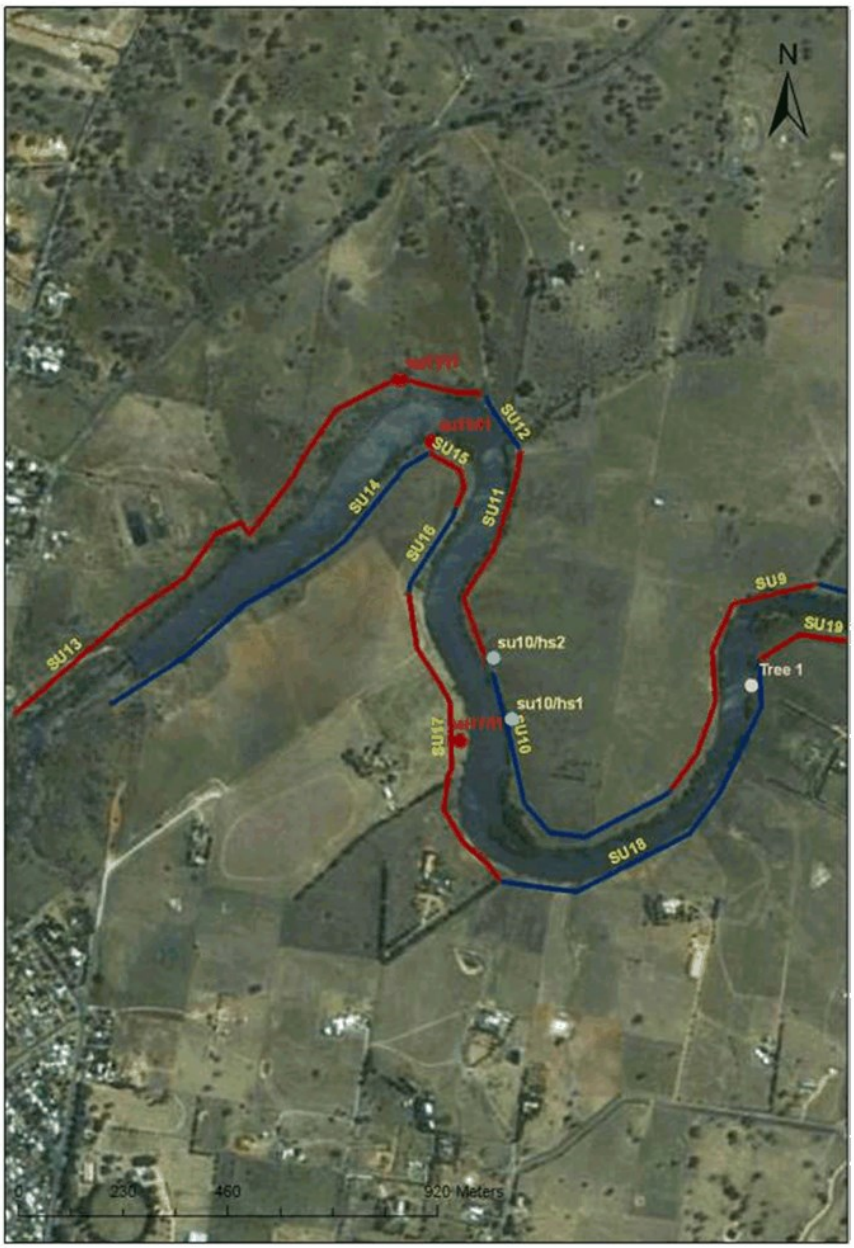


Figure 5. Survey Units and recorded locales at northwest end of inundation area.

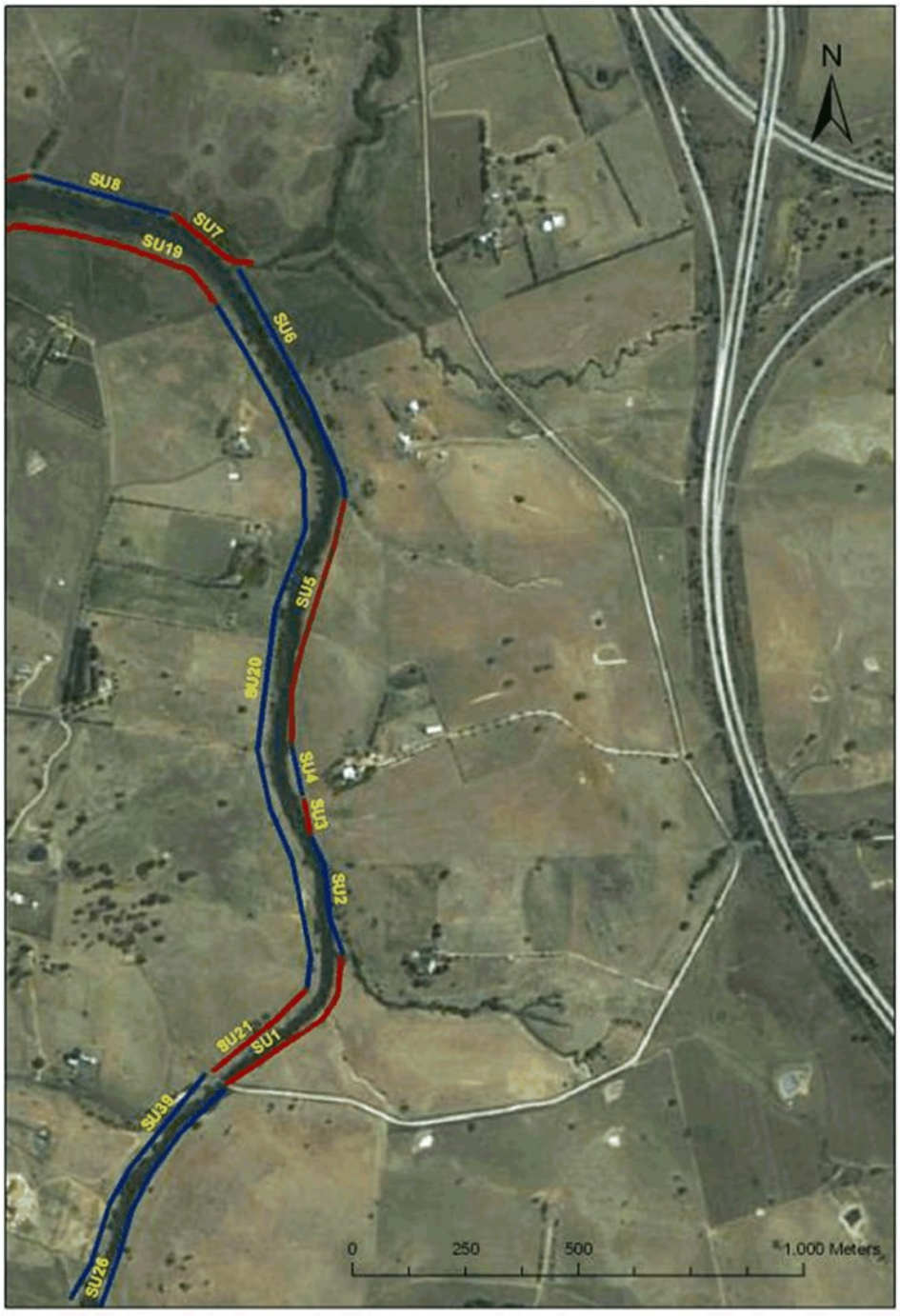


Figure 6. Survey Units and recorded locales in middle of inundation area.

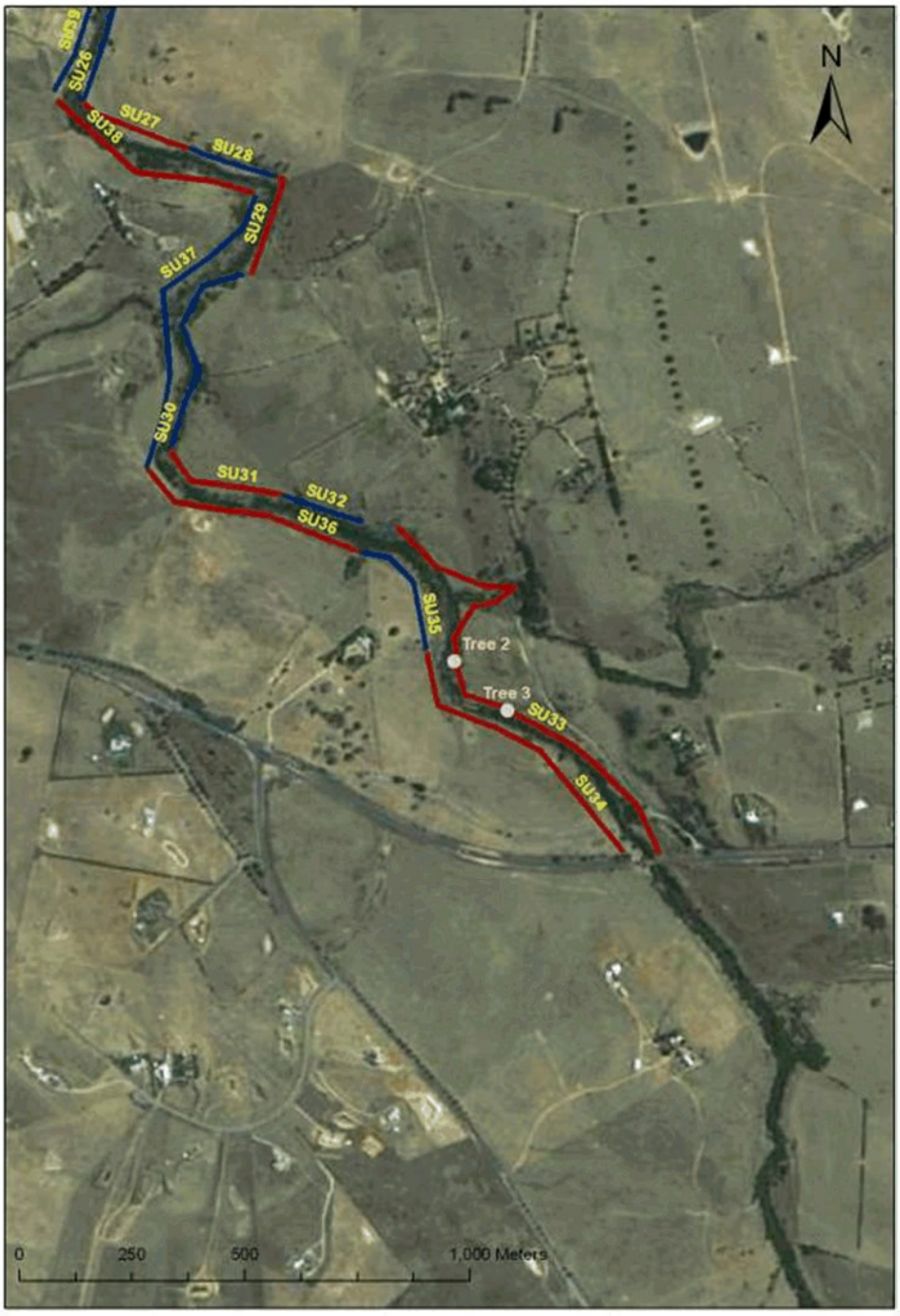


Figure 7. Survey Units and recorded locales in southeast end of inundation area.

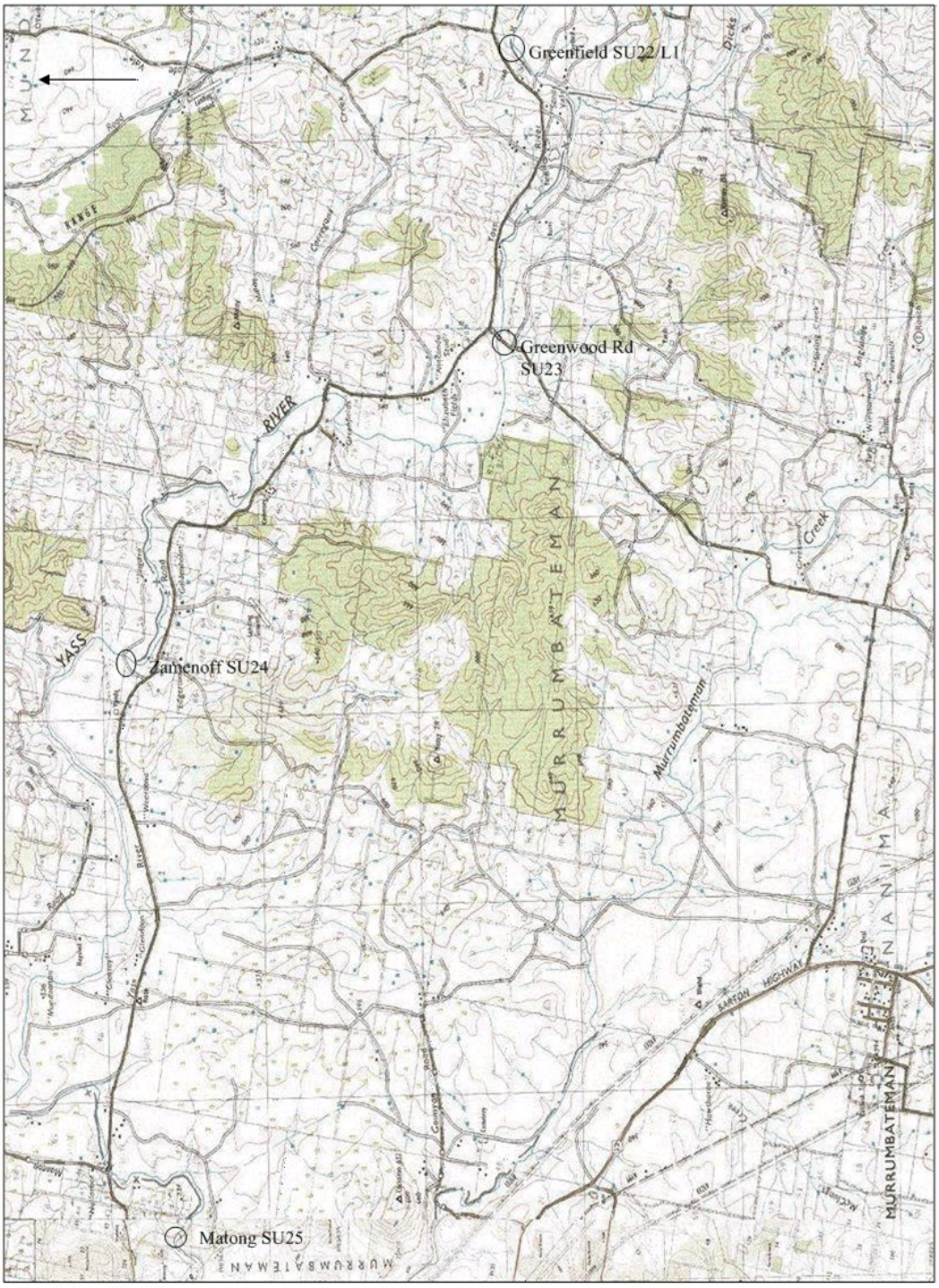


Figure 8. Location of upstream culverts.

9.2 Results

*Indigenous*

Aboriginal object locales are listed above in Table 6. Four artefact locales were recorded; it is noted however that the artefactual status of SU13/L1 is uncertain. Artefact density calculations based on surface indicators indicate that all artefact locales contain low density artefact distributions. The four sites are unlikely to contain associated subsurface deposit given their erosional context and are assessed to be of low significance. Lithic items are listed in Table 9.

| SU # | Locale # | Artefact Type | Material | Size Class | Comments |
|---|---|---|---|---|---|
| SU13 | L1 | Glass fragment: artefactual status uncertain | Glass | 3 | brown glass fragment with edge damage on one margin; located on an animal track could be non-human fracturing |
| SU15 | L1 | Core | Chert | 6 | pebble with scars from one face at one end; 1 platform; 3 scars |
| SU17 | L1 | Flake fragment | Chert | 2 | with some pebble cortex |
| SU17 | L1 | Core | Chert | 5 | pebble with scars from one face on one end; 3 scars |
| SU22 | L1 | Flake | Quartz | 2 | - |
| SU22 | L1 | Flake | Quartz | 6 | core rotation |

Table 9. Lithic items recorded.

Three trees bearing scars were also recorded in the inundation area. The cause of the three scars is uncertain however, based on their characteristics and morphology they are assessed to likely to have been caused by natural processes. The trees are listed in Table 10 below. Their locations are shown in Figures 5 and 7. It is noted that Tree 1 is located within the proposed inundation area; however trees 2 and 3 are both situated above the proposed inundation area.

| Name | Easting | Northing | Comments |
|---|---|---|---|
| Tree 1 | 677221 | 6143925 | old tree stump; probably river gum with old scar 1.5mH x 0.4m W which extends to ground: natural |
| Tree 2 | 678335 | 6140388 | tree 1.5m above river at edge of bank; scar 1m H x 0.2m W extends to ground: natural |
| Tree 3 | 678454 | 6140279 | tree on edge of bank in channel 1.5m above water; with 2m H x 0 4m W scar to ground: natural |

Table 10. Trees with natural scars.

Effective survey coverage achieved during the survey is assessed to have been low. Nevertheless the survey results are in keeping with the predictive model of site location relevant to the proposal area.

The Survey Units present in the study area associated with the proposed construction works area, inundation area and culverts are each assessed to be of low or very low archaeological potential based on various factors including nature of the topography, previous disturbance, erosional processes and generally steep gradients.

*Non-Indigenous*

Two sections of the one old road were recorded in Survey Unit 10 (Table 10; Figure 5). The features are linear with excavated road lengths each measuring c. 70 metres by 3 m wide; they are flanked on their southern, downhill side, with stones. The two sections recorded are separated by a distance of c. 100 m. These features do not meet criteria for heritage listing and accordingly do not pose a constraint to the proposal.

| SU# | HS# | Easting | Northing | Site Type | Area m | Condition | Listing Warranted | Proposed impacts |
|---|---|---|---|---|---|---|---|---|
| SU10 | HS1 | 676694.5 | 6143852 | old road | 60 x 0-5 | intact | No | Adjacent to inundation area |
| SU10 | HS2 | 676653.1 | 6143986 | old road | 10 x 10 | moderately disturbed | No | c. 7 m above inundation area |

Table 8. Heritage features recorded in the proposal area.

Plate 12. SU15/L1 looking west.

Plate 13. SU17/L1 looking west.

Plate 14. Tree 1 looking west.

Plate 15. Tree 2 looking southwest.

## 10. STATUTORY CONTEXT

Two pieces of legislation provide the primary basis for Aboriginal heritage management in NSW, the National Parks and Wildlife Act 1974 (NPW Act) and the Environmental Planning and Assessment Act 1979 (EP&A Act) (NPWS 1997).

***The Environmental Planning and Assessment Act 1979***

The Environmental Planning and Assessment Act 1979 (EP&A Act), its regulations, schedules and guidelines provides the context for the requirement for environmental impact assessments to be undertaken during land use planning (NPWS 1997).

***The NPW Act***

The NPW Act provides statutory protection for all Aboriginal objects and Aboriginal Places.

An 'Aboriginal object' is defined as

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

For the purposes of the Act an Aboriginal place is an area declared by the Minister to be an Aboriginal place (s84) being a place that in the opinion of the Minister *is or was of special significance with respect to Aboriginal culture*.

Under s90 of the NPW Act a person must not knowingly destroy, damage or deface or knowingly cause or permit the destruction, damage or defacement of an Aboriginal object or Aboriginal Place without first obtaining the consent of the Director-General of the NSW DECC. Consents which enable a person to impact an Aboriginal object are issued by the NSW DECC upon review of a s90 Consent application.

Under s87 of the NPW Act a person must not excavate or disturb land for the purposes of discovering an Aboriginal object without first obtaining the consent of the Director-General of the NSW DECC. Permits which enable a person to excavate land for the purposes of determining whether or not an Aboriginal object is present are issued by the NSW DECC upon review of a s87 Permit application.

Given the recordings of Aboriginal objects there are statutory constraints in regard to the proposal. S90 consent will need to be obtained for the relevant sites in impact areas.

## 11. SIGNIFICANCE ASSESSMENT

The information provided in this report and the assessment of significance of Aboriginal objects provides the basis for the proponent to make informed decisions regarding the management and degree of protection which should be undertaken in regard to the Aboriginal objects located within the study area.

10.1 Significance Assessment Criteria

The NPWS (1997) defines significance as relating to the meaning of sites: "meaning is to do with the values people put on things, places, sites, land". The following significance assessment criteria is derived from the relevant aspects of ICOMOS Burra Charter and NSW Department of Urban Affairs and Planning's 'State Heritage Inventory Evaluation Criteria and Management Guidelines'.

Aboriginal archaeological sites are assessed under the following categories of significance:

- cultural value to contemporary Aboriginal people,
- archaeological value,
- aesthetic value,
- representativeness, and
- educational value.

*Aboriginal cultural significance*

The Aboriginal community will value a place in accordance with a variety of factors including contemporary associations and beliefs and historical relationships. Most heritage evidence is valued by Aboriginal people given its symbolic embodiment and physical relationship with their ancestral past.

The local Aboriginal community attaches high cultural significance to heritage sites and the broader landscape of the local area.

*Archaeological value*

The assessment of archaeological value involves determining the potential of a place to provide information which is of value in scientific analysis and the resolution of potential archaeological research questions. Relevant research topics may be defined and addressed within the academy, the context of cultural heritage management or Aboriginal communities. Increasingly, research issues are being constructed with reference to the broader landscape rather than focusing specifically on individual site locales. In order to assess scientific value sites are evaluated in terms of nature of the evidence, whether or not they contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a part of a larger site complex. Increasingly, a range of site types, including low density artefact distributions, are regarded to be just as important as high density sites for providing research opportunities.

*Representativeness*

Representative value is the degree to which a "class of sites are conserved and whether the particular site being assessed should be conserved in order to ensure that we retain a representative sample of the archaeological record as a whole" (NPWS 1997). Factors defined by NPWS (1997) for assessing sites in terms of representativeness include defining variability, knowing what is already conserved and considering the connectivity of sites.

*Educational value*

The educational value of cultural heritage is dependent on the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

*Aesthetic value*

Aesthetic value relates to aspects of sensory perception. This value is culturally contingent.

11.2 Significance Value of the Aboriginal Site in the Study Area

Stone artefact scatters are a common site type in the local area and wider region. Stone artefacts can be expected to be distributed in a virtual continuum across most landscape element contexts. The density of this background artefact scatter will be related to factors such as the nature of the terrain (landform element, gradient and slope), the permanence of the local water source and the proximity of other resource features. Open artefact scatters will contain differences in terms of their artefact density and composition. These differences will potentially reflect differences in site function ie different activities undertaken in different places. Therefore, these site types, while common, will each have the potential to provide unique archaeological data and hence interpretive value within a research context.

Aboriginal heritage sites have high cultural value to the local Aboriginal community given that they provide direct physical and symbolic linkages to their ancestral past and to the landscape.

The four artefact locales recorded in the proposal area are representative of common site types in the region. They are each assessed to have low research potential given low artefact numbers and densities; they do not have potential to contain subsurface material; or otherwise are highly disturbed. The four locales are accordingly each assessed to be of low local scientific significance.

## 12. MITIGATION AND MANAGEMENT STRATEGIES

The aim of this study has been to identify Aboriginal objects and to predict the archaeological potential of the Survey Units, to assess site significance and thereafter, to consider the potential impact of the proposal upon this heritage. Four locales containing stone artefacts have been identified to be located within the proposal area; no Survey Units have been assessed to contain subsurface artefacts in anything other than low density and disturbed contexts. In the following sections a variety of strategies that can be considered for the mitigation and management of development impact to Aboriginal objects is listed and discussed.

### 12.1 Management and Mitigation Strategies

*Further Investigation*

The current field survey has been focused on recording artefactual material present on visible ground surfaces. Further archaeological investigation entails subsurface excavation which is generally undertaken as test pits for the purposes of identifying the presence of artefact bearing soil deposits and their nature, extent, integrity and significance.

Further archaeological investigation in the form of sub-surface test excavation can be appropriate in certain situations. Such situations generally arise when the proposed development is expected to involve ground disturbance in areas which are assessed to have potential to contain moderate to high density artefactual material. Additionally subsurface investigation is increasingly being undertaken for the purposes of characterising spatial variation in subsurface deposits across a range of landform elements. Subsurface investigation provides a level of surety in regard to the archaeological status of a place so that informed management decisions can be duly made.

Test excavation can only be carried out after a s87 Permit is issued to an archaeologist by the Director-General, NSW DECC. Such a strategy is pro-active and enables the proponent to properly manage archaeological sites prior to development activity occurring.

No Survey Units have been identified in the proposal area to warrant further archaeological investigation. The proposed impact areas are predicted to be of low archaeological potential and sensitivity. Furthermore the survey results are assessed to have provided a reasonably reliable indication of the archaeological status of the area.

*Conservation*

Conservation is a suitable management option in any situation however, it is not always feasible to achieve. Such a strategy is generally adopted in relation to sites which are assessed to be of high cultural and scientific significance, but can be adopted in relation to any site type.

When conservation is adopted as a management option it may be necessary to implement various strategies to ensure sites and 'Aboriginal objects' are not inadvertently destroyed or disturbed during construction works or within the context of the life of the development project. Such procedures are essential when development works are to proceed within close proximity to identified sites.

In the case at hand, given the nature and density of the stone artefacts recorded in the proposal area and the low scientific significance rating each artefact locale has been accorded, none are assessed to warrant conservation if impacts are proposed.

*Mitigated Impacts*

Mitigated Impacts usually takes the form of partial site impact and/or salvage prior to impact. Such a management strategy is appropriate when sites are assessed to be of moderate or high scientific significance to the scientific and/or Aboriginal community and when avoidance of the site is not feasible. Salvage can include the surface collection or sub-surface excavation of artefacts, usually as a condition of a s90 Consent issued by the Director-General, NSW DECC.

From a scientific perspective none of the artefact locales recorded in the proposal area warrant mitigation of impacts.

*Unmitigated Impacts*

Unmitigated Impacts to Aboriginal objects can be given consideration when they are assessed to be of low or low/moderate archaeological and cultural significance and otherwise in situations where conservation is simply not feasible. In order to conduct unmitigated impacts to a site the proponent applies for and obtains a s90 Consent from the Director-General, NSW DECC. s90 Consent applications must be accompanied by documentation from the local Aboriginal community.

Given the nature and density of the stone artefacts recorded in the proposal area and the low scientific significance rating each artefact locale has been accorded unmitigated impacts would be appropriate if impacts are proposed.

## 13. RECOMMENDATIONS

The following recommendations are made on the basis of:

- A consideration of the statutory context (see Section 9 Statutory Information).
- The results of the investigation as documented in this report.
- Consideration of the type of development proposed and the nature of proposed impacts.

It is recommended that:

- The proponent should give due consideration to the discussion in regard to management and mitigation of Aboriginal objects outlined in Section 12 of this report.
- The proposed areas are assessed to be of low archaeological potential and sensitivity. Accordingly, no further archaeological assessment is considered necessary.

  The four locales containing Aboriginal stone artefacts recorded in the proposal area do not surpass any scientific significance thresholds which would act to preclude impacts which may ensue as a result of the proposal. Accordingly, if impacts to any of the stone artefact locales recorded in the proposal area are proposed unmitigated impacts are justified. S90 Consent would need to be sought from DECC.

  It is noted however that one of the recorded artefact locales is situated outside areas of proposed impact. Accordingly this artefact locale will not sustain impacts relating to the proposal.
- It is recommended that all construction works are sited on the western side of the dam wall and that the area located on the east side of the wall be exempt from all construction impacts.
- Copies of this report should be forwarded to the registered Aboriginal stakeholders and the NSW DECC.

## 14. REFERENCES

Austral Archaeology Pty Ltd 2005 *Archaeological Test Excavation at Proposed Gunning Wind Farm NSW, Test Excavation Report*. Prepared for Connell Wagner PPI.

Austral Archaeology Pty Ltd 2008 *Aboriginal Archaeological and Cultural heritage Assessment Gunning Wind Farm NSW Additional Assessment Report*. Prepared for ACCIONA Energy.

Australian Archaeological Survey Consultants 1993 *An Archaeological Survey of the Proposed Optic Fibre Cable Route, from Goulburn to 'The Forrest'*. Report to Telecom Australia.

Bayley, W. A. 1973 *Yass Municipal Centenary History*, Yass Municipal Council, Yass.

Ruth Bell personal communication 27/11/08

Bowdler, S. 1981 Hunters in the Highlands: Aboriginal Adaptation in the Eastern Australian uplands. *Archaeology in Oceania* 16: 99-111.

Boot, P. 1994 Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales. In Sullivan, M, Brockwell, S. and Webb, A. (eds) *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*. NARU: Darwin.

Branagan, D. and G. Packham 2000 *Field Geology of New South Wales*. NSW Department of Mineral Resources: Sydney.

Carlos, G. 2008 A short history of Yass Tramway, *Yass Tribune* http://yass.yourguide.com.au/news/local/news/general/a-short-history-of-yass-tramway/1335550.aspx?storypage=0 (accessed 27th November 2008)

Dibden, J. 2006a Taurus Energy Proposed Wind Farm Conroys Gap via Yass. Report to nghenvironmental.

Dibden, J. 2006b Taurus Energy Proposed Wind Farm Cullerin via Goulburn. Report to nghenvironmental.

Dorrough, J., A Yen, V. Turner, S. Clark, J. Crosthwaite and J. Hirth 2004 Livestock grazing management and biodiversity conservation in Australian temperate grassy landscapes. *Australian Journal of Agricultural Research*. Vol 55; pp 279 – 295.

Dunnell, R. 1993 The Notion Site in J. Rossignol and L. Wandsnider eds *Space, Time and Archaeological Landscapes*. New York: Plenum, pgs 21-41.

Flood, J. 1980 *The Moth Hunters*. Australian Institute of Aboriginal Studies: Canberra.

Hiscock, P. & Mitchell, S. 1993 *Stone Artefact Quarries and Reduction Sites in Australia: Towards a Type Profile*. AGPS: Canberra.

Irving, R. 1982 *Reader's Digest book of historic Australian towns*, Reader's Digest, Surry Hills.

Jo McDonald Cultural Heritage Management Pty Ltd. 2003 *Archaeological Survey for an Aboriginal Heritage Assessment Gunning Wind Farm, Gunning, NSW*. Report prepared for Connell Wagner PPI.

Jennings, J. and J. Mabbutt 1977 Physiographic outlines and regions. In: Jeans, D. (ed): Australia: a Geography. Sydney University Press; Sydney: PP 38 – 52.

Koettig, M. 1986a *Survey for Aboriginal Sites Along the Proposed Water Pipeline Between Bowning and Yass*. Report to Public Works Department, New South Wales.

Koettig, M. 1986b *Test Excavations at Derringullen Creek Near Yass*. Report to Public Works Department, New South Wales.

Koettig, M. 1986c *Assessment of Aboriginal Sites in the Yellow Creek Road Area, Yass, Southern Tablelands of New South Wales*. Report to Public Works Department, New South Wales.

Koettig, M. and R. Silcox 1983 *Survey for Archaeological Sites along the Proposed Yass By-Pass Route*. Report to NSW Department of Main Roads.

Koettig, M. and R. Silcox 1985 *Supplementary Report to 'A preliminary archaeological study of the Cullerin Range Deviation of State Highway No 2 between Breadalbane and Gunning, NSW' – M. Dallas, 1985*. Report to Department of Main Roads.

Kuskie, P. 1992 *An Archaeological Assessment of the Proposed Route of Optus Commission's Fibre Optic Cable Between Cootamundra, NSW, and Hall, ACT*. Report to Landscan Pty Ltd.

Kuskie, P. 2000 An Aboriginal Archaeological Assessment of the Proposed Mount Arthur North Coal Mine, Near Muswellbrook, Hunter Valley, New South Wales. Unpublished report to Dames and Moore.

Lampert, R. 1971 *Burrill Lake and Currarong: Coastal Sites in Southern New South Wales*. Terra Australia 1 Department of Prehistory, ANU: Canberra.

Lunt, I., D. Eldridge, J. Morgan and G. Witt 2007 A framework to predict the effects of livestock grazing and grazing exclusion on conservation values in natural ecosystems in Australia. *Australian Journal of Botany*. Vol 55; No 4; pp 401 -415.

McDonald, R. Isbell, R, Speight, J. Walker, J. and M. Hopkins 1998 *Australian Soil and Land Survey Field Handbook*. CSIRO Australia.

Mission Australia 2000 *History in the Making: Yass, picture and memories*. Mission Australia, Canberra.

Mulvaney, J. and J. Kamminga 1999 *Prehistory of Australia*. Allen and Unwin: St Leonards

Navin Officer Heritage Consultants 2001 *Yass 330/132kV Substation Reconstruction Project Archaeological Assessment*. Report to Pacific Power.

New South Wales National Parks and Wildlife Service. 1997 Draft *Aboriginal cultural heritage standards and guidelines kit.*

New South Wales Department of Environment and Conservation 2004 *Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants.*

nghenvironmental 2005 *Proposed Development of a 30 MW Wind Farm at Conroys Gap New South Wales. Project Application*. Prepared for Taurus Energy.

Olley, J. And R. Wasson 2003 Changes in the flux of sediment in the Upper Murrumbidgee catchment, Southeastern Australia, since European settlement. *Hydrological Processes*. Vol 17; pp 3307 – 3320.

Ossa, P., Marshall, B. & Webb, C. 1995 New Guinea 2 cave: A Pleistocene site on the Snowy River, Victoria. *Archaeology in Oceania* 30(1):22-35.

OzArk Environment & Heritage Management P/L 2004 *Indigenous and Non-Indigenous Heritage Assessment: Taralga Wind Farm*. Report for Geolyse P/L on behalf of RES Southern Cross.

Packard, P. 1984 *With a Pinch of Salt - The Archaeology of Saline-Seepage erosion in the Yass River Basin*. B. Litt thesis, The Australian National University, Canberra.

Packard, P. and P. Hughes 1983 *Stage 2 of an Archaeological Survey of the Murrumburrah-Yass Electricity Transmission Line*. Anutech report to NPWS.

Paton, R. 1990 *Archaeological Excavation at Site G17, Goulburn, NSW*. Report to Roads and Traffic Authority, Goulburn.

Pearson, M. 1981 *Seen Through Different Eyes: Changing Landuse and Settlement Patterns in the Upper Macquarie River Region of NSW from Prehistoric Times to 1860*. Unpublished PhD Thesis. Dept of Prehistory and Anthropology: The Australian National University.

Saunders, P. 2000 *Investigation of Dalton Open Campsite North and Yass River Open Campsite*. Report to Energy Australia.

Seddon, J., A. Zerger, S Doyle and S Briggs 2007 The extent of dryland salinity in remnant woodland and forest within an agricultural landscape. *Australian Journal of Botany*. Vol. 55; No. 5; pp 533- 540.

Shaw, A. G. L. 1970 *The Economic Development of Australia*. Longman: London.

Shott, M. 1995 Reliability of Archaeological Records on Cultivated Surfaces: A Michigan Case Study. *Journal of Archaeological Field Archaeology*. Vol 22; pgs 475 – 490.

Silcox, R. and M. Koettig 1985 *Survey for Aboriginal and Historic Sites along the Proposed Alternative Yass By-Pass Route, N.S.W*. Report to DMR.

Silcox, R. and M. Koettig 1988 *Barton Highway Extension at Yass: Survey and Test Excavations on the Proposed Alternative Route*. Report to Kinhill Stearns Pty Ltd.

Southern Tablelands of NSW 2008 *Towns and villages: Yass* http://www.argylecounty.com.au/towns/yass.html (accessed 27th November 2008)

Sullivan, M. 1982 Yellow Creek Road Proposed Garbage Tip Site Archaeological Investigation. Report to NSW NPWS.

Tindale, N. 1974 *Aboriginal Tribes of Australia*. ANU Press, Canberra.

Wasson, R., R. Mazari, B Starr and G. Clifton 1998 The recent history of erosion and sedimentation on the Southern Tablelands of southeastern Australia: sediment flux dominated by channel incision. *Geomorphology* Vol: 24; pp 291 – 308.

White, I. 1986 *Dimensions of Wiradjuri An Ethnohistoric Study*. B. Litt thesis, The Australian National University, Canberra.

White, I. and S. Cane 1986 *An Investigation of Aboriginal Settlements and Burial Patterns in the Vicinity of Yass*. Report to the NSW NPWS, Queanbeyan.

Witter, D. 1980 *An Archaeological Pipeline Survey between Dalton and Canberra. Aboriginal and Historical* Resources Section, National Parks and Wildlife Service, Sydney, NSW.

Witter, D. 1981 *Archaeological Salvage Investigations on the Dalton to Canberra Pipeline*. Aboriginal and Historical Resources Section, National Parks and Wildlife Service, Sydney, NSW.

Witter, D. and P. Hughes 1983 *Stage 1 of an Archaeological Survey of the Murrumburrah-Yass and Murrumburrah-Wagga Wagga Electricity Transmission Lines*. Anutech report to NPWS.

Wandsnider, L and E. Camilli 1992 The Character of Surface Archaeological Deposits and Its Influence on Survey Accuracy. *Journal of Field Archaeology*. Vol. 19 pgs 169 - 188.

Yass and District Historical Society 2008. *History and Timeline*. http://www.yasshistory.org.au/history.htm (accessed 27th November 2008)

Yass Valley Council 2008. *Historic Yass* Valley. http://www.yass.nsw.gov.au/about/1573/1582.html (accessed 27th November 2008)