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MEROOL HOLIDAY PARK – MOAMA NEW SOUTH WALES

ABORIGINAL CULTURAL HERITAGE DUE DILIGENCE
ASSESSMENT

FINAL REPORT

FIFTEEN50

29 November 2021

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EXECUTIVE SUMMARY

This report has been prepared for Fifteen50 and details the Aboriginal Cultural Heritage Due Diligence Assessment (ACHDDA) of the proposed bank works at Merool Holiday Park, Moama, New South Wales (NSW) [the study area], within the Moama Local Government Areas (LGA). The study area assessed in this report includes approximately 1.6 kilometres of riverbank with a 550 metre section of bank that is heavily eroded.

This ACHDDA was undertaken to assess the archaeological potential for Aboriginal material to be impacted during the proposed works being prepared by the proponent to determine the feasibility of the project. The ACHDDA has been undertaken in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Department of Environment Climate Change and Water NSW 2010) [the Code].

The Murray River and its floodplains are extremely rich in Aboriginal heritage objects and sites. A search of the previously registered sites on the AHIMS register resulted in 23 known sites within proximity to the study area, however, no sites were located within the study area. These sites include a large range of site types with the most prominent being modified trees followed by earth mound-shell-artefact, burial, shell and shell-artefact-hearth. The Murray River has been subject to many archaeological assessments, with a few completed in close proximity to the study area. However, in the wider area, there is limited understanding of the Aboriginal heritage.

It is recommended that:

- 1 No further archaeological investigations will be required before commencing the works.
- 2 All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without an AHIP issued by Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.
- 3 Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, you must:
 - immediately cease all work at that location and not further move or disturb the remains
 - notify the NSW Police and Heritage NSW's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location
 - not recommence work at that location unless authorised in writing by Heritage NSW.

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1 INTRODUCTION

Austral Archaeology Pty Ltd (Austral) has been engaged by Fifteen50 on behalf of Tasman Tourism to provide Aboriginal Cultural Heritage Due Diligence Advice (ACHDDA) for the proposed bank stabilisation works at 131 Merool Road, Moama, New South Wales (NSW) [the study area]. This advice is intended to assist Tasman Tourism in determining their obligations with regard to the *National Parks and Wildlife Act 1974* (NPW Act) and to determine whether the project will involve activities that may harm Aboriginal objects or places.

The study area is shown in Figure 1.1 and comprises an approximately 1.6 kilometre stretch of riverbank and is located adjacent to the Murray River, within the Merool Holiday Park, Moama (study area). The riverbank is divided into different condition levels, with good forming approximately 925 metres of the bank, fair forming 128 metres of the bank and poor condition forming 550 metres off the bank. The riverbank within the study area is heavily eroding and encroaching on the cabin footings within the park. The exact nature of the works have not yet been determined but will be a combination of bank shaping, rock beaching, vegetation planting, rock gabions and short retaining walls.

1.1 ASSESSMENT OBJECTIVES

The NPW Act allows for a person or organisation to exercise due diligence in determining whether their actions will or are likely to impact upon Aboriginal objects or places. Any person or organisation who can demonstrate that they have exercised due diligence has a defence against prosecution under the strict liability provisions of the NPW Act. Where an activity is likely to harm Aboriginal objects or places, consent in the form of an AHIP is required.

Section 87 of the NPW Act makes it a strict liability offence to knowingly or unknowingly harm Aboriginal objects or declared Aboriginal places without an Aboriginal Heritage Impact Permit (AHIP). Harm is defined under the NPW Act as “*any act or omission that destroys, defaces or damages the object or place or in relation to an object, moves the object from the land on which it had been situated*”.

The *National Parks and Wildlife Regulation 2009* adopted the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) [the Code] as guidance on reasonable and practicable steps which individuals and organisations need to take to:

- Identify whether Aboriginal objects are, or are likely to be, present within the study area.
- If Aboriginal objects are, or are likely to be present, determine whether their activities are likely to cause harm.
- Determine whether further assessment or an AHIP application is required for the activity to proceed.

This advice has been formulated to provide a robust assessment that will identify whether Aboriginal objects or places are present or are likely to be present within the study area. This has been achieved through the completion of a desktop review and survey of the study area. The Code provides a series of questions that clarify whether it is applicable to a proposed project. These questions are addressed in Section 2.

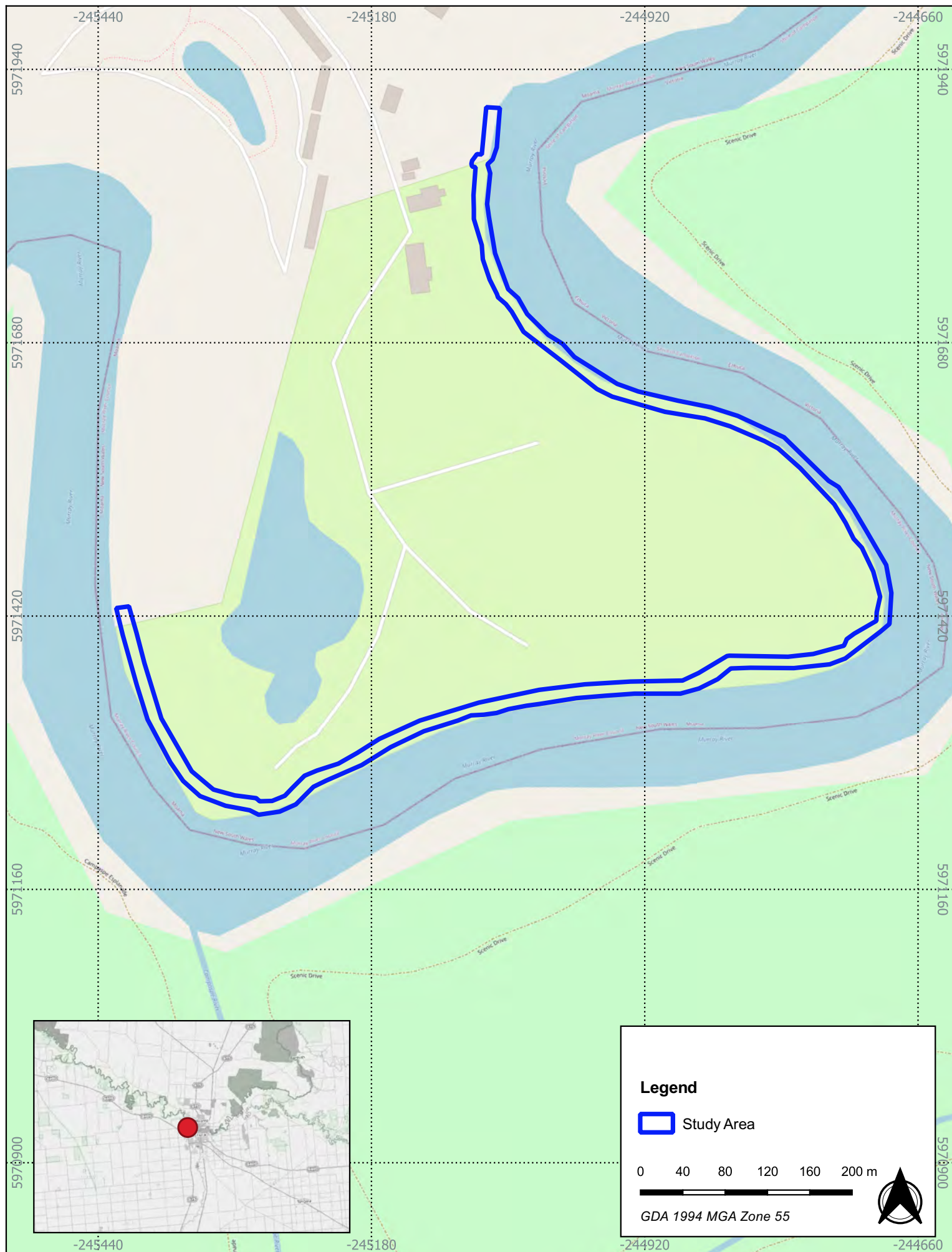


Figure 1 - Location of the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: OSM

Drawn by: ARH Date: 2021-10-01



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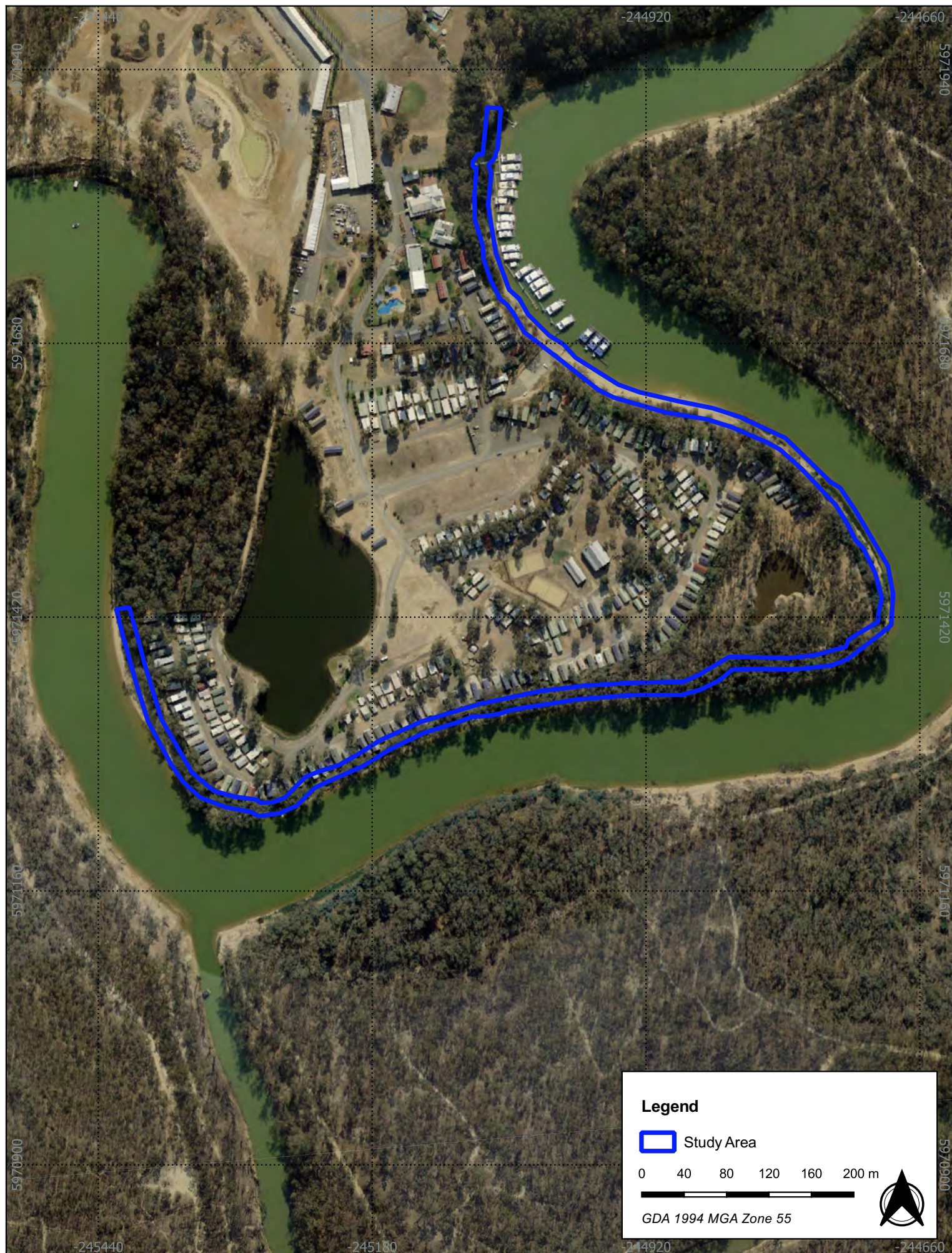


Figure 2 - Detailed aerial of the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2021-10-01



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1.2 PROJECT TEAM AND QUALIFICATIONS

The following personnel have been involved in the preparation of this ACHDDA.

AMANDA HANSFORD (BA (ARCH/PALEO), GRAD DIP. ARCH)

Amanda brings unrivalled experience in the practical issues of heritage management, archaeological survey and excavation, especially in the lower Murray regions. Amanda is a Director of Austral and specialises in Aboriginal heritage. Amanda has worked on many of major lacustrine projects in the region including Lake Victoria and Willandra Lakes. Amanda began her career in 2007 and has developed a strong understanding of the technical aspects of Australian archaeology as well as legislative processes and consultation with Aboriginal communities.

NICOLE MONK (B ARCH, GRAD DIP. ARCH)

Nicole is an archaeologist with 2 years' experience. Nicole has successfully authored approved Cultural Heritage Management Plans (CHMPs) in Victoria and has co-authored Aboriginal Cultural Heritage Assessments (ACHAs) in NSW. Nicole has experience on complex fieldwork projects including the Menindee Lakes Water Infrastructure Project and has begun leading field teams on small surveys and excavation programs.

Amanda has reviewed this report for quality assurance and technical adequacy and had input into the management recommendations.

1.3 ABBREVIATIONS

The following are common abbreviations that are used within this report:

| | |
|---------------|---|
| Burra Charter | <i>Burra Charter: Australia ICOMOS Charter for Places of Cultural Significance 2013</i> |
| ACHA | Aboriginal Cultural Heritage Assessment |
| ACHDDA | Aboriginal Cultural Heritage Due Diligence Assessment |
| AHIP | Aboriginal Heritage Impact Permit |
| LGA | Local Government Area |
| NPW Act | <i>National Parks and Wildlife Act 1974</i> |
| The Proponent | Fifteen50 |
| RNE | Register of the National Estate |
| Study Area | Merool Holiday Park |

2 DUE DILIGENCE ASSESSMENT

As none of the questions outlined in Table 2.3 apply to the project, due diligence must be established through using the Code. The Code consists of a series of 5 steps outlined below

STEP 1. WILL THE ACTIVITY DISTURB THE GROUND SURFACE OR ANY CULTURALLY MODIFIED TREES?

The proposed works involve stabilisation activities to protect the bank from further erosion. As part of this process bank shaping activities will be implemented. These include vegetation planting and rock gabion and short retaining wall installations bank shaping, rock beaching, vegetation planting, rock gabions and short retaining walls.

Therefore, in these areas, any sites that may be present adjacent to or within the river channel have the potential to be displaced or destroyed. As the activity has the potential to disturb the ground surface and any culturally modified trees, should they be present, consideration of steps 2a and 2b of the Code is required.

STEP 2A. SEARCH THE ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM (AHIMS) DATABASE AND USE ANY OTHER SOURCES OF INFORMATION OF WHICH YOU ARE ALREADY AWARE

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was conducted on 30 September 2021 (Client service ID: 626904). The search identified 23 Aboriginal archaeological sites within a 12 kilometre by 10 kilometre search of the proposed study area (Lat, Long from: -33.13, 144.69 - Lat, Long to: -36.06, 144.82). None of these registered sites are located within the study area.

Spatial information for this report is displayed using the GDA94 Datum. Where AHIMS site records were provided on a different datum, they were converted using standard functions in QGIS software.

Table 1 AHIMS sites identified within 15 kilometres of the study area.

| Site type | Occurrence |
|-----------------------------------|------------|
| Modified Tree (Carved or Scarred) | 16 |
| Earth Mound, Shell, Artefact | 3 |
| Burial | 2 |
| Shell | 1 |
| Shell, Artefact, Hearth | 1 |
| Total | 23 |

In NSW, there is a strong correlation between proximity to water and the presence of Aboriginal sites. The data in Table 1 shows a variety of site types associated with the Murray River at Moama, with the most common site type being modified trees. There are 3 earth mound – shell – artefact sites and 2 burials along with one shell-artefact-hearth site and one shell site. The closest site type identified was the earth mound-shell-artefact which was located approximately 336 metres east of the current study area.

A review of the reports held on the AHIMS database identified several archaeological studies undertaken in the general locality of the study area and these are summarised in Table 2. Austral has also undertaken a review of information to identify whether the activity is located within landscape features likely to contain Aboriginal objects. This includes an assessment of ethnographic information, soils, geology, landform, disturbance and resource information pertinent to the study area. The outcome of this review is outlined in the remainder of Section 2.

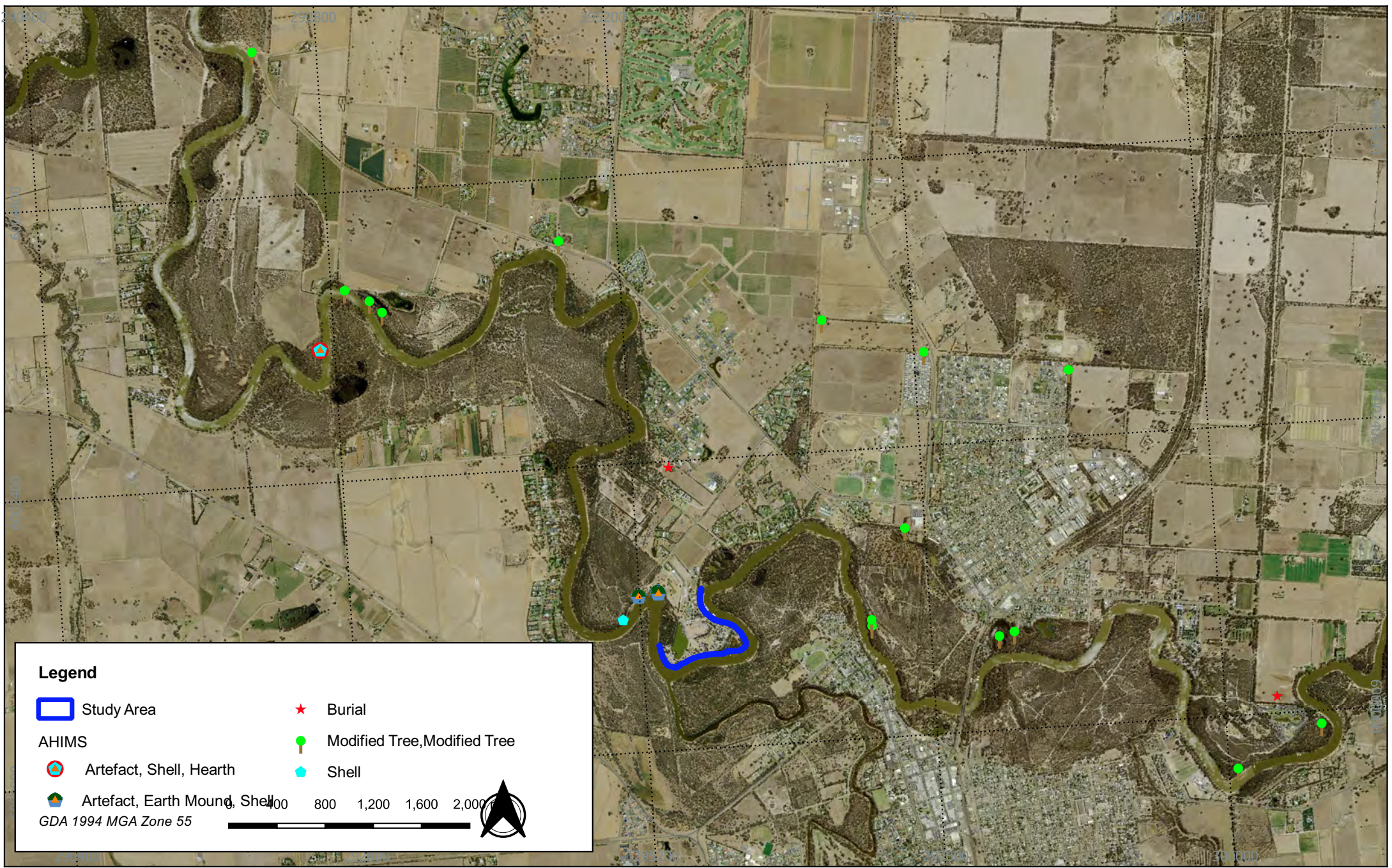


Figure 3 - AHIMS sites in relation to the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2021-10-19



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2.1 LOCAL ARCHAEOLOGICAL CONTEXT

Archaeological investigations in the central Murray, and in particular in the vicinity of Echuca and Moama, have been conducted in response to developments and within the framework of academic enquiries. The limited ethnographic accounts of early settlers and explorers were once considered the primary source for archaeological enquiry.

The major studies which have contributed to our understanding of the Central Murray, and those with direct relevance to the study area, are outlined in Table 2. Reference is made to the main trends garnered from these investigations which serve to provide a broad framework in which to base the current study.

Table 2 Summary of past reports within the vicinity of the study area.

| Author | Year | Details |
|---------------------|------|--|
| Atkinson & Berryman | 1983 | Attempted to document the Aboriginal association with the Murray Valley through ethnographic material. The report talks about the Aboriginal material culture, social organisation and mythology of the region based on archaeological, historical and oral history records. It further observes the economy, material culture, social organisation and intertribal relations within the Murray Valley region. It documents the early contact history between the traditional communities and European settlers within the region. According to the report, the study area was a part of the Pangerang, Yorta Yorta and Kwat Kwat tribes, who are collectively referred to as the Bangerang group and who occupied an area of 56,000 km ² over the heartlands of the Murray and Riverina ecological zones, which includes the outflows of different rivers like the Avoca, Loddon, Campaspe, Goulburn and Broken rivers. |
| Beesley | 1987 | Completed a site inspection of 2 scarred trees at Barmah and Grasmere, approximately 23km north-east of the current study area. Within the Barmah property the scarred tree was located within the cattle yards and identified as a yellow box (<i>Eucalyptus melliodora</i>). This tree was described as a canoe tree. The Grasmere tree was an unknown species and was located in a paddock. No details regarding the scarring were provided. Management recommendations were suggested for the tree. |
| Bonhomme | 1990 | Completed an archaeological survey of the Barmah Forest, approximately 26km north-east of the current study area. The survey aimed to document archaeological evidence of Aboriginal occupation in the area, make a recording of the Aboriginal cultural sites, evaluate the significance of the sites identified, and prepare draft management recommendations for the recorded sites. 182 sites (172 intact sites and 10 destroyed locations) were recorded. These sites included 86 earthen mounds, 88 scarred trees, 5 middens, 1 burial and 2 open artefact scatters. 17% of sites were associated with the river and creek margins, 32% of sites were located on the floodplain and 38% were located on the plain. |
| Craib | 1991 | Completed a study of the Moria-Millewa state forest, situated approximately 8km north-east of the study area. As a result of the survey, 168 sites were recorded. The sites recorded included scarred trees (n=77), cultural deposits (n=68), shell midden material (n=15) and burial (n=8). |
| Pardoe | 1985 | Pardoe studied the burial grounds in the Murray-Darling River system. He systematically studied reports of Aboriginal cemeteries and found that burial grounds occur near the River Murray. He concluded, cemeteries are distinct entities in Aboriginal culture. He identified cemeteries first emerging around 13,000 BP and their spread in the Murray River corridor could be seen around 6,000 – 7,000 BP, with significant increases around 4,000 BP. |
| Heritage Insight | 2015 | Completed a cultural heritage report for the Echuca-Moama Bridge, situated approximately 2km east of the study area. During the desktop assessment, 6 previously registered scarred trees were identified and a further 3 scarred trees were recorded during the Victorian portion survey (VAHR 7825-0480, 7825-0481 and 7825-0482). Subsurface testing was completed at the location of the Bridge pylons and identified a further 2 sites (VAHR 7825-0485 and 7825-0486). 7825-0486 was recorded as an isolated stone artefact and 7825-0486 was a sub-surface deposit of stone artefacts. A majority of the scarred trees were located between the Murray Valley Highway and the Campaspe River and 2 scarred trees were near the base of the north side of a sandhill. |

2.2 ETHNOHISTORY

According to Tindale, the Aboriginal custodians of the study area are the Joti Jota (alternatively spelled Yorta Yorta and Yotayota) people (Tindale 1974). The geographic location of the Joti Jota extended from the junction of the Murray River and Goulburn River, west of Echuca, to the east of Cobram/Tocumwal and south-east along the Goulburn River to the Mooroopna-Shepparton area (Tindale 1974, Horton 1994, Clark 2002). The Joti Jota group share their boundary with the Wiradjuri to the north, Pangerang (Berrigan), the Waveroo to the east, the Ngurrailam to the south and the Barapa Barapa on the north-west (Tindale 1974).

Population numbers at the time of contact are often difficult to determine as prior to record-keeping, European disease and occupation resulted in decimated population numbers. At the time of European contact, Curr estimated that some of the local groups had population numbers around 1,200, however, he believed that these numbers were reduced due to the presence of abandoned mounds in the region at the time of his settlement in the area (Curr 1883).

Pre-contact, Aboriginal people in the area were seasonal hunter and gatherers who would have utilised the arid interior and riverine environments (Mitchell 1839, p.307, Pardoe 2003). Depending on whether there were droughts or floods, people would have used both environments for resource gathering, but in areas around the Murray River, Aboriginal people were considered less nomadic than tribes that relied solely on one form of sustenance (Mitchell 1839, p.307, Buchan 1974, p.20, Pardoe 2003). Due to the variety of resources in this area and the permanent water supply, local people's diet would have included animals such as fish, shellfish and water birds from the river and kangaroo, wallaby and lizards from the interior. Flora was also an important part of Aboriginal diet and comprised vegetable foods and roots, such as bulrush, sow thistle, dandelion, manna gum and wild fruit (Buchan 1974, p.25).

As part of these resource gathering processes, people would have used fishing and hunting spears, nets and coolamons. Spears were often assembled using the stalks of reeds around the Murray, such as the common reed (*typha* sp.), but bone and wood could also be used, depending on the spear (Buchan 1974, p.26). When making nets, people would use chewed fibre from common reeds and mesh and often traded them with other groups away from the Murray (Beveridge 1889). Canoes were also used for fishing in the river with people diving for fish during the day and at night. where people would light fires on clay plates in the canoes as a source of light (Beveridge 1889, Coutts et al. 1977).

Beveridge has also given details about the ovens used by the Aboriginal community along the Murray River. As per his writings, the ovens were made by excavating a hole that was generally 3 feet (0.91 metres) in diameter and 18 inches (450 millimetres) deep. Clay balls, about the size of a cricket ball, were carefully placed on one side of the hole. These nodules were baked until they were red hot. They were later removed with a wood stick. Once the clay balls were removed, the hole was swept out and a moistened layer of grass was placed over the bottom and around the hole. Over them, the hot clay nodules were spread equally. Food was added to cook and the entire oven was then covered with the fine earth (Beveridge 1889, Coutts et al. 1977). During wetter periods, crabholes (holes in the ground formed from burrowing water species) and small depressions in the ground surface were filled with water for weeks on end, enabling oven mounds to be situated further away from permanent water sources.

The above ethnohistory should be employed with caution though, and Hiscock (2008, p.17) has argued that even very early historical accounts may not be a suitable basis for analogy. As Aboriginal groups had to change their economic, cultural and political practices to cope with the social impacts of disease decimating the population before any observations and subsequent historical accounts were recorded. He also argues that it is likely that similar drastic changes happened in response to “altered cultural and environmental circumstances” following the arrival of Europeans (Hiscock 2008, p.17).

2.3 TOPOGRAPHY AND HYDROLOGY

The major hydrological system associated with and adjacent to the study area is the Murray River, located in the south-eastern part of the Murray Basin. The Murray River has its major headwaters in the Australian Alps and runs approximately 3,750 kilometres to the Southern Ocean at Goolwa, South Australia. This permanent freshwater source has many tributaries including other rivers, streams, paleo-channels, creeks, billabongs, swamps that feed into the main river.

Prior to European settlement and large scale infrastructure, the Murray River would have flooded seasonally each year (Coutts et al. 1979, p.29). During these periods of flooding, the areas of inundation would have supported a number of food resources for Aboriginal people, such as fish, shellfish other aquatic animals and water birds (Pardoe 2014, p.114).

The hydrological systems identified within and in the locality of the study area are identified in Figure 2.2.

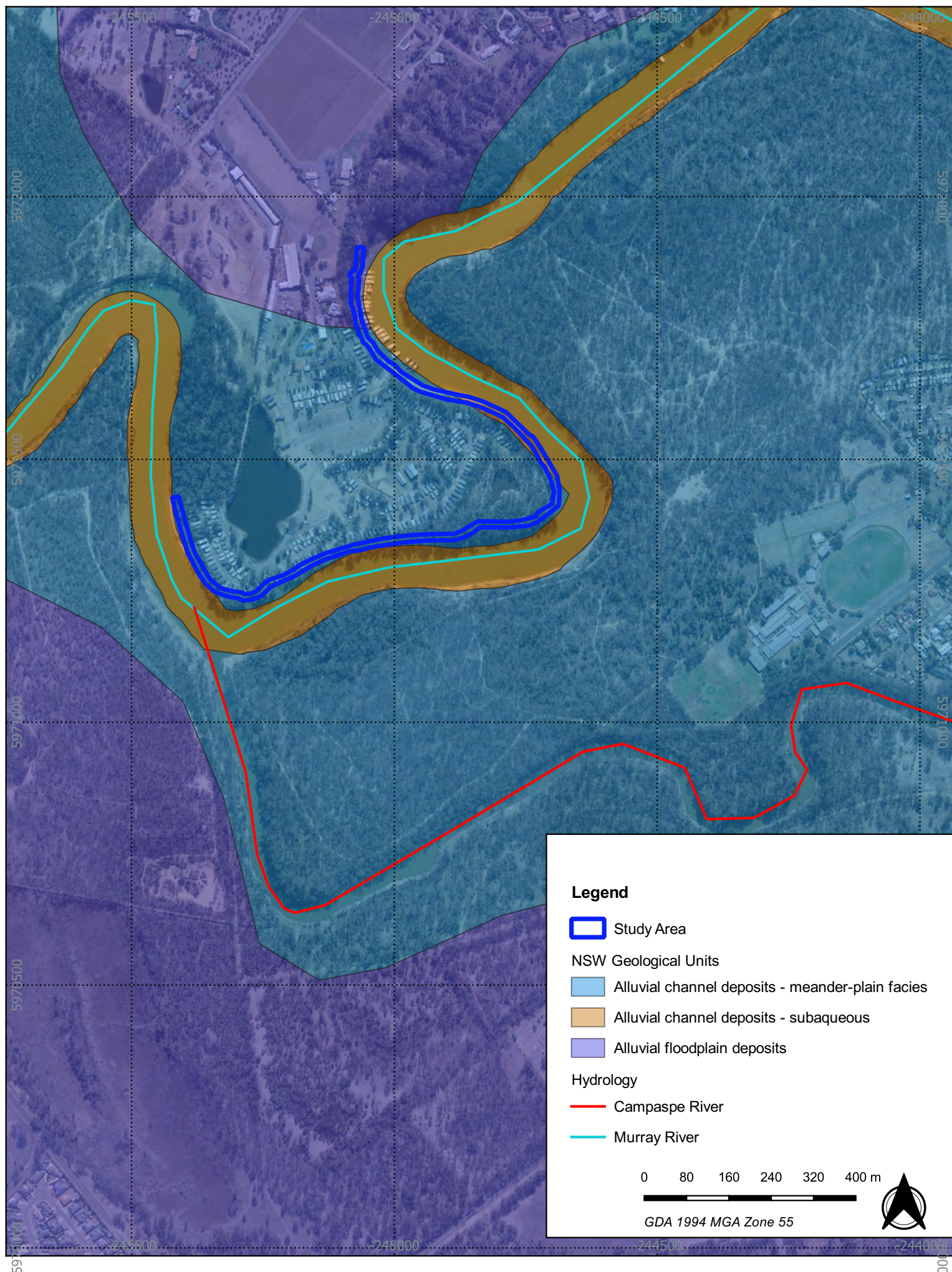


Figure 4 Geology and hydrology of the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: NSW LPI Aerial, NSW
Geological units

Drawn by: ARH Date: 2021-10-19



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2.4 GEOLOGY AND SOILS

The study area consists of the geological formation 'Alluvial channel deposits - meander-plain facies', which are deep alluvium soils that have accumulated and relocated or meandered from water movement and that have travelled (Williams 2011). Stone artefacts made from silcrete, quartzite and sandstone materials have been identified in these areas (Landscape 2008).

The geological units identified within the study area are identified in Figure 2.2.

The study area is characterised by Murray Channels and Floodplains (Figure 2.3). These soil types are associated with active channels and seasonally inundated floodplains (Mitchell 2002). This indicates that site types likely to be identified would be modified trees, earth mounds, shell middens and artefact scatters as a result of long term use of these areas and the resources available close to permanent freshwater.

2.5 LANDFORMS

The study area is located on the Murray River bank and within 200 metres of water. These areas, within 200 metres of water, are often associated with Aboriginal people's occupation of the area and traditional activities, which can result in the presence of Aboriginal objects (DECCW 2010a, p.12).

The study area is in the Murray Channels and Floodplains, which are active channels and seasonally inundated floodplains (Figure 2.3). The channel banks of the Murray are grey and brown clays and are located in (Mitchell 2002, p.103).

2.6 LANDSCAPE RESOURCES

Depending on the season and the flow and level of water in the Murray River, the ecological diversity between the river and semi-arid environment would have provided a wide range of resources for Aboriginal people. Flora and fauna were not only a necessity to Aboriginal diet but were also important for making resources, ornaments, clothing and medicine. Today, animals and plants that were once located in the wider region may be extinct or extinct from the region.

Prior to the removal of the natural vegetation, the ecological diversity of the area would have provided a wide range of resources for Aboriginal people. The study area is the part of Riverina Bioregion. Commonly seen trees are red gum (*Eucalyptus camaldulensis*) and river cooba (*Acacia stenophylla*) communities. The understorey of red gum in the region of sandy soils mainly consists of herbaceous perennials. Near the outer perimeter of the floodplains, commonly seen species are black-box (*Eucalyptus largiflorens*), salt-tolerant grasses, saltbushes and daisies as the understorey.

Nets made of plant fibres and three-pronged spears made from reeds were used for fishing (Beveridge 1889). Curr recorded the fish trapping process within the region. He reported construction of earthen banks in streams and lagoons to trap floodwaters and wooden stakes were driven between the banks to trap fish (Curr 1883).

Important faunal species seen in and around the study area that would have been important to Aboriginal diet include reptiles species, such as the sand goanna (*Varanus gouldii*), blue tongued lizard (*Tiliqua species*), stump-tailed lizard (*Tiliqua rugosa*); snakes; tortoises; fish and shellfish, including the Murray cod (*Maccullochella peelii*), perch (*Perca sp.*) and yabbies (*Cherax destructor*); as well as waterfowl, such as cockatoos (*Cacatuidae*) and ducks (*Anas platyrhynchos*). Mammals that would have also been present in the study area include kangaroos, (*Macropodidae sp.*), wallabies (*Macropodidae sp.*), mice (*Pseudomys delicatulus*), bats (*Pteropus alecto*), wombats (*Vombatus ursinus*) and possums (*Trichosurus vulpecula*) [Buchan 1974, p.15].

As well as being important food sources, animal products were also utilised for tool making and the production of ceremonial items. Animals such as brush-tailed possums were highly prized for their fur, with possum-skin cloaks a common item made by Aboriginal people (Beveridge 1889). Curr also reported that the fur of the possum was spun and used as a neck ornament by women (Curr 1883).

2.7 PAST LAND USE PRACTICES

By 1961, large land clearing activities surrounded the study area and the Holiday Park, possibly as a result of farming and by 1976 several trees surrounding the study area had been cleared. At this time, it appears that land clearing had not impacted the study area itself. The Merool Caravan Park was established in 1983 and the location remains largely the same since then. The construction of the caravan park would have resulted in significant levels of disturbance from the development of the cabins, land clearing and the introduction and building up of land as well as the development of dams. This may have led to Aboriginal cultural material being harmed.

Water diversion and irrigation activities, including dam and weir constructions, further along the Murray, have also had a significant impact on land usage over time. The construction of water management infrastructure has resulted in impacts to the flow regime of the Murray River, and overall regime of flooding in the region. This, in turn, has resulted in changes to soil erosion and deposition patterns, as well as altering the natural wetting and drying pattern. In the Central Murray region, the major problems seen as a result of such land-use practices is salinization, channel erosion, and the decline of native plants and animals (Walker & Thomas 1993).

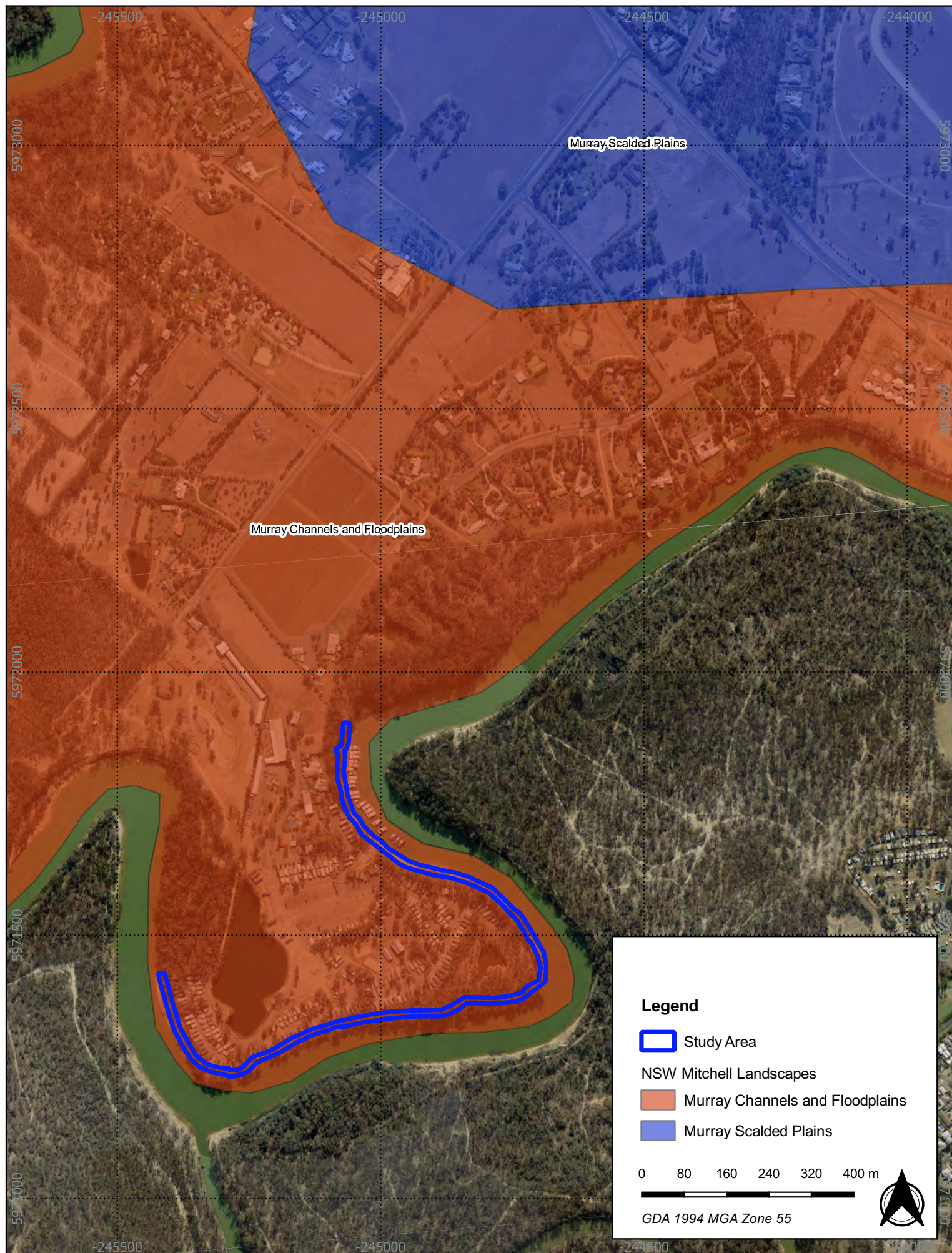


Figure 5 Mitchell Landscapes associated with the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: NSW LPI Aerial, Mitchells landscape

Drawn by: ARH Date: 2021-10-01



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2.8 PREDICTIVE STATEMENTS

In general, an archaeological predictive statement for any study area draws on surrounding environmental data, previous archaeological research and predictive models for Aboriginal occupation. Another essential aspect to predicting the archaeological integrity of a site and something that must be considered is previous land uses of the study area and degree of disturbance.

The main trends broadly in along the central section of the Murray River are that:

- Archaeological sites occur on most landforms.
- Site frequency and density are dependent on their location in the landscape.
- There is a dominance of hearths, ovens and small artefact scatters.
- Source bordering dunes and sand hills have high sensitivity and high potential to contain Aboriginal heritage sites including burial sites.
- Artefact scatters are commonly located in close proximity to permanent water sources along creek banks, alluvial flats and low slopes. More complex sites are usually located close to major water sources.
- The dominant raw material used in artefact manufacture is silcrete and fine grained silicious material with smaller quantities of chert, quartz and volcanic stone seen.
- Artefact assemblages usually comprise a proportion of formal tool types with the majority of assemblages dominated by flakes and debitage.
- While surface artefact scatters may indicate the presence of subsurface archaeological deposits, surface artefact distribution and density may not accurately reflect those of subsurface archaeological deposits.
- Aboriginal scarred trees may be present in areas where remnant old growth vegetation exists.

While these statements provide an adaptable framework for applying a predictive model to the study area, the Murray River and its floodplains are rich in archaeological material and all Aboriginal heritage sites types can be located within the region. The general studies of the south-western region, the specific investigations surrounding the study area and the search of the AHIMS database have helped to predict what certain site types can be expected within the study area. Based upon the results of these background studies Austral has been able to develop a series of predictive statements relating to the type and character of Aboriginal cultural heritage sites that are likely to exist in the study area and where they are more likely to be located. These predictive statements indicate that:

- Site types with the potential to occur include ovens, scarred trees, middens, burials and artefacts.
- Shell middens, ovens and scarred trees are the most frequently occurring site type and are often identified on the banks of rivers or creeks.
- Middens are generally located near water and resource collection, although are in locations that do not flood.
- Scarred trees are often located in the flood plain river corridor.
- Burials are likely to be found in sandy deposits, along watercourses, in well-drained areas;
- Artefact scatters are most likely to occur on well-drained and raised, level ground, near sources of freshwater or wetlands, or along spur crest or ridgelines.

STEP 2B. ACTIVITIES IN AREAS WHERE LANDSCAPE FEATURES INDICATE THE PRESENCE OF ABORIGINAL OBJECTS

Table 2.3 Landscape features in the Code that indicate the likely existence of Aboriginal objects.

| Question | Response |
|---|----------|
| Is the activity within 200 metres of 'waters'? | Yes |
| Is the activity within a sand dune system? | No |
| Is the activity located on a ridge top, ridge line or headland? | No |
| Is the activity located within 200 metres below or above a cliff face? | No |
| Is the activity within 20 metres of or in a cave, rock shelter or cave mouth? | No |
| Is the activity (or any part of it) on land that is disturbed? | Yes |
| Do the predictive statements of 2A indicate Aboriginal Objects or places are likely to occur on any of the topographic elements of the activity area? | Yes |

The proposed works are being undertaken along the Murray River near the township of Moama. This area is considered archaeologically sensitive as previous research has identified that areas within 200 metres of water are likely to contain evidence of Aboriginal cultural material. Although the study area is approximately 1.6 kilometres long, the main areas of impact will be confined to the south-western and north-eastern portions of the study area where heavy erosion has occurred. The land within the study area is currently disturbed from the construction and maintenance works for the holiday park, the construction of a dam and the construction of the pontoons. Areas that have not been as heavily disturbed may contain previously unrecorded cultural material.

STEP 3. CAN YOU AVOID HARM TO THE OBJECT OR DISTURBANCE OF THE LANDSCAPE FEATURE?

As the works will include maintenance works for the bank, harm cannot be avoided. Therefore, both the river and the landforms will be impacted by the proposed upgrades to the bank.

STEP 4. DESKTOP ASSESSMENT AND VISUAL INSPECTION

A visual inspection of the study area was undertaken on 15 October 2021 by Neil Fenley (Senior Archaeologist, Austral) and Nicole Monk (Archaeologist, Austral). The inspection consisted of a systematic survey of the study area to identify and record any Aboriginal archaeological sites visible on the surface or areas of Aboriginal archaeological potential and cultural sensitivity. The archaeological survey was conducted on foot. The methods used during the visual inspection conformed to requirements 5 to 8 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).

In general, the inspection confirmed that the study area was located on a built up riverbank that is eroding and has been heavily modified with the construction of terraces, pontoons and stairs (Figure 6 and Figure 7). Vegetation within the study area included River Red Gum trees (*Eucalyptus camaldulensis*), Black Wattle (*Acacia mearnsii*) and Common Nettle (*Urtica dioica*). Visibility was low at 5% with landscaped gardens and compact grass limiting visibility and exposure was also recorded as low at 5%.

During the inspection, it was identified that there was heavy disturbance to the riverbank. This was evident by the height of the bank, which was significantly higher than the surrounding land, with some areas around the cabins up to 3 metres higher than other areas (Figure 9). This may have been built up during the levelling of the park and the excavation of the dams, which are located near the south-eastern section of the study area. Other disturbances in the study area were often associated with the cabins and access to the rivers and included decking, pipelines, pontoons, fencing and stairs (Figure 6 to Figure 9).

A majority of the study area has been disturbed through the previous developments, maintenance activities and the ongoing use of the study area as a holiday park. Despite Aboriginal sites being associated with the Murray River, the inspection noted that there was no identified Aboriginal heritage located within the study area. The results of the visual inspection are outlined in Figure 10.



Figure 6 North facing view of disturbance to riverbank



Figure 7 West facing photograph of riverbank and pontoons



Figure 8 South-west of riverbank with a rock embankment



Figure 9 East facing view of the disparity between the riverbank and the holiday park

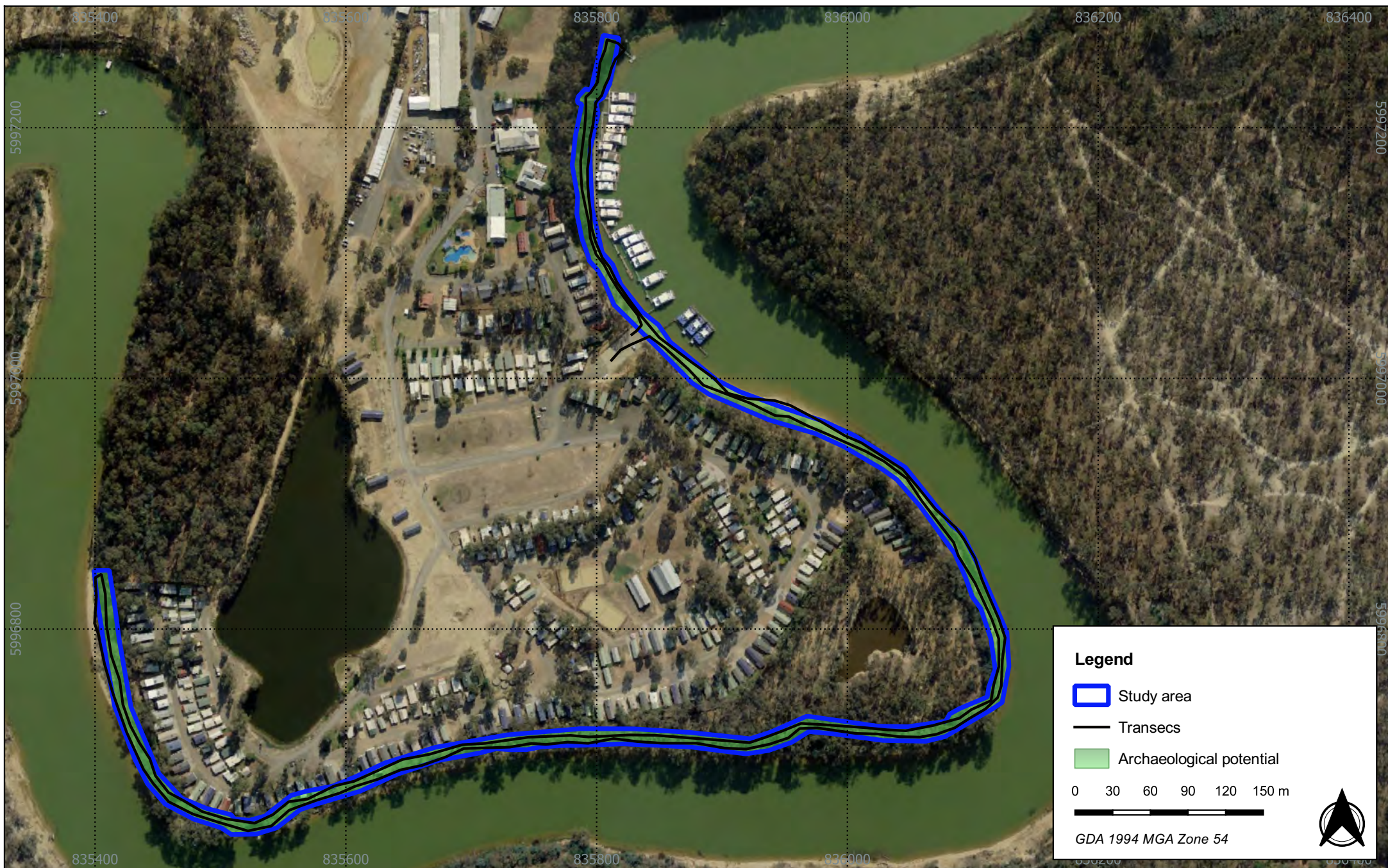


Figure 10 Archaeological Potential and survey tracks within the study area

21128 - 131 Merool Road, Moama - ACHDDA

Source: NSW LPI Aerial

Drawn by: ARH Date: 2021-10-21



A U S T R A L
A R C H A E O L O G Y

STEP 5. FURTHER INVESTIGATIONS AND IMPACT ASSESSMENT

Based upon the outcome of Steps 1 to 4 of the code, no further assessment is warranted.

The following recommendations are derived from the findings described in this ACHDDA. The recommendations have been developed after considering the archaeological context and environmental information.

It is recommended that:

- 1 No further archaeological investigations will be required before commencing the works
- 2 All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without an AHIP issued by Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.
- 3 Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity, you must:
 - immediately cease all work at that location and not further move or disturb the remains
 - notify the NSW Police and Heritage NSW's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location
 - not recommence work at that location unless authorised in writing by Heritage NSW.

If you have any questions regarding the advice within this letter, please do not hesitate to contact me on the details below.

Yours sincerely,



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