Oaklands Ethanol Production Facility
Aboriginal Heritage Assessment Report

Final Report

for Agri Energy Limited

June 2007

0056132

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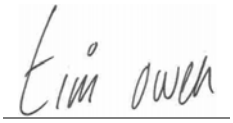
Signed:	
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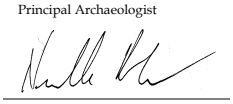
Signed:	
Date:	*June, 2007*

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FINAL REPORT

Agri Energy Limited

Oaklands Ethanol Production Facility
Aboriginal Heritage Assessment

June 2007

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EXECUTIVE SUMMARY

ERM was commissioned to undertake an Aboriginal heritage survey for Lot 2 of Deposited Plan (DP) 861032 and Lots 64 and 68 of DP 756402 as part of an environmental assessment under Part 3A of the *Environmental Planning and Assessment Act 1979* for a proposed ethanol production facility to be located in Oaklands, rural south-western NSW. The Director-General's requirements, issued on 5 October 2006, provided a context for the Aboriginal heritage work to be undertaken for this study.

A background investigation and consultation with the Cummeragunja Local Aboriginal Land Council determined that few Aboriginal archaeological studies had been undertaken in the Oaklands area. There were no known Aboriginal sites located within the study area and very few registered Aboriginal sites surrounding the study area. A formal survey was undertaken of the study area by ERM in collaboration with a representative of the Cummeragunja Local Aboriginal Land Council. The outcomes of the survey were that no Aboriginal sites were discovered within the study area. Consultation with the Aboriginal stakeholders indicated that the study area held a low potential for any Aboriginal sites to be located within its boundaries.

Overall it was considered that the proposed development will not impact known Aboriginal heritage values within the study area.

This report details the background research, including a regional discussion of Aboriginal archaeology, a search of the DEC Aboriginal Heritage Information Management System register, the methodology and outcomes of the field survey. It also includes details pertaining to the involvement of Aboriginal stakeholders.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Agri Energy Limited (AEL) seeks project approval for the development of an ethanol production facility at Oaklands, New South Wales (NSW), under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by AEL to prepare an environmental assessment for the construction and operation of the ethanol production facility, inclusive of an Aboriginal archaeological survey and heritage assessment.

The ethanol production facility will be capable of processing a range of cereal grains (such as corn, wheat, barley and sorghum), which are grown in the Murray Region of NSW, to produce up to 200 megalitres (Ml) annually. It will include several holding dams, an effluent treatment facility and an irrigation area. The irrigation area will be irrigated with process wastewater as part of a wastewater recycling scheme. The proposal will have a development cost in excess of $30 million and is therefore a 'major project' to which Part 3A of the EP&A Act applies. As such, it will be determined by the Minister for Planning.

This report follows the preliminary assessment for the Oaklands facility. The preliminary assessment was prepared under Clause 75(F) of the EP&A Act to gain the Director-General's requirements (DGRs) for the preparation of an environmental assessment report (EAR). The preliminary assessment report (ERM 2006) set out the likely environmental 'issues', including Aboriginal heritage, associated with the project to facilitate the preparation of the DGRs.

The DGRs issued on 5th October 2006 stated that as part of the overall environmental assessment for the proposed facility, 'Aboriginal Heritage' needed to be assessed in collaboration with local Aboriginal representatives and the Department of Environment and Conservation (DEC), following the relevant Aboriginal consultation guidelines and reporting standards.

A letter supplied by the DEC (19th September 2006) provides guidance for the environmental assessment with respect to impacts of the project on Aboriginal cultural heritage values. They state:

> "1. The EA should address and document the information requirements set out in the draft "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" involving survey and consultation with the Aboriginal community.
>
> 2. Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area.

3. Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implanted.

4. The EA needs to clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, development options and making final recommendations".

This report presents the results of the Aboriginal archaeological survey and Aboriginal community consultation for the proposed development at Oaklands in accordance with these DEC requirements and the DGRs.

1.2 STATUTORY CONTEXT

1.2.1 Environmental Planning And Assessment Act 1979

The proposed development will be assessed in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000.*

The EP&A Act has recently been amended to include Part 3A which provides a streamlined assessment and approval process for development that is defined as a Major Project. Clause 75(b), Part 3A of the EP&A Act states that:

> *"(1) This Part applies to the carrying out of development that is declared under this section to be a project to which this Part applies:*
>
> *(1)(a) by a State Environmental Planning Policy, "*

The proposal is referred to as a Major Project in State Environmental Planning Policy (Major Projects) 2005 (SEPP MP). The requirements of a 'Major Project' under Part 3A therefore apply to the study area.

Under Part 3A environmental planning instruments (EPIs) (other than State environmental planning policies) do not apply to a 'Major Project' as delineated in Clause 75(R).

Pursuant to section 75U of the EP&A Act authorisation for an approved Part 3A project is not required under the *National Parks and Wildlife Act 1974*. Under section 75U of the EP&A Act the permit requirements under section 87 and section 90 do not apply once the project has been approved by the Minister.

1.2.2 State Environmental Planning Policy (Major Projects) 2005

State Environmental Planning Policy (Major Projects) 2005 (SEPP MP) identifies development to which the project assessment and approval process of Part 3A of the EP&A Act applies. Under clause 6 of SEPP MP 2005, Part 3A of the EP&A Act applies to projects listed in Schedule 1 of SEPP MP, which includes:

10 Chemical, manufacturing and related industries:

(1) Development that employs 100 or more people or with a capital investment value of more than $20 million for the purpose of the manufacture or reprocessing of the following (excluding labelling or packaging):

(f) oils, fuels, gas, petrochemicals or precursors

As the proposed ethanol production facility at Oaklands will have a capital investment value in excess of $30 million, the project satisfies the relevant criteria set out in SEPP MP and Part 3A of the Act applies.

A project application will therefore be lodged under Part 3A for project approval pursuant to clause 75E of the Act. The policy establishes the Minister for Planning as the determining authority for any development classified as a 'Major Project'.

1.3 THE STUDY AREA

The study area is wholly within the local government area of Urana. It is accessed from Coreen Street at a point approximately 350m north-east of Oaklands. Oaklands is situated in the Murray region of NSW, approximately 615km south-west of Sydney and 105km north-west of Albury, as shown in *Figure 1.1*.

Oaklands is a small country town in the Riverina area located between Lockhart and Jerilderie. It is within the Murray catchment of southern NSW, which covers an area of approximately 3,535,000 ha. The region is bounded by the Murray River to the south, the Murrumbidgee River catchment to the north, the Australian Alps (Great Dividing Range) to the east and by the convergence of the Murray and Murrumbidgee Rivers to the west.

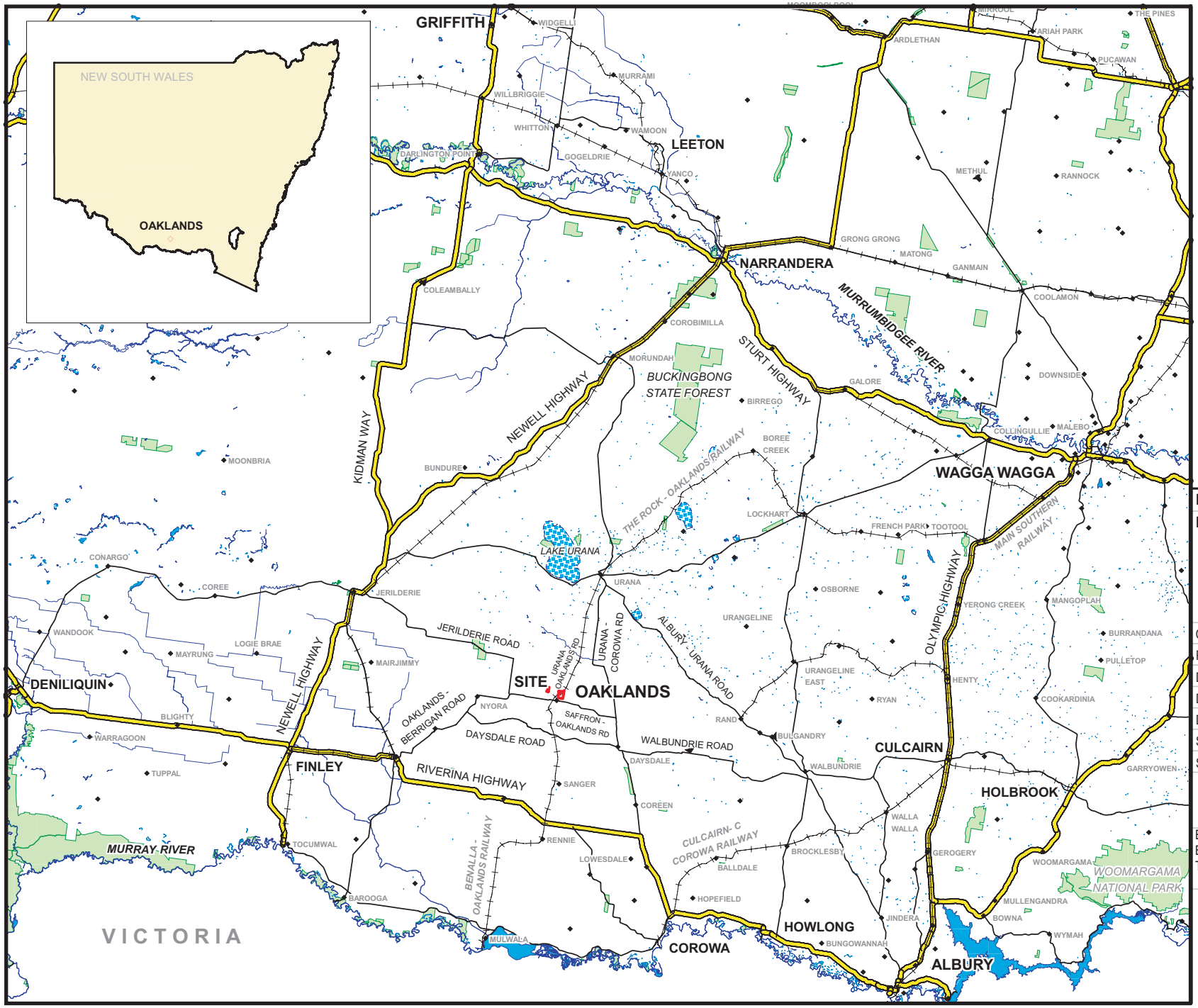

Figure 1.1

Regional Location of Study Area

Client:	Agri Energy Limited	
Project:	Oaklands Ethanol Production Facility	
Drawing No:	0056132_OA_H_01	
Date:	19.02.2007	Drawing Size: A4
Drawn By:	ML	Reviewed By: -
Source:	-	
Scale:	Refer to Scale Bar	

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The study area is shown in *Figure 1.2*. It comprises three parts:

- the *property* comprising one land parcel approximately 130 hectares (ha) in size, identified as Lot 2 of Deposited Plan (DP) 861032, where the ethanol production facility and associated holding dams and irrigation area will be positioned;

- the *dam site* which occupies a portion of Lots 64 and 68 of DP 756402, adjacent to O'Dwyer Main Channel, where an offsite water storage and subsurface pipeline will be located; and

- the *pipeline corridor* within which a subsurface water pipeline is to be constructed, running across Lots 61 and 62 of DP 818505 in an east-west direction from the dam site to the property.

The property is bounded by Coreen Street, Daysdale Street, Urana Road and the Ray Brooks & Co. bulk grain storage and terminal to the west and by agricultural land to the north, east and south. The surrounding area is predominantly agricultural cropping land. Topography is generally flat, as is typical of the surrounding landscape. Nowranie Creek is located approximately 700m north of the site and the O'Dwyer Main Channel is located approximately 2.2km west of the property. Oaklands township is located almost adjacent to the south-western boundary of the study area across Daysdale Street. Two unoccupied rural dwellings and associated sheds are respectively located approximately 170m north and 1.1km east of the site. Two occupied rural dwellings and associated sheds are located 715m south-west and 170m north-west of the site, respectively. *Figure 1.2* shows the study area, surrounds and the proposed development.

The entire property is used for agricultural cropping and currently supports a crop of barley. Only a small stand of trees is located in the east of the property. There are a number of trees located around the periphery of property, however these are situated outside the property boundary. Land dedicated for the disused Oaklands-The Rock railway line runs across the property in a generally north-easterly direction. There is also a shallow farm dam positioned near to the northern boundary of the property.

The dam site and pipeline corridor also comprise cleared, agricultural cropping land.

The main road network surrounding the study area includes:

- Daysdale Street located on the western boundary of the study area, connecting to Saffron-Oaklands Road 570m south of the study area and Urana Lockhart Road approximately 10km north of the study area;

- Saffron-Oaklands Road connecting to the Riverina Highway, a major highway that leads to Albury to the south-east and Deniliquin in the west; and

- Urana Lockhart Road leading to the Newell Highway in the west and the Sturt Highway in the east.

1.4 PROPOSED DEVELOPMENT LAYOUT

The proposed site layout is presented in *Figure 1.2*. The ethanol production plant will be positioned in the central portion of the site. It will have a footprint of approximately 300m x 300m. A grain storage area comprising six grain bunkers will be located adjacent to the main buildings. These bunkers will be circumnavigated by a one-way road.

The site access off Coreen Street will be upgraded and internal roads will be sealed and sufficiently wide to accommodate passing vehicles. There will be a weigh bridge, a light vehicle parking area with 40 spaces and a truck standing area. An office/ administration area will be constructed adjacent to the weighbridge and will comprise a reception area, offices, meeting rooms, bathroom facilities and a first aid room.

Three dams will be constructed on site as follows:

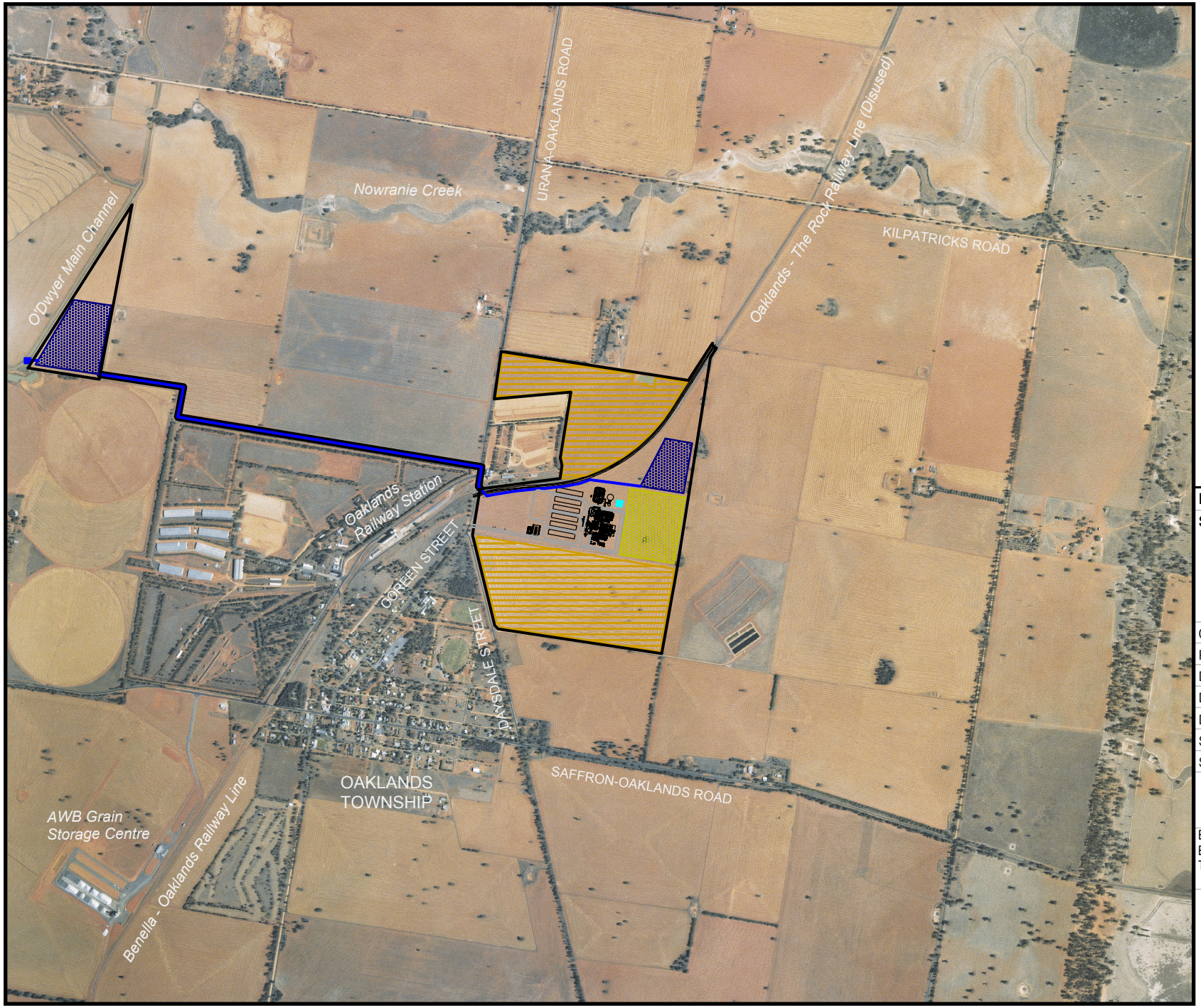
- *2Ml stormwater dam* – located adjacent to the production buildings;

- *40Ml effluent dam* - located east of the production buildings to store process wastewater from the facility; and

- *200Ml raw water dam* – located north-east of the production buildings to store water pumped from O'Dwyer Main Channel.

A pumping station and an additional 200Ml raw water dam will be constructed adjacent to O'Dwyer Main Channel, with a subsurface pipeline to the raw water dam on the property.

AEL proposes to establish approximately 55ha of cropping (refer *Figure 1.2*), which will be irrigated with plant wastewater. The irrigation area will provide a future crop resource and its irrigation will facilitate reuse of any plant wastewater not recycled back into the process.



Legend

- 200Ml Raw Water Dam
- 2Ml Stormwater Dam
- 40Ml Effluent Dam
- Irrigation Area
- Water Pump Station and Pipeline
- Study Area
- Internal Access Road

Figure 1.2

Study Area and Proposed Site Layout

Client:	Agri Energy Limited	
Project:	Oaklands Ethanol Production Facility	
Drawing No:	0056132_HER_GIS12	
Date:	27.02.2007	Drawing Size: A4
Drawn By:	DH	Reviewed By: -
Source:	Aerial: Department of Lands NSW Plant Layout: PDF DWG No: M06075-0321	
Scale:	Refer to Scale Bar	

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1.5 METHODOLOGY AND AIM FOR THIS ASSESSMENT

The methodology for preparing an archaeological assessment in NSW are defined by relevant guidelines include the National Parks & Wildlife Service Aboriginal heritage Standards & Guidelines Kit (1997) and Australia ICOMOS Burra Charter 1999. The Aboriginal consultation process for this project follows the recently issued DEC guideline *National Parks & Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants* dated December 2004.

The archaeological assessment has been based upon background research into the study area and a one day site inspection of the study area, undertaken by the author (Dr Tim Owen of ERM) and a local Aboriginal representative.

The overall aims of this assessment were to identify the Aboriginal heritage values of the study area, identify the potential development impacts on those values and provide suitable management recommendations. To achieve these aims the following objectives were established:

- to consult with the local Aboriginal community as to specific social value of the land;
- to understand the regional research context of any Aboriginal objects on the land;
- to identify and record any Aboriginal objects and sites on the land;
- to assess the cultural significance of Aboriginal objects and sites on the land;
- to assess the impact of the proposed development on Aboriginal heritage values; and
- to prepare recommendations on the management of Aboriginal heritage values in consultation with the local Aboriginal community.

1.6 PROJECT TEAM

Dr. Tim Owen (ERM heritage consultant) managed and directed the project, authored the report and directed the fieldwork. The report has been reviewed by ERM's heritage director Neville Baker.

Consultation was undertaken with Harvey Johnston (DEC) to determine the relevant Aboriginal stakeholders and known Aboriginal heritage issues, sites and concerns for the Oaklands area.

The Aboriginal community was represented during fieldwork by Neville Atkinson (Cummeragunja Local Aboriginal Land Council). Aboriginal consultation over the outcomes and Aboriginal heritage significance of the area was also undertaken with Kevin Atkinson (Chairperson, Cummeragunja Local Aboriginal Land Council).

1.7 ACKNOWLEDGEMENTS

ERM wish to thank the Cummeragunja Local Aboriginal Land Council, especially Neville Atkinson, for input into the heritage assessment and assistance with field survey. Craig Bretherton and Harvey Johnston (DEC) are thanked for their time and assistance with this report.

1.8 STRUCTURE OF THIS REPORT

Chapter 2 provides environmental and archaeological contextual information.

Chapter 3 describes the assessment methodology employed.

Chapter 4 lists the results of the Aboriginal heritage field survey.

Chapter 5 details the Aboriginal consultation methodology and results.

Chapter 6 describes the significance assessment.

Chapter 7 includes Aboriginal heritage management recommendations.

2 ARCHAEOLOGICAL AND ENVIRONMENTAL BACKGROUND

2.1 ENVIRONMENTAL CONTEXT

2.1.1 Topography

The *Oaklands 1:50 000 Topographic Series Sheet 8126-N (1st Edition)*, indicates that the study area is located at an elevation of approximately 140 metres above the Australian Height Datum (AHD) and can, in general, be described as flat. The surrounding local topography is also at 140 m above the AHD, with a small rise to 160 m approximately 3 km to the south of the study area.

2.1.2 Surface Water

The study area is located in the NSW Murray Catchment, which is bounded by the Murray River to the south, the Murrumbidgee River catchment divide to the north and the Australian Alps to the east, spanning an area of 35,170 square kilometres. The Murrumbidgee River flows for 1,600 km from its headwaters in Kosciusko National Park to its junction with the Murray River near the town of Balranald in NSW. The river and its catchment is a significant part of the Murray-Darling Basin, supplying water for people, agriculture and wildlife along its length.

The closest water source to the study area is the Nowranie Creek, located approximately 700 m to the north. This meandering first order creek (Strahler system) originates in the east from a series of swamps. The length of the creek indicates that it represents a significant drainage point for the local area. The land surrounding Oaklands is intersected with many small swamps. These swamps could have provided a focus for Aboriginal habitation and food gathering activities (where items such as eels, plants, fish and birds were gathered).

The modern meandering course of the Nowranie Creek, coupled with the flat landforms and regular inundations of the plain and swamps, presents the possibility that the creek could have altered its course significantly over the past few hundred or thousand years. Unfortunately the historical Parish maps do not provide evidence for the position of the creek prior to the earliest aerial photographs. The possibility of long term water course modification (i.e. the existence of palaeo-channels) could mean that over the course of the Holocene any Aboriginal focus associated with the waterways in this local area may not necessarily be associated with their current location.

2.1.3 Ecology

The vegetation of the study area was assessed by ERM and found to be highly disturbed by agricultural practices and dominated by exotic species. The region around Oaklands currently supports an open woodland type of ecology, where species such as Yellow Box (*Eucalyptus melliodora*) (locally identified as a source of wood for Aboriginal manufacturing e.g. evidence for scarred tree) and Cypress Pine (*Callitris columellaris*) are common. Within the study area, the only trees comprised a small, isolated patch of approximately 20 mature *Callitris* sp. in the east of the property, scattered Yellow-Box along the eastern boundary and sparse *Callitris* sp. (which appeared to be farm plantings) along the northern boundary.

Other species found in the Oaklands area include occasional River Red Gums (*E. camaldulensis*) in association with water courses, and Bull-Oaks (*Casuarina leuhmanii*). Ground cover plants are found in open areas and swamps, with Lignum (*Meuhlenbeckia cumminghamii*) and the introduced Patterson's Curse (or Salvation Jane) (*Echium plantagineum*) predominating.

2.1.4 Oaklands Geology And Soil Landscapes

The *Jerilderie 1:250 000 Geological Series Sheet S1 55-14 (2nd Edition)*, shows that the geology of the study area comprises predominantly Tertiary residual and colluvial deposits derived from the underlying Tertiary ferricrete, silcrete, poorly consolidated pebbly sandstones and sandstones-mudstones and claystones. Subsurface information shows the presence of thin coaly bands. This landscape grades to Quaternary unconsolidated Riverine deposits of clay, silt, sand and gravel in the northern portion of the study area, inclusive of floodplains and black soil plains. These Tertiary and Quaternary deposits are underlain by boulder and pebble clays, sandstone, claystones and shales, possibly of glacial origin and some minor coal bands.

These geological formations could have provided a source of raw materials from which Aboriginal people could have manufactured stone artefacts. Any sources of sandstone outcrops could have been used by Aboriginal people as grinding platforms, although these are unlikely to be noted within the study area, given the distance to permanent water.

2.1.5 Bore Hole Logs

Bore hole soil data obtained from ground water bore hole logs in the Oaklands area is presented below. The driller logs associated with these bore holes provides a description of local soil conditions and provides evidence which can be used for archaeological stratigraphical and taphonomic interpretation purposes.

Bore hole data was obtained from GW00124 (located 500 m north of the study area), GW014853 and GW014869 (located 1.1 km west of the study area) and GW055804 (located 750 m south west of the study area). The details from these bore holes is presented in *Tables 2.1* to *2.4*.

Table 2.1 Log for GW00124 (500m north of study area)

From (m)	To (m)	Thickness (m)	Description	Geological Material
0.00	2.44	2.44	Ironstone	Ironstone
2.44	5.79	3.35	Sand rock red	Sand Rock
5.79	8.84	3.05	Rock	Rock
8.84	19.20	10.36	Sand	Sand
19.20	30.48	11.28	Pipe Clay	Pipe Clay
1. remainder of deposit clay and sand to a depth of 62.79 m				

Table 2.2 Log for GW014853 (1.1km west of study area)

From (m)	To (m)	Thickness (m)	Description	Geological Material
0.00	1.52	1.52	Soil	Soil
1.52	9.14	7.62	Sand	Sand
9.14	11.28	2.14	Sand Yellow Gravel	Sand
11.28	28.96	17.68	Sand Yellow	Sand
28.96	52.43	23.47	Sand White	Sand
52.43	62.48	10.05	Clay White some sand	Clay
1. remainder of deposit mixture of sandstone, claystone and sand to depth of 175 m				

Table 2.3 Log for GW014869 (1.1km west of study area)

From (m)	To (m)	Thickness (m)	Description	Geological Material
0.00	5.49	5.49	Sand some red clay	Sand
5.49	24.38	18.89	Sand red compacted	Sand
24.38	59.74	35.36	Sand white	Sand
24.38	59.74	35.36	Some clay streaks	
59.74	63.70	3.96	Kaolin white	Kaolin
1. remainder of deposit sand and clay to depth of 66.75 m				

Table 2.4 Log for GW055804 (750m south west of study area)

From (m)	To (m)	Thickness (m)	Description	Geological Material
0.00	2.00	2.00	Clay red very plastic	Clay
2.00	2.00	2.00	Some very fine sand	
2.00	6.00	4.00	Clay very plastic	Clay
2.00	6.00	4.00	Sand yellow, fine course some misc gravel	Sand
6.00	13.00	7.00	Sandstone orange light grey fine course	Sandstone
1. remainder of deposit mixture of sandstone, claystone and sand to depth of 175 m				

The bore hole soil description provide a good indication of local soil conditions to bedrock. It would appear that the geomorphology surrounding the study area is fundamentally based upon sandstone bedrock, with patches of ironstone and minerals (i.e. Kaolin). The bedrock is covered by a variety of weathered clays, which often extent to near the surface. Due west of the study area (GW14853) a large body of sand appears to be present; this extends around 50 m down below the current ground surface. The body of sand appears to be shallower immediately east of GW14853 (around 20 m depth, as indicated by bore hole data from GW000105, GW14954, GW003840, GW59908 and GW053569, which appear to circle the deepest area of sand). Two other bores (GW055814 and GW016933) have limited amounts of sand near the surface. The remaining bores in the Oaklands region all display clay characteristics without sand being present.

On-site soil tests conducted by GTS (2006), provided evidence that a sand sheet does not appear to extend into the study area beyond a small shallow intrusion directly adjacent to the south west boundary (refer to GTS 2006:4325 for geotechnical test pit locations).

It is hypothesised that the Oakland sand sheet was a result of Aeolian accumulation over the quaternary period. Although no actual date (i.e. OSL) has been obtained for any of the dunes at Oaklands, it is likely that they formed prior to Aboriginal occupation of the area. The implications of Aboriginal habitation in association with the sand dunes are discussed below.

2.1.6 Land Use And Historical Disturbance

The study area is currently used for growing cereal crops. This basic agricultural practice has culminated in shallow ploughing across the extent of the study area.

An inspection of Parish Maps from 1890, 1916, 1925 and 1931 all show a continuous picture for the study area, where the land on all four maps is annotated "The Commonwealth Banking Company of Sydney Ltd". It is likely that the land was leased by the Bank to local farmers for grazing or cultivation purposes.

The study area is intersected centrally by the Oaklands-The Rock railway line. The earliest indication for when this line was built is the 1890 Parish map, which displays the presence of the line. No information for the line is mentioned through historical rail sources until the 1905-1915 period, when it is stated that the Lockhart to Oaklands line was completed (NSW Rail Transport Museum 2006).

In the 1920's Oaklands became part of the Victorian Rail Link. The Victorian gauge railway line was built through Yarrawonga to Oaklands where it intersected with the Sydney gauge line. The Oaklands transfer station was used to move grain from NSW to Melbourne, where it could be transported by ship. The construction of the railway line has resulted in a significant disturbance to the study area, where an embankment has been constructed. Construction of the embankment would have necessitated localised earth moving activity and the importation of stone and gravel. As a consequence, it is highly unlikely that any Aboriginal sites could still be located within the zone surrounding the railway corridor. Any stone artefacts discovered within this zone would have been either moved from their original location or imported.

The 1970 aerial photograph of Oaklands was inspected to provide an indication of recent activity within the study area. Aerial photographs from years prior to 1970 were requested but not available within the timeframes of the project (due to a need for processing prints from their original plates).

The 1970 aerial is shown in *Photograph 2.1*. The reproduction of this photograph was quite dark, however the study area and pipeline could be inspected for evidence of historical land use.

Photograph 2.1 1970 Oaklands aerial photograph

From the 1970 photograph the following observations were made:

1. the study area appears to be used for cropping (i.e. it is farm land);

2. the property is intersected by the railway line;

3. there are only three trees within the property, with some trees present along the eastern boundary. No trees are located along the proposed water pipeline route or within the proposed dam site;

4. a series of tracks intersect the study area, a main track intersects N-S centrally; and

5. there is no development or evidence of high disturbance within the study area (except the rail line).

2.1.7 Implications For Aboriginal Archaeology – Discussion

The regional background environmental data suggests that at Oaklands fluvial sediments were deposited during the Quaternary age in association with rivers and tributary water courses. These were buried by localised subsidiary Aeolian deposits (Lance 1984).

Localised Aeolian sand dunes and lunettes formed during the Quaternary period and could have become a focus for Aboriginal habitation and camping over the Holocene (and possibly earlier). The sand sheet could have been significant localities culminating in a landscape focus if they were associated with local resources i.e. water or swamps. The sand sheets could have also have been a focal point for Aboriginal burials in the region (although no burials have been recorded surrounding Oaklands, see discussion below). Therefore it is important for any local study to note the presence, location and possibly depth of sand sheets.

Brayshaw (1985:1) has stated that two sand dunes are known in the Oaklands area, east of the current study area. These dunes are described as being up to 4 km long, 1.5 km wide and 5 m high (no depth was noted). The dunes overlay reddish clay, which can be associated with the swamps; Aeolian sand is noted to be a pinky red colour.

From an extrapolation of the bore hole soil descriptions (above), it is possible that the current study area contains a small body (between 10-20 m deep) of buried sand. This is likely to be either a breakdown decay product of the bedrock, or more likely, Aeolian in origin.

It is suggested that during the Holocene the shifting sand dunes could have created a substantially different landscape appearance, resulting in many landscape focal point which may or may not, depending upon the location of the dune, have been suitable for Aboriginal habitation. Areas with identified Aeolian sands (i.e. reddish/pink) could have been a focal point for Aboriginal habitation, where evidence for Aboriginal occupation of the region is likely to occur.

The presence of numerous swamps/marshes, coupled with the water course that meanders significantly across the predominantly flat plain could have resulted in frequent inundation over the Holocene, also with the consequence of altering the local landscape pattern. On a regional scale, Holocene flood patterns could have created buried soil/ sand horizons, however interpretation of the available bore hole data (refer *Section 2.1.5*) indicates that the potential for such horizons to exist within the study area is low.

The study area's history of land use (clearing, ploughing, grazing and cultivation) only typically affects a shallow depth of topsoil and may not have significantly impacted archaeological evidence associated with subsurface Aboriginal deposits. It is suggested that any artefacts found in association with the cultivated surface (i.e. top soil) of the study area may not reflect a subsurface deposit and could have been moved from another location by many processes. Artefacts identified in areas of sandy exposures and erosion are far more likely to be representative of further buried archaeological deposits at that location.

2.2 *ARCHAEOLOGICAL CONTEXT*

The following discussion is based upon DEC Aboriginal Heritage Information Management System (AHIMS) database searches for sites (and relevant archaeological reports) associated with areas in Oaklands and the outlying region. This discussion has been limited by the evidence presented from these searches and could be further refined if further archaeological data were added. Unfortunately such a search and investigation were beyond the time scale for the project.

2.2.1 Regional Archaeology

Regionally the area surrounding Oaklands has had little archaeological focus, with relatively few concentrated surveys focusing on continuous land areas. To the north of Oaklands, the zone surrounding Coleambally has been subject to more intensive archaeological investigation; a number of archaeological surveys have been undertaken for pipeline or transmission lines and provided a survey transect through the land.

This regional archaeological summary is based upon the amalgamated results of six separate field surveys (Brayshaw 1984, McIntyre 1987a, 1987b, Ham 1995, Hughes 2000 and Meredith 2004) – these were undertaken between the Sturt Highway (north) and the Riverina Highway (south) and bound by the geographical limited of Wagga Wagga (east) and Deniliquin (west), see *Figure 2.1.*

Overall the landscape within the regional zone can be described as primarily flat, with small undulation. It is generally topographically featureless. Geology and soils within this zone are similar to those described above, with sparse evidence for surface sandstone bedrock, a variety of grey and red clays, overlain with fine (possibly) fluvial loamy soils and pockets of accumulated Aeolian sands.

Several of the aforementioned surveys covered long transects of land and, when considered holistically, appear to present patterned focal points of Aboriginal inhabitation evidence across the region. Water resources appear to create the defining landscape context for Aboriginal sites, with evidence of long removed water channels, the consequence of past rivers, creeks and streams, dotting the landscape. These prior waterways are surrounded by limited numbers of creeks, which drain into the major water systems to the north. Swamps and marshes appear to provide an important Aboriginal focus, where their presence generally correlates to the presence of some Aboriginal sites. However, zones apparently devoid of water features also can contain sites, perhaps remnant evidence of Holocene transient movement across the landscape.

A compilation of all the Aboriginal sites recorded by the six surveys indicates that a total of 74 scarred trees, 20 open sites (i.e. stone artefact scatters), 9 hearths, 7 oven mounds, 4 isolated artefact finds and 1 burial were noted within the zone[1]. A total of 7 'complexes' were recorded, where a complex comprised a combination of scarred trees, open sites and oven mounds/hearths, all in close proximity.

The distribution of sites along each of the survey routes or within each zone does appear to present distinct clustering, which as mentioned above, appears to correlate to the presence of water, particularly creeks and swamps/marshes. Description of individual sites suggests that many were also associated with sandy soils, partially confirming the hypothesis that appropriately located Aeolian sands could have provided a suitable 'texture' for habitation.

[1] Not all of the sites listed in the survey reports are entered into the AHIMS system. This was also noted by Meredith 2004.

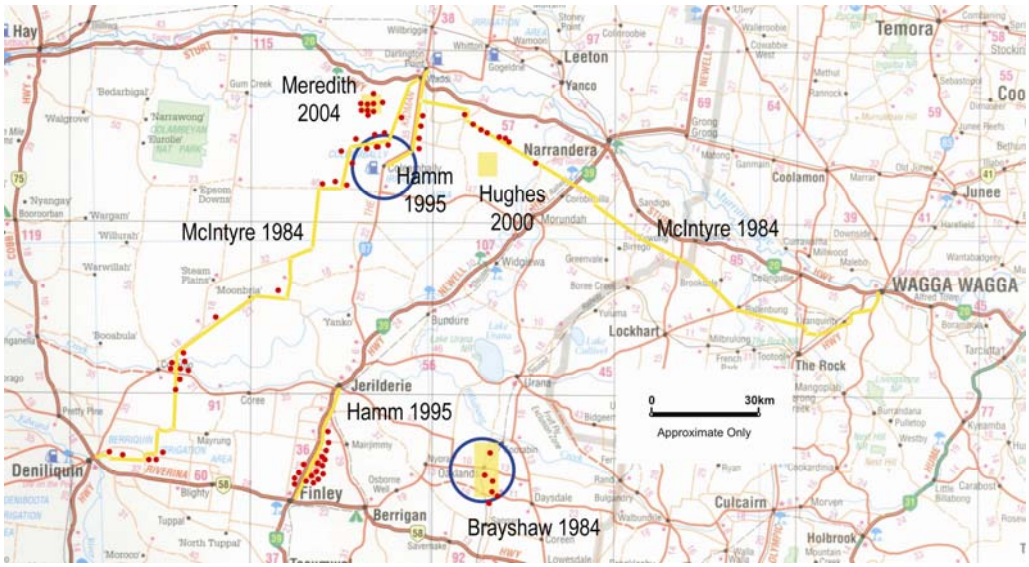


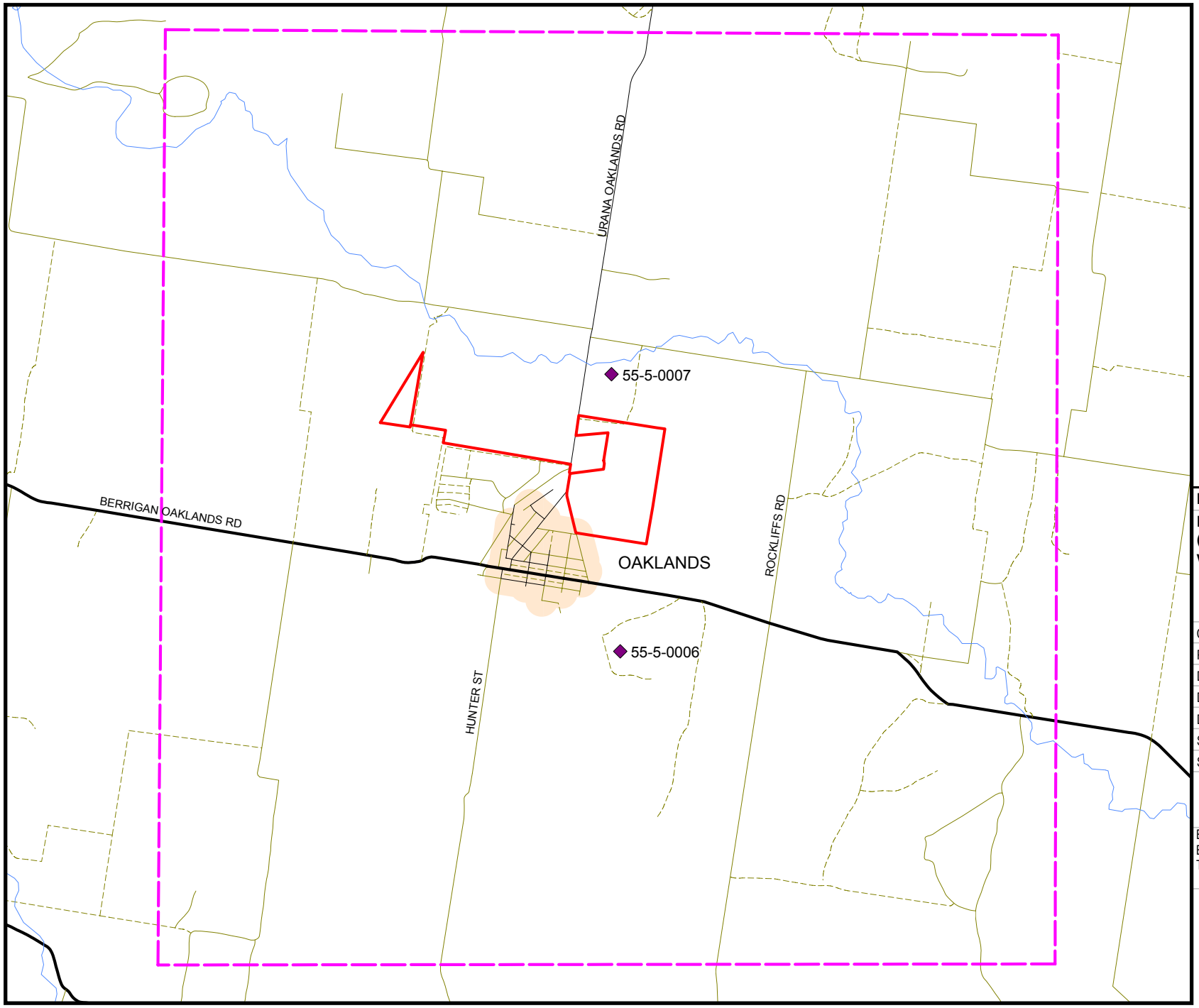
Figure 2.1 ***Location of Regional Archaeological Studies and Sites (Route or location of study shown in yellow, Aboriginal sites recorded on study as red dots. Oaklands and Coleambally circled).***

2.2.2 Local Archaeological Pattern

The DEC AHIMS database was searched within an approximate area of 5 km surrounding the proposed plant. This search revealed two Aboriginal sites, one of which has been recorded 500m from the southern boundary of the property, a stone artefact scatter (55-5-0007). The other registered Aboriginal site is a stone artefact scatter (55-5-0006) located approximately 2 km south of the proposed facility.

It has been noted that the results returned from the search include incorrect AMG co-ordinates, due to translation from the old manual recording system to the modern one. This error has been taken into account during our GIS mapping. The location of the two recorded sites is shown on *Figure 2.2*.

The sparsity of Aboriginal sites within the search area does not add further to the regional archaeological pattern.



Legend

- Study Area
- Search Boundary
- Stone artefact scatter

Figure 2.2

Location of Aboriginal Sites (registered on AHIMS database) within the vicinity of the Study Area

Client:	Agri Energy Limited	
Project:	Oaklands Ethanol Production Facility	
Drawing No:	0056132_HER_GIS03	
Date:	27.02.2007	Drawing Size: A4
Drawn By:	DH	Reviewed By: -
Source:	-	
Scale:	Refer to Scale Bar	

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2.2.3 *Predictive Statement*

The most common Aboriginal sites likely to be associated with the study area were determined from the regional review and discussion of local environmental factors and are presented in *Table 2.5*.

Table 2.5 Aboriginal archaeological site types

Site types	Definition
Open sites [stone artefact scatters]	Open sites (also known as open camp sites) are usually indicated by surface scatters of stone artefacts and sometimes fire blackened stones and charcoal. Where such sites are buried by sediment they may not be noticeable unless exposed by erosion or disturbed by modern activities. The term camp site is used as a convenient label which, in the case of open sites, does not necessarily imply that Aboriginal people actually camped on the sites, rather it indicates only that some type of activity was carried out there.
Scarred trees	Scarred trees bear the marks of bark and wood removal for utilisation as canoes, shields, boomerangs or containers. It is commonly very difficult to confidently distinguish between Aboriginal scars and natural scars or those made by Europeans.
Hearths	Deposits of charcoal, sometimes with burnt clay or stones. Stone artefacts, bones etc may be found in association with a hearth.
Oven Mounds	Wide, raised, flat earthen features with deposits of charcoal and burnt clay. Sometimes includes artefacts and other evidence. Often located near swamps.
Grinding grooves	Grooves resulting from the grinding of stone axes or other implements are found on flat areas of suitable sandstone. They are often near waterholes or creek beds as water is necessary for the sharpening process. In areas where suitable outcrops of rock were not available, transportable pieces of sandstone were used.
Quarries	These are areas where stone was obtained for flaked artefact, ground-edge artefacts, or ochre was obtained for rock paintings, for body decoration or for decorating wooden artefacts
Burial sites	Burial may be of isolated individuals, or they may form complex burial grounds. Burials in the riverine area are frequently found in sandy deposits, and some times associated with midden sites.

Based upon the background environmental data, the pattern of regional Aboriginal sites and the investigations into the study area, the following predictive statements can be made:

- if Aboriginal sites are located within the study area these are most likely to be open sites, scarred trees or hearths;
- scarred trees could be located anywhere within the study area where mature trees are located;
- other sites are most likely to be found in areas with closest access to water and zones with marshes/swamps (whether still extant or since dried up);

- agricultural activities with the study area would probably have not impacted any buried archaeological materials/sites;

- Aboriginal sites found on the surface 'top-soil' can be assumed to have been disturbed and possible moved and would not necessarily represent an expression of a correlated sub surface deposit;

- areas with sand exposures (Aeolian) are the most likely to have been a focus for Aboriginal habitation with a surface expression of artefacts; and

- Aboriginal sites located on these sand exposures are the most likely to indicate further subsurface sites.

3 *ASSESSMENT METHODOLOGY*

Aboriginal heritage is a broad concept encompassing language, stories, ceremony and places with physical evidence of Aboriginal occupation. From the outset of this investigation ERM acknowledged the possibility that Aboriginal heritage values may be present in many forms including, but not limited to, those values directly related to the presence of Aboriginal archaeological sites.

The investigation of Aboriginal heritage values not related to archaeological sites relied on contact with local Aboriginal community groups for advice.

In light of the responses from the Aboriginal community this assessment pursued the identification of Aboriginal heritage values relating to archaeological sites. Field survey methods were adopted to pursue the discovery of new archaeological sites, ensure their accurate recording and provide sufficient background information to provide an assessment of cultural significance to the extent that surface survey allows.

The methodology included:

- a search of the AHIMS site catalogue (the results of which are presented in *Section 2.2.2*);
- a review of relevant archaeological reports lodged in the DEC Archaeological Reports Catalogue at Hurstville;
- consultation with Aboriginal groups following the DEC interim guideline (further discussed below);
- field survey by one ERM archaeologist (Tim Owen) with one Aboriginal community representatives (Kevin Atkinson of the Cummeragunja Local Aboriginal Land Council) following regular transects comprising two people at 5-10 m spacing, plus random walks allowing a representative coverage of all areas of ground within the property and dam site; and
- a visual survey of the pipeline route to confirm the low potential of that route and its historical development.

The methodology for the field survey was determined by the background investigations (Chapter 2). This background review provided an indication of the zones which should be inspected, and those most likely to contain Aboriginal sites.

The field survey was divided into three sections: the property (where the ethanol plant is proposed to be located), the pipeline corridor and the dam site where the proposed storage dam adjacent to O'Dwyer Main Channel is to be located. Two of the three areas (the pipeline corridor and dam site) contained only flat landforms. The property was predominantly flat with a very gentle slope to the west. The property and dam site were divided into transects, which were systematically surveyed on foot, so that a representative proportion of each area was covered. The irrigation area within the property (refer *Figure 4.1*) was not subject to a foot survey as disturbance will be no greater than previous and current cultivation impacts and should be considered "existing use" impact only.

The pipeline corridor was visually inspected from the east and west ends. It was observed that the route was very highly vegetated with introduced plant species (therefore affording little if any observation of exposures) and/or had been subject to a high level of historical period development. It was jointly agreed by the archaeologist and Aboriginal representative that the pipeline route held little if no potential for the discovery of undisturbed Aboriginal sites and that attention and efforts would be focused on the land either side (the property and the dam site).

A ranking system for archaeological potential was devised prior to the survey to determine the archaeological potential of the landforms and open sites which could occur with the study area and is presented in *Table 3.1*.

Table 3.1 A Ranking of Archaeological Potential for Open Aboriginal Stone Artefact Sites

Rank	Definition	Example
No potential	Artefacts cannot occur in situ	Reconstructed landscapes, hazardous landscapes
Low potential	Artefacts are rarely found in comparable contexts but could occur in very low densities making detection unlikely	Landforms with no specific landscape "focus" eg. undifferentiated ridgeline
Moderate potential	Artefacts are known to occasionally occur in comparable landforms in detectable densities (~ 1 artefact /m^2) and there is an unknown possibility of detection	Landforms with an environmental focus which may have seen occasional visitation.
High potential	Artefacts are consistently found in comparable landforms or similar environmental context and thus will almost certainly will be found in any groundbreaking works	Landforms with known environmental focus encouraging repeat visitation to specific locale, eg elevated ground next to swamp, or creek margin (within 30 m)

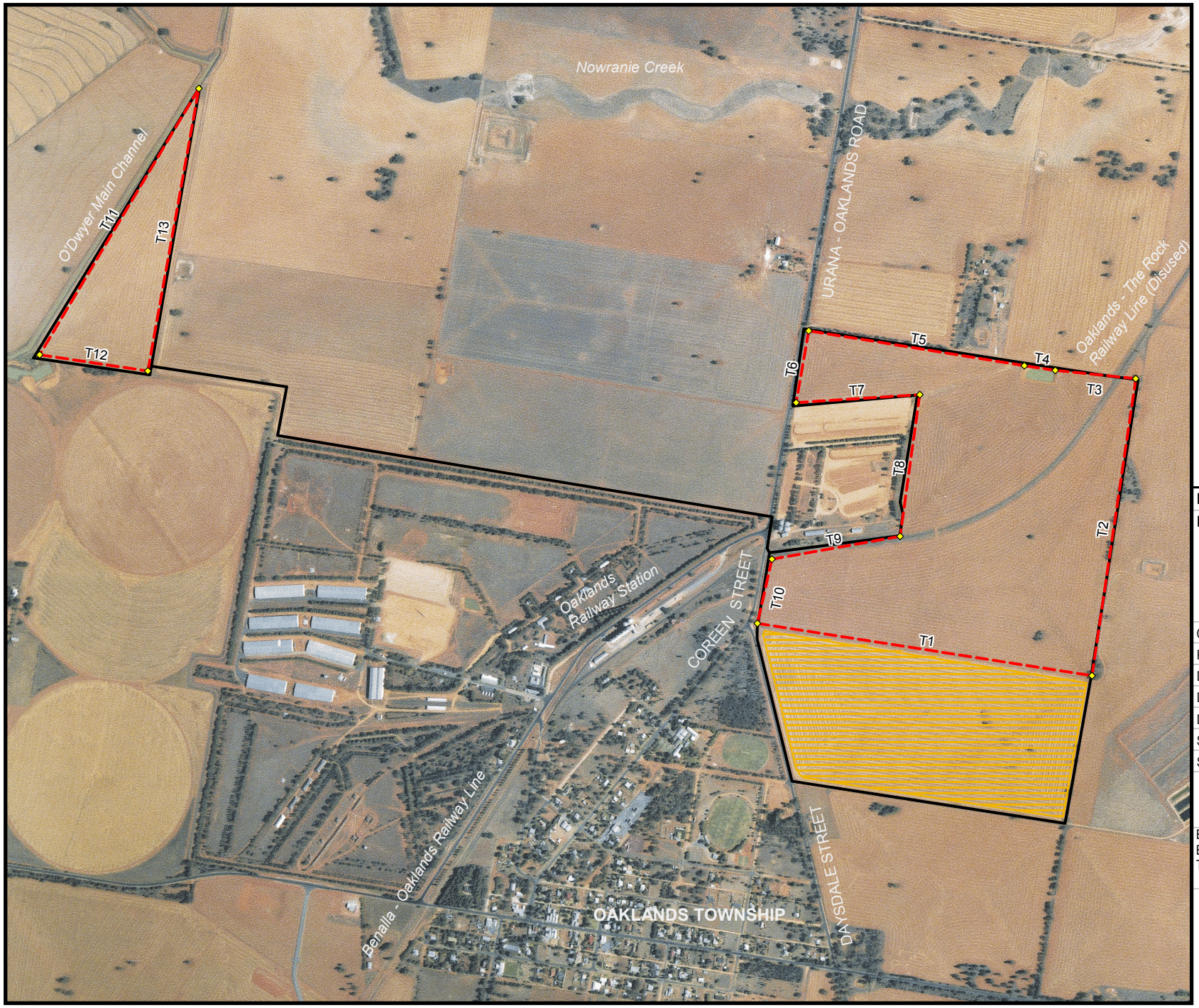
4 FIELD SURVEY RESULTS

No Aboriginal sites were identified during survey fieldwork within any of the study area. Following the archaeological inspection of the study area, it was determined by Tim Owen and Neville Atkinson that no areas within the study area had archaeological potential and that no further archaeological work was required for any of the zones of proposed development.

Details of the survey in each of the three study zones are provided below. Details of the survey transect (pedestrian) are shown in *Table 4.1* and *Figure 4.1*. Transects 1-10 were inside the property, transects 11-13 were within the proposed dam site. The pipeline corridor was inspected visually from the vehicle. As discussed in *Section 3*, it was decided by the survey party that this area had a very low potential for Aboriginal sites and had practically zero visibility.

Table 4.1 Effective survey coverage

Transect	Landform	Length (m)	Width (m)	Area (m²)	Visibility	Exposure	Visible area (m²)	Area available for detection (m²)	% Effective coverage
1	Gentle Slope	1072	2	2144	80%	90%	1715.2	1543.7	72%
2	Flat	952	5	4760	80%	90%	3808	3427.2	72%
3	Flat	256	2	512	50%	50%	256	128.0	25%
4	Dam	300	10	3000	100%	100%	3000	3000.0	100%
5	Gentle Slope	112	2	224	60%	40%	134.4	53.8	24%
6	Flat	231	2	462	60%	40%	277.2	110.9	24%
7	Flat	392	2	784	5%	50%	39.2	19.6	3%
8	Flat	454	2	908	90%	80%	817.2	653.8	72%
9	Gentle Slope	405	2	810	60%	40%	486	194.4	24%
10	Flat	209	5	1045	50%	50%	522.5	261.3	25%
11	Flat	984	5	4920	40%	20%	1968	393.6	8%
12	Flat	332	5	1660	100%	100%	1660	1660.0	100%
13	Flat	956	5	4780	40%	20%	1912	382.4	8%



Legend

- Study Area
- Survey Transect
- Start/End Point of Transect
- Proposed Irrigation Area

Figure 4.1

Location of Survey Transects

Client:	Agri Energy Limited	
Project:	Oaklands Ethanol Production Facility	
Drawing No:	0056132_HER_GIS01	
Date:	20.02.2007	Drawing Size: A4
Drawn By:	DH	Reviewed By: -
Source:	Aerial: Department of Lands NSW	
Scale:	Refer to Scale Bar	

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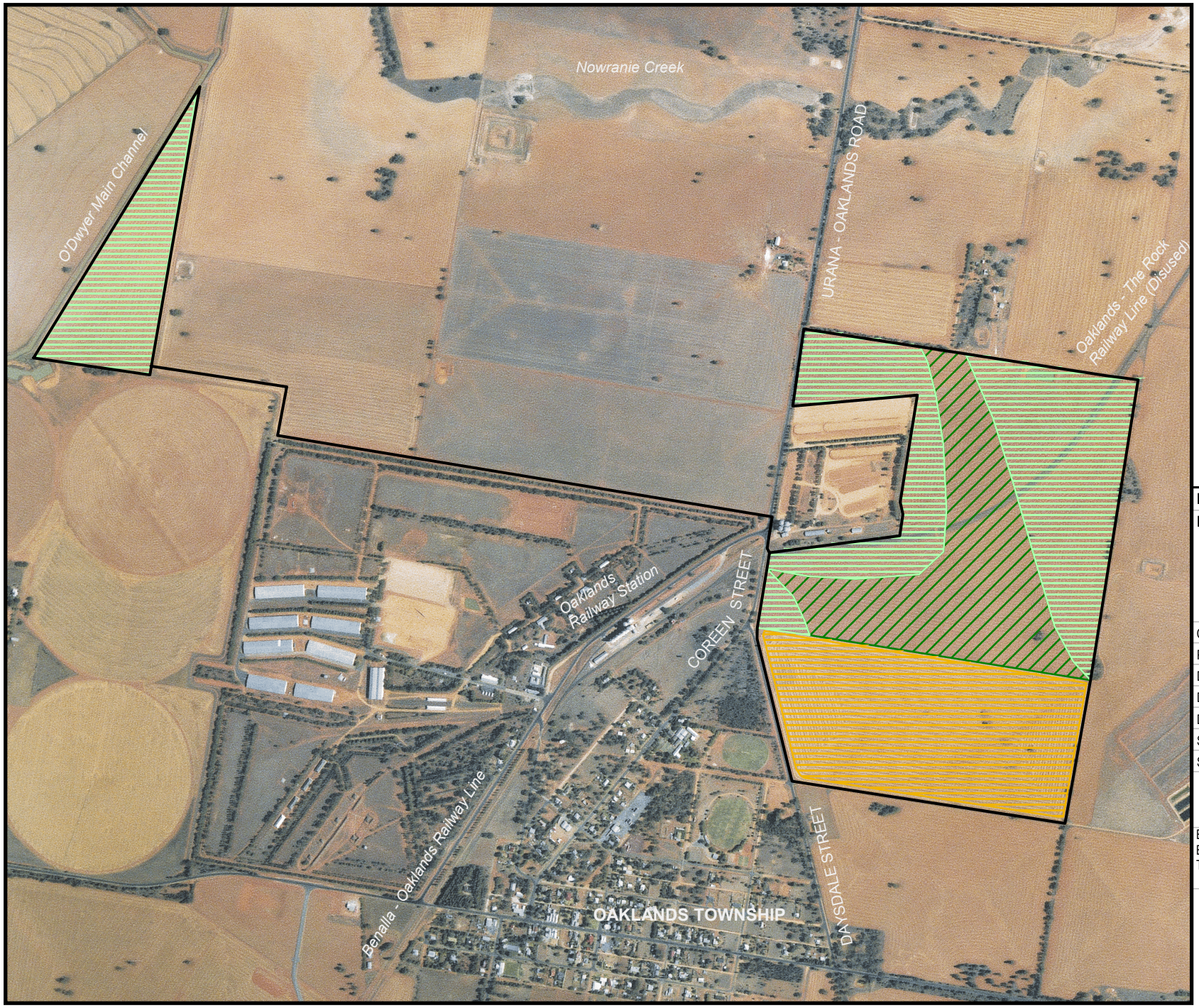
4.1 THE PROPERTY

The property could be divided into two landforms – a very gentle slope and a flat zone. The slope ran diagonally across the property, from the mid-northern boundary to the south east corner as shown in *Figure 4.2*. The majority of the property was covered by a low barley crop, which prevented any surface visibility, especially centrally within the property. However, the margins of the property contained vehicle tracks which had been eroded sufficiently to allow a good ground surface inspection. The railway track was significantly overgrown and thus did not present any opportunity for inspecting exposures. Survey therefore focused on the perimeter of the property.

Photograph 4.1 Transect 1 (gentle slope) - the property. Note the sand. Facing 82°.

The inspection of the property revealed that exposures has been created by vehicle tracks, ploughing for crops, sheet-wash water movement and the construction of a small dam on the northern boundary. Where ground visibility was good, exposures existed which allowed an inspection of soil. The dam area provided an excellent opportunity to inspect soil profiles as it had been cut into the surrounding landscape and was devoid of any vegetation.



Legend

- Study Area
- Flat
- Slope
- Proposed Irrigation Area

Figure 4.2

Landforms within the Study Area

Client:	Agri Energy Limited	
Project:	Oaklands Ethanol Production Facility	
Drawing No:	0056132_HER_GIS02	
Date:	20.02.2007	Drawing Size: A4
Drawn By:	DH	Reviewed By: -
Source:	Aerial: Department of Lands NSW	
Scale:	Refer to Scale Bar	

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Soils within the property were consistent with the pattern determined through the background study. Red-pink sand was present in the west of the property, creating a fine soil profile, notable for its absence of large stone. This sand was not present in the east, where there were clay soils which included small stone particles 5 mm to 20 mm. The soils observed confirmed that a sand body was present across part of the property. However, this does not appear to have created any focus for Aboriginal habitation in this area.

The inspection of the property confirmed that no Aboriginal sites were present and that this area has a low potential to yield Aboriginal sites/artefacts. The landscape characteristics of the study area did not appear to be favourable for Aboriginal occupation, and as Kevin Atkinson stated during and after the survey "its just the wrong place to find evidence of Aboriginal occupation in this region" (Atkinson *pers comm.* 2006). It was Mr. Atkinson's opinion (based upon his lifetime of living in the Oaklands region and undertaking heritage surveys) that Aboriginal habitation would have occurred further south, in association with more substantial creek lines and areas of swamp land.

4.2 THE PIPELINE CORRIDOR

As discussed above the pipeline corridor was inspected from a vehicle, it was not subject to a pedestrian survey due to poor visibility and its low potential to yield Aboriginal sites. The east end of the pipeline route contained a very high level of vegetation – grasses with an adjacent corridor of trees (mainly introduced recent species). The western end was covered in a moderate level of grass with low visibility.

No Aboriginal sites were observed during the vehicle survey and it was concluded that the proposed pipeline corridor had been subject to significant historical disturbance and has a very low potential to yield undisturbed Aboriginal sites.

4.3 THE DAM SITE

The proposed dam site was situated due east of O'Dwyer Main Channel. The construction of this irrigation channel had resulted in a large levee bank bounding the eastern perimeter of the dam site. The remainder of the dam site was covered in a low grass species, which was (and appeared to have been) used predominantly for grazing, see *Photograph 4.2*.

Photograph 4.2 Start of Transect 11 in the area of the proposed dam.

Exposures within the dam site were predominantly related to grazing, animal trampling and vehicle tracks. Visibility was generally very good, as the grass cover was very low. The southern boundary of the proposed dam site afforded 100% visibility in a wide track exposure. Soils within the dam site were clay in nature with small stone inclusion. These soils were similar to those observed in the east of the property.

No artefacts or Aboriginal sites were discovered within the area of the proposed dam. It was determined that this area held a low potential to yield Aboriginal stone artefacts from in-situ deposits.

4.4 ABORIGINAL ARCHAEOLOGY - CONSTRAINTS AND OPPORTUNITIES

Based upon the results of the background study, field inspection and consultation with Aboriginal representatives, it can be concluded that all of the areas inspected do not contain any known Aboriginal sites and have a low potential for the future discovery of evidence relating to Aboriginal habitation and subsistence in the Oaklands region. The level of low archaeological potential is based upon the fact that artefacts have been rarely found in comparable contexts and, if present, would probably occur in very low densities, making their detection unlikely. There are no landforms within any part of the study area that would have represented a focus for Aboriginal people over the Holocene.

The archaeological evidence does not indicate any possibility for significant features or concentrations which would increase our knowledge of Aboriginal occupation in the area. For this reason, further archaeological investigations are unlikely to result in any additional information and are thus not warranted.

4.5 IMPACT ASSESSMENT

Given that no Aboriginal sites have been recorded within the study area and that the study area has been judged to have a low archaeological potential, it can be determined that the proposed development will have little, if no, impact on known Aboriginal heritage values.

5 SIGNIFICANCE ASSESSMENT

Heritage sites, objects and places hold value for communities in many different ways. The nature of those heritage values is an important consideration when deciding how to manage a heritage site, object or place and balance competing land-use options. The many heritage values are summed up in an assessment of "Cultural Significance".

The primary guide to management of heritage places is the Australian ICOMOS Burra Charter 1999. The Burra Charter defines cultural significance as:

> *Cultural significance* means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.
>
> Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.
>
> Places may have a range of values for different individuals or groups.

This assessment has sought to identify Aboriginal heritage objects and sites within the study area and obtain enough information to allow the values of those objects and sites to be determined.

Research and consultation with the Aboriginal community has also been conducted to determine whether any heritage value relates specifically to the study area regardless of the archaeological evidence. Whilst it is accepted that several local areas around Oaklands have significance to Aboriginal people, this study sought to identify whether the study area itself held specific values either in itself, or as part of a specific local area of particular significance. To date no information has been received that identifies specific heritage values unrelated to specific Aboriginal sites.

Aboriginal heritage sites with archaeological evidence are of value to the Aboriginal community through the tangible connection that they represent with pre-European Aboriginal land use.

Scientific value is assessed according to the research potential of a site. Rarity and representativeness are also related concepts taken into account. Research potential or demonstrated research importance is considered according to the contribution that a heritage site can make to present understanding of human society and the human past. Those heritage sites, objects or places of high scientific significance are those which provide an uncommon opportunity to inform us about the specific age of people in an area, or provide a rare glimpse of artistic endeavour or provide a rare chronological record of changing life through deep archaeological stratigraphy.

The comparative rarity of a site is a consideration in assessing scientific significance. A certain site type may be "one of a kind" in one region, but very common in another. Artefacts of a particular type may be common in one region, but outside the known distribution in another.

The integrity of a site is also a consideration in determining scientific significance. While disturbance of a topsoil deposit with artefacts does not entirely diminish research value, it may limit the types of questions that may be addressed. A heavily cultivated paddock may be unsuited to addressing research questions of small-scale site structure, but it may still be suitable for answering more general questions of implement distribution in a region and raw material logistics.

The capacity of a site to address research questions is predicated on a definition of what the key research issues are for a region. The background review of available literature has shown that little research archaeological work has been undertaken in the Oaklands area. The general absence of focused research means that fundamental questions addressing land use, the chronology of the region, patterns of Aboriginal habitation, social interactions between these groups, mechanisms for trade and exchange etc have not been explored.

A landscape focus has been commenced through recent survey work (2002) along the Murray corridor, in terms of Aboriginal burials and their association to landforms. This work follows long term academic research undertaken along the River Murray in Victoria and SA (i.e. authors personal experiences and pers comm. Colin Pardoe). If detailed academic research were undertaken in the Oaklands area, it would be useful to correlate the archaeology of burial practices with landscape theory and basic site patterning in an attempt to discern Holocene population movement and subsistence bases between the major water sources of the region.

Questions pertaining to seasonal use of what could be perceived as the more marginal land forms, such as those near temporary creeks and swamps, could provide future archaeological studies with a relevant background from which to base their heritage assessments. Such research could provide a context against which individual sites could be scientifically rated in terms of relevant importance. This is important, as has been noted during the current study, because many sites in the riverine region, particularly scarred trees, are recorded as having a 'low' level of scientific significance due to the high density of their occurrence. Research into Aboriginal landscape use could provide more detailed understanding of sites, such as scarred trees, and the relationship between the items and other sites. This would allow sites in more marginal areas to be assigned a more appropriate level of scientific significance, based upon the merits of each site and its location, rather than just rarity. Sites, such as scarred trees, are also under threat due to the process of natural decay, so a study that combined site occurrence against condition would be valuable in providing a contextual condition for long term assessment of the riverine region.

Given that the current study area does not contain known archaeological sites, and has a low archaeological potential for Aboriginal deposit, it therefore does not have scientific value.

6 ABORIGINAL CONSULTATION

Aboriginal consultation is required for any assessment of Aboriginal heritage. The DEC has interim guidelines for Aboriginal consultation in relation to any study that might eventually be used to support an application under Part 6 of the *National Parks and Wildlife Act 1974*. The new guideline sets out a process of inviting Aboriginal groups to register interest as a party to consultation (including local press advertisement), seeking responses on proposed assessment methodology, and seeking comment on proposed assessments and recommendations. The interim guideline requires proponents to allow ten working days for Aboriginal groups to respond to invitations to register, and then 21 days for registered Aboriginal parties to respond to a proposed assessment methodology.

As the proposed development project is being assessed under Part 3A of the EP&A Act (not Part 6 of the NPW Act) then the guidelines do not necessarily apply. However, DEC requirements attached to the DGRs (see Chapter 1) have specified that these guidelines should be followed.

ERM has adhered to the interim guidelines and relevant reporting (See *Annex A* for log). This chapter provides details of the process undertaken.

6.1 DEC CONSULTATION

DEC was contacted through Craig Bretherton (DEC Project Manager) who instructed contact be made with Aboriginal heritage officer Harvey Johnston. Mr. Johnston was contacted (28 September 2006) and made aware of the proposed project, its implications and ERM's intended methodology. All reasonable effort was made to compile a list of relevant Aboriginal stakeholders for the Oaklands survey by Mr. Johnston and ERM. The sole Aboriginal stakeholder identified was the Cummeragunja Local Aboriginal Land Council (CLALC), who was contacted on 4 October 2006.

6.2 CUMMERAGUNJA LOCAL ABORIGINAL LAND COUNCIL CONSULTATION

Kevin Atkinson (CLALC) was informed of the project and the forthcoming Aboriginal heritage survey. Discussion with Mr. Atkinson included known Aboriginal heritage sites, the proposed development, potential impacts to Aboriginal heritage and the forthcoming Aboriginal heritage survey.

The CLALC were provided with a colour copy of an 'information pack' (see *Annex B*) that detailed the intended project and its impacts, along with the intended methodology for the survey and known Aboriginal sites in the area. The CLALC were invited to provide a representative for the full day survey on 19 October 2006. Mr. Atkinson confirmed that he would be able to accompany Dr Tim Owen from ERM on the survey.

The CLALC were asked whether any further Aboriginal groups existed who should be involved in the heritage survey. The Local Aboriginal Land Council responded that they were unaware of any such groups.

6.3 ADVERT FOR ABORIGINAL REPRESENTATIVES

In accordance with the interim guidelines for Aboriginal consultation an advert was placed in the Oaklands Corowa Free Press (18 October 2006). The advert read:

> OAKLANDS ("Corowa Free Press" ph.6033 1104)
>
> NOTICE OF ABORIGINAL CONSULTATION
>
> An assessment of Aboriginal heritage is to be conducted on a property immediately north east of Oaklands. The assessment will follow relevant guidelines issued by the Department of Environment & Conservation.
>
> Aboriginal organisations and individuals with cultural association to this area are invited to register their interest in being consulted as part of the assessment. Consultation does not guarantee employment, but does give opportunity for Aboriginal community input to the assessment process.
>
> To register interest please provide a written response including your contact details to:
>
> ERM Cultural Heritage Services
> Locked Bag 24
> Broadway
> NSW 2007
>
> or fax to 02 8584 8800 marked to the attention of "ERM Cultural Heritage Services".

No further responses to the advertisement were received.

6.4 CONSULTATION DURING THE SURVEY

Consultation was undertaken between Neville Atkinson (CLALC) and Tim Owen during the archaeological field survey. Consultation included discussion relating to the Aboriginal history of the region, likely Aboriginal sites to be found and their possible location. The significance of the study area to the CLALC was also discussed. The outcomes of this discussion have been included in this report where relevant.

6.5 POST SURVEY CONSULTATION

A draft version of this report was provided to the CLALC in January 2007 and a second copy was provided on 27 February 2007. Requests were made to respond with comments on the significance assessment and recommendations.

In a telephone conversation with ERM on 6 March 2007, the Chair of the CLALC provided full verbal agreement with the content of the draft Aboriginal Heritage Assessment Report, including the findings and recommendations. A faxed response dated 9 March 2007 was received from Kevin Atkinson of the CLALC and is included in *Annex C*. This response reiterated approval of the content of the Aboriginal Heritage Assessment Report and highlighted the need for immediate work stoppage if any items of Aboriginal interest are disturbed.

7 *RECOMMENDATIONS*

ERM has undertaken an Aboriginal heritage assessment, Aboriginal community consultation and consequential reporting to meet the requirements of the DGRs.

The following recommendations are made in light of the findings of the field survey, consultation with the Aboriginal community under the guideline "National Parks & Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants" (DEC December 2004), the assessment of significance and the relevant legislation protecting Aboriginal heritage in NSW.

On the basis of the current assessment of the study area, it has been determined through a scientific archaeological investigation and Aboriginal stakeholder consultation that no further archaeological work (i.e. excavation, collection or monitoring) is required within the study area. No known Aboriginal sites are to be impacted by the proposed development.

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Annex A

Aboriginal Consultation Log

A.1 ABORIGINAL CONSULTATION

Table A.1 Aboriginal Consultation Log

All consultation was undertaken between Tim Owen (ERM) and Kevin Atkinson (Chairperson Cummeragunja Local Aboriginal Land Council) through the phone and fax contact. Ph 03 5869 3372 Fax 03 5869 3348.

Date	Consultation/Action
4-10-06	Message left on answer phone detailing who ERM was and the study that was requested. Request to call back left.
5-10-06	Contact made with KA. KA detailed with the proposed development, its Part 3A nature. Request made for him or a representative to be present on a survey of the study area. KA agrees to supply suitable Aboriginal representative. Date confirmed for fieldwork. KA provides details that the CLALC are the only Aboriginal stakeholder group in this area.
9-10-06	KA – agreed that we would meet on the 19th at the post office on Oaklands and undertake the survey over the course of a single day. Letter sent by fax to CLALC detailing all aspects of the project. Copy of letter is presented below.
10-10-06 am	No reply to phone, message left requesting to known whether they have received the fax.
10-10-06 pm	KA – CLALC have received the fax and read it. CLALC aware of all aspects of the project as detailed in the phone and fax. Confirmed attendance on fieldwork on the 19-10-06.
17-10-06	KA – confirmed survey time and date. CLALC confirmed their participation and meeting time/place.
19-10-06	Survey undertaken with CLACL representative Neville Atkinson, KA brother. NA made fully aware of project and provided with personal copies of all existing relevant documentation and intended development. NA confirms agreed results of survey at end of day and asked to discuss results with KA and Local Aboriginal Land Council.
21-12-06	CLALC provided with a copy of the draft survey report by post and asked to comment on the report.
5-1-07	No reply – CLALC asked to look for report and provide feedback.
23-2-07	KA – discussion over outcomes of survey and results/recommendations. KA not reviewed report (not sure of where it is at the moment). However, he had discussed the results with NA and agreed with the outcomes that if Aboriginal sites had been present then they would have been found on the survey. Also stated that the area had been heavily ploughed and that it was unlikely for any other sites to be present. KA will look for the report and provide comment this following Monday.

Annex B

Aboriginal Consultation - Information Package

Environmental Resources Management Australia

Building C,
33 Saunders Street
Pyrmont NSW 2009
Telephone (02) 8584 8888
Facsimile (02) 8584 8800
Locked Bag 24,
Broadway NSW 2007
www.erm.com

Monday, 9 October 2006

Kevin Atkinson
Cummeragunja Local Aboriginal land Council
c/o Barmah Post Office
NSW

Our Reference: 0051752 L01 CUMMERAGUNJA LALC.DOC

Dear Kevin,

RE: ABORIGINAL HERITAGE SURVEY AT OAKLANDS

As discussed on the phone on the 5th October and today, 9th October, I wish to invite the Cummeragunja Local Aboriginal Lands Council on an Aboriginal heritage survey in Oaklands area. This letter provides the background details with regards to the need for the survey, the details of when the survey will take place and relevant requirements and a billing address for you invoice relating to the survey.

If you send any formal correspondence to me, please can you quote the above reference.

1. INTRODUCTION

ERM have been engaged by Australian Ethanol Limited to undertake environmental assessment work for three proposed ethanol production plants across western NSW. One of these plants will be located at Oaklands, and is the subject of our proposed field survey.

Tim Owen is the ERM archaeologist who will be undertaking the field survey. He is an archaeologist based in Sydney, who you should contact on 02 8584 8842 for any information with regards to the project.

We have also been in contact with Harvey Johnston at DEC, who is aware of this project and your involvement in the process. He is also able to answer questions relating to the project if you are not able to contact Tim Owen.

Environmental Resources Management Australia Pty Ltd
A.C.N. 002 773 248
A.B.N. 12 002 773 248

Offices worldwide

2. PROPOSED DEVELOPMENT AT OAKLANDS

The ethanol production facility will be capable of processing a range of cereal grains (such as corn, wheat, barley and sorghum), which are to be grown locally, with the aim of producing up to 60 ML of ethanol products annually.

The proposed development will include the construction of a holding dam and effluent treatment and recycling areas. A portion of each site will be dedicated as forestry plantations to provide carbon offset for the facilities by-products. The proposed location of the Oakland facility is shown in Figure 1.

Australian Ethanol Limited will seek project approval for the ethanol production facility and associated plantation at Oaklands, under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). The facility will have a development cost exceeding $30 million and therefore the proposal will be determined by the Minister for Planning.

This means that the normal heritage process of permits under sections 87 and section 90 of the NSW National Parks and Wildlife Act are not to be applied. It is therefore important that all known Aboriginal heritage values, sites and/or concerns are identified during this initial survey period, as once approval under Part 3A is granted it will not be possible to undertake further heritage work unless identified now.

3. SUMMARY OF POTENTIAL IMPACTS ON ABORIGINAL HERITAGE & METHODOLOGY FOR SURVEY

3.1 IMPACTS

The proposed development will result in disturbance to the soil levels within each site. This could destroy any Aboriginal heritage sites (i.e. stone artefact scatters, scarred trees etc) which are located with the study area.

The development at Oaklands will also include the excavation of a water supply pipeline and a dam.

The survey will therefore aim to identify all such sites and present appropriate mitigation measures, which will be devised between yourselves and ERM following the heritage survey.

3.2 SURVEY METHDOLOGY

The heritage survey will commence with the main area to be impacted (see figure), where we will inspected areas with exposures and good soil visibility i.e. tracks and the disused railway corridor. As the study area is flat and does not contain any waterways, I propose that we inspect the boundary of the site, and any tracks, roads etc within the study area in a systematic manner. This will result in covering the majority of this larger land area.

I would then like to walk the route of the proposed water pipeline and inspect the area of the proposed dam. It should be possible to cover nearly 100% of both of these areas.

I will have a camera, GPS, Aboriginal site recording forms and photo scale, so that we can jointly record any Aboriginal sites that we discover on the day. I would like your assistance in fill out such forms, including input into any proposed mitigation needing to be undertaken prior to the development.

The approximate total length of the walked survey route will be around 8 km. I anticipate that we should be able to cover this area in one day, however, if this is not possible then we can continue the survey on the following day.

4. KNOWN ABORIGINAL HERITAGE IN THE LOCAL AREA

ERM has undertaken a background search of the DEC AHIMS register for all known Aboriginal sites inside and surrounding the study area. The results of this search are provided in Figure 2 and discussed below.

A total of two registered Aboriginal sites are located outside of the study area. These sites are both stone artefact scatters, which were identified during previous heritage surveys. To date no Aboriginal sites have been recorded within the study area.

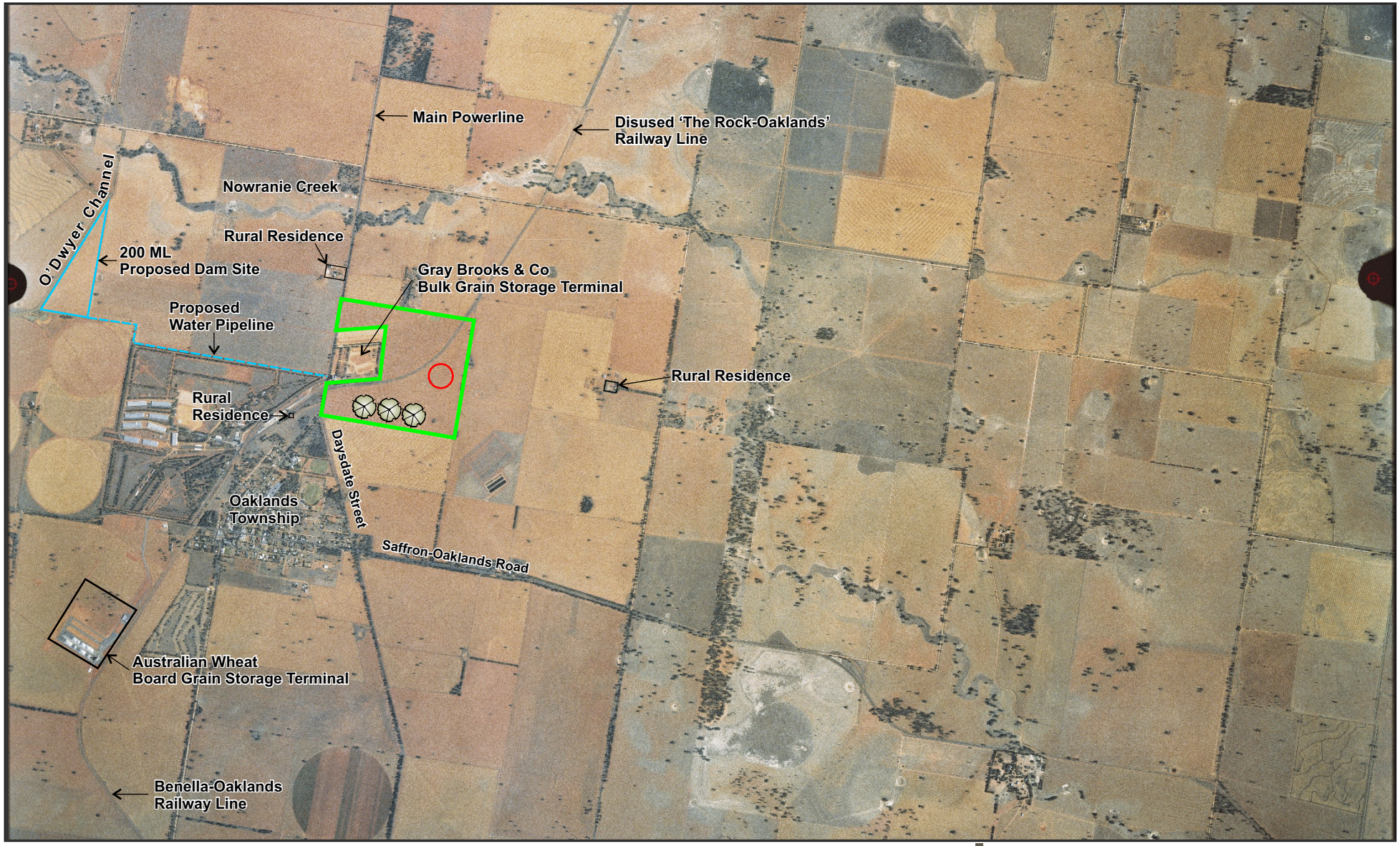
5. REQUEST FOR ABORIGINAL HERIATGE INFORMATION

ERM invite you to provide a written response to this letter and the soon to be undertaken survey, detailing any information, concerns and the outcomes from the Aboriginal heritage survey. All correspondence you provide will be incorporated into the heritage report and also forwarded to DEC for their records and consideration.

If you have serious cultural concerns over any impacts that this project could have, please can you raise these with us as soon as possible, so that they can be discussed and presented to DEC and the client. If any of your concerns are gender specific, then ERM can provide an appropriate archaeologist to confidentially discuss any matters.

Following the heritage survey you will be provided with a draft copy of our report, for your review and comment. We will include any comments and letters you have in the final report and provide you with a full colour copy once it has been completed to both of our satisfactions.

G:\Jobs\2006\0051752\0051752 F2 Oaklands.cdr 14 08 2006 ML Environmental Resources Management Australia Pty Ltd



ERM

0 0.5 1

Kilometres

Proposed Plant Location

Site Boundary

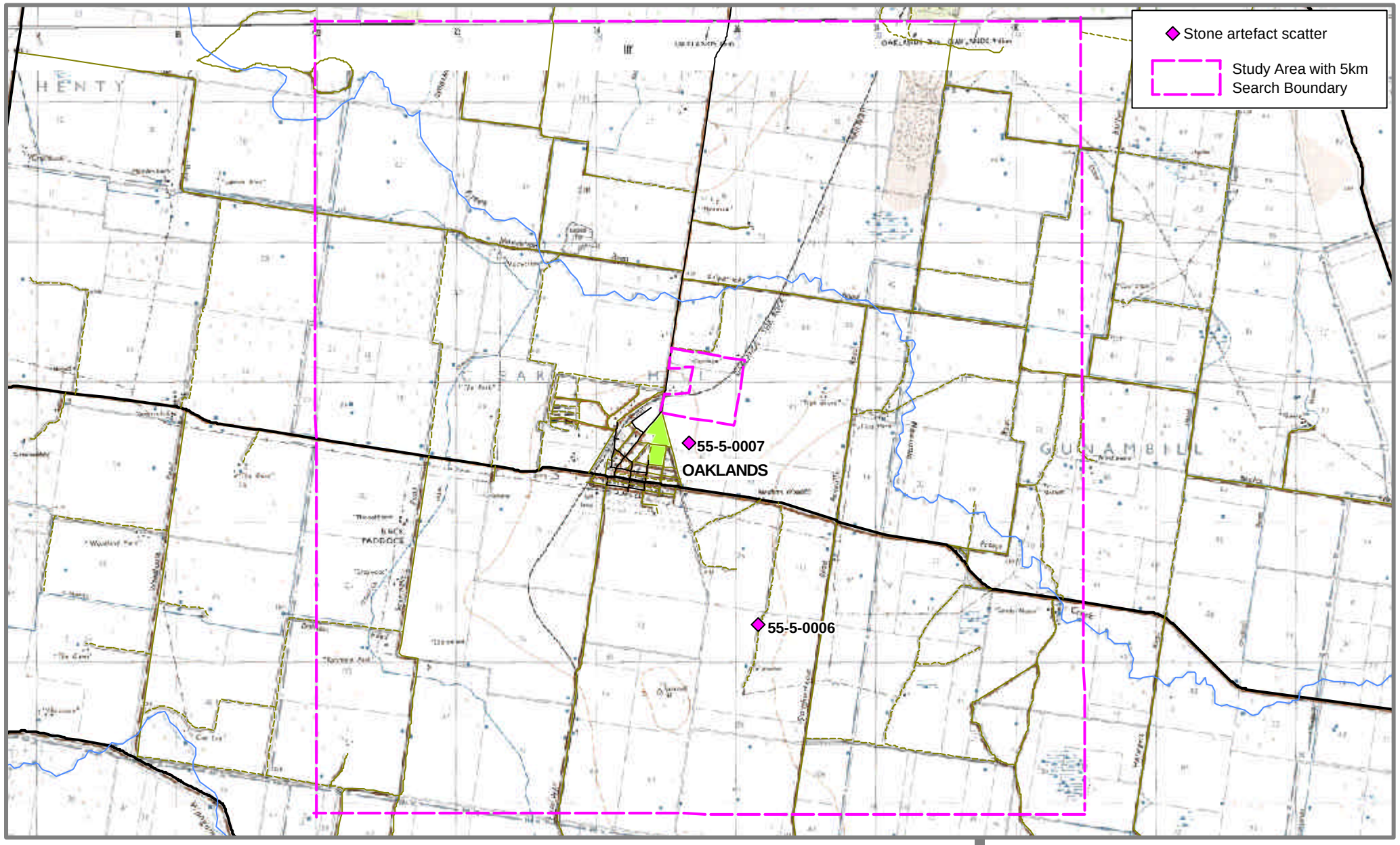
Potential Plantation

Figure 2

Aerial Photo of Proposed Plant and Surrounding Area - Oaklands

Preliminary Environmental Assessment for Proposed Ethanol Production Facility: Oaklands

G:\GIS\Minor Projects\0051752\Fig4 AHS Oaklands.WOR 04 08 2006 Environmental Resources Management Australia Pty Ltd



0 2 4
Kilometres

Figure 4

Location of Aboriginal Sites (registered on AHIMS database), within 5 km of Study Area

Preliminary Environmental Assessment for
Proposed Ethanal Production Facility: Oaklands

6. DETAILS OF THE SURVEY

6.1 SURVEY DATE & PERSONNEL

ERM wish to undertake the Aboriginal heritage survey on the **Thursday 19th October 2006**. We require you to provide **one** representative to accompany Tim Owen on this survey. The survey will systematically inspect all exposures within the study area and the proposed route for the water pipeline.

6.2 MEETING PLACE

Please meet outside the **Oaklands Post Office** (36 Milthorpe Street, Oaklands), at **0900** on Thursday.

If I am going to be late I will call you and let you know. Please can you also call me on 0408 231617 if you are going to be more than 10 minutes late on the day.

6.3 PLEASE BRING

Please can you wear sturdy walking shoes, appropriate clothing (i.e. a hat, long sleeves and sun block) and bring any food and water that you might need on the day.

6.4 INVOICE DETAILS

Please can you send your invoice for your days work and any letters you need to write directly to:

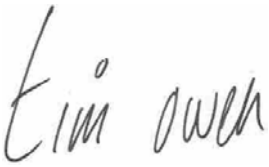
Australian Ethanol Limited

Attention: Kim Colero
PO Box 1792
West Perth
WA 6872

On your letter headed invoice please clearly state the work you undertook (i.e. Aboriginal heritage survey at Oaklands) including the date of the survey.

If you have any questions with regards to this project please contact me on 02 8584 8842 to discuss them. I look forward to undertaking the survey with you and will see you soon!

Yours sincerely,
for Environmental Resources Management Australia Pty Ltd



Dr. Tim Owen
Archaeologist

Annex C

CLALC Response To Draft Aboriginal Heritage Assessment Report

CUMMERAGUNJA LOCAL ABORIGINAL LAND COUNCIL

ABN 71 459 172 253
PO BOX 99, MOAMA, NSW, 2731
EMAIL:cummera@mcmedia.com.au

PH: 03 58693372
03 58693401
FAX: 03 58693348

09/03/07

Environment Resources Management
Australia
Building C,33 Saunders Street
Pyrmont NSW 2009

Dear Tim

I have read the Archeological Assessment Oakland NSW Report .

On behalf of the Cummeragunja Local Aboriginal Land Council NSW I viewed this report as thorough and professional in every detail.

Please accept this letter as approval.

I hereby express my concern on behalf of the Cummeragunja Local Aboriginal Land Council that the developers stop work immediately should any items of Aboriginal interest be disturbed via land disturbance or any other activities.

Yours Sincerely

Kevin Atkinson
Co-ordinator

ERM consulting services worldwide **www.erm.com**

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