

# Appendix J

# Aboriginal

# Cultural

# Heritage

# Assessment

# Report







## Newcastle Power Station

### Aboriginal Cultural Heritage Assessment Report

30 October 2019

Project No.: 0468623

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## Signature Page

30 October 2019

# Newcastle Power Station

## Aboriginal Cultural Heritage Assessment Report

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## Acronyms and Abbreviations

Name	Description
ASR	Aboriginal Archaeological Survey Report
Aboriginal object (as defined in the NPW Act)	Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales (NSW), being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains
Aboriginal Place (as defined in the NPW Act)	A place declared under s.84 of the NPW Act that, in the opinion of the Minister, is or was of special significance to Aboriginal culture.
ACHA	Aboriginal Cultural Heritage Assessment (report)
AHC	Australian Heritage Commission
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
Burra Charter	The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CHMP	Cultural Heritage Management Plan
disturbed land or land already disturbed by previous activity	Land is disturbed if it has been the subject of a human activity that has changed the land's surface -being changes that remain clear and observable*.
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Pty Ltd
'harm' an Aboriginal object (as defined in the NPW Act)	To destroy, deface, damage an object; move an object from the land on which it is situated; or cause or permit an object to be harmed.
Heritage Act	Heritage Act 1979
LEP	Local Environmental Plan
LGA	Local Government Area
NPW Act	National Parks and Wildlife Act 1974
NPW Regulation	National Parks and Wildlife Regulation 2009
OEH	Office of Environment and Heritage (NSW)
PAD	Potential Archaeological Deposit
Project Area	The land subject to investigation in this report
SHR	State Heritage Register
The Project	The proposed development
Excavation Area	Land subject to test excavations are part of the investigation

## EXECUTIVE SUMMARY

*Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Aurecon Group (Aurecon) on behalf of AGL Energy Limited (AGL) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the site of the proposed Newcastle Power Station, associated pipeline easements, and transmission line easements ('the Project') across Lot 2 DP1043561, Lot 3 DP1043561, Lot 4 DP1043561 (partial lot), Lot 202 DP1173564 (partial lot), Lot 1201 DP1229590 (partial lot), Lot 1202 DP1229590 (partial lot), and Lot 1203 DP1229590 (partial lot) (the Project Area).*

*The ACHAR has been prepared in accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice). This ACHAR contains information regarding Indigenous community consultation, field investigations and associated data analysis. It provides mitigation and management recommendations for the proponent to avoid or minimise harm to Aboriginal objects.*

*The proponent of the proposed works is AGL. AGL proposes to construct and operate a dual-fuel peaking power station and associated infrastructure in Tomago, NSW (Figure 1.2). The Project has been deemed to be a Critical State Significant Infrastructure Project (CSSI) and is subject to approval under the Secretary's Environmental Assessment Requirements (SEARs).*

*The Project involves the construction and operation of an approximately 250-megawatt (MW) dual-fuel peaking power station and associated infrastructure including gas supply and electricity transmission connections. The Project would employ Open Cycle Gas Turbine or reciprocating gas engine technology. It would operate as a "peaking" facility supplying electricity at short notice during periods of high demand, low supply from intermittent supply sources, or when baseload power generation is offline. The Project would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the Project to the existing TransGrid Tomago 132kV switchyard. The Proposal is likely to have a minimum operating life of 25 years.*

*Consultation with the Aboriginal community has been undertaken throughout the course of the Project, and has provided valuable input into the assessment of cultural heritage values.*

*An archaeological survey was undertaken in May 2019. The survey methodology was provided to the RAPs for comment prior to fieldwork commencing. The survey aimed to identify all Aboriginal sites present within the proposed impact area, including the identification of any PADs.*

*Three (3) previously unidentified Aboriginal heritage sites were recorded during the field survey. Two (2) of these sites were isolated finds (single stone artefacts) and the other site was a large artefact scatter that is likely associated with or part of a previously identified site located to the north-west on the opposite side of the A1 (Hexham M12RT as described in Jacobs 2015). Additionally, a PAD encompassing finds at NPS01 and NPS02 was identified.*

*Results from the field survey highlighted the need to undertake further investigations in the form of a test excavation program. A total of 28 test excavations were undertaken across the eastern portion of the PAD. Fifteen (15) stone artefacts were identified in three (3) test pits, situated in the north-east section of the PAD.*

*The results confirm the presence of subsurface objects within the proposed footprint of the development; however, the low number of finds suggests that the likelihood of identifying further subsurface objects throughout the works program is minimal. Furthermore, the level of disturbance observed suggests little surface or subsurface material would remain in situ, and therefore would provide minimal additional scientific information.*



*The following recommendations are made to assist in ongoing management of identified heritage sites:*

- *All personnel involved with ground breaking activities within the Project Area should undertake a cultural awareness training programme in line with the recommendations below;*
- *No further works to be undertaken at NPS01, which has been determined to be the RMS proposal area and would be managed under their works program;*
- *As the project has been designated critical SSI, the requirement for an AHIP under Section 90 of the NP&W Act is extinguished; and*
- *If suspected Aboriginal heritage objects are found during works, the following Chance Find Procedure should be followed and applies to the entire Project Area:*
  - *All activity in the immediate area should cease;*
  - *And an appropriately qualified heritage professional should be consulted;*
  - *OEH should be immediately contacted;*
  - *Local Aboriginal stakeholder groups should be notified; and*
  - *An appropriately qualified heritage professional should record the location and attributes of the site and determine the significance of the find.*
- *In the event of the discovery of human skeletal material (or suspected human skeletal material) during project activities in the Project Area the following steps should be followed:*
  - *All activities and/or works in the immediate area must cease;*
  - *The State Police must be contacted along with the OEH; and*
  - *Any sand/soils removed from the near vicinity of the find must be identified and set aside for assessment by the investigating authorities.*
- *Artefacts and charcoal recovered during the testing program should be reburied at a location determined by the RAPs, as close as possible to the location from which they were recovered;*
- *A copy of this report should be provided to each of the Aboriginal organisations who expressed an interest in the Project; and*
- *Upon finalisation, a copy of this report incorporating comments from the RAPs should be provided to the relevant OEH regional branch.*

## 1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Aurecon Group (Aurecon) on behalf of AGL Energy Limited (AGL) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the site of the proposed Newcastle Power Station, associated pipeline easements, and transmission line easements ('the Project') across Lot 2 DP1043561, Lot 3 DP1043561, Lot 4 DP1043561 (partial lot), Lot 202 DP1173564 (partial lot), Lot 1201 DP1229590 (partial lot), Lot 1202 DP1229590 (partial lot), and Lot 1203 DP1229590 (partial lot) (the Project Area).

The ACHAR has been prepared in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010* (Code of Practice). This ACHAR contains information regarding Indigenous community consultation, field investigations and associated data analysis. It provides mitigation and management recommendations for the proponent to avoid or minimise harm to Aboriginal objects.

### 1.1 Objectives

This ACHAR assesses the potential impacts of the Project on Aboriginal cultural heritage values, and prepares strategies to manage risks to identified heritage values during the course of the Project.

This report documents:

- The consultation process undertaken with Aboriginal communities and their involvement in the Project;
- The landscape and natural resources of the Project Area;
- A synthesis of local and regional Aboriginal archaeological research to develop a contextual basis for predictive models;
- A review of archaeological and relevant literature and heritage listings on the NSW Department of Planning, Industry and Environment Aboriginal Heritage Information Management System (AHIMS) database;
- A predictive model for Aboriginal site types and location relevant to the Project Area;
- A review of the Project Area's non-Aboriginal history to gain an understanding and appreciation of past land uses and associated historical ground disturbance;
- The archaeological methodology implemented during the study;
- The cultural and archaeological sensitivity of landforms that may be subject to impacts;
- The field survey results;
- The test pitting results;
- The significance of any located Aboriginal objects and places;
- A description of the Project and whether or not it has the potential to result in impacts to Aboriginal cultural heritage and historic heritage items; and
- Provision of management and mitigation measures based on the results of the investigation.

## 1.2 Site Location

The Newcastle Power Station is located in Tomago, NSW, approximately 14 km north-west of Newcastle within the Port Stephens Council Local Government Area (*Figure 1.1*). The Project Area is approximately 87.1 hectares (ha) in size and encompasses the following property allotments:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot);
- Lot 1201 DP1229590;
- Lot 1202 DP1229590; and
- Lot 1203 DP1229590 (partial lot).

The north-west boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 4 DP1043561, as well as the western boundary of Lot 1203 DP1229590 abut the Pacific Highway. The southern boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 202 DP1173564 adjoin industrial estates. Lot 202 DP1173564 is bounded to the east and north by lots displaying dense vegetation.

## 1.3 Description of Proposed Development

The proponent of the proposed works is AGL. AGL proposes to construct and operate a dual-fuel peaking power station and associated infrastructure in Tomago, NSW (*Figure 1.2*). The Project has been deemed to be a Critical State Significant Infrastructure Project (CSSI) and is subject to approval under the Secretary's Environmental Assessment Requirements (SEARs).

The Newcastle Power Station would be a dual fuel (gas and diesel) fast-start peaking power station with a nominal operating capacity of 250MW. The Newcastle Power Station would supply electricity to the grid at short notice during periods of high electricity demand, and/or low supply, particularly during periods where intermittent renewable energy supply is low or during supply outages. This operation is aligned with AGL's move to a renewable energy mix. While the primary role of the Newcastle Power Station would be to provide firming or peaking capacity to the National Electricity Market, to maximise operational flexibility each unit of the power station would be designed for continuous operation. This impact assessment considers both the peaking load operation and the continuous operation.

The Proposal would also involve the construction and operation of gas pipelines and an electricity transmission line. The pipelines would supply the proposed power station with gas from the eastern Australia gas transmission pipelines via the Jemena network and, as an option, the Newcastle Gas Storage Facility (NGSF). A new electricity transmission line would transfer the electricity produced by the proposed power station to the national electricity network via connection to the existing 132kV Transgrid switchyard. The Proposal has a capital investment value of approximately \$400 million and is anticipated to be operational in the year 2022.

The main elements of the Proposal are as follows:

- Power station, necessary supporting ancillary equipment and supporting infrastructure. The power station would be capable of operating with diesel fuel, if necessary.
- 132kV electricity transmission line to the existing TransGrid switching yard.
- Gas transmission pipelines and receiving station, compressor units, and ancillary infrastructure.
- Storage tanks and laydown areas.
- Water management infrastructure including pond(s), and a connection to Hunter Water potable service in line with Hunter Water requirements.

- Diesel storage and truck unloading facilities.
- Site access road.
- Office / administration, amenities, workshop / storage areas and car parking.

The proposed dual-fuel power station is to be constructed on Lot 3 DP1043561. The transmission lines and gas pipelines are proposed to cross Lot 3 DP1043561, Lot 4 DP1043561, Lot 202 DP1173564 Lot 1201 DP1229590, Lot 1202 DP1229590, and Lot 1203 DP1229590. AGL does not proposed to undertaken any works within Lot 2 DP1043561. There is a proposal for Roads and Maritime Service (RMS) to construct a highway off ramp (M12RT) in this location. This report assessed the land of within Lot 2 DP1043561, however, it is noted that no impacts from works proposed by AGL will be incurred on this land parcel.

## 1.4 Secretary's Environmental Assessment Requirements (SEARs)

SEARs were issued by the former Department of Planning and Environment (DP&E) (now Department of Planning, Industry & Environment [DPI&E]) on 18 February 2019 and form the basis of the environmental impact assessment for the Project (refer to *Appendix A*). It is understood that on the 15 August 2019, it was determined that the proposed project was a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 and that supplementary SEARs were issued. No additional requirements relating to heritage matters were included within this supplement.

*Table 1.1* provides a summary of the Indigenous heritage related SEARs and includes a reference to where each requirement has been addressed in this report.

**Table 1.1 SEARs (SSI 9837) and Agency comments**

Document	Requirement	Location within Report
SEARs	Heritage – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the project, including adequate consultation with Aboriginal stakeholders having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010);	Historic Heritage – see historic heritage report (ERM, 2019a) Aboriginal heritage – see survey report (ERM 2019b) and this Aboriginal Cultural Heritage Assessment Report
OEHs comment	The EIS must identify and describe the Aboriginal Cultural Heritage values that exist across the whole area that will be affected by the development and document these in the Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW 2010) and in consultation with OEH regional branch officers.	This Report
	Consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.	Section 3

Document	Requirement	Location within Report
	Impact on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.	Sections 8 and 9
Port Stephens Council's Comment	As the site has been identified as an area of high Aboriginal archaeological significance, comprehensive assessment including detailed consultation with Aboriginal Stakeholders and subsurface investigations are required. Subsurface investigations are to be completed by a qualified archaeologist in accordance with the Code of Practice for Archaeological Investigation of Aboriginal objects in NSW (DECCW 2010). The results of subsurface investigations should inform future management potential archaeological deposits and determine whether an Aboriginal Heritage Impact Permit (AHIP) would be required.	This report.

## 1.5 Authorship

This report has been prepared by Dr Robin Twaddle, Katherine Deverson and Stephanie Moore (Heritage Consultants, ERM). Technical review was undertaken by Erin Finnegan (Principal Heritage Consultant, ERM) and quality assurance review was provided by Damon Roddis (Partner, ERM).





Legend

Project Boundary

Cadastral (Lot)

Data Source:

Project Boundary: Client Provided

(February 2019)

Nearmap Imagery January 2019

Site Location			F1.1
Drawing No: 0468623b_ACHA_G001_R0.mxd		Aboriginal Cultural Heritage Assessment	
Date: 25/07/2019	Drawing Size: A3	Newcastle Gas Fired Power Station	
Drawn By: DR	Reviewed By: RT	Client: Aurecon	
Coordinate System: GDA 1994 MGA Zone 56		<div>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</div> <div><div></div><div>ERM</div></div>	
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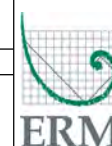
Legend  
Project Boundary

Data Source:  
Project Boundary: Client Provided  
(February 2019)  
Proposed Layout: Aurecon drawing

### Proposed Development

Drawing No: 0468623b\_ACHA\_G002\_R0.mxd  
Date: 25/07/2019  
Drawing Size: A3  
Drawn By: DR  
Reviewed By: RT  
Client: Aurecon  
Coordinate System: GDA 1994 MGA Zone 56  
0 50 100m  
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F1.2





## 2. LEGISLATION AND GUIDELINES

Aboriginal cultural heritage in NSW is protected by the *National Parks and Wildlife Act 1974* (NP&W Act). Land managers are required to consider the effects of their activities, or proposed development, on the environment under several pieces of legislation, principally the EP&A Act. Cultural heritage, which includes Aboriginal and historical heritage, is subsumed within the definition of “environment”. In certain circumstances, Commonwealth legislation protecting Aboriginal heritage may also apply to Aboriginal heritage places in NSW. The key state legislation applying to the Project is summarised below in Section 2.1.

### 2.1 State Legislation

#### 2.1.1 NSW Environmental Planning and Assessment Act 1979

The EP&A Act requires that environmental impacts are considered in land use planning, including impacts on Aboriginal and non-Aboriginal heritage. Various planning instruments prepared under the Act identify permissible land use and development constraints.

This Project has been designated Critical SSI by the relevant authority.

The SEARs for the Project were issued on 18 February 2019 and require as follows:

- An assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the Project, including adequate consultation with the Aboriginal stakeholders having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010).

This assessment has therefore been prepared in accordance with the requirements of the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011), the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010), the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010) and the NSW Heritage Manual (1996).

#### 2.1.2 NSW National Parks and Wildlife Act 1974

All Aboriginal objects within NSW are protected under Part 6, and particularly Section 90, of the *NSW National Parks and Wildlife Act 1974* (NP&W Act). Under Section 5 of the Act, “Aboriginal Object” means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Indigenous habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

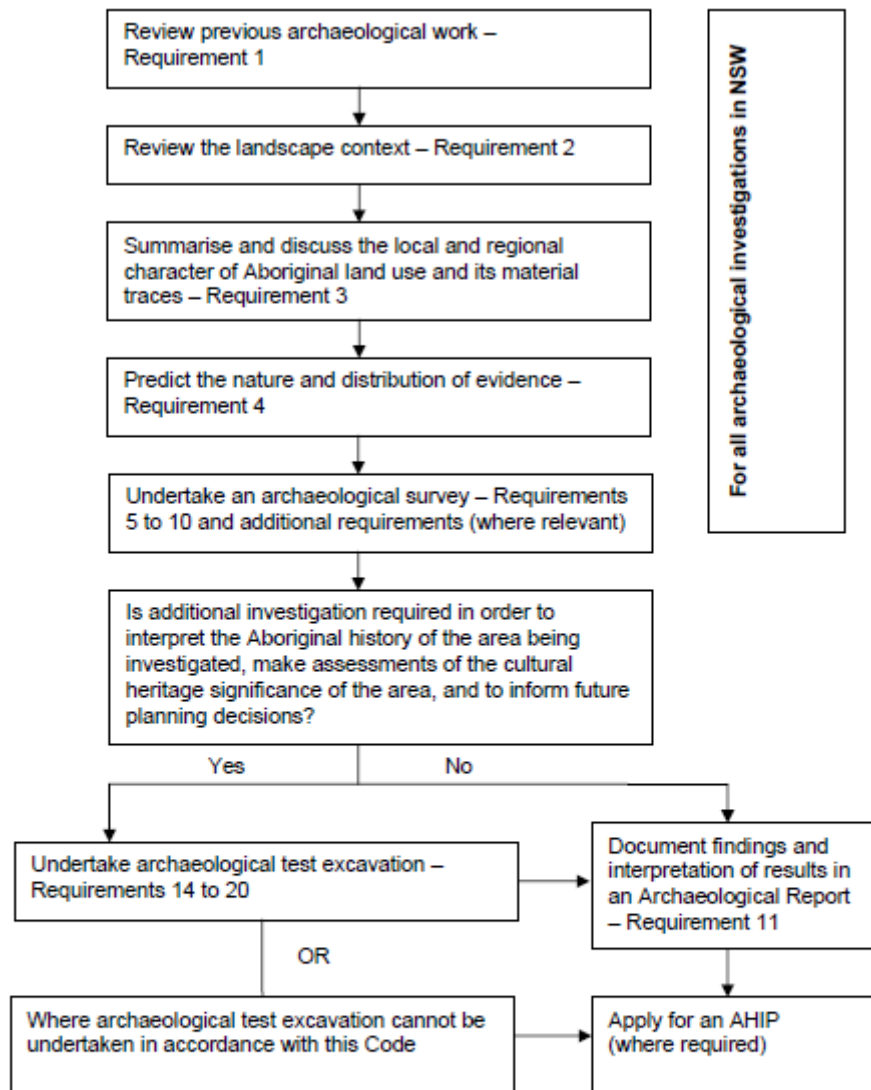
Sites of traditional significance that do not necessarily contain archaeological materials may be gazetted as ‘Aboriginal places’ and are protected under Section 84 of the Act. This protection applies to all sites, regardless of their significance or land tenure.

##### 2.1.2.1 The due diligence process

Part 6 of the NP&W Act provides specific protection for Aboriginal objects and places by making it an offence to destroy, deface, damage, or move them from the land. The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW, 2010a) as adopted by the National Parks and Wildlife Regulation 2009 (NP&W Regulation) made under the NP&W Act, provides guidance to individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects.

This code of practice can be used for all activities across all environments. The NP&W Act provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object.

Under Section 86, a person who, without first obtaining the consent of the Director-General, knowingly harms or desecrates an Aboriginal object or Aboriginal place is guilty of an offence. In most circumstances, it is required that an Aboriginal Heritage Impact Permit (AHIP) be obtained for any impact to an Aboriginal object or place. The OEH is the responsible authority, with the Director General of that department the consent authority. However, as the Project has been assessed as CSSI, the need for a permit under Section 90 is extinguished. This does not, however, exempt the proponent from managing cultural heritage matters to the same statutory standard, as is usually captured in the SEARs requirements.



### Other requirements

In addition to the requirements of this Code, you may also need to comply with the requirements of other legislation.

**Figure 2.1 Requirements of the Code (Code of Practice p.3, DECCW 2010)**

### 2.1.3 NSW Heritage Act 1977

The NSW *Heritage Act 1977* establishes the NSW Heritage Council and the State Heritage Register (SHR). The aim of the Act is to conserve the heritage of New South Wales. The aim of heritage management is not to prevent change and development, but to ensure that the heritage significance of recognised heritage items is not harmed by changes.

The SHR is a separate listing to the State Heritage Inventory and includes items which are accorded SHR listing through gazettal in the NSW Government Gazette. Nominated items are considered by the NSW Heritage Council which then makes a recommendation to the Minister for Heritage. The Minister is empowered to place Interim Heritage Orders (IHO) on an item of potential State significance on the basis of advice received from the Heritage Council.

In addition to the items listed on the SHR, the State Heritage Inventory also includes declared Aboriginal Places; listed IHOs; items on State Agency Heritage Registers; and items of local heritage significance on a local council's Local Environmental Plan.

### 2.1.4 Guidelines

This document has also been prepared in accordance with the following guidelines:

- The Burra Charter (The Australia ICOMOS charter for places of cultural significance);
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011);
- Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010);
- Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (OEH);
- NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning, 1994);
- Assessing Heritage Significance (NSW Heritage Office, 2001); and
- Statements of Heritage Impact (Heritage Office and Department of Urban Affairs and Planning, 2002).

### 3. ABORIGINAL COMMUNITY CONSULTATION

This chapter contains details of the Aboriginal community consultation undertaken regarding the Aboriginal cultural heritage of the Project Area. In accordance with the guideline *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010), consultation with Aboriginal people is an essential part of the heritage assessment process to:

- Determine potential harm on Aboriginal cultural heritage from proposed activities; and
- Inform decision making for any application for an AHIP where it is determined that harm cannot be avoided.

The guideline also sets out four stages of consultation requirements. Fulfilment of these requirements is outlined below.

#### 3.1 Stage 1: Notification of Project Proposal and Registration of Interest

The aim of Stage 1 of the consultation process is *to identify, notify and register Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.*

On behalf of the Proponent, ERM has actively sought to fulfil this aim and identify stakeholder groups or people wishing to be consulted about the Project, and invite them to register their interest. After determining that there was no approved determination of Native Title over the project area (per 4.1.1 of the guidelines), ERM reached out to additional resources for information about interested parties.

In order to identify people with a potential interest in the project (as per 4.1.2 of the guidelines), letters containing the location and nature of the project (dated 30 November 2018, *Appendix C*) were sent to the following bodies:

- Worimi Local Aboriginal Land Council (WLALC);
- Hunter Local Load Services (HLLS);
- National Native Title Tribunal;
- Native Title Services Corporation (NTS Corp);
- NSW OEH Regional Operations Hunter Central Coast Branch;
- Office of the Registrar, *Aboriginal Land Rights Act* (1983); and
- Port Stephens Council.

Responses to these letters identified 25 Aboriginal people or organisations with a potential interest in the Project (*Appendix D*). A Project notification and invitation to register letter (as per 4.1.3 of the guidelines) was sent to each of the identified parties on 21 January 2019 (*Appendix E*). Each identified parties was given two consecutive weeks to register their interest in the project. Twelve (12) registrations were received following the project notification letters (*Appendix F*).

In addition to the agency contacts, a local press advertisement requesting Aboriginal party participation was placed in the *Port Stephens Examiner* and the *Newcastle Herald* on 6 December 2018 (*Appendix G*). The response period for Aboriginal stakeholders to register an interest in the Project was open for two consecutive weeks. Zero (0) registrations were received following the presentation of the public advertisement.

The Aboriginal people or organisations who have registered their interest in the project are identified in *Table 3.1*.

**Table 3.1 Registered Aboriginal Parties**

Individual/Organisation
Didge Ngunawal Clan
Nu-Run-Gee Pty Ltd
Worimi Traditional Owners Indigenous Corporation
Divine Diggers Aboriginal Cultural Consultants*
Worimi Local Aboriginal Land Council
Widescope Indigenous Group
Murra Bidgee Mulangari Aboriginal Corporation
A1 Indigenous Services
Mu-Roo-Ma Pty Inc.
Muragadi
Karuah Indigenous Corporation
Merrigarn

*\* Note – Divine Diggers requested to be removed from further correspondence at the completion of Stage 2, upon being informed they had not been engaged to participate in the field survey. This correspondence is included in Appendix H.*

### 3.2 Stage 2: Presentation of Information about the Proposed Project

The aim of Stage 2 of the consultation process is *to provide registered Aboriginal parties with information about the scope of the proposed project and the proposed cultural heritage assessment process.*

A proposed field survey methodology was sent to each of the Registered Aboriginal Parties (RAPs) (dated 4 April 2019) (*Appendix H*). The letter included:

- An outline of proposed works;
- The proposed methodology and an indication that dates for pedestrian survey are TBD; and
- A request for Aboriginal parties to identify any particular areas of interest within the Project Area to survey.

ERM received five (5) return emails regarding the project methodology (*Appendix I*). The responses received are summarised in *Table 3.2*.

**Table 3.2 Comments on proposed survey methodology**

Organisation	Comments
Didge Ngunawal Clan	Thanked sender for the email. No further comments.
Divine Diggers Aboriginal Cultural Consultants	Acknowledged the report had been read. Supported the methodology.
Merrigarn	Acknowledged that the report had been read. Supported the methodology and recommendations.
Muragadi	Acknowledged that the report had been read. Supported the methodology and recommendations.
Murra Bidgee Mulangari Aboriginal Corporation	Acknowledged that the report had been read. Supported the methodology and recommendations.

All responses received supported the proposed methodology, therefore, no modifications were made. Additional feedback from RAPs was incorporated into the survey report.

Following the field inspection, the requirement for test excavation was identified. ERM prepared a test excavation methodology, which was provided to each of the RAPs on 5 June 2019 (*Appendix K*). The test excavation methodology was sent with a copy of the survey report (refer *Appendix J*). The methodology included:

- An outline of proposed works;
- The proposed testing methodology, including location of proposed test pits and detail of how test pits will be excavated; and
- A request for any comments or feedback on the methodology.

ERM received five (5) return emails regarding the project methodology (*Appendix L*). The responses received are summarised in *Table 3.3*.

**Table 3.3 Comments on proposed test excavation methodology**

Organisation	Comments
Murra Bidgee Mulangari Aboriginal Corporation	Acknowledged that the report had been read. Supported the methodology and recommendations.
A1 Indigenous Services	A1 supports the Survey Report and Test Excavation Methodology
Muragadi	Acknowledged that the report had been read. Supported the methodology and recommendations.
Mur Roo Ma Inc	Acknowledged that the report had been read. Supported the methodology and recommendations.
Widescope	Acknowledged review of documentation and supports the Survey Report and Test Excavation Methodology.

All responses received supported the proposed methodology, therefore, no modifications were made. Additional feedback from RAPs was incorporated into the report.

### 3.3 Stage 4: Review of Draft Cultural Heritage Assessment Report

The Draft ACHA was provided to RAPs on 7 August 2019, via email. Each of the RAP groups was provided with 28 days to provide comments on the report and any recommended management and mitigation measures. Comments received from the RAPs are provided in full in *Appendix N* and summarised in *Table 3.4* below.

**Table 3.4 Comments on Draft ACHA**

Organisation	Comment
Muragadi	Has read the project information and Draft ACHA and agrees with recommendations made by ERM.
Karuah Indigenous Corporation	Has read and understood the report, including the archaeological survey report and has no issues with the contents. Agrees with the recommendations of the report and is happy to be consulted in the future in regards to this project.
Mur-Roo-Ma Incorporated	Have read and understood the ACHAR, and agree with all aspects of the report. Notes that the objects located in the Project Area are tangible cultural connections to ancestors. Mur-Roo-Ma propose the implementation of a Cultural Heritage Management Plan for works to be undertaken within the Project Area, including potential monitoring and salvage works.



## 4. ENVIRONMENTAL CONTEXT

The environmental setting in which people live has direct and indirect influences on human behaviour. This is particularly true for hunter-gatherer societies in which availability and abundance of local resources influence movement within the landscape. Environmental factors may also influence the potential that archaeological sites would be preserved and visible. Because of this, the physical setting of the Project is discussed in terms of geology and landforms, and past land use and disturbance.

A determination of the former environmental context is essential to develop accurate models of cultural activity, site distribution patterns and the archaeological potential of any given area. The environmental setting of the Project is discussed below.

### 4.1 The Sydney Basin Bioregion

Bioregions and sub-bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The Interim Biogeographic Regionalisation for Australia (IBRA) provides a regional and national planning framework for the systematic development of a comprehensive, adequate and representative National Reserve System. Bioregions delineate salient environmental characteristics which can highlight patterns in Aboriginal site patterning.

The Project Area is located in the Sydney Basin Bioregion, which extends north from Batemans Bay to Nelsons Bay and as far west as Mudgee. The bioregion is bordered to the north by the NSW North Coast and Brigalow Belt South bioregions, to the west by the South Eastern Highlands and South Western Slopes bioregions, and to the south by the South East Corner Bioregion. The total area of the bioregion is 2,462,500 hectares (approximately 4.53% of NSW) (NSW NPWS, 2003). The general attributes of the Sydney Basin Bioregion are outlined in *Table 4.1*.

**Table 4.1 Sydney Basin Bioregion Attributes**

Characteristic	Description
Climate	The climate of this bioregion is predominately temperate, with warm summers and no dry season. A sub-humid climate can be found in the north-east, while a montane climate zone is located around the Blue Mountains. Rainfall can occur throughout the year, but varies across the bioregion in relation to altitude and distance from the coast. Temperature also varies with the coast and Hunter Valley seeing higher temperatures, while the higher plateaux and western edge see lower temperatures.
Landforms	Landforms found within the bioregion consist of mountainous regions, gorges with weather sandstone edges, volcanic cents, coastal barriers, deep estuaries, and cliffs that exposed 'layer cake' geology.
Geology	The bioregion overlays part of the New England Fold Belt. Bedrocks are Devonian and Permian, with older rocks faulted across the basin along the north-eastern edge of the bioregion. Coal deposits accumulated and the upper parts of the basin were covered in quartz sandstone by extremely large braided rivers. Shallow marine sediments and later more river sediments continued to accumulate in the basin during the Jurassic, but all of these younger rocks have been eroded, leaving only a thin cap of shale over the resistant sandstones.
Soils	High diversity in rock types, topography, and climate has resulted in a large variety of soils. The coastal area is dominated by frontal dunes, behind which are accumulations of organic matter that develops coloured topsoil. Species composition and structural form are similar on sandy soils of the sandstone plateaus and the sandy soils of the dunes. Better quality shale soils form caps on sandstone and on the coastal ramps.

Characteristic	Description
Vegetation	Vegetation across this bioregion is diverse and generally dictated by the soils. Limited areas of rainforest can be found in the lower Hunter, Illawarra escarpment and on Robertson basalts, as well as in protected gorges and on right soil. Alternating sandstones and shale plateaus lead to contour-patterned vegetation communities, while volcanic vents or diatremes carry locally different vegetation.

## 4.2 Geology, Soils, and Topography

Geologically, the wider Sydney Basin Bioregion overlays part of the New England Fold Belt, with Devonian and Permian bedrock and older rocks faulted across the basin along the north-eastern edge of the bioregion. Coal deposits accumulated and the upper parts of the basin were covered in quartz sandstone by extremely large braided rivers. Shallow marine sediments and later more river sediments continued to accumulate in the basin during the Jurassic, but all of these younger rocks have been eroded, leaving only a thin cap of shale over the resistant sandstones.

The Project Area is situated within the Newcastle Bite dune barrier system. This barrier system is divided into an “inner” Pleistocene series of dune deposits and an “outer” Holocene sequence, which is located immediately adjacent to Stockton Beach. The Holocene dune sequence within Seaside Estate is the result of “accretion” (the increase or addition of land by the deposit of sand washed up naturally by the sea) of a series of beach ridges between 6000 and 4500 years ago (Dean-Jones 1992:4).

There have been three periods of dune transgression (movement) since 4500 BP, each of which has been separated by a period of stabilisation. The first period of transgression occurred approximately between 4500 and 4000 BP, the second between 2300 and 1200 BP and the third, which is still active, began approximately 300 years ago (Dean-Jones 1992:4). This process has resulted in three distinct Holocene dune sequences within the study area and forms three distinct parallel ridges oriented north-east to south-west. The Project Area is located in the Inner Stable dune system.

## 4.3 Hydrology

The Project Area is located to the south and east of the Hunter River. A number of small, unnamed creeks are found within 750 m of the Project Area. Fullerton Cove is found approximately 7 km to the south-east of the Project Area, while the coast is approximately 11 km to the south-east. No reliable water sources, suitable for subsistence, are located within the Project Area.

## 4.4 Flora and Fauna

The Project Area contains a range of flora and fauna, reflecting the past landscape and potential resources available to Aboriginal people in the area. Previous studies have identified a variety of vegetation communities within and surrounding the Project Area, which contributes to this ecological diversity.

The Project Area has been shown to contain ‘Spotted Gum – Ironbark Open Forest’, ‘Melaleuca – Casuarina Forest’ and ‘Closed Grassland’ vegetation communities. In addition, the surrounding area contains ‘Banksia Open Woodland’ and ‘Swamp Forest’. Between these communities, the Project Area has access to a number of resource species, including those that could be utilised for manufacturing tools and weapons, and subsistence species that could be eaten (URS 2002).

Additionally, the vegetation communities provide habitat for mammals and birds that may have been hunted for food and material resources. The faunal species identified within the Project Area during previous studies include possums, koalas, and fruit bats. The Project Area also showed evidence of common bushland birds, small reptiles and several common frog species (URS, 2002).

## 4.5 Land Use and Disturbance

The Project Area is situated within a rural setting, and there is evidence from historical aerial imagery and documentation that the land was previously utilised for crop farming and stock grazing during the mid-late 19<sup>th</sup> Century. Farming is likely to have resulted in some disturbance in the upper levels of any remnant soils; however, it is unlikely that this disturbance has had a significant effect on the archaeological potential of the area.

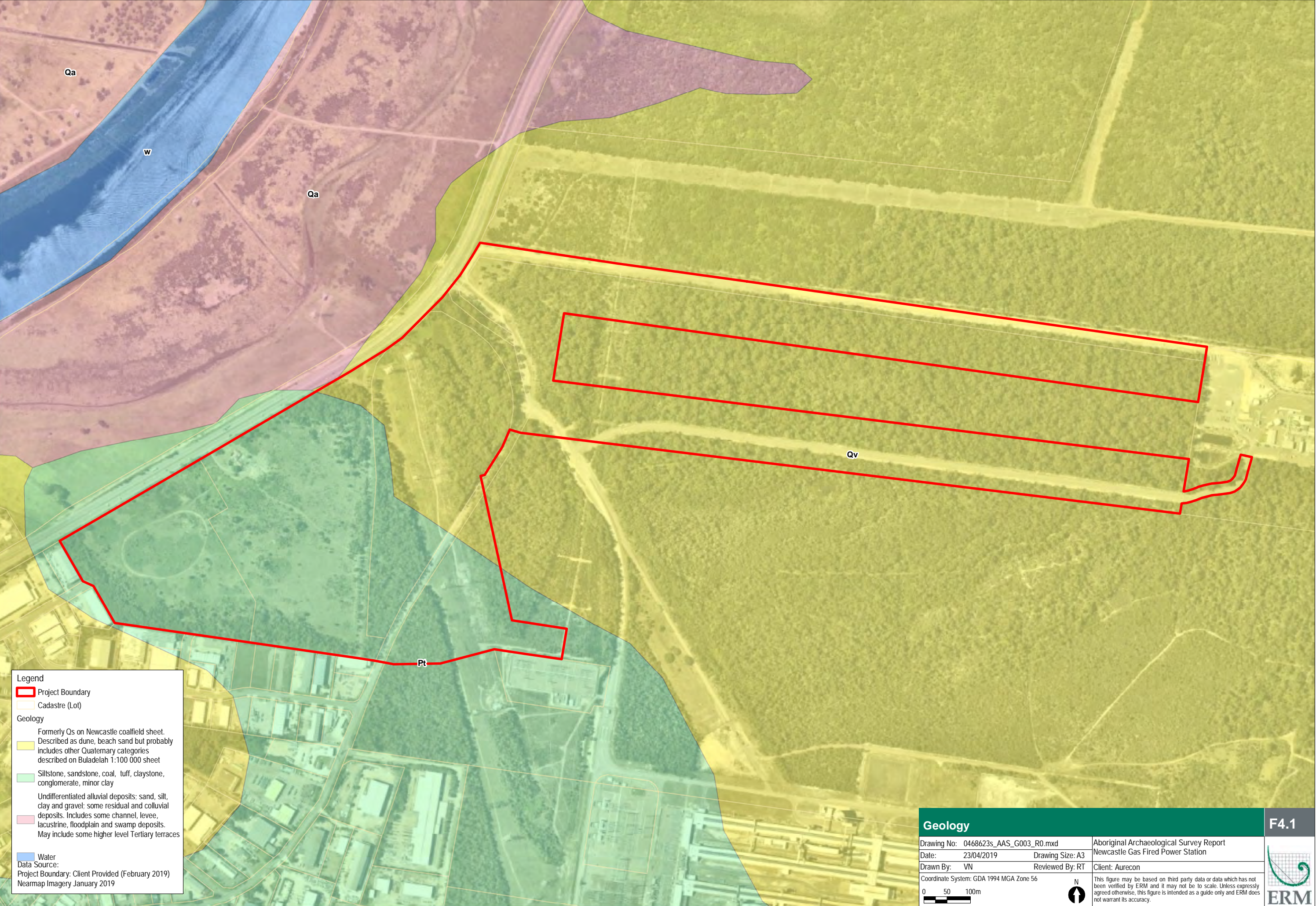
Investigation of parish maps from the first half of the 20<sup>th</sup> century (reported in ERM 2019a), show greater levels of disturbance within the Project Area. The maps show construction of the transmission line and corridor between 1923 and 1933, and the resumption of land to construct the Pacific Motorway (A1) prior to 1961. Aerials for the Project Area show that an early version of the M1 had in fact been constructed prior to 1954. The parish maps also show that the south-western section of the Project Area is part of a flood plain for the Hunter River.

A house is located on the western boundary of the Project Area, from aerial photographs it appears to have been constructed prior to 1954. It faces onto the A1, and is thought to have been constructed sometime in the 1940s or early 1950s around the time the highway was constructed or shortly after. The aerial photographs show development of sheds and other small buildings at the house site throughout the second half of the 20<sup>th</sup> century. The house and its yard are still extant today.

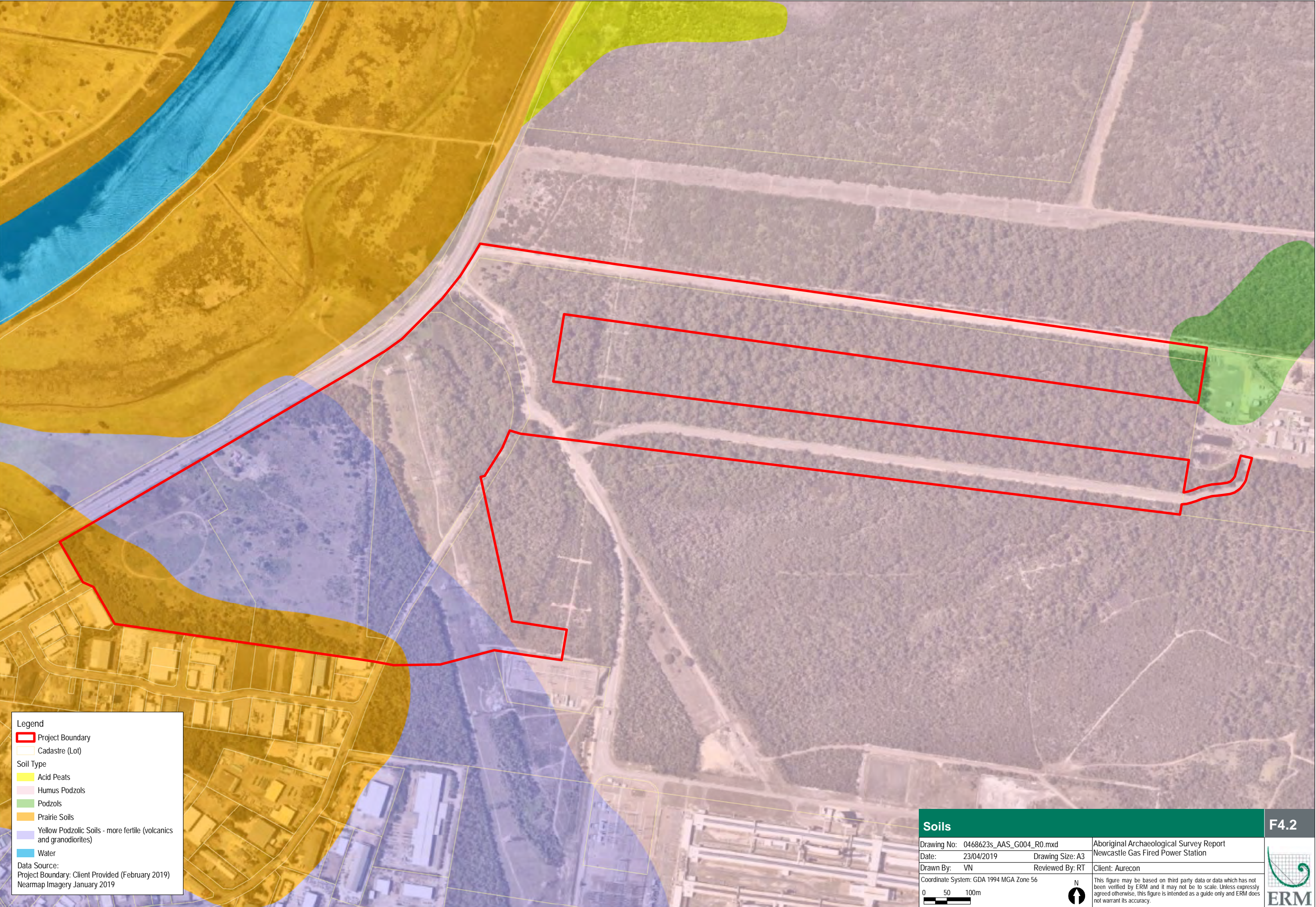
These activities would have resulted in significant ground disturbance, which may have affected archaeological potential in the area.

Regarding land clearance, it is uncertain whether the Project Area was cleared during pastoral and agricultural activities in the mid-19<sup>th</sup> century; however, by at least the 1950s, areas of bushland had been allowed to regrow throughout the Project Area. It is possible that these areas were even left as remnant bush areas from before European settlement.









Legend

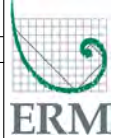
Project Boundary

Cadastral (Lot)

Soil Type

Data Source:  
Project Boundary: Client Provided (February 2019)  
Nearmap Imagery January 2019

Soils		
Drawing No: 0468623s_AAS_G004_R0.mxd		Aboriginal Archaeological Survey Report Newcastle Gas Fired Power Station
Date: 23/04/2019	Drawing Size: A3	
Drawn By: VN	Reviewed By: RT	Client: Aurecon
Coordinate System: GDA 1994 MGA Zone 56		<div>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</div>
<div>050100m</div>		
<div>N</div>		







**Legend**

- Project Boundary
- Cadastre (Lot)
- Contours
- Waterways
- WaterBodies

Data Source:  
Project Boundary: Client Provided  
(February 2019)  
Nearmap Imagery January 2019

**Topography and Hydrology**

Drawing No: 0468623s_AAS_G005_R0.mxd		Aboriginal Archaeological Survey Report Newcastle Gas Fired Power Station
Date: 23/04/2019	Drawing Size: A3	
Drawn By: VN	Reviewed By: RT	Client: Aurecon
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 50 100m		





## 5. ARCHAEOLOGICAL BACKGROUND

The Project Area is situated in a region rich in Aboriginal cultural heritage. Numerous archaeological sites have been recorded within the region. The following information provides the context in which Aboriginal cultural heritage in the Project Area can be understood. It includes a review of early historic records relating to Aboriginal people within the region.

### 5.1 Ethno-history

The Worimi people are the traditional owners of the Tomago area. Early historical records indicate the Worimi people extended south as far as Stockton, north to Cape Hawke and inland to Dungog and Maitland (Tindale 1974). The people who lived south of the Worimi were the Awabakal and to the north were the Birpai.

By studying accounts of early European settlers and drawing on the results of archaeological investigations, we can reconstruct aspects of the Worimi lifestyle. The subsistence and economy of Aboriginal groups depended largely on the environment in which they lived. While coastal groups exploited marine and estuarine resources, hinterland groups relied on freshwater and terrestrial animals and plants. A distinction between the two lifestyles is clearly made in early European accounts. For example, during a trip along the Hawkesbury-Nepean during 1791, Watkin Tench wrote that:

*'[hinterland people] depend but little on fish, as the river yields only mullets, and that their principal support is derived from small animals which they kill, and some roots (a species of wild yam chiefly) which they dig out of the earth'.*

In contrast, Collins wrote that for coastal people:

*'Fish is their chief support...the woods, exclusive of the animals which they occasionally find in their neighbourhood, afford them but little sustenance; a few berries, the yam and fern root, the flowers of the different Banksia, and at times some honey, make up the whole vegetable catalogue'.*

Tench also noted the importance of marine foods in the economy of coastal groups (refer ERM 2005). According to Tench, the task of fishing was divided between husband and wife, the woman using a hook and line and the man using a fiz gig (spear) (Tench 1996:258-260). Bark canoes were often used by both men and women for fishing and fires were commonly placed in the middle of these canoes. When fish were scarce or the weather was foul, coastal groups turned their attention to gathering shellfish, hunting reptiles and small animals, digging fern roots, or gathering berries (Tench 1996:258-260).

The exploitation of swamps and wetlands figured prominently in the lifestyle of the Worimi people. Swamps are rich in diverse plant and animal resources and were important places in the economy of Aboriginal people living in the Hunter Valley (ERM 2005, 12). This is indicated by historic records and by archaeological investigations on the fringes of wetlands. Archaeological excavations at Seaside Estate (ERM 2005), have found dense complex occupation sites that would have supported a rich economic, social and spiritual life. Staple food plants like the Bungwall Fern, were gathered from swamps and may have been processed with specialised stone tools called 'Worimi Cleavers'.

### 5.2 The Aboriginal Cultural Landscape

The Hunter River region is within the traditional lands of the Worimi and Awabakal people, who retain strong connections with their land and cultural traditions. *Muloobinba* (Newcastle) and *Coquon* (Hunter River) are important locations in the rich landscape, providing marine life and bush tucker, as well as locations for meetings and ceremonies (City of Newcastle 2019).



Local Dreaming stories demonstrate the interconnectedness between people, communities and landscapes, and can help us to understand how cultural significance is related to place. The Dreaming stories include those of *Biraban*, the eagle hawk, who is linked to social structure and *Koin*, a messenger who announces the coming of *Kooris* from distant lands for rites or ceremonies. These, and many other tales, speak of connection – both between people and between people and their landscape – and demonstrate a broader understanding of Country.

The cultural landscape is further represented by places of significance, which may consist of ceremonial places or sacred sites. Often places of significance are natural landscape features which play a role in Dreaming stories, or are used as landmarks in the local area. Within the Newcastle region, this includes sites such as *Whibay Gamba* (Nobbys), *Tahlbihn Point* (Fort Scratchley) and a high cliff called *Yi-ran-na-li*.

### 5.3 Regional Archaeological Context

A broad synthesis of archaeological sites in the Hunter region was undertaken in 1984 by Hughes. This found a general consistency in the types and distribution of archaeological sites throughout the Hunter Valley. Key conclusions included:

- Archaeological sites would be found across the entire Hunter Valley;
- Several site types are present, the most common being open artefact scatters;
- Artefact scatters are most likely to occur on creek banks, especially at creek junctions, with low frequencies found over 100 m from creeks and on hillslopes and crests;
- Sites will generally reduce in size as associated water courses decrease in catchment size;
- Most archaeological evidence dates to the mid to late Holocene; and
- Technological analysis of stone artefacts may assist in relatively dating sites that cannot be directly dated.

Archaeological investigations undertaken since Hughes' work (e.g. Hiscock 1986; Koettig 1986a, b; Baker 1994) have tended to confirm these patterns. Particularly that environmental and topographic context is key in determining the size and nature of sites:

- Open artefact scatter sites are found across the landscape where original soils were preserved. Open artefact scatter sites increase in frequency, size, and complexity near creeks, rivers and swamps;
- Isolated finds (stone artefacts) are found anywhere across the landscape and may represent casual discard or the remains of dispersed open scatter sites;
- Midden sites are found near estuaries and coastline;
- Aboriginal burials are generally found in soft substrates such as sand and are often found within occupation contexts such as middens; and
- Scarred and carved trees are found within areas of remnant bushland that contain old growth trees.

Aboriginal rock shelters, rock shelter art, rock engravings and axe grinding stones are found in areas of sandstone outcropping and escarpment.

## 5.4 Local Archaeological Context

### 5.4.1 Gloucester Gas Project Pipeline Modification Environmental Impact Statement (EMM, 2013)

In November 2013, EMM was commissioned by AGL to prepare an Environmental Impact Statement (EIS) for the modification of the high-pressure gas transmission pipeline associated with the Gloucester Gas Project (GGP). The GGP, as approved, included a gas transmission pipeline from the central processing facility at Stratford to the gas delivery station at Hexham. The proposed modification sought to realign four sections of the approved pipeline to connect the GGP to the Newcastle Gas Storage Facility (NGSF) at Tomago.

EMM undertook an environmental assessment, including preparation of an Aboriginal Cultural Heritage Assessment (ACHAR) for the proposed modification areas. One of the proposed modification areas (Tomago Section) is located immediately north-west of the Project Area. No field survey was undertaken of the portion between the Hunter River and the Project Area, as this section was to be underbored and would not be subject to surface disturbance.

EMM determined that none of the surveyed areas were archaeologically sensitive, and no Aboriginal archaeological sites would be impacted by the proposed modification. The RAPs involved in the survey identified the area as having cultural significance through intangible links to the Awabakal ancestors.

## 5.5 Previous Assessments within the Project Area

### 5.5.1 Tomago Gas Fired Power Station Environmental Impact Statement (URS, 2002)

URS were engaged by Macquarie Generation in 2002 to prepare an EIS for the proposed Tomago Gas Fired Power Station, an early phase of preparation for this current Project. As part of this assessment, URS commissioned HLA Envirosciences (2000) to prepare a Cultural Heritage Assessment, considering Aboriginal and non-Aboriginal heritage values in the Project Area. The survey was part of a larger assessment for the Development Application relating to industrial subdivision in Tomago, of which the proposed power station site (the Project Area) was included. HLA Envirosciences engaged with the Worimi Local Aboriginal Land Council to undertake the survey.

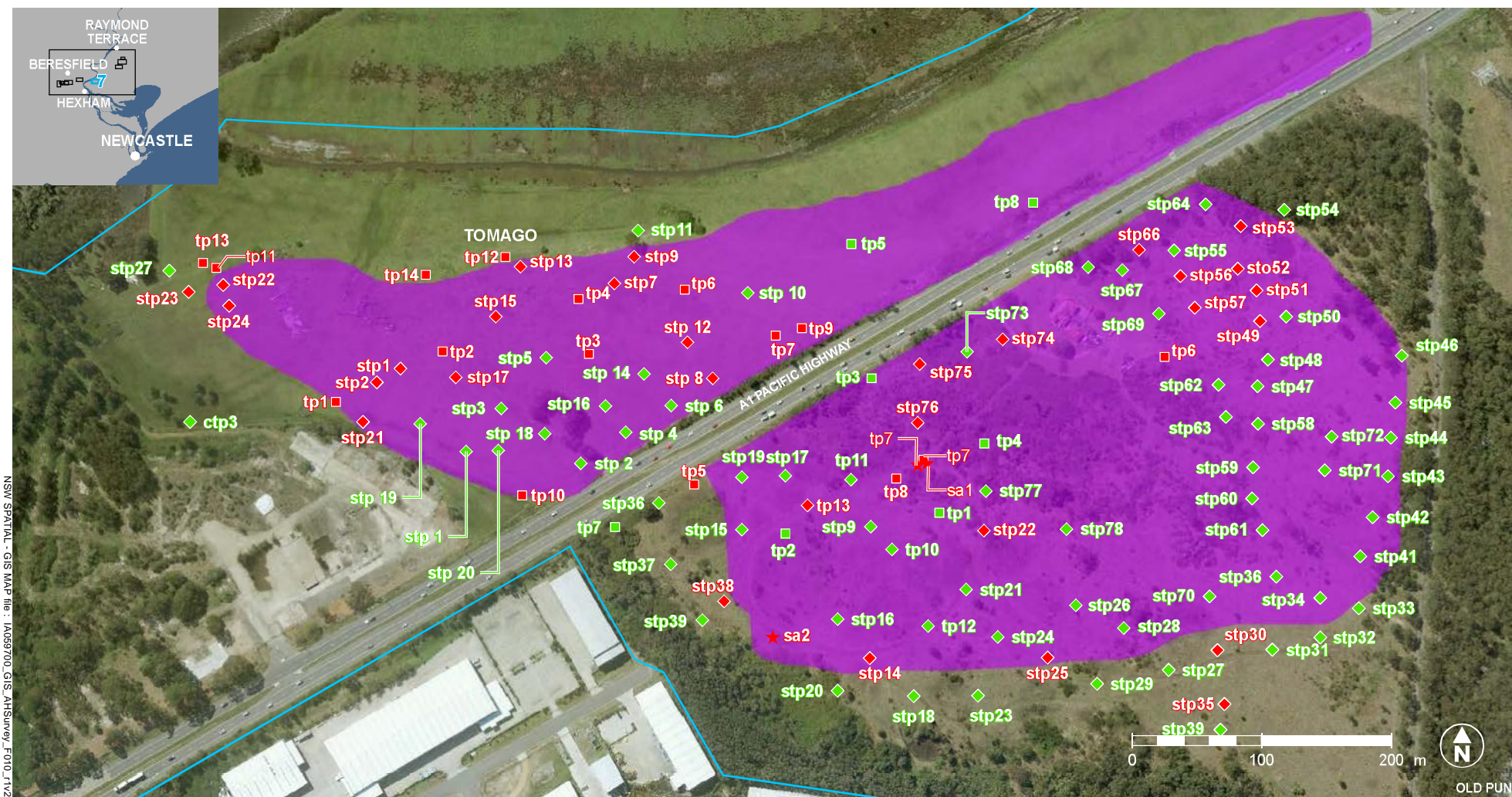
The field survey identified no Aboriginal objects within or immediately surrounding the proposed power plant site; however, it was noted that visibility was generally low throughout the survey area. HLA Envirosciences noted mitigation measures which included monitoring of initial Phase 1 construction activities to minimise potential for impact to unknown Aboriginal sites or objects.

### 5.5.2 M12RT Biodiversity and Aboriginal Heritage Investigations (Jacobs, 2015)

Jacobs Pty Ltd was commissioned by Roads and Maritime Services (RMS) to undertake biodiversity and Aboriginal heritage investigations within land owned by AGL (the Project Area). The land is associated with the proposed M1 Pacific Motorway extension to Raymond Terrace.

During this investigation, Jacobs undertook archaeological survey and test excavations within the Project Area (in the north-eastern portion), and identified one large site complex extending from the northern side of the M1 to the Project Area. This site was registered on the AHIMS Database as Hexham M12RT (AHIMS ID #38-4-1751).

The AHIMS Site Impact Recording (ASIR) form for Hexham M12RT shows that the site extends into the current Project Area, although it is noted that the registered AHIMS location is north of the M1.



### Legend

<span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Study area	<span style="color: green;">◆</span> Shovel Probe	<span style="color: red;">■</span> Test Pit (1x1m) with artefact	<span style="background-color: purple; display: inline-block; width: 20px; height: 10px;"></span> Identified PADs
	<span style="color: red;">◆</span> Shovel Probe with artefact	<span style="color: red;">★</span> Surface Artefact	
	<span style="color: green;">■</span> Test Pit (1x1m)		

**Figure H-7** Test pit location mapping

### Data sources

Roads and Maritime Services 2015  
 Land and Property Information 2014  
 Office of Environment and Heritage 2015  
 Jacobs 2015 and 2016  
 AUSIMAGE October 2015



## 5.6 AHIMS Database Search Results

The AHIMS database provides information concerning previously recorded Aboriginal sites in NSW. AHIMS stores data regarding a site's location, site type, site features and a unique site identification number for all registered Aboriginal heritage sites in NSW. Mapping of an AHIMS database search result will identify any known sites that could be impacted by the proposed works as well as help to determine the overall pattern of Aboriginal sites in an area. A summary of the various site types likely to be located in the Project Area can be found in *Table 5.1*. This will aid in the development of a site prediction model for the Project Area.

**Table 5.1 Parks and Wildlife Group Site Type Definitions**

Site types	Definition
Stone artefact scatters (or open camp sites)	Stone artefact scatter 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.
Isolated finds	Sites consisting of only one identified stone artefact, isolated from any other artefacts or archaeological evidence. They are generally indicative of sporadic past Aboriginal use of an area.
Shell middens	Middens consist of accumulations of shell that represent the exploitation and consumption of shellfish by Aboriginal people. Shell species may be marine, estuarine or freshwater depending on the environmental context and middens may also include other faunal remains, stone artefacts, hearths and charcoal.
Shelter sites	Sandstone shelters and overhangs were used by Aboriginal people to provide camp sites sheltered from the rain and sun. The deposits in such sites are commonly very important because they often contain clearly stratified material in a good state of preservation.
Grinding grooves	Grooves resulting from the grinding of stone axes or other implements are found on flat areas of suitable sandstone. They are often located near waterholes or creek beds as water is necessary in 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 artefacts or ground-edge artefacts, or where ochre was obtained for rock paintings, body decoration or decorating wooden artefacts.
Art sites	Aboriginal paintings, drawings and stencils are commonly to be found where suitable surfaces occur in sandstone shelters and overhangs. These sites are often referred to as rock shelters with painted art.
	Rock engravings, carvings or peckings are also to be found on sandstone surfaces both in the open and in shelters. These are referred to as rock engraving sites.
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.
Burial sites	Burials may be of isolated individuals, or they may form complex burial grounds.
Stone arrangements, carved trees and ceremonial grounds	These site types are often interrelated. Stone arrangements range from simple cairns or piles of rocks to more elaborate arrangements; patterns of stone laid out to form circles and other designs or standing slabs of rock held upright by stones around the base.

Site types	Definition
	Carved trees are trees with intricate geometric or linear patterns or representations of animals carved into their trunks. Ceremonial grounds and graves were often marked by such trees. Bora grounds are a common type of ceremonial site and they are generally associated with initiation ceremonies. They comprise two circles, generally edged with low banks of earth but sometimes of stone, a short distance apart and connected by a path.

An extensive search of the OEH AHIMS database was conducted on 13 March 2019, using the following details:

**Client Service ID:** 406479  
**Lat, Long From:** -32.8211, 151.7015  
**Lat, Long to:** -32.8086, 151.7363  
**Buffer:** 200 m

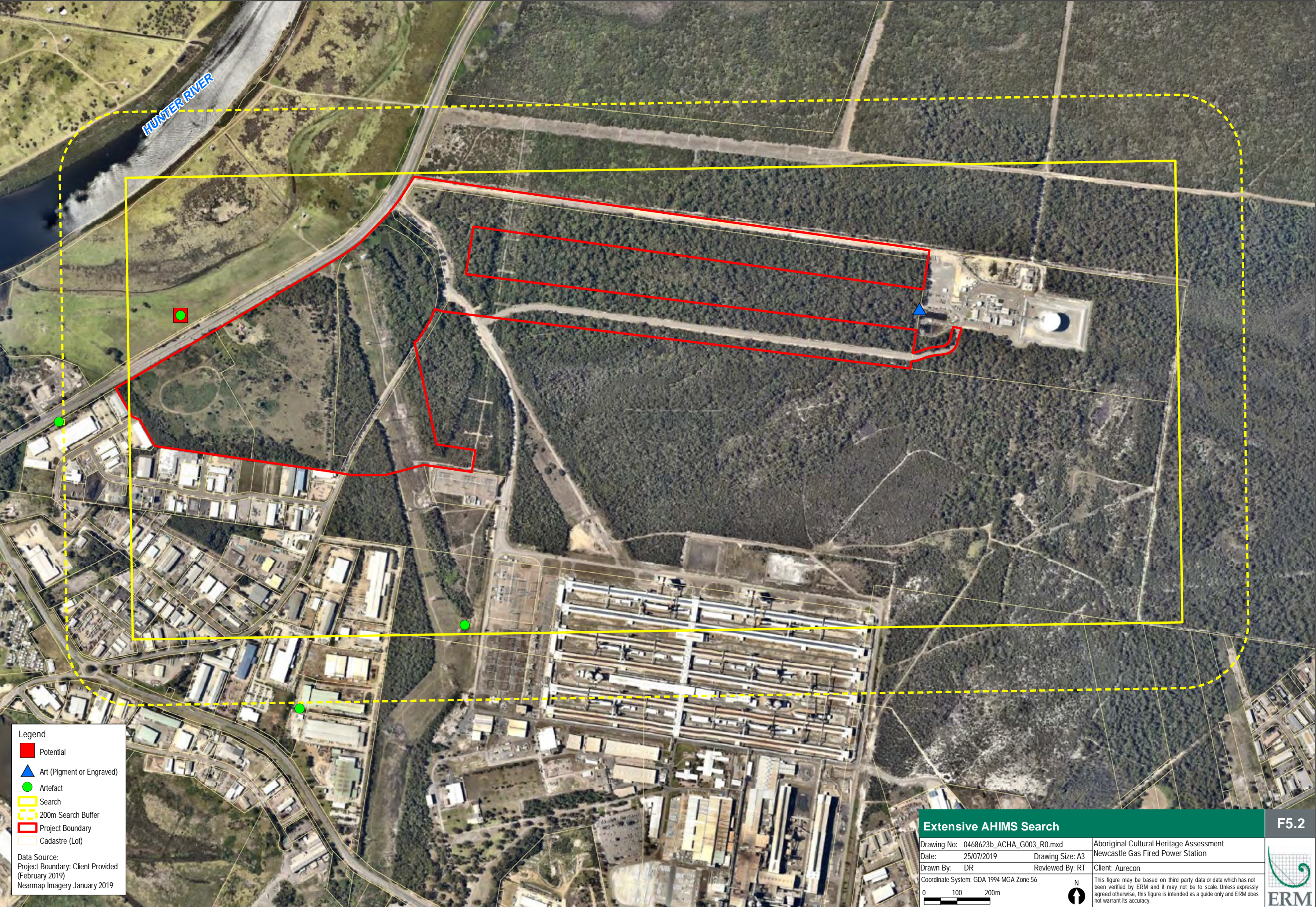
A total of five (5) sites were identified within the search area, although no registered site locations occur within the Project Area. Of these, the majority of these are recorded as Artefact, with Art and Potential Archaeological Deposit (PAD) also contributing to the types of recorded sites.

## 5.7 Predictive Model

The knowledge gained from examining landforms, geology, archaeological patterning, and prior archaeological reports have enabled a set of parameters to be established to predict the potential location of Aboriginal sites within the Project Area. The background results suggest that:

- The most likely site type is artefacts;
- Stone artefacts are likely to be present across the area irrespective of landscape;
- Sites are more likely to be present in areas in close proximity to water sources such as river and creek systems; and
- PADs, art sites, middens, and scarred trees may also be present.





Legend

Potential

Art (Pigment or Engraved)

Artefact

Search

200m Search Buffer

Project Boundary

Cadastral (Lot)

Data Source:

Project Boundary: Client Provided  
(February 2019)  
Nearmap Imagery January 2019

Extensive AHIMS Search

F5.2

Drawing No: 0468623b_ACHA_G003_R0.mxd		Aboriginal Cultural Heritage Assessment
Date: 25/07/2019	Drawing Size: A3	Newcastle Gas Fired Power Station
Drawn By: DR	Reviewed By: RT	Client: Aurecon
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 100 200m		

N

ERM



## 6. ARCHAEOLOGICAL SURVEY

### 6.1 Archaeological Survey Methodology

An archaeological survey was undertaken over three (3) days between 6 – 8 May 2019 by Katherine Deverson (Heritage Consultant, ERM) and Phoebe Worth (Environmental Consultant, ERM) in conjunction with RAPs. The survey methodology was provided to the RAPs for comment prior to fieldwork commencing. The survey aimed to identify all Aboriginal sites present within the proposed impact area, including the identification of any PADs. The methodology for the survey included:

- The survey was to be undertaken on foot where possible with up to four RAPs in attendance;
- The survey consisted of all participants traversing the Project Area using walking transects approximately 5 m apart to ensure the entire Project Area was covered (subject to visibility and accessibility);
- The survey targeted each landform in the study area;
- Areas of potential such as raised landforms in close proximity to semi-permanent water sources were also be targeted;
- Areas of exposure and ground visibility were targeted;
- Any areas of interest to the RAPs were targeted; and
- Any cultural heritage information for the study area held by Aboriginal parties was recorded during the field survey. Any cultural knowledge provided by Aboriginal Stakeholders would be treated in confidence, and the information would be distributed according to their wishes.

This methodology was adopted to pursue the discovery of new archaeological sites, ensure the accurate recording of such sites and provide sufficient information to provide an assessment of the Project Area's cultural significance. Discussion also included Aboriginal intangible values and the importance of Aboriginal sites to the community.

### 6.2 Field Survey Results

Results of the field survey are summarised below (refer to *Appendix J* for further details).

The Project Area generally consisted of grazing paddocks with dense grass and weeds extending across lower and mid slope as well as flat landforms. There was generally a very poor level of ground surface visibility (GSV 0 – 9%) with some ground exposures along tracks. Disturbances include the development of fencing, tracks and roads, transmission infrastructure, and vegetation clearance. Several bush areas were also located. Exposures associated with tracks and other disturbances were examined for artefacts and features.

Soils across the Project Area range from alluvial soils adjacent to watercourses with thin sandy-silty Aeolian soil grey/brown in colour, to a white sand, particularly in the north. It is evident that disturbance to the soil profile has occurred during past episodes of vegetation clearance.

Three (3) previously unidentified Aboriginal heritage sites were recorded (refer *Figure 6.1*). The sites were located within 1.5 km of the Hunter River to the north-west. Two (2) of these sites were isolated finds (single stone artefacts) and the other site was a large artefact scatter that is likely associated with or part of a previously identified site located to the north-west on the opposite side of the A1 (M12RT as described in Jacobs 2015). Additionally, a PAD encompassing finds at NPS01 and NPS02 was identified (see *Figure 6.1*). The artefact scatter's proximity to a water source (Hunter River) is in line with the predictive model developed as part of this ACHAR (refer *Section 5.7*) and is representative of previously recorded sites in the area. The site's location mid slope possibly indicates that it was washed down from a higher slope or crest. The newly recorded sites are described below (refer *Table 6.1*). Sites were recorded and artefacts were left *in situ*.






Legend


- Artefact
- Isolated Find
- PAD
- Project Boundary
- Cadastre (Lot)



Data Source:  
Project Boundary: Client Provided  
(February 2019)  
Nearmap Imagery January 2019


Survey Results		
Drawing No: 0468623b_ACHA_G004_R0.mxd		Aboriginal Cultural Heritage Assessment Newcastle Gas Fired Power Station  Client: Aurecon
Date: 25/07/2019	Drawing Size: A3	
Drawn By: DR	Reviewed By: RT	
Coordinate System: GDA 1994 MGA Zone 56		
<div><div><div>0</div><div>50</div><div>100m</div></div><div><div>N</div><div></div></div></div>		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



**Table 6.1 Aboriginal Cultural Heritage Field Survey Results**

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
NPS01	1	Mid slope	<p><b>Artefact Scatter</b></p> <p>This site comprises 23 stone artefacts located along a circular track in area covering approximately 175 m by 200 m. One piece of bone was also identified, although it is noted that this is animal bone and may not be associated with the site. It is very unlikely that all artefacts located on the surface were identified within this area, as other than the track the ground visibility was 0%, and was mostly poor to very poor along the track itself.</p> <p>Cores and flakes were identified consisting of a variety of stone material, including silcrete, chert, and mudstone.</p> <p>It is considered likely that the site is associated with the previously identified AHIMS Site 38-4-1751, and is likely a part of the same occupation site related to activities along the Hunter River.</p> <p>A PAD was identified in association with the site and is thought to extend across the entire site and, a large section of the mid slope landform and into SU2.</p>		Yes

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
					
NPS02	2	Mid slope	<p><b>Isolated Find</b></p> <p>Silcrete core. Located on track in small area of 100% ground visibility. No further artefacts were located after search of area, however the area is surrounded by areas of 0% ground visibility. A PAD was identified in association with this site and NPS01; it is thought to extend across a large section of the survey unit, the mid slope landform, and into SU2.</p>		Yes

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
NPS03	3	Lower slope	<p><b>Isolated Find</b></p> <p>Fine grained stone material. Possible core with negative flakes scars evident. Found at the base of a transmission tower, and likely deposited with fill material.</p>		No

## 7. ARCHAEOLOGICAL TEST EXCAVATIONS

### 7.1 Methodology

This methodology was prepared in accordance with the guiding principles of the Code of Practice and identifies 31 areas to be initially investigated through subsurface testing. Testing was limited to areas subject to impact by the proposed development, thus test excavations were concentrated at NPS02 and its associated PAD. Excavation was not recommended for NPS01 as it lies within the RMS proposal area and is therefore outside the scope test excavations.

#### 7.1.1 Sampling Strategy

- Test excavations were conducted in two stages using a systematic grid. Stage 1 entailed 0.5 m by 0.5 m test pits located on a 50 m offset grid, excavated by hand using trowels, mattocks and shovels. The proposed methodology indicated that at least 60% of the 31 locations shown in *Figure 7.1* were to be excavated, with areas of raised terrain given preference. Final locations of test pits were to be decided on site with input from the RAPs;
- In the instance that dense concentrations of artefacts (in excess of 60 artefacts per square metre) and/or archaeological features such as heaths were identified, the methodology allowed for an additional eight (8) second stage 0.5 m x 0.5 m pits to be placed on a grid at 20 m intervals encircling the Stage 1 pit containing the artefacts/feature to allow a full examination; and
- All excavations were carried out in accordance with standard sampling strategy and Requirements 16 and 17 of the Code of Practice as follows:
  - The first excavation unit was excavated in the centre of the PAD and documented in 5 cm 'spits'. Subsequent test pits were excavated in 10 cm spits;
  - All test pits were excavated to a sterile layer below the base of identified Aboriginal object bearing units and/or would cease at clay or bedrock;
  - All deposits were sieved on-site using 5 mm and 8 mm nested sieves. Deposits were sieved using dry sieving methods as appropriate to the soil type, access to Project Area and environmental context;
  - The sub-surface soils and sediments were examined to identify whether the deposits are intact or disturbed or a combination of both;
  - The context of artefacts, if present, was examined i.e. disturbed or intact deposit;
  - Photographic and scale drawn records were made. If no archaeological stratigraphy is recorded, digital photographs would still be taken showing soil profile, depth of pit and base of the pit; and
  - Test excavations units would be backfilled as soon as practicable.

Field records were taken for all excavation units, including descriptions of soils and inclusions, and photographic records. Artefacts recovered during the test excavation were initially analysed on site, and then further investigated post-fieldwork to record attributes.

Final test pit locations are shown in *Figure 7.2*.

At the completion of test excavations, new sites were recorded on the AHIMS register, or Aboriginal Site Impact Recording Forms (ASIRs) were prepared, as required.

## 7.2 Test Excavation Results

Test excavations of the Project Area were undertaken between Monday 15 July 2019 and Thursday 18 July 2019. Test excavations were attended by representatives of a number of RAPs on the project, as detailed in *Table 7.1* below. The field program involved manual excavation of twenty-eight (28) of the thirty-one (31) proposed 50 x 50 cm excavation units across the Project Area. Seven (7) additional pits placed on a 20 m grid were excavated surrounding TP1 as it was the only test pit on the 50 m grid to produce artefacts. No further 20 m grid test excavations were undertaken. A total of ten (10) proposed test pits were not completed owing to dense vegetation restricting access (five test pits), close proximity to tenanted property (one test pit), and location in areas assessed in the field as being of low potential/sensitivity (four test pits).

Results of the test excavation program are presented initially by test pit, to provide a detailed overview of landforms tested and the conditions experienced. The overall results are then summarised in *Section 7.3* and combined with the results of the survey program in the assessment of significance and impact assessment. The location of the excavated test pits, with a summary of the results, is shown in *Figure 7.2*.





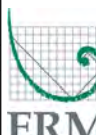





**Legend**

- Project Boundary
- Test Excavation
- Test Pits with Finds

Data Source:  
Project Boundary: Client Provided (February 2019)  
Proposed Layout: Aurecon drawing 503269-0000-DRG-MM-0001-1  
Nearmap Imagery January 2019

Completed Test Excavations			F7.2
Drawing No: 0468623b_ACHA_G006_R0.mxd		Aboriginal Cultural Heritage Assessment	
Date: 25/07/2019	Drawing Size: A3	Newcastle Gas Fired Power Station	
Drawn By: DR	Reviewed By: RT	Client: Aurecon	
Coordinate System: GDA 1994 MGA Zone 56			
0 50 100m			
			
		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	



### 7.2.1 Test Pit 1





Test Pit 1 (TP1) is located in the north-west corner of the Excavation area. TP1 was positioned in one of the more elevated areas within the Excavation area, within the PAD identified during the survey. As such, excavation was undertaken in 500 mm spits. Four (4) spits were excavated with four artefacts, including two (2) silcrete flakes, one (1) silcrete core, and one (1) chert core as well as one (1) charcoal sample identified (refer *Table 7.1*). Soils consisted of a homogenous layer of dark brown clayey soil with little to no inclusions until 170 mm where a dense layer of grey clay was identified (*Photograph 7.1*). TP1 was terminated at 200 mm.



**Photograph 7.1 TP1 basal layer (ERM 2019)**



**Table 7.1 Finds from TP1**

Spit	Artefact Number	Description	Photograph
1	1	Brown/tan chert core with multiple flake scars	
2	2	Brown silcrete flake with feather termination	
2	3	Charcoal sample	NA
2	4	Brown silcrete core with multiple flake scars	
3	5	Grey silcrete flake with feather termination	

### 7.2.2 Test Pit 2

Test Pit 2 (TP2) is located 50 m east of TP1 in the centre of the Excavation areas northern boundary. TP2 was excavated in two (2) 100 mm spits to a depth of 200 mm. Soils were a single homogenous dark brown and clayey layer with little to no inclusions until 180 mm where dense grey clay was identified across the pit (*Photograph 7.2*). No artefacts or charcoal were identified.



**Photograph 7.2 TP2 basal layer (ERM 2019)**

### 7.2.3 Test Pit 3

Test Pit 3 (TP3) is located 50 m south of TP2 in the northern section of the Excavation area. TP3 was excavated in three (3) 100 mm spits to a depth of 260 mm. Stratigraphy consisted of a single layer of dark brown clayey soil with small gravel inclusions (*Photograph 7.3*). Dense grey clay began in the southern half of the pit from 220 mm, extending across the entire pit by 260 mm. No artefacts or charcoal were identified.



**Photograph 7.3 TP3 Basal layer (ERM 2019)**

#### 7.2.4 Test Pit 4

Test Pit 4 (TP4) is located 30 m east of TP3 in the north-east section of the Excavation area. TP4 was excavated in two (2) 100 mm spits to a depth of 200 mm with a single stratigraphic layer of dark brown clayey soil before a dense grey clay layer from 200 mm (*Photograph 7.4*). Charcoal was identified in both spits with a sample taken from each. No artefacts were identified.



Photograph 7.4 TP4 basal layer (ERM 2019)

#### 7.2.5 Test Pit 5

Test Pit 5 (TP5) is located 50 m east of TP4 along the eastern boundary of the Excavation area. TP5 was excavated in two 100 mm spits to a depth of 200 mm. Soils were dark brown, clayey, and moist with little to no inclusions. Grey clay was identified in the north-west corner of TP5 at 100 mm. This clay spread across the pit gradually, turning mottled yellow/grey, until 200 mm where clay was found across the entire pit (*Photograph 7.5*). No artefacts or charcoal were identified.



Photograph 7.5 TP5 basal layer (ERM 2019)



### 7.2.6 Test Pit 6

Test Pit 6 (TP6) is located 50 m south of TP5 in the eastern section of the Excavation area. TP6 was excavated to a depth of 180 mm in two spits. A single stratigraphic layer was identified consisting of dark brown clayey soil that was moist with isolated red/yellow sandstone chunks, particularly in the first 100 mm. A shelf of red/yellow sandstone was identified at 150 mm in the north-east corner and extended into the south-west. In sections not occupied by sandstone, dense grey clay was found from 150 cm. TP6 was terminated at 180 mm owing to the density of the clay and presence of the sandstone shelf (*Photograph 7.6*). No artefacts or charcoal were identified.



**Photograph 7.6 TP6 basal layer (ERM 2019)**

### 7.2.7 Test Pit 7

Test Pit 7 (TP7) is located 50 m west of TP6. TP7 was excavated to a depth of 240 mm in two (2) spits. Soils were dark brown, clayey, and moist with small gravelly inclusions (*Photograph 7.7*). A charcoal sample was collected from both spits (A#6 and A#7). Dense grey clay begins at 180 mm in the south-eastern corner and extends across the entire pit by 220 mm. No artefacts were identified.



**Photograph 7.7 TP7 basal layer (ERM 2019)**

### 7.2.8 Test Pit 8

Test Pit 8 (TP8) is located 50 m west of TP7 in proximity of the western boundary of the Excavation area. TP8 was excavated to a depth of 200 mm in two (2) spits of 100 mm. A single layer of dark brown clayey soil with small gravel inclusions was identified to a depth of 180 mm. This soil was dryer than that found in previous test pits. A charcoal sample was taken from both spits (A#8 and A#9). From 180 mm a layer of dense grey clay was identified. No artefacts were identified. Note that no end photographs were taken for TP8, *Photograph 7.8* shows the end level of spit 1.



**Photograph 7.8 End level of TP8, Spit 1 (ERM 2019)**

### 7.2.9 Test Pit 9

Test Pit 9 (TP9) is located 50 m south of TP6 along the eastern boundary of the Excavation area. An offset of 6 m to the north was applied to TP9's original position to avoid a possible service line identified by a service locator. TP9 was excavated to a depth of 200 mm in two (2) spits of 100 mm. Stratigraphy consisted of a single layer of light brown sandy soil with small gravelly inclusions (*Photograph 7.9*). At 150 mm a layer of yellow brown clay was identified in the north-west corner. Dense grey clay was found from 170 mm across the pit. No charcoal or artefacts were identified.



**Photograph 7.9 TP9 basal layer (ERM 2019)**



### 7.2.10 Test Pit 10

Test Pit 10 (TP10) is located 50 m south of TP9 in proximity of the eastern boundary of the Excavation area. TP10 was excavated to a depth of 240 mm in two (2) spits. Soils in the first 100 mm were light brown/grey and clayey with little to no inclusions and grass roots throughout. Red/yellow sandstone inclusions were identified across the pit from 120 mm with soils becoming increasingly clayey from 150 mm. Dense grey clay was identified across the pit from 180 mm (*Photograph 7.10*). No charcoal or artefacts were identified.



**Photograph 7.10 TP10 basal layer (ERM 2019)**

### 7.2.11 Test Pit 11

Test Pit 11 is located 50 m west of TP10 towards the centre of the Excavation area. TP11 was excavated to a depth of 200 mm in two (2) 100 mm spits. Soils were brown and clayey with roots throughout the first 100 mm. At 170 mm dense light grey clay began to appear across the pit, covering the entire base by 190 mm (*Photograph 7.11*). No charcoal or artefacts were identified.



**Photograph 7.11 TP11 basal layer (ERM 2019)**

### 7.2.12 Test Pit 12

Test Pit 12 (TP12) is located 20 m west of TP11 in proximity of the Excavation areas western boundary. TP12 was excavated to a depth of 290 mm in three (3) 100 mm spits. Soils remained dark brown and clayey with little to no inclusions to 150 mm in the north section and 230 mm in the south section. In the north red/brown clay began at 150 mm, extending across the entire base of the pit by 230 mm (*Photograph 7.12*). No charcoal or artefacts were identified.



**Photograph 7.12 TP12 basal layer (ERM 2019)**

### 7.2.13 Test Pit 13

Test Pit 13 (TP13) is located 50 m south of TP12 in the south-western section of the Excavation area. TP13 was excavated to a depth of 200 mm in two (2) spits of 100 mm. Soils are brown and clayey with little to no inclusions. At 200 mm a layer of dense grey/brown clay was identified covering the entire pit (*Photograph 7.13*). A charcoal sample (A#11) was located in spit 2. No artefacts were identified.



**Photograph 7.13 TP13 basal layer (ERM 2019)**



### 7.2.14 Test Pit 14

Test Pit 14 (TP14) is located 50 m south of TP6 along the Excavation areas western boundary. TP14 was excavated to a depth of 180 mm in two (2) spits. A dark brown moist clayey soil layer was identified to a depth of 100 mm with yellow/grey clay beginning to appear across the pit at 100 mm. A charcoal sample was taken from the first spit. Below 100 mm very dense yellow/grey clay continued until the pit was terminated at 180 mm (*Photograph 7.14*). No artefacts were located.



**Photograph 7.14 TP14 basal layer (ERM 2019)**

### 7.2.15 Test Pit 15

Test Pit 15 (TP15) was located 50 m east of TP14 towards the centre of the Excavation area. An offset of approximately 6 m north was applied to TP15s original location owing to the presence of a subsurface service. TP15 was excavated to a depth of 350 mm in four (4) spits. Soils in the first 200 mm was dark brown and clayey with occasional chunks of red sandstone found throughout. A shelf of red/yellow sandstone was identified at 200 mm in the north of the pit, extending gradually across the pit until it covered the entire base by 350 mm (*Photograph 7.15*). The final 50 mm of soil were increasingly moist, with water settling on the sandstone. One (1) charcoal sample was taken from Spit 1 and two (2) charcoal samples were taken from Spit 2. No artefacts were identified.



**Photograph 7.15 TP15 basal layer (ERM 2019)**

### 7.2.16 Test Pit 16

Test Pit 16 (TP16) is located 100 m east of TP13 towards the eastern boundary of the Excavation area. TP16 was excavated to a depth of 200 mm in two (2) 100 mm spits. Soils were dark brown and clayey with little to no inclusions. Dense grey clay began appearing in the E of the pit from 150 mm. By 200 mm the clay had extended across the entire base (*Photograph 7.16*). No charcoal or artefacts were identified.



**Photograph 7.16 TP16 basal layer (ERM 2019)**

### 7.2.17 Test Pit 17

Test Pit 17 (TP17) is located 50 m south of TP16 in close proximity to the Excavation areas southern boundary. TP17 was excavated to a depth of 200 mm in two (2) 100 mm spits. Soils were light brown and clayey with little to no inclusions. Dense yellow clay was identified across the pit from 160 mm (*Photograph 7.17*). No charcoal or artefacts were identified.



**Photograph 7.17 TP17 basal layer (ERM 2019)**



### 7.2.18 Test Pit 18

Test Pit 18 (TP18) is located 50 m west of TP17 in the south-west corner of the Excavation area. TP18 was excavated to a depth of 200 mm in two (2) 100 mm spits. Dark brown clayey soil with small gravel inclusions is found in the first spit. At 100 mm dense grey clay begins to be evident in the centre of the pit. Between 100 mm and 200 mm red sandstone chunks are present in the dark brown clayey soil with the grey clay spreading across the pit by 160 mm and becoming very dense and sticky (*Photograph 7.18*). No charcoal and artefacts were identified.



**Photograph 7.18 TP18 basal layer (ERM 2019)**

### 7.2.19 Test Pit 19

Test Pit 19 (TP19) is located 55 m west of TP13, outside of the initial Excavation area. This is one of three additional test pits undertaken at the request of the client. TP19 is offset 5 m west from its initial proposed position owing to dense vegetation restricting access. The TP was excavated to a depth of 260 mm in three (3) spits. Soils were brown, clayey, dry, and crumbly. Red sandstone inclusions were found from 200 mm. Dark brown very dense clay was found at 230 mm in the north-east corner and spread across the pit by 260 mm (*Photograph 7.19*). No charcoal or artefacts were identified.



**Photograph 7.19 TP19 basal layer (ERM 2019)**

### 7.2.20 Test Pit 20

Test Pit 20 (TP20) is located 50 m north of TP 19 and is one of the additional TPs to the west of the main Excavation area. TP20 was excavated to a depth of 300 mm in three (3) 100 mm spits. Soils were brown and clayey with little to no inclusions to a depth of 260 mm. Below 260 mm was dense red/yellow clay (*Photograph 7.20*). No charcoal or artefacts were identified.



**Photograph 7.20 TP20 basal layer (ERM 2019)**

### 7.2.21 Test Pit 21

Test Pit 21 (TP21) is located 50 m west of TP20 and is the final additional test pit outside of the initial Excavation area. TP21 was excavated to a depth of 300 mm in three (3) 100 mm spits. Dark brown clayey soil with little to no inclusions extended from the surface to 260 mm. Below 260 mm a layer of dense grey clay extending across the entire pit was identified (*Photograph 7.21*). No charcoal or artefacts were identified.



**Photograph 7.21 TP21 basal layer (ERM 2019)**



### 7.2.22 Test Pit 22

Test Pit 22 (TP22) is located 20 m east of TP1. This TP is the first of the 20 m grid placed around TP1 to determine the extent of the subsurface deposit. TP22 was excavated to a depth of 250 mm in three (3) spits. Dark brown moist clayey soil with little to no inclusions extends to 210 mm where dense grey clay is evident across the pit (*Photograph 7.22*). No charcoal or artefacts were identified.



**Photograph 7.22 TP22 basal layer (ERM 2019)**

### 7.2.23 Test Pit 23

Test Pit 23 (TP23) is located 20 m north of TP22 along the northern boundary of the Excavation area. TP23 was excavated to a depth of 290 mm in two (2) spits. Dark brown clayey soils with little to no inclusions extend to a depth of 250 mm. Below 250 mm is a layer of dense grey/brown clay (*Photograph 7.23*). No charcoal or artefacts were identified.



**Photograph 7.23 TP23 basal layer (ERM 2019)**

### 7.2.24 Test Pit 24

Test Pit 24 (TP24) is located 20 m west of TP23 along Excavation areas northern boundary. TP24 was excavated to a depth of 200 mm in two (2) 100 mm spits. Soils are dark brown and clayey with grass roots throughout the first 100 mm. Few gravel inclusions were found throughout the pit. Soils remain homogenous until 200 mm where dense grey clay is found across the pit (*Photograph 7.24*). No charcoal or artefacts were identified.



**Photograph 7.24 TP24 basal layer (ERM 2019)**

### 7.2.25 Test Pit 25

Test Pit 25 (TP25) is located 20 m west of TP24 in the north-east corner of the Excavation area. TP25 was excavated to 370 mm in four (4) spits. Dark brown clayey soil with red sandstone inclusions extend to 200 mm. At 200 mm a large sandstone chunk is evident in the south-east corner with a sandstone shelf extending from the south-east corner from 250 mm. While the dark brown soil continues, a sandstone shelf extends to cover the entire base of the pit by 370 mm (*Photograph 7.25*). Charcoal samples were taken from spits 1 and 2. No artefacts were identified.



**Photograph 7.25 TP25 basal layer (ERM 2019)**





### 7.2.26 Test Pit 26


Test Pit 26 (TP26) is located 20 m south of TP25 in the north-east corner of the Excavation area. TP26 was excavated to 300 mm in four (4) spits. Brown clayey soil with red/yellow sandstone extends to 290 mm. A rubber belt extends into the pit in spit 2 from the north-west corner. A second belt was found under the first belt in spit 3. Six (6) artefacts were initially identified in the first three (3) spits, including flakes and cores, however further analysis revealed three (3) did not exhibit diagnostic characteristics (*Table 7.2*). Dense grey clay is located from 290 mm (*Photograph 7.26*). No charcoal samples were identified.



Photograph 7.26 TP26 basal layer (ERM 2019)

Table 7.2 Finds from TP26

Spit	Artefact Number	Description	Photograph
3	21	Grey silcrete flake with hinge termination	
3	22	Grey silcrete flake with feather termination	

Spit	Artefact Number	Description	Photograph
3	23	Light brown silcrete core with feather termination scars	

### 7.2.27 Test Pit 27






Test Pit 27 (TP27) is located 20 m south of TP26 along the western boundary of the Excavation area. TP26 was excavated to 200 mm in two (2) spits of 100 mm. Soils were dark brown and clayey with gravel and red/yellow sandstone inclusions throughout (*Photograph 7.27*). Six (6) artefacts were identified in the first spit (A#25 – 30) including flakes and cores (refer *Table 7.3*). Pieces of ochre were identified in spit 2 and were collected (A#31). Dense grey clay was found after 260 mm. No charcoal was identified.




**Photograph 7.27 TP27 basal layer (ERM 2019)**



**Table 7.3 Finds from TP27**

Spit	Artefact Number	Description	Photograph
1	25	Cream silcrete core with multiple flake scars	
1	26	Cream silcrete core with multiple flake scars	
1	27	Red silcrete flake fragment with feather termination	
1	28	Red silcrete flake with hinge termination	
1	29	Red silcrete core with multiple flake scars	

Spit	Artefact Number	Description	Photograph
1	30	Light red silcrete flake with feather termination	
2	31	Orange ochre chunks	NA

### 7.2.28 Test Pit 28


Test Pit 28 (TP28) is located 20 m east of TP27 along the Excavation areas western boundary. TP28 was excavated to a depth of 200 mm in two (2) spits of 100 mm. Soils were dark brown and clayey with gravel and red/yellow sandstone inclusions throughout (*Photograph 7.28*). Roots were located in the first spit. A single flake (A#32) was identified in spit 1 (*Table 7.4*). Dense grey clay began at 190 mm. No charcoal was identified.



**Photograph 7.28 TP28 basal layer (ERM 2019)**



**Table 7.4 Finds in TP28**

Spit	Artefact Number	Description	Photograph
1	32	Grey silcrete flake with feather termination	

### 7.3 Summary of Excavation Results

The test excavation program identified fifteen (15) artefacts across four (4) test pits (TP1, TP26, TP27, and TP28) located in the north-west corner of the excavation area (refer *Table 7.5*). Charcoal samples were occasionally found in association with artefacts, however these were generally isolated and did not reflect archaeological features such as hearths. Additional charcoal samples were identified in test pits across the Project Area, however these were isolated and not associated with other cultural heritage material. Therefore, no additional context would be attained by analysis of charcoal samples.

Evidence of disturbance to sediments was found across much of the excavation area in the form of deep ruts from vehicle use, as well as glass, rubber belts, and other modern materials found in the stratigraphy, particularly in the north-west section of the excavation area. No further surface artefacts were identified during the test excavation program despite areas of vegetation being slashed. These results indicate that while the PAD identified in the field survey is extant, it is limited in size and density. Further subsurface archaeological material may be present to the west of the excavation area, however access to this part of the Project Area was restricted owing to its proximity to a tenanted house.

**Table 7.5 Summary of test excavations**

Test Pit No.	Latitude	Longitude	Spit	Depth (mm)	Artefactual Material
1	-32.812405	151.707028	1	50	1x chert core
			2	100	1x silcrete flake; 1x silcrete core; 1x charcoal sample, 1x silcrete flake
			3	150	Nil
			4	200	
2	-32.812418	151.707591	1	100	Nil
			2	200	
3	-32.812878	151.707532	1	100	Nil
			2	200	
			3	260	
4	-32.812874	151.707864	1	100	1x charcoal sample
			2	200	Nil
5	-32.812941	151.708401	1	100	Nil
			2	180	
6	-32.813302	151.707054	1	100	1x charcoal sample
			2	240	1x charcoal sample



Test Pit No.	Latitude	Longitude	Spit	Depth (mm)	Artefactual Material
7	-32.813329	151.707586	1	100	1x charcoal sample
			2	200	Nil
8	-32.813352	151.708111	1	100	Nil
			2	200	
9	-32.813802	151.708379	1	100	Nil
			2	240	
10	-32.814208	151.708127	1	100	Nil
			2	200	
11	-32.814235	151.707569	1	100	Nil
			2	200	
12	-32.81424	151.707038	1	100	Nil
			2	200	
			3	290	
13	-32.814686	151.706775	1	100	Nil
			2	200	1x charcoal sample

Test Pit No.	Latitude	Longitude	Spit	Depth (mm)	Artefactual Material
14	-32.813798	151.706872	1	100	1x charcoal sample
			2	200	Nil
15	-32.813717	151.70728	1	100	1x charcoal sample
			2	200	2x charcoal samples
			3	300	Nil
			4	350	Nil
16	-32.814673	151.707832	1	100	Nil
			2	200	
17	-32.815123	151.707564	1	100	Nil
			2	200	
18	-32.815132	151.707028	1	100	Nil
			2	200	
19	-32.814673	151.706191	1	100	Nil
			2	200	
			3	260	



Test Pit No.	Latitude	Longitude	Spit	Depth (mm)	Artefactual Material
20	-32.814262	151.706330	1	100	Nil
			2	200	
			3	300	
21	-32.814253	151.705880	1	100	Nil
			2	200	
			3	300	
22	-32.812468	151.707264	1	100	Nil
			2	200	
			3	260	
23	-32.812279	151.707274	1	130	Nil
			2	290	1x charcoal sample
24	-32.812265	151.707044	1	100	Nil
			2	200	

Test Pit No.	Latitude	Longitude	Spit	Depth (mm)	Artefactual Material
25	-32.812292	151.706792	1	100	1x charcoal sample
			2	200	1x charcoal sample
			3	300	Nil
			4	370	Nil
26	-32.812436	151.706770	1	100	Nil
			2	200	Nil
			3	270	2x silcrete flake, 1x silcrete core
			4	300	Nil
27	-32.812321	151.706813	1	100	3x silcrete flakes; 2x silcrete cores
			2	200	1x ochre sample
28	-32.812599	151.707033	1	100	1x silcrete flake
			2	200	Nil



## 8. SIGNIFICANCE ASSESSMENT

The following section provides an assessment of the overall Aboriginal cultural heritage significance of the Project Area. The Project Area has been assessed against the NSW significance assessment criteria for potential for social, historical, scientific, and aesthetic values, contributing to the overall significance of the area.

### 8.1 Assessment of Aboriginal Cultural Significance

Cultural significance is defined in the Australia ICOMOS Burra Charter 2013 (Burra Charter) as ‘a concept which helps in estimating the value of places’. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations. The Burra Charter provides a definition of cultural significance as “aesthetic, historic, scientific or social value for past, present or future generations.” Aboriginal cultural heritage sites can be assessed through the applications of these four principle values.

#### Description of cultural heritage values

The review of background information and information gained through consultation with Aboriginal people should provide insight into past events. These include how the landscape was used and why the identified Aboriginal objects are in this location, along with contemporary uses of the land. The following descriptions of cultural heritage values are drawn from *the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011), based on the Burra Charter principles.

- **Social or cultural value** (assessed only by Traditional Owners/First Nations People) refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them;
- **Historic value** (assessed by Traditional Owners/First Nations People and/or non-Aboriginal historical specialists) refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Historic places do not always have physical evidence of their historic importance (such as structures, planted vegetation or landscape modifications). They may have ‘shared’ historic values with other (non-Aboriginal) communities and include places of post-contact Aboriginal history; and
- **Scientific (archaeological) value** (assessed by professional archaeologists) refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information.

Significance values will be graded with a basic ranking of high, moderate, or low. The grading is based on the rarity, representativeness and research (educational) potential for each value:

- High significance is usually attributed to sites, which are so rare or unique that the loss of the site would affect our ability to understand aspects of past Aboriginal use/occupation for an area;
  - Moderate significance can be attributed to sites which provide information on an established research question; and
  - Low significance is attributed to sites which cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to disturbance of the nature of the site’s contents.
- **Aesthetic value** (assessed by Traditional Owners and/or non-Aboriginal specialists) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use.

### 8.1.1 Social Significance

No comments were received specifically relating to social significance of the project area to the local Aboriginal community.

### 8.1.2 Historic Significance

There is no evidence to suggest that the Project Area holds any historical significance for local Aboriginal people.

### 8.1.3 Scientific Significance

Stone artefact sites including open camp sites (or artefact scatters) and isolated finds are the most common site types found across the region, which is reflected in both field survey and test excavations. Artefact material was typical of that found throughout the region, dominated by silcrete with occasional chert, and mudstone. Moreover, artefact types are in line with the broader regional pattern with a majority of finds being flakes or cores. Identified artefacts were located in disturbed contexts, within heavily eroded exposures that often also displayed evidence of vehicle use or sediments where heavy disturbance is evident. The level of disturbance observed suggests little surface or subsurface material would remain *in situ*, and therefore would provide little additional scientific information.

Test pitting revealed that across a majority of the Project Area bedrock or the dense clay layer was reached within 200 mm of the surface. Therefore, the potential distribution and movement of artefacts is highly limited.

The artefact scatter identified during the field survey in the western extent of the Project Area (NPS01) rests outside of the area being developed by AGL, and as such no further investigations, such as test pitting, were undertaken as part of this ACHAR. Therefore, while there is potential for this site to hold scientific significance, this cannot be confirmed at this time.

The remaining archaeologically sensitive areas identified within the Project Area have been assessed as having low archaeological/scientific significance due to their commonness within the regional landscape as well as the highly disturbed nature and generally low density of surface and subsurface archaeological material.

### 8.1.4 Aesthetic Significance

There are no features of the Project Area or identified artefact which indicate aesthetic significance.

## 8.2 Aboriginal Heritage Statement of Significance

The Project Area has no social, historical or aesthetic values. Based on the results of archaeological survey and test excavation within the Project Area, scientific significance has been assessed as being low.

No comments were received regarding overall cultural value of the Project Area, and it can be generally considered that the project area is of low overall significance.



## 9. IMPACT ASSESSMENT

### 9.1 Proposed Impact

The Proposal would involve the construction and operation of a dual-fuel peaking power station (approximately 250 MW), supplying electricity at short notice during periods of high demand.

The main elements of the Proposal are as follows:

- Gas fired power station comprising of either large reciprocating engine generators or aero-derivate gas turbine generators, necessary supporting ancillary equipment and supporting infrastructure. The power station would be capable of running on diesel as necessary;
- 132kV electricity transmission line to the existing Tomago sub-station;
- Storage tanks and laydown area;
- Water management infrastructure including pond(s);
- Gas transmission/storage pipeline and receiving station, compressor and ancillary infrastructure;
- Diesel storage and truck unloading facilities; and
- Site access road.

Key construction activities for the Proposal would include:

- Clearing of vegetation at the proposed power station site and as required along the electrical transmission and gas pipeline easements;
- Installation of gas pipeline and electrical transmission line infrastructure;
- Earthworks to prepare the power station bench and construction areas;
- Installation of foundations and underground services;
- Installation of aboveground mechanical and electrical plant and equipment;
- Commissioning and testing; and
- Demolition of the existing house if not repurposed during construction and operation.

### 9.2 Impact to Aboriginal Cultural Heritage Values

Field survey and test excavation programs were undertaken to properly understand and manage impacts from the Project. The field survey identified four (4) archaeological sites, including a large low density artefact scatter (NPS01), two (2) isolated artefacts (NPS02 and NPS03), and an associated PAD. Impact to the artefact scatter NPS01 is not discussed in this ACHAR, as it is outside the area being development by AGL.

The PAD was further investigated through a test excavation program with results indicating the PAD is confined to the north-west corner of the excavation area. There is potential for the PAD to extend further west, however the proximity of a tenanted house restricted access to this area. It must be noted that the construction of the house and the installation of associated services may have already impacted the integrity of any western extension of the PAD. An impact assessment summary of all identified sites can be found below in *Table 9.1*.

**Table 9.1 Summary Impact Assessment of Aboriginal Heritage Sites**

Site ID	AHIMS	Scientific Significance	Overall Significance Level	Assessment of Potential Impact
NPS01	#38-4-2020	Unknown	Unknown	Was not assessed owing to its position within an area subject to development by RMS.
NPS02	#38-4-2021	Nil – no research value	Low	<b><u>Total removal</u></b> Isolated find will be totally destroyed by project works.
NPS03	#38-4-2022	Nil – no research value	Low	<b><u>Total removal</u></b> Isolated find will be totally destroyed by project works.
PAD	N/A	Nil – no research value	Low	<b><u>Partial removal</u></b> At minimum the eastern extent of the PAD will be destroyed by project works.







## 10. CONCLUSIONS AND RECOMMENDATIONS

### 10.1 Conclusions

The initial archaeological field survey recorded three (3) Aboriginal heritage sites and one (1) associated PAD have been recorded within the Project Area. One (1) of the sites is a stone artefact scatter consisting of 23 artefacts, while the remaining two (2) are isolated stone artefact finds. The stone artefact scatter, identified as NPS01, is considered to be a re-recording of the AHIMS Site #38-4-1751 (Hexham M12RT). This site is situated within the RMS proposal area and, as such, NPS01 has not been subject to further assessment as part of this report. One of the stone artefact scatters, NPS02, was assessed as having associated PAD and was, therefore, subject to test excavations.

Results from the field survey highlighted the need to undertake further investigations in the form of a test excavation program. Moreover, the methodology of the test excavations was informed by the field survey findings. A total of 28 test excavations were undertaken across the eastern portion of the PAD. Fifteen (15) stone artefacts were identified in three (3) test pits, situated in the north-east section of the PAD. The results confirm the presence of subsurface objects within the proposed footprint of the development; however, the low number of finds suggests that the likelihood of identifying further subsurface objects throughout the works program is minimal.

The conclusions of this report can be summarised as:

- Aboriginal sites were located within the Project Area;
- NPS01 was not subject to further assessment, as this site lies within the RMS proposal area;
- Subsurface artefacts were identified within the PAD associated with NPS02; and
- The likelihood of identifying further artefacts within the Project Area is minimal.

### 10.2 Recommendations

The following recommendations are made to assist in ongoing management of identified heritage sites. The management recommendation statements below were developed in light of information gathered from the background desktop investigation, predictive modelling, results of the field survey, heritage significance assessment, legislative requirements, and consultation with relevant Aboriginal parties:

#### 10.2.1 Cultural Awareness Induction

- All personnel involved with ground breaking activities within the Project Area should undertake a cultural awareness training programme in line with the recommendations below.

#### 10.2.2 Future Works

- No further works to be undertaken at NPS01, which has been determined to be the RMS proposal area and would be managed under their works program; and
- As the project has been designated critical SSI, the requirement for an AHIP under Section 90 of the NP&W Act is extinguished.

#### 10.2.3 Chance Finds Procedure

- If suspected Aboriginal heritage objects are found during works, the following Chance Find Procedure should be followed and applies to the entire Project Area:
  - All activity in the immediate area should cease;
  - And an appropriately qualified heritage professional should be consulted;
  - OEH should be immediately contacted;



- Local Aboriginal stakeholder groups should be notified; and
- An appropriately qualified heritage professional should record the location and attributes of the site and determine the significance of the find;
- In the event of the discovery of human skeletal material (or suspected human skeletal material) during project activities in the Project Area the following steps should be followed:
  - All activities and/or works in the immediate area must cease;
  - The State Police must be contacted along with the OEH; and
  - Any sand/soils removed from the near vicinity of the find must be identified and set aside for assessment by the investigating authorities.

#### ***10.2.4 Repatriation of Archaeological Material***

- Artefacts and charcoal recovered during the testing program should be reburied at a location determined by the RAPs, as close as possible to the location from which they were recovered.

#### ***10.2.5 Aboriginal Community Endorsement and Recommendations***

- A copy of this report should be provided to each of the Aboriginal organisations who expressed an interest in the Project; and
- Upon finalisation, a copy of this report incorporating comments from the RAPs should be provided to the relevant OEH regional branch.

## 11. REFERENCES

- Attenbrow, V. 2002 Sydney's Aboriginal Past: investigating the archaeological and historic records. UNSW Press: Sydney.
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- Dean-Jones P. 1992 Archaeological survey at Fern Bay. Report to Port Stephens Council.
- ERM 2005 RTCA Heritage Register Update Summary Report. Report for Rio Tinto.
- ERM 2019a Newcastle Power Station Historical Heritage Report. Prepared for Aurecon on behalf of AGL.
- ERM 2019b Newcastle Power Station Aboriginal Archaeological Survey Report. Prepared for Aurecon on behalf of AGL.
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- ICOMOS Australia 2013 The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013.
- Jacobs 2015 Biodiversity and Aboriginal Heritage Findings. Memo Prepared for Roads and Maritime Services.
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- Koettig M. 1986b Test excavations at six locations along the proposed pipeline between Singleton and Glennies Creek, Hunter Valley region, NSW. Report for Public Works Department, NSW.
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- NSW National Parks and Wildlife Service 2003 Sydney Basin Bioregion. Accessed on 15/04/2019 from <https://www.environment.nsw.gov.au/bioregions/sydneybasinbioregion.htm>
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- Tindale 1974 *Aboriginal tribes of Australia: their terrain, environmental controls, distribution, limits, and proper names*. University of California Press, Berkeley.
- URS 2002 Tomago Gas Fired Power Station Environmental Impact Statement. Prepare for Macquarie Generation.



## APPENDIX A SEARS AND AGENCY COMMENTS

# Planning Secretary's Environmental Assessment Requirements

## Section 5.16 of the *Environmental Planning and Assessment Act 1979*

<b>Application Number</b>	SSI 9837
<b>Project</b>	The Newcastle Gas Fired Power Station Project which includes: <ul style="list-style-type: none"> <li>the construction and operation of a gas fired power station; and</li> <li>ancillary infrastructure including connection to gas supply, gas compression facilities, fuel storage tanks, water management facilities and grid connection.</li> </ul>
<b>Location</b>	Tomago, north of Newcastle, in the Port Stephens local government area.
<b>Proponent</b>	AGL Energy Limited
<b>Date of Issue</b>	18 February 2019
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must comply with the requirements in Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (EP&amp;A Regulation).</p> <p>In particular, the EIS must include, but not necessarily be limited to, the following:</p> <ul style="list-style-type: none"> <li>a stand-alone executive summary;</li> <li>a full description of the project, including: <ul style="list-style-type: none"> <li>all components, materials and activities required to construct the project (including any infrastructure that would be required for the project, but the subject of a separate approvals process);</li> <li>site plans and maps at an adequate scale showing: <ul style="list-style-type: none"> <li>the location and dimensions of all project components; and</li> <li>existing infrastructure, land use, and environmental features in the vicinity of the project (including any other existing, approved or proposed infrastructure in the region);</li> </ul> </li> <li>likely staging or sequencing of the project, including construction and rehabilitation;</li> <li>the likely interactions between the project and any other existing, approved or proposed major projects in the vicinity of the site (including the Newcastle Gas Storage Facility, Tomago Aluminium Smelter, and M1 to Raymond Terrace Motorway Project);</li> </ul> </li> <li>a justification for the proposed project as opposed to other alternatives;</li> <li>statutory context for the project, including: <ul style="list-style-type: none"> <li>how the project meets the provisions and objectives of the <i>Environmental Planning and Assessment Act 1979</i> (EP&amp;A Act) and EP&amp;A Regulation;</li> <li>consideration of the project against all relevant environmental planning instruments;</li> <li>any approvals that must be obtained before the project can commence; and</li> </ul> </li> <li>an assessment of the likely impacts of the project on the environment, focusing on the specific issues identified below, including:</li> </ul>



	<ul style="list-style-type: none"> <li>- a description of the existing environment likely to be affected by the project using sufficient baseline data;</li> <li>- a description of how the project has been designed to avoid and minimise impacts (including selection of gas connection option); and</li> <li>- an assessment of the potential impacts of the project, including any cumulative impacts, and taking into consideration relevant guidelines, policies, plans and industry codes of practice;</li> <li>• a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; and</li> <li>• an evaluation of the project as a whole having regard to: <ul style="list-style-type: none"> <li>- relevant matters for consideration under the EP&amp;A Act including ecologically sustainable development;</li> <li>- the strategic need and justification for the project having regard to energy security and reliability in NSW and the broader National Electricity Market; and</li> <li>- the biophysical, economic and social costs and benefits of the project.</li> </ul> </li> </ul> <p>While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of the project.</p>
<p><b>Key issues</b></p>	<p>The level of assessment of likely impacts should be commensurate with the significance or degree or extent of impact within the context of the proposed location and surrounding environment, and having regard to applicable NSW Government policies and guidelines.</p> <p>In particular, the EIS must address the following matters:</p> <ul style="list-style-type: none"> <li>• <b>Biodiversity</b> – including: <ul style="list-style-type: none"> <li>- an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with the NSW <i>Biodiversity Conservation Act 2016</i>, the Biodiversity Assessment Method (BAM) and documented in a Biodiversity Development Assessment Report (BDAR); and</li> <li>- the BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM;</li> </ul> </li> <li>• <b>Heritage</b> – including: <ul style="list-style-type: none"> <li>- an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the project, including adequate consultation with Aboriginal stakeholders having regard to the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (OEH, 2010);</li> </ul> </li> <li>• <b>Hazards and Risks</b> – including: <ul style="list-style-type: none"> <li>- a Preliminary Hazard Analysis (PHA), covering all aspects of the project which may impose public risks, to be prepared consistent with <i>Hazardous Industry Planning Advisory Paper No. 6 – Guidelines of Hazard Analysis</i> (DPE, 2011) and <i>Multi-level Risk Assessment</i>. The PHA must: <ul style="list-style-type: none"> <li>▪ include a pipeline risk assessment to estimate the risks from the pipeline to the surrounding land uses, with reference to Australian Standards <i>AS2885 Pipelines – Gas and Liquid Petroleum, Operation and Maintenance</i>;</li> <li>▪ Demonstrate that the risks from the project comply with the criteria set out in <i>Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning</i> (DPE, 2011); and</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- a plume rise impact assessment prepared in accordance with CASA's guidelines for conducting plume rise assessments;</li> <li>• <b>Land and Contamination</b> – including: <ul style="list-style-type: none"> <li>- an assessment of impacts of the project on soils, land capability and geotechnical stability of the site and surrounds;</li> <li>- an assessment of the extent and nature of any contaminated materials or acid sulphate soils on site or in dredged material;</li> <li>- an assessment of potential risks to human health and the receiving environment; and</li> <li>- a description of the measures that would be implemented to avoid or mitigate impacts;</li> </ul> </li> <li>• <b>Water</b> – including: <ul style="list-style-type: none"> <li>- an assessment of the impacts of the project on groundwater aquifers and groundwater dependent ecosystems having regard to the <i>NSW Aquifer Interference Policy</i> and relevant <i>Water Sharing Plans</i>;</li> <li>- a detailed site water balance for the project, including water supply and wastewater disposal arrangements;</li> <li>- an assessment of the flood impacts of the project; and</li> <li>- a description of the erosion and sediment control measures that would be implemented to mitigate any impacts during construction;</li> </ul> </li> <li>• <b>Air Quality</b> – including: <ul style="list-style-type: none"> <li>- an assessment of the likely air quality impacts of the project in accordance with the <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i> (EPA, 2016);</li> <li>- ability to comply with the relevant regulatory framework, specifically the <i>Protection of the Environment Operations Act 1997</i> and the <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i>; and</li> <li>- an assessment of the likely greenhouse gas impacts of the project;</li> </ul> </li> <li>• <b>Noise and Vibration</b> – including: <ul style="list-style-type: none"> <li>- assessment of the likely construction noise impacts of the project under the <i>Interim Construction Noise Guideline</i> (DECCW, 2009);</li> <li>- an assessment of the likely operational noise impacts of the project under the <i>NSW Noise Policy for Industry</i> (EPA, 2017);</li> <li>- an assessment of the likely road noise impacts of the project under the <i>NSW Road Noise Policy</i> (EPA, 2011); and</li> <li>- an assessment of the likely vibration amenity and structural impacts of the project under <i>Assessing Vibration: A Technical Guideline</i> (DEC, 2006) and <i>German Standard DIN 4150-3 Structural Vibration – effects of vibration on structures</i>;</li> </ul> </li> <li>• <b>Transport</b> – including: <ul style="list-style-type: none"> <li>- an assessment of the transport impacts of the project on the capacity, condition, safety and efficiency of the local and State road network including consideration of the future M1 Motorway extension to Raymond Terrace;</li> <li>- an assessment of the site access point and rail safety issues;</li> <li>- a description of the measures that would be implemented to mitigate any impacts during construction; and</li> <li>- a description of any proposed road upgrades developed in consultation with the relevant road authorities (if required);</li> </ul> </li> <li>• <b>Visual</b> – including an assessment of the likely visual impacts of the project on the amenity of the surrounding area and private residences in the vicinity of the project;</li> </ul>
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	<ul style="list-style-type: none"> <li>• <b>Socio-Economic</b> – including an assessment of the likely impacts on the local community, demands on Council infrastructure and consideration of the construction workforce accommodation; and</li> <li>• <b>Waste</b> – identify, quantify and classify the likely waste stream to be generated during construction and operation, and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.</li> </ul>
<b>Consultation</b>	<p>During the preparation of the EIS, you must consult with the relevant local, State and Commonwealth Government authorities, infrastructure and service providers, community groups and affected landowners.</p> <p>The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these have been considered and addressed.</p>
<b>Further consultation after 2 years</b>	<p>If EIS for the project is not lodged within 2 years of the issue date of these Environmental Assessment Requirements, the Applicant must consult further with the Secretary in relation to the preparation of the EIS.</p>

## ATTACHMENT 1

## Environmental Planning Instruments, Policies, Guidelines & Plans

Water	
Groundwater	NSW State Groundwater Policy Framework Document and component policies (DPI)
	Relevant Water Sharing Plans
	NSW Aquifer Interference Policy 2012 (DPI)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
Surface Water	Guidelines for Development in the Drinking Water catchments (Hunter Water, 2017)
	NSW State Rivers and Estuary Policy (DPI Water)
	NSW Government Water Quality and River Flow Objectives at <a href="http://www.environment.nsw.gov.au/ieo/">http://www.environment.nsw.gov.au/ieo/</a>
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC, 2006)
	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DECC, 2008)
	Managing Urban Stormwater: Soils & Construction (Landcom)
	Technical Guidelines: Bunding & Spill Management (EPA)
	NSW Guidelines for Controlled Activities (various) (DPI)
Contamination	
	State Environmental Planning Policy No. 55 – Remediation of Land
	Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (EPA)
	Guidelines for Consultants Reporting on Contaminated Sites (EPA)
	Contaminates Sites Sampling Design Guidelines 1995 (EPA)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (with amendment April 2013)
	Acid Sulfate Soils Manual (OEH)
	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (EPA)
Land and Soils	
	Managing Urban Stormwater: Soils & Construction (Landcom)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (with amendment April 2013)
	Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)
	The land and soil capability assessment scheme: Second approximation (OEH)
	Guidelines for Surveying Soil and Land Resources (CSIRO)
	Australian Soil and Land Survey Handbook (CSIRO)
	Soil and Landscape Issues in Environmental Impact Assessment (DPI)



<b>Biodiversity</b>	
	Biodiversity Assessment Method 2017 (OEH)
	Threatened Species Assessment Guidelines - Assessment of Significance (OEH)
	Biosecurity Act 2015
	Policy and Guidelines for Fish Habitat Conservation and Management – Update (DPI, 2013)
	NSW State Groundwater Dependent Ecosystem Policy (DPI Water)
	Risk Assessment Guidelines for Groundwater Dependent Ecosystems (DPI Water)
	Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI)
	Fisheries Management Act 1994
<b>Heritage</b>	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)
	Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning, 1994)
	Assessing Heritage Significance (NSW Heritage Office, 2001)
	Statements of Heritage Impact (Heritage Office and Department of Urban Affairs and Planning, 2002)
<b>Air</b>	
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA 2016)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC, 2005)
	Technical Framework – Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006)
	National Greenhouse Accounts Factors (Commonwealth)
<b>Noise, Vibration and Blasting</b>	
	NSW Noise Policy for Industry (EPA)
	NSW Road Noise Policy and associated Application Notes (EPA)
	Interim Construction Noise Guideline (DECCW, 2009)
	Assessing Vibration: a Technical Guideline (DEC, 2006)
	German Standard DIN 4150-3: Structural Vibration – effects of vibration on structures
	Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZECC, 1990)
<b>Transport</b>	
	Guide to Traffic Generating Projects (RMS)
	Road Design Guide (RMS) & relevant Austroads Standards
	Austroads Guide to Traffic Management Part 12: Traffic Impacts of Project
<b>Hazards and Risks</b>	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Project
	Hazardous and Offensive Project Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
	Hazardous Industry Planning Advisory Paper No. 11 – Route Selection

	AS2885 Pipelines – Gas and Liquid Petroleum, Operation and Maintenance
	Planning for Bushfire Protection (NSW RFS)
	Advisory Circular AC 139-05 v3.0 Plume Rise Assessments (CASA)
<b>Visual</b>	
	AS4282-1997 Control of the obtrusive effects of outdoor lighting
<b>Waste</b>	
	Waste Classification Guidelines (EPA)
<b>Environmental Planning Instruments – General</b>	
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	State Environmental Planning Policy (Three Ports) 2013
	State Environmental Planning Policy (Coastal Management) 2018
	Port Stephens Local Environmental Plan 2013
	Relevant Water Sharing Plans (available at <a href="https://www.industry.nsw.gov.au/water">https://www.industry.nsw.gov.au/water</a> )



## Anthony Ko

---

**From:** Airport Developments <Airport.Developments@AirservicesAustralia.com>  
**Sent:** Friday, 1 February 2019 3:26 PM  
**To:** Tatsiana Bandaruk  
**Cc:** Anthony Ko; Hogan, Timothy MR 2  
**Subject:** NSW-MI-025 - SEARs, Newcastle Gas Fired Power Station (SSI 9837) [SEC=UNCLASSIFIED]

Hi Tatsiana,

We recommend that operators of Newcastle Airport, which is the Department of Defence, be consulted to evaluate this development in the first instance. We suggest also a plume rise assessment is provided to Newcastle Airport. Newcastle Airport will determine if this development needs to be referred to Airservices for assessment.

Regards,

**William Zhao**

Advisor Airport Development | Operations Standards & Assurance  
**Airservices Australia**

Phone: +61 3 9339 2504

Email: [airport.developments@airservicesaustralia.com](mailto:airport.developments@airservicesaustralia.com)

[www.airservicesaustralia.com](http://www.airservicesaustralia.com)

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attached for your reference.

**From:** GCR CASA  
**To:** [Tatsiana Bandaruk](#)  
**Cc:** [GCR CASA](#)  
**Subject:** CASA Response G119/69 Newcastle Gas Fired Power Station (SSI 9837) - Request for input to the SEARs [SEC=UNCLASSIFIED]  
**Date:** Friday, 1 February 2019 9:27:23 AM  
**Attachments:** [image001.png](#)

---

UNCLASSIFIED

Dear Ms Bandaruk

I refer to your email below requesting comment from the Civil Aviation Safety Authority (CASA) on the Newcastle Gas Fired Power Station Project, located in Tomago, north of Newcastle NSW.

CASA has reviewed the Secretary's Environmental Assessment Requirements (SEARs) and I am advised that a Plume Rise assessment should be conducted by the proponent.

As the proposal is within the Williamstown Control Zone, CASA recommends that input from the Department of Defence be sought. However, before Defence can comment or provide an informed response on the proposal they will require answers to the following:

1. Height of the stacks (above mean sea level and above ground level)
2. The location of the proposed stacks (Latitude and Longitude)
3. Height and lateral extent of the exhaust plume
4. Results of the plume rise modelling
5. Will there be any proposed, associated danger areas
6. Plans for catastrophic and minor failures, i.e. what danger areas would need to be put in place if any, how would it affect the airspace, etc, and
7. Has an AVRMP been done? If so, a copy of the report.

Please contact Mr Aaron Doherty at the Department of Defence if you wish to discuss this matter further. Mr Doherty can be contacted by email at [aaron.doherty@defence.gov.au](mailto:aaron.doherty@defence.gov.au).

I trust this information is of assistance.

Yours sincerely

Steve Neal  
Section Manager  
Government and Corporate Relations

Phone 131 757

---

**From:** Tatsiana Bandaruk <[Tatsiana.Bandaruk@planning.nsw.gov.au](mailto:Tatsiana.Bandaruk@planning.nsw.gov.au)>  
**Sent:** Friday, 25 January 2019 2:46 PM  
**Cc:** Anthony Ko <[Anthony.Ko@planning.nsw.gov.au](mailto:Anthony.Ko@planning.nsw.gov.au)>



**Subject:** Newcastle Gas Fired Power Station (SSI 9837) - Request for input to the SEARs

**Newcastle Gas Fired Power Station Project (SSI 9837)**  
**Request for Input into Secretary's Environmental Assessment Requirements**

Good afternoon,

AGL Macquarie Pty Ltd has requested Secretary's Environmental Assessment Requirements (SEARs) for the Newcastle Gas Fired Power Station Project, located in Tomago, north of Newcastle, within the Port Stephens local government area.

The proposal involves:

- the construction and operation of a 250 MW gas fired power station; and
- ancillary infrastructure including connection to gas supply, gas compression facilities, fuel storage tanks, water management facilities and grid connection.

**This email is to seek agency input to the SEARs for this project.**

The Preliminary Environmental Assessment is available at [http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=9837](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9837), and a copy of the proposed SEARs is attached for your reference.

It would be appreciated if you could review these documents and provide any comments by COB **Friday 8 February 2019**.

Kind regards,

**Tatsiana Bandaruk**

Environmental Assessment Officer

Resource and Energy Assessments | Planning Services

Level 30, 320 Pitt Street | GPO Box 39 | Sydney NSW 2001

T 02 8275 1349

E: [tatsiana.bandaruk@planning.nsw.gov.au](mailto:tatsiana.bandaruk@planning.nsw.gov.au)



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**IMPORTANT:**

This email remains the property of the Civil Aviation Safety Authority. If you are not the intended recipient, any use or dissemination of this email is prohibited.

If you have received this email in error, you are requested to contact the sender and delete the email.

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6 February 2019

Department of Planning & Environment  
GPO Box 39  
Sydney NSW 2001

**APPLICATION NO:** (Our Ref. 25-2019-1-1)

**PROPOSAL:** Newcastle Gas Fired Power Station Project (SSI 9837)

**PROPERTY:** 1940 Pacific Highway, TOMAGO 2322 (Lot: 3 DP: 1043561)

ATTN: Tatsiana Bandaruk

Dear Sir / Madam,

Thank you for your correspondence dated 25 January 2019 requesting Council's comments for the above development. Council has given consideration to the likely impacts of the proposal and makes the following comments.

**Biodiversity considerations**

- Assessment of koala habitat on site and offsetting requirements are to be conducted in accordance with Port Stephens Council's Comprehensive Koala Plan of Management.
- Any offsetting requirements in accordance with the biodiversity offset scheme should be secured within the local area, where possible.
- As the proposal site is located within proximity to a number of wetland environments including the Hunter Estuary Wetlands (Ramsar site) and known habitat for threatened species and migratory birds, an assessment of air and water quality impacts in relation to biodiversity impacts is required to determine potential impacts of emissions (chemical and heat (including plume rise)) and associated acid rainfall events on wetlands environments (including SEPP wetlands, nationally important wetlands and internationally important wetlands). Special consideration should be given to potential impacts on habitat quality, food sources (insects, fish etc.), flight patterns of migratory birds and amphibians.

**Heritage considerations**

- As the site has been identified as an area of high Aboriginal heritage significance, comprehensive assessment including detailed consultation with Aboriginal stakeholders and subsurface investigations are required. Subsurface investigations are to be completed by a qualified archaeologist in accordance with the Code of Practice for Archaeological Investigation of Aboriginal objects in NSW (DECCW 2010). The results of subsurface investigations should inform future management potential archaeological deposits and determine whether an Aboriginal Heritage Impact Permit (AHIP) would be required.



Thank you for the opportunity to comment on the proposed development. If you wish to discuss the matters raised above or have any questions, please contact me on the number below and I will be happy to help.

Yours Faithfully

A handwritten signature in grey ink, appearing to read 'J. Franklin', with a stylized flourish at the end.

Jessica Franklin  
Development Planner

**Port Stephens Council**

Phone: 4988 0141

Email: [jessica.franklin@portstephens.nsw.gov.au](mailto:jessica.franklin@portstephens.nsw.gov.au)

Web: [www.portstephens.nsw.gov.au](http://www.portstephens.nsw.gov.au)



# Department of Industry

OUT19/1114

Tatsiana Bandaruk  
Environmental Assessment Officer  
Resource and Energy Assessments  
NSW Department of Planning and Environment

[Tatsiana.Bandaruk@planning.nsw.gov.au](mailto:Tatsiana.Bandaruk@planning.nsw.gov.au)

Dear Ms Bandaruk

**Newcastle Gas Fired Power Station (SSI 9837)  
Comment on the Secretary's Environmental Assessment Requirements (SEARs)**

I refer to your email of 25 January 2019 to the Department of Industry (DoI) in respect to the above matter. Comment has been sought from relevant branches of Lands & Water and Department of Primary Industries (DPI), and the following requirements for the proposal are provided:

**DoI -- Water and Natural Resources Access Regulator**

- The identification of an adequate and secure water supply for the life of the project. This includes confirmation that water can be sourced from an appropriately authorised and reliable supply. This is also to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Proposed surface and groundwater monitoring activities and methodologies.
- Consideration of relevant legislation, policies and guidelines, including the NSW Aquifer Interference Policy (2012), the Guidelines for Controlled Activities on Waterfront Land (2018) and the relevant Water Sharing Plans (available at <https://www.industry.nsw.gov.au/water>).

Any further referrals to Department of Industry can be sent by email to [landuse.enquiries@dpi.nsw.gov.au](mailto:landuse.enquiries@dpi.nsw.gov.au).

Yours sincerely

Liz Rogers  
Manager, Assessments  
**Lands and Water - Strategy and Policy**  
6 February 2019





Planning &  
Environment

30 January 2019

Tatsiana Bandaruk  
Environmental Assessment Officer  
Resource and Energy Assessments – Planning Services  
GPO Box 39  
Sydney NSW 2001

Your Reference: SSI 9837  
Our Reference: DOC19/74683

Emailed: [tatsiana.bandaruk@planning.nsw.gov.au](mailto:tatsiana.bandaruk@planning.nsw.gov.au)

Dear Ms Bandaruk

**Re: Request for Secretary's Environmental Assessment Requirements –  
Newcastle Gas Fired Power Station (SSI 9837)**

I refer to your letter of the 25<sup>th</sup> of January 2019 requesting advice on issues concerning the preparation of Secretary's Environmental Assessment Requirements for the Newcastle Gas Fired Power Station (SSI 9837).

The Division of Resources & Geoscience has not identified the potential for the project to impact on significant mineral resources, including metallic minerals, industrial and extractive minerals, petroleum, gas or coal resources. No operating extractive industry, mines or petroleum production facilities have been identified for consideration, nor any exploration activities.

As such, the Division does not have specific requirements regarding land use compatibility for the project site or utilities investigation areas. The Division may provide advice on the location of biodiversity offset areas for the project through the Biodiversity Offsets Scheme.

Queries regarding the above information, and future requests for advice in relation to this matter, should be directed to the Division of Resources & Geoscience - Land Use team at [landuse.minerals@geoscience.nsw.gov.au](mailto:landuse.minerals@geoscience.nsw.gov.au).

NSW Department of Planning and Environment  
DIVISION of RESOURCES & GEOSCIENCE  
PO Box 344 Hunter Region Mail Centre NSW 2310  
E: [landuse.minerals@geoscience.nsw.gov.au](mailto:landuse.minerals@geoscience.nsw.gov.au)  
Tel: 02 4063 6500  
ABN 38 755 709 681

Yours sincerely

Andrew Helman  
A/Manager - Land Use

A handwritten signature in black ink, appearing to be 'P. Dale', with a small dot at the end.

For Paul Dale  
Director – Land Use & Titles Advice





DOC19/66222-2; EF14/502 (SSI 9837)

Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Tatsiana Bandaruk  
By email: [tatsiana.bandaruk@planning.nsw.gov.au](mailto:tatsiana.bandaruk@planning.nsw.gov.au)

8 February 2019

**NEWCASTLE GAS FIRED POWER STATION PROJECT - (SSI 9837)  
SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS**

I refer to your email to the Environment Protection Authority (EPA) dated 25 January 2019 seeking the EPA's comments on the draft Secretary Environmental Assessment Requirements (SEARS) for the Newcastle Gas Fired Power Station Project, located at 1940 Pacific Highway, Tomago, in the Port Stephens local government area.

The EPA understands that the proposal involves:

- construction and operation of a 250 MW gas fired power station; and
- ancillary infrastructure including connection to gas supply, gas compression facilities, fuel storage tanks, water management facilities and grid connection.

The EPA has considered the proposal and has identified in **Attachment A** the information it requires to assess the project. The EPA has included specific comments on air issues based on the information presented in the Preliminary Environmental Assessment and the known capacity of the Tomago airshed to accept additional pollutants.

In carrying out the EIS assessment, the EPA recommends that the proponent refers to the relevant guidelines listed in **Attachment B** and any relevant industry codes of practice and best practice management guidelines.

If you require any further information regarding this matter, please contact Genevieve Lorang on 4908 6869 or by email to [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au).

Yours sincerely

**MITCHELL BENNETT**  
**Head Strategic Operations Unit - Hunter**  
**Environment Protection Authority**

Encl:    **Attachment A** – EPA's Recommended Secretary's Environmental Assessment Requirements – Newcastle Gas  
Fired Power Station -1940 Pacific Highway Road, Tomago (SEAR 9837).

**Attachment B** – Guidance Material



## **ATTACHMENT A**

### **EPA's Recommended Secretary's Environmental Assessment Requirements – Newcastle Gas Fired Power Station, Tomago. (SEAR 9837).**

#### **1 Environmental impacts of the project**

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Air Quality
- Noise and Vibration
- Water and Soil Quality and Management
- Waste Management
- Dangerous Goods, Chemical Storage and Bunding

The Environmental Impact Statement (EIS) should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at Attachment B.

#### **2 Licensing requirements**

Should project approval be granted, the proponent will need to make a separate application to EPA for an Environment Protection Licence for the scheduled activity of Electricity Generation. Additional information is available through EPA's *Guide to Licensing* document.

General information on licence requirements can also be obtained from EPA's Environment Line on 131 555 during office hours, or can be found at the EPA web site at:

<http://www.epa.nsw.gov.au/licensing/>

#### **3 The Proposal and Premises**

The objectives of the proposal should be clearly stated and refer to:

- The size and type of the operation;
- The nature of the processes and the products, by-products and wastes produced;
- The types and quantities of any chemicals to be used and stored onsite;
- Proposed operational hours, including any heavy vehicle movements;
- Proposed maximum and average annual production rates that will occur at the premises; and
- Proposed staging and timing of the proposal.

The EIS will need to fully identify all the processes and activities intended for the site over the life of the development. This will include details of:

- The location of the proposed facility and details of the surrounding environment;
- The proposed layout of the site;
- Appropriate land use zoning;
- Ownership details of any residence and/or land likely to be affected by the proposed operations;
- Maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc. in the locality that may be affected by the facility;
- All equipment proposed for use at the site;
- All chemicals, including fuel, used on the site and proposed methods for their transportation, storage, use and emergency management;
- Clearly detail the boundary of the premises; and
- Methods to mitigate any expected environmental impacts of the development.

## 4 Air Issues

### 4.1 Air quality

The EIS should include an air quality impact assessment (AQIA) in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, including, as a minimum the following components:

#### Specifics relating to the proposed project

In reviewing the Preliminary Environmental Assessment (PEA) the EPA has identified some specific issues that need to be addressed based on the information presented to date:

1. The PEA mentions that either reciprocating engines or turbines may be used as generators running on both/either gas or diesel. The EIS must clearly state what type of generators will be used.
2. Gas and diesel may have very different air emissions profiles and if either fuel source may be used, each fuel source need to be assessed separately under worst case scenarios (in terms of operating output, predicted emissions at that output and the maximum amount of time the unit will operate (if it is less than 24 hours).
3. If diesel is to be used for “cold start” of the generators prior to switching to gas the EIS needs to clearly detail the average synchronisation times and diesel burn times prior to switching to gas operation. Such operations would need to be assessed and modelled covering both fuel sources and maximum times each would run for.
4. The EIS needs to specifically assess known issues within the Tomago airshed in the cumulative air assessment. The EPA advises that the airshed is currently constrained in terms of additional pollutant inputs, particularly with regard to sulphur dioxide and fluoride. Combustion of diesel may be limited by the local airshed capacity.

#### Assessment Objective

1. Demonstrate the proposed project will incorporate and apply best management practice emission controls. The EPA notes that the PEA mentions that if turbines are to be used that thermal emissions will be vented to atmosphere. This is not best practice and the EIS should explore alternative options such as heat capture to reboilers using closed cycle turbines; and
2. Demonstrate that the project will not cause violation of the project adopted air quality impact assessment criteria at any residential dwelling or other sensitive receptor.

#### Assessment Criteria

- Demonstrate the proposal's ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations (POEO) Act (1997)* and the POEO (Clean Air) Regulation (2010).

#### Existing Environment

- Provide a detailed description of the existing environment within the assessment domain, including:
  - geophysical form and land-uses;
  - location of all sensitive receptors;
  - local and regional prevailing meteorology.

#### Emissions Inventory

- Provide a detailed description of the project and identify the key stages with regards to the potential for air emissions and impacts on the surrounding environment.



- Identify all sources of air emissions, including mechanically generated, combustion and transport related emissions likely to be associated with the proposed development.

#### Air Quality Emission Control Measures

- Provide a detailed discussion of all proposed air quality emission control measures, including details of a reactive/predictive management system. The information provided must include:
  - explicit linkage of proposed emission controls to the site specific best practice determination assessment
  - timeframe for implementation of all identified emission controls;
  - key performance indicators for emission controls;
  - response mechanisms;
  - responsibilities for demonstrating and reporting achievement of KPIs;
  - record keeping and complaints response register; and

## **5 Noise and Vibration**

The following matters should be addressed in relation to noise and vibration impacts associated with the proposal. This includes identification of the hours of operations, assessment of all activities where proposed, and impacts on sensitive receivers associated with the proposed hours of operation. The EPA notes that the PEA mentions that either reciprocating engines or turbines may be used as generators running on both/either gas or diesel. Given that these different generators may have different noise outputs, the EIS must clearly state what type of generators will be used and the noise assessment is conducted based on this.

The following matters should be addressed as part of the EIS.

#### General

- Construction noise associated with the proposed development should be assessed using the Interim Construction Noise Guideline (DECC, 2009).

#### Industry

- Operational noise from all industrial activities (including private haul roads) to be undertaken on the premises should be assessed using the guidelines contained in the NSW Industrial Noise Policy (EPA, 2000) and Industrial Noise Policy Application Notes.

#### Road

- Noise on public roads from increased road traffic generated by land use developments should be assessed using the guidelines contained in the NSW Road Noise Policy (DECCW, 2011).
- Noise from new or upgraded public roads should be assessed using the NSW Road Noise Policy (DECCW, 2011).

#### Monitoring

- Detail monitoring that will be conducted to assess the impacts of the proposal.

## 6 Water and Soils

### 6.1 Water Quality

#### Describe Proposal

- Describe the proposal including position of any intakes and discharges, volumes, water quality and frequency of all water discharges.
- Demonstrate that all practical options to avoid discharges have been implemented and environmental impact minimised where discharge is necessary.
- Where relevant include a water balance for the development including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

#### Background Conditions

- Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal. Issues to be discussed should include but are not limited to:
  - a description of any impacts from existing industry or activities on water quality
  - a description of the condition of the local catchment e.g. erosion, soils, vegetation cover, etc.
  - an outline of baseline groundwater information, including, for example, depth to water table, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
  - historic river flow data
- State the Water Quality Objectives for the receiving waters relevant to the proposal. These refer to the community's agreed environmental values and human uses endorsed by the NSW Government as goals for ambient waters (<http://www.environment.nsw.gov.au/ieo/index.htm>). Where groundwater may be impacted the assessment should identify appropriate groundwater environmental values.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be based on the ANZECC (2000) Guidelines for Fresh and Marine Water Quality as a minimum but should also be based on advice from Hunter Water Corporation given the sensitive receiving environment of the Hunter River.
- State any locally specific objectives, criteria or targets which have been endorsed by the NSW Government.

#### Impact Assessment

- Describe the nature and degree of impact that any proposed discharges will have on the receiving environment, both surface water and groundwater.
- Detail contractual and other arrangements that will be put in place to prevent pollution from haul roads and unsealed roads per se, particularly rights of carriageways not owned by the proponent.
- Assess impacts against the relevant ambient water quality outcomes. Demonstrate how the proposal will be designed and operated to:
  - protect the Water Quality Objectives for receiving waters where they are currently being achieved; and
  - contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved.



- Where a discharge is proposed that includes a mixing zone, the proposal should demonstrate how wastewater discharged to waterways will ensure the ANZECC (2000) water quality criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge, and that any impacts in the initial mixing zone are demonstrated to be reversible.
- Propose water quality limits for any discharge(s) that adequately protects the receiving environment.
- Assess impacts on groundwater and groundwater dependent ecosystems.
- Describe how stormwater will be managed both during and after construction.

### Monitoring

- Describe how predicted impacts will be monitored and assessed over time.

## **6.2 Soil**

The EIS should include:

- An assessment of potential impacts on soil and land resources should be undertaken, being guided by Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000). The nature and extent of any significant impacts should be identified. Particular attention should be given to:
  - Soil erosion and sediment transport - in accordance with Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008).
- A description of the mitigation and management options that will be used to prevent, control, abate or minimise identified soil and land resource impacts associated with the project. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

## **7 Waste**

The EIS should:

- Include a detailed plan for in-situ classification of waste material, including the sampling locations and sampling regime that will be employed to classify the waste, particularly with regards to the identification of contamination hotspots.
- Identify, quantify, characterise and classify all waste that currently exists at the site. Identify the intended end use, for example reuse or disposal, and the end use location(s) for the waste. Also, specify the mechanism under which waste will be reused or disposed, such as a Resource Recovery Exemption. Note: All waste must be classified in accordance with EPA's Classification Guidelines.
- Identify, characterise and classify all waste that will be generated onsite through excavation, demolition or construction activities, including proposed quantities of the waste. Note: All waste must be classified in accordance with EPA's Waste Classification Guidelines.
- Identify, characterise and classify all waste that is proposed to be disposed of to an offsite location, including proposed quantities of the waste and the disposal locations for the waste. This includes waste that is intended for re-use or recycling. Note: All waste must be classified in accordance with EPA's Classification Guidelines.
- Include a commitment to retaining all sampling and classification results for the life of the project to demonstrate compliance with EPA's Waste Classification Guidelines.

- Provide details of how waste will be handled and managed onsite to minimise pollution, including:
  - a) Stockpile location and management
    - Labelling of stockpiles for identification, ensuring that all waste is clearly identified and stockpiled separately from other types of material (especially the separation of any contaminated and non-contaminated waste).
    - Proposed height limits for all waste to reduce the potential for dust and odour.
    - Procedures for minimising the movement of waste around the site and double handling.
    - Measures to minimise leaching from stockpiles into the surrounding environment, such as sediment fencing, geofabric liners etc.
  - b) Erosion, sediment and leachate control including measures to be implemented to minimise erosion, leachate and sediment mobilisation at the site during works. The EIS should show the location of each measure to be implemented. The Proponent should consider measures such as:
    - Sediment traps
    - Diversion banks
    - Sediment fences
    - Bunds (earth, hay, mulch)
    - Geofabric liners
    - Other control measures as appropriate
- The Proponent should also provide details of:
  - how leachate from stockpiled waste material will be kept separate from stormwater runoff;
  - treatment of leachate through a wastewater treatment plant (if applicable); and
  - any proposed transport and disposal of leachate off-site.
- Provide details of how the waste will be handled and managed during transport to a lawful facility. If the waste possesses hazardous characteristics, the Proponent must provide details of how the waste will be treated or immobilised to render it suitable for transport and disposal.
- Include details of all procedures and protocols to be implemented to ensure that any waste leaving the site is transported and disposed of lawfully and does not pose a risk to human health or the environment.
- Include a statement demonstrating that the Proponent is aware of EPA's requirements with respect to notification and tracking of waste.
- Include a statement demonstrating that the Proponent is aware of the relevant legislative requirements for disposal of the waste, including any relevant Resource Recovery Exemptions, as gazetted by EPA from time to time.
- Outline contingency plans for any event that affects operations at the site that may result in environmental harm, including: excessive stockpiling of waste, volume of leachate generated exceeds the storage capacity available on-site etc.
- Include details of the quantity and type of liquid and/or non-liquid waste(s) generated, handled, processed or disposed of at the premises, including:
  - the transportation, assessment and handling of waste arriving at or generated at the site;
  - any stockpiling of wastes or recovered materials at the site;
  - any waste processing related to the facility, including reuse, recycling, reprocessing or treatment both on- and off-site;



- the method for disposing of all wastes or recovered materials at the facility;
- the emissions arising from the handling, storage, processing and reprocessing of waste at the facility;
- the proposed controls for managing the environmental impacts of these activities.

## **8 Dangerous Goods, Chemical storage and Bunding**

- The EIS must outline all details regarding the transport, handling, storage and use of dangerous goods, chemicals and products, including fuel, both on site and with ancillary activities and describe the measures proposed to minimise the potential for leakage or the migration of pollutants into the soil/waters or from the site.
- The EIS should identify any fuel or chemical storage areas proposed for the site.
- The EIS should consider compliance with the following legislation, standards and guidelines where relevant:
  - Australian Standard AS1692:1989 Tanks for Flammable and combustible liquids;
  - The DECC's "Bunding and Spill Management" Technical Guideline (November 1997)
  - Australian Standard AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids
  - Australia Standard AS 4452-1997: The Storage and Handling of Toxic Substances;
  - Australian/New Zealand Standard AS/NZS 4452:1997: The Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Intermediate Bulk Containers;
  - and
  - Road and Rail Transport (Dangerous Goods) Act 1997

## **9 Monitoring Programs**

The EIS should include a detailed assessment of any noise, air quality, weather, water or waste monitoring required during the construction and on-going operation of the site to ensure that the development achieves a satisfactory level of environmental performance. The evaluation should include a detailed description of the monitoring locations, sample analysis methods and the level of reporting proposed.

**ATTACHMENT B****Guidance Material**

<b>Title</b>	<b>Web address</b>
<b><u>Relevant Legislation</u></b>	
<i>Environmentally Hazardous Chemicals Act 1985</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N</a>
<i>Environmental Planning and Assessment Act 1979</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N</a>
<i>Protection of the Environment Operations Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N</a>
<i>Water Management Act 2000</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N</a>
<b><u>Licensing</u></b>	
Guide to Licensing	<a href="http://www.environment.nsw.gov.au/licensing/licenceguide.htm">www.environment.nsw.gov.au/licensing/licenceguide.htm</a>
<b><u>Air Issues</u></b>	
<b>Air Quality</b>	
Approved methods for the Modelling and Assessment of Air Pollutants in NSW (2016)	<a href="http://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf">http://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf</a>
Approved methods for the Sampling and Analysis of Air Pollutants in NSW (2016)	<a href="http://www.epa.nsw.gov.au/resources/air/07001amsaap.pdf">http://www.epa.nsw.gov.au/resources/air/07001amsaap.pdf</a>
POEO (Clean Air) Regulation 2010	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N</a>
<b><u>Noise and Vibration</u></b>	
Interim Construction Noise Guideline (DECC, 2009)	<a href="http://www.environment.nsw.gov.au/noise/constructnoise.htm">http://www.environment.nsw.gov.au/noise/constructnoise.htm</a>
Assessing Vibration: a technical guideline (DEC, 2006)	<a href="http://www.environment.nsw.gov.au/noise/vibrationguide.htm">http://www.environment.nsw.gov.au/noise/vibrationguide.htm</a>
NSW Industrial Noise Policy Noise Policy for Industry (2017)	<a href="http://www.epa.nsw.gov.au/your-environment/noise/industrial-noise/nsw-industrial-noise-policy">http://www.epa.nsw.gov.au/your-environment/noise/industrial-noise/nsw-industrial-noise-policy</a>
NSW Road Noise Policy (DECCW, 2011)	<a href="http://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf">http://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf</a>
<b><u>Waste</u></b>	
Waste Classification Guidelines (EPA, 2014)	<a href="http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm">http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm</a>
Resource recovery exemption	<a href="http://www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm">http://www.epa.nsw.gov.au/wasteregulation/recovery-exemptions.htm</a>
<b><u>Water</u></b>	
Water Quality Objectives	<a href="http://www.environment.nsw.gov.au/ieo/index.htm">http://www.environment.nsw.gov.au/ieo/index.htm</a>
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	<a href="http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality">http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality</a>

Title	Web address
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	<a href="http://deccnet/water/resources/AWQGuidance7.pdf">http://deccnet/water/resources/AWQGuidance7.pdf</a>
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	<a href="http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf</a>



## Anthony Ko

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**From:** Fire Safety <FireSafety@fire.nsw.gov.au>  
**Sent:** Monday, 18 February 2019 12:06 PM  
**To:** Tatsiana Bandaruk  
**Subject:** FRN19/354 - BFS19/291 - FW: Newcastle Gas Fired Power Station Project (SSI 9837) Request for Input into Secretary's Environmental Assessment Requirements

Dear Tatsiana,

In regards to your email correspondence dated the 25<sup>th</sup> of January 2019, Fire & Rescue NSW confirms receipt of the Secretary's Environmental Assessment Requirements (SEARs) for AGL Macquarie Pty Ltd, Newcastle Gas Fired Power Station Project (SSI 9837), located in Tomago, north of Newcastle, within the Port Stephens local government area.

It has been the experience of FRNSW that power stations pose unique challenges to firefighters when responding to and managing an incident. Factors such as high and potentially hazardous fuel loads, facility layout, and design of fire safety systems have a significant impact on the ability to conduct firefighting operations safely and effectively. Consultation with organisations such as FRNSW throughout the development process enables the design and implementation of more effective fire safety solutions that help to mitigate the impact of incidents when they occur.

FRNSW understands the project will undergo a State Environmental Planning Policy No.33 – Hazardous and Offensive Development (SEPP 33) screening process and the subsequent development of a Preliminary Hazard Analysis (PHA) report.

Following a review of the SEARs FRNSW initial recommendations are that a comprehensive Fire Safety Study (FSS) will be required for the site.

FRNSW requests the opportunity to review and comment on the forthcoming EIS.

Regards



**STATION OFFICER BRENDAN HURLEY**

**TEAM LEADER SPECIAL HAZARDS**

**INFRASTRUCTURE LIAISON UNIT | Fire and Rescue NSW**

T: (02) 9742 7343 | M: 0438 601 582

1 Amarina Ave, Greenacre, NSW 2190 | Locked Mail Bag 12, Greenacre, NSW 2190

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**PREPARED FOR ANYTHING.**

[www.fire.nsw.gov.au](http://www.fire.nsw.gov.au)



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Hunter Water Corporation  
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NEWCASTLE NSW 2300  
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8 February 2019

Our Ref: HW2018-813

Resource and Energy Assessments  
NSW Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Attention: Tatsiana Bandaruk, Environmental Assessment Officer  
Via email: [Tatsiana.Bandaruk@planning.nsw.gov.au](mailto:Tatsiana.Bandaruk@planning.nsw.gov.au)

Dear Tatsiana,

**RE: REQUEST FOR INPUT INTO SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS - NEWCASTLE GAS FIRED POWER STATION PROJECT (SSI 9837)**

Thank you for your email on 25 January 2019 to Hunter Water Corporation (Hunter Water) seeking input for the Secretary's Environmental Assessment Requirements (SEARS) for the Environmental Impact Statement (EIS) for the proposed 250 MW gas fired power station and ancillary infrastructure at Tomago. Hunter Water understands that the proposed power station would operate as a peak load generation facility, would connect into the existing gas supply system at the Newcastle Gas Storage Facility (NGSF) and/or the Tomago to Hexham high pressure gas pipeline via new pipeline(s), and would connect into the existing electricity network at the Tomago switchyard via a new 132 kV transmission line. Ancillary infrastructure to be constructed on the power station site would include fuel storage tanks, water management facilities, workshops, administration buildings and amenities.

The proposed power station site is located adjacent to the Tomago Sandbeds Special Area as gazetted in the *Hunter Water Regulation 2015*, while the gas pipeline and electrical transmission investigation areas are located within the Special Area. The Tomago aquifer can supply up to 30% of the region's drinking water supply and plays an important strategic function for Hunter Water as a drought reserve.

Hunter Water's Operating Licence requires compliance with the Framework for Management of Drinking Water Quality that is part of the Australian Drinking Water Guidelines (ADWG). The Framework requires adoption of a multiple barrier approach to water quality, and states that "*the most effective barrier is protection of source water to the maximum degree practical*". Protection of land within the Special Area is key to ensuring that this barrier is effective. In accordance with the *Hunter Water Regulation 2015*, prevention of pollution or contamination of water in the Special Area is of paramount importance to the Corporation.

It is noted that the draft SEARs include, among others, the requirement for the EIS to address the following matters:

- an assessment of the impacts of the project on groundwater aquifers and groundwater dependent ecosystems;
- a detailed site water balance for the project, including water supply and wastewater disposal arrangements;
- an assessment of whether the project would have a neutral or beneficial effect on water quality;
- an assessment of potential contamination from the proposed construction of the site and its associated risks to human health and the environment; and
- a Biodiversity Development Assessment Report.

Hunter Water's recommended additions to these requirements are described below.

### **Aquifers and Groundwater Dependent Ecosystems (GDEs)**

An assessment of the impact of the project on the Tomago aquifer and GDEs should specifically address the extraction of groundwater for both construction and operation as well as discharge of stormwater and excess water from operational activities to the environment, if proposed.

The NGSF is located within the groundwater draw zone for extraction wells at Station 20 in the Tomago aquifer, as indicated in Attachment 1. Where the proposed new gas pipeline would connect into the NGSF (either option) the construction and/or operation of the pipeline will potentially impact on the Hunter Water boreline and this should be addressed in the EIS.

### **Neutral or Beneficial Effect on Water Quality (NorBE)**

Hunter Water expects that all development in drinking water catchments will demonstrate NorBE. NorBE applies to all releases of water, wastewater and other contaminants from the site that may affect water quality, during both construction and operation. A development is considered to demonstrate NorBE if the development:

- (a) has no identifiable potential impact on water quality, or
- (b) will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or
- (c) will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority.

Hunter Water has published guidelines for development in drinking water catchments and these can be viewed on Hunter Water's website at [Guideline for Development in the Drinking Water catchments](#). This link may be included in the list of reference documents in Attachment 1 to the SEARS.

### **Water Supply and Associated Services**

Hunter Water understands that operational water demands will be determined by the preferred power generation technology. Hunter Water notes that the Preliminary Environmental Assessment (PEA) identifies a range of options for water supply, including groundwater bores, the Hunter River, and the Hunter Water potable water network.

There is an existing water supply network in the vicinity of the NGSF. Environmental impacts associated with extending the existing water supply network, if required, should be addressed in the EIS.

Potable water supply would be from Grahamstown Water Treatment Plant which can be sourced from either Grahamstown Dam or Tomago Borefields depending on operational



requirements. There is varying water quality from either source which Hunter Water will be able to provide upon request.

From a water system demand perspective it is important to understand annual volume, volume required when operating, how long a 'peak' may last, average/peak flow rate required, and operating implications – this could influence how Hunter Water configures the network and what to do when changing source water

In addition to a water balance, the feasibility of each of the identified options should be detailed in the EIS. In particular, the EIS should address how water usage for the project will affect water availability for other relevant water users, including the environment, if groundwater bores are proposed to supply water from the Tomago aquifer. We reiterate that the Tomago Sandbeds are an important source of drinking water for the Lower Hunter Region, particularly during times of drought, and that this function should not be compromised.

The construction of ancillary services for the project, in particular, have the potential to impact on the Tomago aquifer and the EIS must assess these potential impacts. These include general construction impacts, such as erosion and spill risk, and the discharge of potable water to the downstream environment during the commissioning of new water supply assets, such as the impact of scouring the pipes and the need for dechlorination and other scour control measures. Designs should address site selection for scour or other maintenance access locations, including potential alternative locations.

### **Wastewater and Associated Services**

The expected concentrations of contaminants and volumes of wastewater (sewage and process water), together with the preferred disposal option/s and any associated impacts, should be clearly addressed in the EIS. The EIS should also address whether the operation of the proposed power station would produce brine and how that would be disposed.

The PEA mentions potential options for the management of excess process water from the operation, but does not discuss how sewage generated at the power station will be managed. The site is not currently service by the existing Hunter Water sewer network, however, a private sewer scheme services the industrial area to the south of the site by way of a pump out system that operates under a Trade Waste Agreement with Hunter Water. The Proponent should liaise with Hunter Water to identify the requirements for connection to this system or alternate sewage management options.

The EIS should assess the options for the disposal of wastewater and the potential environmental and/or operational impacts of the chosen option. If disposal to sewer or tankering to the Raymond Terrace Wastewater Treatment Works is the preferred option, the assessment must address impacts to the capacity and functionality of the Hunter Water wastewater treatment system. Where development is located within a drinking water catchment, disposal of wastewater to a Hunter Water wastewater treatment system, whether by sewer or tanker, is considered to meet NorBE. If the proponent proposes to discharge process wastewater to the environment, evidence must be provided to demonstrate that the discharge meets NorBE.

If connection to the reticulated sewerage network is proposed, details of the impact assessment for such connection may be included in the EIS rather than in a separate document to Hunter Water. This should include assessment of the impacts of overflows from any manholes required.

**Stormwater**

The EIS should include a stormwater management plan and MUSIC modelling to demonstrate that the proposed stormwater treatment train will result in post-development stormwater quality that is equal to or better than the pre-development stormwater quality. The appropriate Port Stephens MUSIC Link defaults should be used, and the modelling files should be provided to Hunter Water (where there is a risk of impacts on the drinking water catchment) and Port Stephens Council for review, together with the MUSIC Link report and justification for any parameters that have been modified.

**Contamination Risk**

The potential for contaminants to be liberated and enter the Tomago aquifer as a result of construction and operation of the project should be addressed in the EIS. The nature and extent of the contamination risk should be described, including an estimation of the likely pollutant concentrations that may reach the aquifer and how such risks are proposed to be managed.

**Biodiversity Development Assessment Report (BDAR)**

The BDAR should include an assessment of the impact of the development on the adjacent biodiversity stewardship site proposed by Hunter Water. Hunter Water can provide more information about the biodiversity stewardship site to the consultant preparing the EIS. We note that the southern gas investigation corridor is less likely to affect the proposed biodiversity stewardship site than the northern corridor.

In particular, the BDAR needs to include an assessment of the impact of edge effects and disruption of movement corridors, particularly for koalas. It is noted that the PEA refers to endangered koala populations in Hawks Nest and Tea Gardens, which are in the Great Lakes Local Government Area and are a separate and distinct population from the population in the Tomago Sandbeds in the Port Stephens Local Government Area. During preparation of the BDAR, consultation should be undertaken with relevant organisations regarding koala population studies undertaken across the Tomago Sandbeds and regarding other koala data. Such organisations include Port Stephens Council, Hunter Wildlife Rescue and Port Stephens Koalas.

Regarding biodiversity offsets, we note that the Hunter Region Botanic Gardens has a register Biobanking Agreement with the Office of Environment and Heritage and has biodiversity credits available for purchase.

**Additional Considerations**

Indicative construction laydown and stockpiling areas must be nominated and assessed. All potentially contaminating materials should be stored outside the catchment area and construction should include the preparation of environmental management plans that address the management of all potential risks.

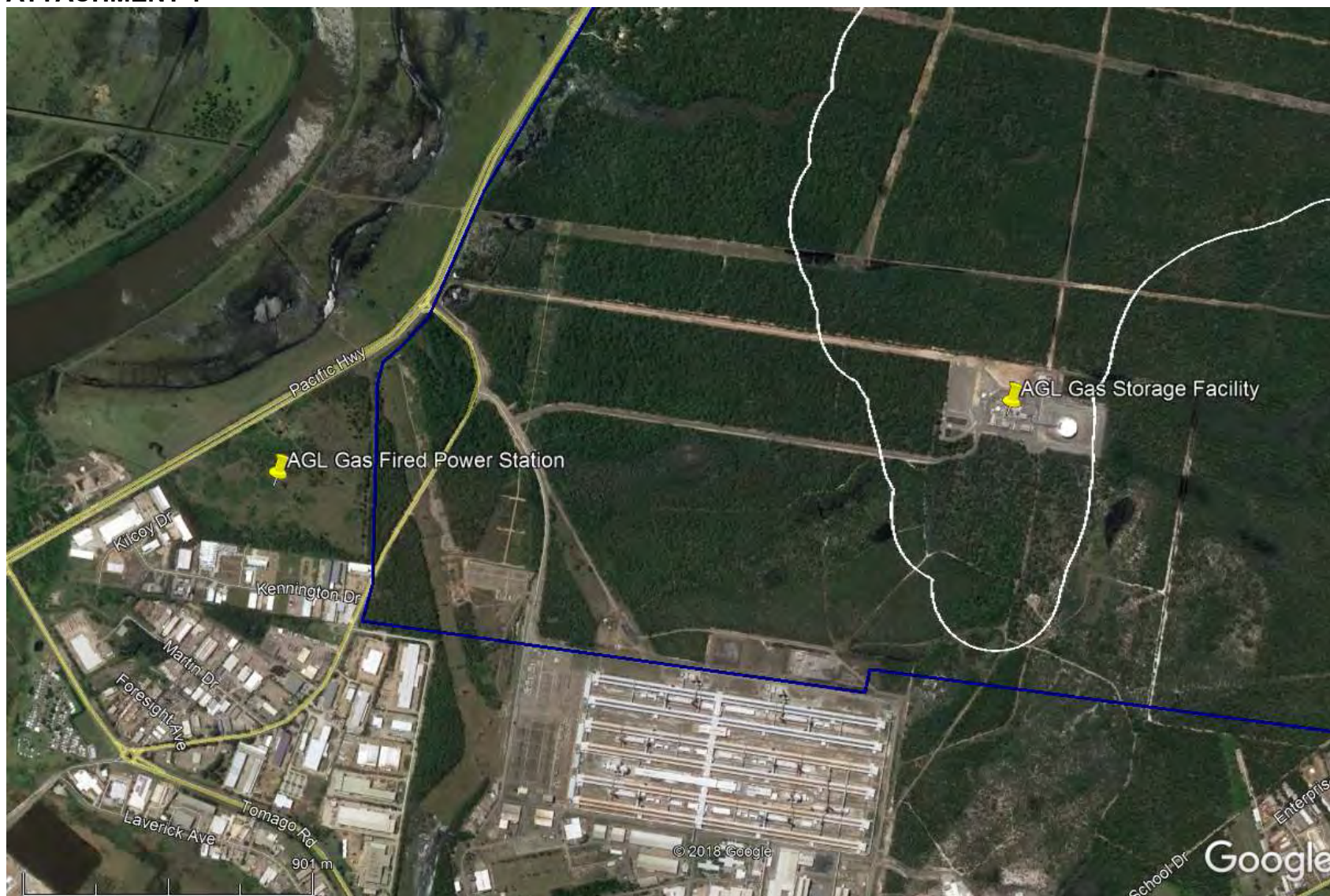
If you require further advice or clarification regarding the above comments, please contact me on (02) 4979 9545.

Yours sincerely,



**Malcolm Withers**  
**Account Manager Major Development**

## ATTACHMENT 1



Location of proposed Gas Fired Power Station site and existing Newcastle Gas Storage Facility in relation to the gazetted Tomago Special Area (dark blue line) and Station 20 groundwater draw zone (white line).



DOC19/67554-1  
SSI 9837

Tatsiana Bandaruk  
Environmental Assessment Officer  
Resource and Energy Assessments – Planning Services  
Department of Planning and Environment  
[tatsiana.bandaruk@planning.nsw.gov.au](mailto:tatsiana.bandaruk@planning.nsw.gov.au)

Dear Tatsiana

**Input into Secretary's Environmental Assessment Requirements – Newcastle Gas Fired Power Station Project – Port Stephens LGA (SSI 9837)**

I refer to your email dated 25 January 2019 seeking input into the Secretary's Environmental Assessment Requirements (SEARs) for the Newcastle Gas Fired Power Station Project, located at 1940 Pacific Highway, Tomago. The proposed development is within the Port Stephens local government area.

The Office of Environment and Heritage (OEH) understands that AGL is seeking to establish a gas fired power station, electricity transmission line, gas transmission pipeline and associated infrastructure. OEH understands that the proposal is a critical State Significant Infrastructure (SSI 9837) project under the *Environmental Planning and Assessment Act 1979*.

OEH has reviewed the Preliminary Environmental Assessment document as prepared by AGL (dated 9 January 2019) and has prepared Standard SEARs which are presented in **Attachment A**. There are no project-specific SEARs provided for this project (**Attachment B**). Details of guidance documents are provided in **Attachment C**.

With respect to Aboriginal cultural heritage, OEH notes that any Aboriginal cultural heritage assessment undertaken prior to 2010 is unlikely to meet current OEH Aboriginal cultural heritage guidelines for the assessment of Aboriginal cultural heritage in NSW. The OEH 2011 *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* should be referenced in this instance.

If you have any further questions in relation to this matter, please contact Brendan Mee, Senior Conservation Planning Officer, on 02 4904 2730 or via email at [rog.hcc@environment.nsw.gov.au](mailto:rog.hcc@environment.nsw.gov.au)

Yours sincerely

A handwritten signature in dark ink, appearing to be 'SC', with a long horizontal flourish extending to the right.

**STEVEN COX**

**Senior Team Leader - Planning  
Hunter Central Coast Branch  
Conservation and Regional Delivery Division**

7 February 2019

Enclosure: Attachments A, B, C

## Attachment A – Standard Environmental Assessment Requirements

<p><b>Biodiversity</b></p> <ol style="list-style-type: none"> <li>1. Biodiversity impacts related to the proposed development (SSI 9837) are to be assessed in accordance with the <a href="#">Biodiversity Assessment Method</a> and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the <i>Biodiversity Conservation Act 2016</i> (s6.12), <i>Biodiversity Conservation Regulation 2017</i> (s6.8) and <a href="#">Biodiversity Assessment Method</a>.</li> <li>2. The BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the <a href="#">Biodiversity Assessment Method</a>.</li> <li>3. The BDAR must include details of the measures proposed to address the offset obligation as follows; <ul style="list-style-type: none"> <li>• The total number and classes of biodiversity credits required to be retired for the development/project;</li> <li>• The number and classes of like-for-like biodiversity credits proposed to be retired;</li> <li>• The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules;</li> <li>• Any proposal to fund a biodiversity conservation action;</li> <li>• Any proposal to conduct ecological rehabilitation (if a mining project);</li> <li>• Any proposal to make a payment to the Biodiversity Conservation Fund.</li> </ul> </li> </ol> <p>If seeking approval to use the variation rules, the BDAR must contain details of the <a href="#">reasonable steps</a> that have been taken to obtain requisite like-for-like biodiversity credits.</p> <ol style="list-style-type: none"> <li>4. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the <i>Biodiversity Conservation Act 2016</i>.</li> </ol>
<p><b>Aboriginal cultural heritage</b></p> <ol style="list-style-type: none"> <li>5. The Environmental Impact Assessment (EIS) must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in the Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the <a href="#">Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011)</a> and consultation with OEH regional branch officers.</li> <li>6. Consultation with Aboriginal people must be undertaken and documented in accordance with the <a href="#">Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)</a>. The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.</li> <li>7. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.</li> </ol>



<b>Historic heritage</b>
<p>8. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to State and local heritage including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall:</p> <ul style="list-style-type: none"> <li>a. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996),</li> <li>b. be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria),</li> <li>c. include a statement of heritage impact for all heritage items (including significance assessment),</li> <li>d. consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), and</li> <li>e. where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.</li> </ul>
<b>Water and soils</b>
<p>9. The EIS must map the following features relevant to water and soils including:</p> <ul style="list-style-type: none"> <li>a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).</li> <li>b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method).</li> <li>c. Wetlands as described in s4.2 of the Biodiversity Assessment Method.</li> <li>d. Groundwater.</li> <li>e. Groundwater dependent ecosystems.</li> <li>f. Proposed intake and discharge locations.</li> </ul>
<p>10. The EIS must describe background conditions for any water resource likely to be affected by the development, including:</p> <ul style="list-style-type: none"> <li>a. Existing surface and groundwater.</li> <li>b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.</li> <li>c. Water Quality Objectives (as endorsed by the NSW Government <a href="http://www.environment.nsw.gov.au/ieo/index.htm">http://www.environment.nsw.gov.au/ieo/index.htm</a>) including groundwater as appropriate that represent the community's uses and values for the receiving waters.</li> <li>d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the <a href="#">ANZECC (2000) Guidelines for Fresh and Marine Water Quality</a> and/or local objectives, criteria or targets endorsed by the NSW Government.</li> </ul>

<p>11. The EIS must assess the impacts of the development on water quality, including:</p> <ul style="list-style-type: none"> <li>a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.</li> <li>b. Identification of proposed monitoring of water quality.</li> </ul>
<p>12. The EIS must assess the impact of the development on hydrology, including:</p> <ul style="list-style-type: none"> <li>a. Water balance including quantity, quality and source.</li> <li>b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.</li> <li>c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.</li> <li>d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches).</li> <li>e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water.</li> <li>f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.</li> <li>g. Identification of proposed monitoring of hydrological attributes.</li> </ul>
<p><b>Flooding and coastal erosion</b></p>
<p>13. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:</p> <ul style="list-style-type: none"> <li>a. Flood prone land.</li> <li>b. Flood planning area, the area below the flood planning level.</li> <li>c. Hydraulic categorisation (floodways and flood storage areas).</li> </ul>
<p>14. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event.</p>
<p>15. The EIS must model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:</p> <ul style="list-style-type: none"> <li>a. Current flood behaviour for a range of design events as identified in 11 above. This includes the 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.</li> </ul>

16. Modelling in the EIS must consider and document:

- a. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood.
- b. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories.
- c. Relevant provisions of the NSW Floodplain Development Manual 2005.

17. The EIS must assess the impacts on the proposed development on flood behaviour, including:

- a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure.
- b. Consistency with Council floodplain risk management plans.
- c. Compatibility with the flood hazard of the land.
- d. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
- e. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
- f. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
- g. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council.
- h. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council.
- i. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.
- j. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.



## **Attachment B – Project specific environmental assessment requirements**

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<b>Biodiversity</b> - nil
<b>Aboriginal cultural heritage</b> - nil
<b>Historic heritage</b> - nil
<b>Water and soils</b> - nil
<b>Flooding and coastal erosion</b> - nil

## Attachment C – Guidance material

Title	Web address
<b>Relevant legislation</b>	
<i>Biodiversity Conservation Act 2016</i>	<a href="https://www.legislation.nsw.gov.au/#/view/act/2016/63/full">https://www.legislation.nsw.gov.au/#/view/act/2016/63/full</a>
<i>Coastal Management Act 2016</i>	<a href="https://www.legislation.nsw.gov.au/#/view/act/2016/20/full">https://www.legislation.nsw.gov.au/#/view/act/2016/20/full</a>
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	<a href="http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/">http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/</a>
<i>Environmental Planning and Assessment Act 1979</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N</a>
<i>Fisheries Management Act 1994</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N</a>
<i>Marine Parks Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N</a>
<i>National Parks and Wildlife Act 1974</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N</a>
<i>Protection of the Environment Operations Act 1997</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N</a>
<i>Water Management Act 2000</i>	<a href="http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N">http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N</a>
<i>Wilderness Act 1987</i>	<a href="http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N">http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N</a>
<b>Biodiversity</b>	
Biodiversity Assessment Method (OEH, 2017)	<a href="http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf">http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf</a>
Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017)	<a href="http://www.environment.nsw.gov.au/resources/bcact/guidance-decision-makers-determine-serious-irreversible-impact-170204.pdf">http://www.environment.nsw.gov.au/resources/bcact/guidance-decision-makers-determine-serious-irreversible-impact-170204.pdf</a>
NSW Guide to Surveying Threatened Plant	<a href="http://www.environment.nsw.gov.au/resources/threatenedspecies/160129-threatened-plants-survey-guide.pdf">http://www.environment.nsw.gov.au/resources/threatenedspecies/160129-threatened-plants-survey-guide.pdf</a>
Fisheries NSW policies and guidelines	<a href="http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation">http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation</a>
List of national parks	<a href="http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx">http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx</a>
Revocation, recategorisation and road adjustment policy (OEH, 2012)	<a href="http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm">http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm</a>
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/protectedareas/developmentadjoiningdecc.htm">http://www.environment.nsw.gov.au/protectedareas/developmentadjoiningdecc.htm</a>
<b>Heritage</b>	
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	<a href="http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf">http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf</a>
Statements of Heritage Impact 2002 (HO & DUAP)	<a href="http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf">http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf</a>
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	<a href="http://www.environment.nsw.gov.au/Heritage/publications/">http://www.environment.nsw.gov.au/Heritage/publications/</a>

Title	Web address
<b>Aboriginal cultural heritage</b>	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf</a>
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf</a>
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf</a>
Aboriginal Site Recording Form	<a href="http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf">http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf</a>
Aboriginal Site Impact Recording Form	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf</a>
Aboriginal Heritage Information Management System (AHIMS) Registrar	<a href="http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm">http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm</a>
Care Agreement Application form	<a href="http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf">http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf</a>
<b>Acid sulphate soils</b>	
Acid Sulfate Soils Planning Maps via Data.NSW	<a href="http://data.nsw.gov.au/data/">http://data.nsw.gov.au/data/</a>
Acid Sulfate Soils Manual (Stone et al. 1998)	<a href="http://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf">http://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf</a>
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	<a href="http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf">http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf</a> This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
<b>Flooding and coastal erosion</b>	
Reforms to coastal erosion management	<a href="http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm">http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm</a>
Floodplain development manual	<a href="http://www.environment.nsw.gov.au/floodplains/manual.htm">http://www.environment.nsw.gov.au/floodplains/manual.htm</a>
Guidelines for Preparing Coastal Zone Management Plans	Guidelines for Preparing Coastal Zone Management Plans <a href="http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf">http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf</a>
NSW Climate Impact Profile	<a href="http://climatechange.environment.nsw.gov.au/">http://climatechange.environment.nsw.gov.au/</a>
Climate Change Impacts and Risk Management	<a href="#">Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation</a>
<b>Water</b>	
Water Quality Objectives	<a href="http://www.environment.nsw.gov.au/ieo/index.htm">http://www.environment.nsw.gov.au/ieo/index.htm</a>
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	<a href="http://www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1">www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1</a>
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	<a href="http://deccnet/water/resources/AWQGuidance7.pdf">http://deccnet/water/resources/AWQGuidance7.pdf</a>



Title	Web address
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	<a href="http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf</a>



## NSW RURAL FIRE SERVICE



The Secretary  
NSW Planning & Environment  
GPO Box 39  
Sydney NSW 2001

Your Ref: SSD 9837  
Our Ref: D19/305  
DA19013117196 AB

**ATTENTION: Tatsiana Banduruk**

**8 February 2019**

Dear Ms Bandurak

**Agency Comment:- Secretary Environmental Assessment Requirements for Newcastle Gas Fired Power Station Project; Lots 2&3 DP 1043561 - 1940 Pacific Hwy Tomago**

I refer to NSW Planning and Environment correspondence dated 25 January 2019 seeking comment from the NSW Rural Fire Service (NSW RFS) on matters to be included in the Environmental Impact Statement (EIS) for the above State Significant Development proposal.

The NSW RFS understands the proposal will include:

- A new power station with a nominal capacity of about 250MW comprising of either large reciprocating engine generators or aero-derivate gas turbine generators. The power station would operate as a "peak load" generation facility supplying electricity at short notice during periods of high electricity demand or low electricity supply.
- Facilities ancillary to the power station include gas compression facilities, fuel storage tanks and infrastructure including diesel storage and truck unloading facilities, water management facilities and office, administration / amenities areas, workshop / storage facilities.
- Connection of the power station to the gas supply at the Newcastle Gas Storage Facility (NGSF) with a new gas pipeline(s) and/or connection of the power station directly to the existing Tomago to Hexham high pressure gas pipeline.
- Connection of the power station to the existing TransGrid operated Tomago switchyard with a new 132kV transmission line.

The subject land is part mapped bush fire prone land by Port Stephens Shire Council. The NSW RFS considers that the EIS for the Newcastle power station should address the following bush fire criteria:

- Department of Planning and Environment – Hazardous Industry Planning Advisory Papers;
- the aim and objectives of 'Planning for Bush Fire Protection 2006';
- identification of potential ignition sources during construction and operation of the development;
- storage of fuels and other hazardous materials (e.g., explosives for blasting);

**Postal address**

Records  
NSW Rural Fire Service  
Locked Bag 17  
GRANVILLE NSW 2142

**Street address**

NSW Rural Fire Service  
Planning and Environment Services (North)  
Suite 1, 129 West High Street  
COFFS HARBOUR NSW 2450

T (02) 6691 0400  
F (02) 6691 0499  
[www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)  
Email: [pes@rfs.nsw.gov.au](mailto:pes@rfs.nsw.gov.au)

- *proposed bush fire protection measures for the development, including vegetation management and fire suppression capabilities;*
- *operational access for fire fighting appliances to the site; and*
- *emergency and evacuation planning.*

For any enquiries regarding this correspondence, please contact Alan Bawden on 6691 0400.

Yours sincerely



John Ball

**Manager – Planning and Environment Service North**

*The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au) and search under 'Planning for Bush Fire Protection, 2006'.*





6 February 2019

Department of Planning & Environment  
Resource and Energy Assessments  
GPO Box 39  
SYDNEY NSW 2001

**Attention: Tatsiana Bandaruk**

**SEARS REQUEST - SSI 9837 - NEWCASTLE GAS FIRED POWER STATION PROJECT, LOT: 3 DP: 1043561, 1940 PACIFIC HIGHWAY TOMAGO**

Reference is made to Department of Planning and Environment's email dated 25 January 2019, requesting Roads and Maritime Services' (Roads and Maritime) requirements under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

Transport for NSW and Roads and Maritime's primary interests are in the road network, traffic, broader transport issues and the inclusion of the M1 Motorway extension to Raymond Terrace. In particular, the efficiency and safety of the classified road network, the security of property assets and the integration of land use and transport.

Roads and Maritime have reviewed the Preliminary Environmental Assessment, prepared by AGL, dated 9 January 2019. It is understood that the proposal be for:

- the construction and operation of a 250 MW gas fired power station at 1940 Pacific Highway Tomago, with access to Old Punt Road; and
- ancillary infrastructure including connection to gas supply, gas compression facilities, fuel storage tanks, water management facilities and grid connection.

Roads and Maritime response & requirements

Roads and Maritime recommends that the Environmental Impact Statement (EIS) should refer to the following guidelines with regard to the traffic and transport impacts of the proposed development:

- Road and Related Facilities within the Department of Planning EIS Guidelines, and,
- Section 2 Traffic Impact Studies of Roads and Maritime's *Guide to Traffic Generating Developments 2002*.

Furthermore, a traffic and transport study shall be prepared in accordance with the Roads and Maritime's *Guide to Traffic Generating Developments 2002* and is to include (but not be limited to) the following:

- Assessment of all relevant vehicular traffic routes and intersections for access to and from the site, including current traffic counts,
- Assessment of trip generation of the proposed power station. As a power station is not a defined use in the RMS Guide to Traffic Generating Developments, it is recommended that an assessment of the peak hour trip generation be made relative to the expected employees and visitors driving to and from the site during the AM and PM peak hours.
- The distribution on the road network of the trips generated by the proposed development. It is requested that the predicted traffic flows are shown diagrammatically to a level of detail sufficient for easy interpretation.
- Identify any necessary road network infrastructure upgrades that are required to maintain existing levels of service on both the local and classified road network for the development. In this regard, preliminary concept drawings shall be submitted with the EIS for any identified road infrastructure upgrades. However, it should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of Roads and Maritime and Council.

#### M1 Motorway Extension to Raymond Terrace

The M1 Motorway extension to Raymond Terrace (M12RT) project has been declared critical State significant infrastructure (SSI 7319) under section 115V of the *Environmental Planning and Assessment Act 1979*, as it is considered to be essential to the State for economic, environmental or social reasons. Roads and Maritime is currently carrying out environmental assessment of the project through the completion of an Environmental Impact Statement (EIS).

Noting the interaction of the proposed Newcastle Gas Power Station and the M12RT project, Roads and Maritime have been holding negotiations and design reviews with the proponent AGL to ensure that both projects can be delivered across the site (mainly being Lot 2 & 3 DP1043561).

Negotiations and reviews to date have resulted in potential changes to both projects so that both can be accommodated on the subject site. It is RMS's position to achieve this outcome and ensure both major infrastructure projects can be delivered and function across the subject site. It is anticipated that negotiations and review will continue to occur until both projects achieve project approval and are constructed through the site.

The potential timing of delivery of the AGL proposal may occur earlier than the M12RT. In this circumstance, specific conditions may be required on the AGL approval instrument to enable the efficient future delivery of the M12RT. The reverse would potentially apply should the M12RT proceed earlier. It would be appreciated if the Department could consider including requirements in the respective approval instrument conditions for either project.

In relation to the M1 Motorway extension in addition to the above requirements, Roads and Maritime request the following:

- Key Issue Transport –include reference to the future M1 Motorway extension to Raymond Terrace in the list of roads that should be assessed for capacity, condition, safety and efficiency.
- Key Issue Transport –include a requirement to demonstrate consultation with Roads and Maritime to support the objective of the delivery of the M12RT within the site.

On determination of this matter, please forward a copy of the SEARs to Roads and Maritime for record and / or action purposes. Should you require further information please contact Hunter Land Use on 4908 7688 or by emailing [development.hunter@rms.nsw.gov.au](mailto:development.hunter@rms.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'Peter Marler', with a stylized, flowing script.

Peter Marler  
**Manager Land Use Assessment**  
**Hunter Region**



## **APPENDIX B    ABORIGINAL HERITAGE CONSULTATION - CONSULTATION LOG**

Date	To Person	To Organisation	From Person	From Organisation	Method	Details
30/11/2018		Port Stephens Council	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		OEH Newcastle Regional Operations	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		National Native Title Tribunal	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		Native Title Services	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		Office of the Registrar	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		Worimi LALC	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018		Hunter Local Land Services	Stephanie Moore	ERM	Email	Send Stage 1 Project Notification Letter
30/11/2018	Stephanie Moore	ERM		Geospatial Service, NNTT	Email	Notice of change of address and provision of correct search details
3/12/2018		Geospatial Service, NNTT	Stephanie Moore	ERM	Email	Send completed search form
3/12/2018	Stephanie Moore	ERM		Geospatial Service, NNTT	Email	Notice of receipt of search request
5/12/2018	Stephanie Moore	ERM	Jodie Rikiti	Office of the Registrar	Email	Return completed search request
7/12/2018	Stephanie Moore	ERM	Elizabeth Akerman	Port Stephen Council	Email	Response to Stage 1 Project Notification Letter, suggested contacting Worimi LALC
11/12/2018	Stephanie Moore	ERM	Jamie Merrick	Worimi LALC	Email	Response to Stage 1 Project Notification Letter, registering LALC interest and advising of three other groups to be consulted.
11/12/2018	Stephanie Moore	ERM	Jamie Merrick	Worimi LALC	Email	follow up email correcting a typo in one of the providd email addresses.
20/12/2018	Stephanie Moore	ERM	Gillian Goode	OEH Hunter and Central Coast Branch	Email	Response to Stage 1 Project Notification Letter
22/01/2019	Carolyn Hickey	A1 Indigenous Services	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Ashely Gregory/Adam Sampson	AGA Services	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Donna and George Sampson	Cacatua Culture Consultants	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Jeffrey Matthews	Crimson-Rosie	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Paul Boyd/Lilly Carrol	Didge Ngunawal Clan	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Tania Matthews	Hunters & Collectors	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	David Feeney	Karuah Indigenous Corporation	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	CEO	Karuah Local Aboriginal Land Council	Stephanie Moore	ERM	Email	Did not send invite, land within Worimi LALC
22/01/2019	Arthur Fletcher	Kawul Pty Ltd (trading as Wonn1 Sites)	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Mick Leon	Lakkari NTCG	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	David Ahoy	Lower Hunter Aboriginal Incorporated	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Lea-Anne Ball and Uncle Tommy Miller	Lower Hunter Wonnarua Cultural Services	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	CEO	Mindaribba Local Aboriginal Land Council	Stephanie Moore	ERM	Email	Did not send invite, land within Worimi LALC
22/01/2019	Ryan Johnson	Murra Bidgee Mullangari Aboriginal Corporation	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Anthony Anderson	Mur-Roo-Ma Inc.	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Leonard Anderson OAM	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Roger Matthews	Roger Matthews Consultancy	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Des Hickey	Wattaka Wonnarua CC Service	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Steven Hickey	Widescope Indigenous Group	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Richard Edwards	Wonnarua Elders Council	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	CEO	Worimi Local Aboriginal Land Council	Stephanie Moore	ERM	Email	Did not send invite, Worimi LALC already registered
22/01/2019	Candy Lee Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Carol Ridgeway-Bissett		Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project

22/01/2019	Steve Talbott		Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Graeme Russell	NSW National Parks and Wildlife Service (Board of Management)	Stephanie Moore	ERM	Email	Sent Invitation to Register interest in the project
22/01/2019	Stephanie Moore	ERM	Lilly Carroll	Didge Ngunawal Clan	Email	Registered interest in the project
22/01/2019	Lilly Carroll	Didge Ngunawal Clan	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
22/01/2019	Stephanie Moore	ERM	Lennie Anderson	Nur-Run-Gee Pty Ltd	Email	Registered interest in the project for Nur-Run-Gee and Worimi Traditional Owners
23/01/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
23/01/2019	Stephanie Moore	ERM	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Email	Emailed to register interest
23/01/2019	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
25/01/2019	Stephanie Moore	ERM	Steven Hickey	Widescope Indigenous Group	Email	Registration of interest
25/01/2019	Steven Hickey	Widescope Indigenous Group	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
25/01/2019	Stephanie Moore	ERM	Ryan Johnson	Murra Bidgee Mullangari	Email	Registration of interest
28/01/2019	Stephanie Moore	ERM	Carolyn Hickey	A1 Indigenous Services	Email	Registration of interest
28/01/2019	Stephanie Moore	ERM	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Email	Registration of interest
29/01/2019	Stephanie Moore	ERM	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Email	Registration of interest
29/01/2019	Ryan Johnson	Murra Bidgee Mullangari	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
29/01/2019	Carolyn Hickey	A1 Indigenous Services	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
29/01/2019	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
29/01/2019	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Email	Registration of interest	Email	Acknowledged receipt of registration
29/01/2019	Stephanie Moore	ERM	Anthony	Muragadi	Email	Registration of interest
29/01/2019	Anthony	Muragadi	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
29/01/2019	Stephanie Moore	ERM	Dave Feeney	Karuah Indigenous Corporation	Email	Registration of interest
29/01/2019	Dave Feeney	Karuah Indigenous Corporation	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
30/01/2019	Stephanie Moore	ERM	Shaun Carroll	Merrigarn	Email	Registered interest in the project
30/01/2019	Shaun Carroll	Merrigarn	Stephanie Moore	ERM	Email	Acknowledged receipt of registration
4/04/2019	Lilly Carroll	Didge Ngunawal Clan	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Steven Hickey	Widescope Indigenous Group	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Ryan Johnson	Murra Bidgee Mullangari	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Carolyn Hickey	A1 Indigenous Services	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Anthony	Muragadi	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Dave Feeney	Karuah Indigenous Corporation	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Shaun Carroll	Merrigarn	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Jamie Merrick	Worimi LALC	Stephanie Moore	ERM	Email	Provided copy of the project methodology
4/04/2019	Stephanie Moore	ERM	Lilly Carroll	Didge Ngunawal Clan	Email	Acknowledgement of receipt of methodology
5/04/2019	Stephanie Moore	ERM	Anthony	Muragadi	Email	Agrees with recommendations made by ERM
8/04/2019	Stephanie Moore	ERM	Shaun Carroll	Merrigarn	Email	Agrees with recommendations made by ERM
8/04/2019	Stephanie Moore	ERM	Ryan Johnson	Murra Bidgee Mullangari	Email	Endorses recommendations made by ERM



8/04/2019	Stephanie Moore	ERM	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Email	No comments on the methodology
13/04/2019	Stephanie Moore	ERM	Carolyn Hickey	A1 Indigenous Services	Email	Supports the methodology
17/04/2019	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Stephanie Moore	ERM	Email	Sent invitation to participate in fieldwork
17/04/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	Sent invitation to participate in fieldwork
17/04/2019	Jamie Merrick	Worimi LALC	Stephanie Moore	ERM	Email	Sent invitation to participate in fieldwork
17/04/2019	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	Sent invitation to participate in fieldwork
17/04/2019	Anthony	Muragadi	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Dave Feeney	Karuah Indigenous Corporation	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Shaun Carroll	Merrigarn	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Steven Hickey	Widescope Indigenous Group	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Ryan Johnson	Murra Bidgee Mullangari	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Carolyn Hickey	A1 Indigenous Services	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
17/04/2019	Lilly Carroll	Didge Ngunawal Clan	Stephanie Moore	ERM	Email	Advised that client had limited numbers for fieldwork, and their group had not been provided the opportunity to participate.
18/04/2019	Stephanie Moore	ERM	Lennie Anderson	Nur-Run-Gee Pty Ltd	Email	advised of rates and provided insurances. Also provided name of attendee for field survey
18/04/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	return email to clarify number of attendees.
18/04/2019	Stephanie Moore	ERM	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Email	emailed to advise that she will no longer be commenting on the project, as she is not taking part in the survey.
18/04/2019	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Stephanie Moore	ERM	Email	return email to advise that we would remove Deirdre from the correspondence list
18/04/2019	Stephanie Moore	ERM	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Email	advised of rates and provided insurances. Also provided name of attendee for field survey
18/04/2019	Stephanie Moore	ERM	Lennie Anderson	Nur-Run-Gee Pty Ltd	Email	Apoligised for confusion and confirmed one attendee.
23/04/2019	Stephanie Moore	ERM	Deidre Perkins	Divine Diggers Aboriginal Cultural Consultants	Email	further correspondence regarding removal. Confirmed no further participation.
23/04/2019	Stephanie Moore	ERM	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Email	forwarded through insurances and rates, and confirmed name of field officer
23/04/2019	Stephanie Moore	ERM	Lennie Anderson	Nur-Run-Gee Pty Ltd	Email	advised that he will not be able to attend fieldworks and nominated new field officer to attend
26/04/2019	Stephanie Moore	ERM	Dave Feeney	Karuah Indigenous Corporation	Email	email to advise no issues with the proposed methodology
29/04/2019	Stephanie Moore	ERM	Jamie Merrick	Worimi LALC	Email	advised rates and availability for fieldwork, provided insurances, and name of field representative
6/05/2019	Stephanie Moore	ERM	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Email	reponse to methodology. Advised that Worimi TOIC agree with the methodology
6/05/2019	Stephanie Moore	ERM	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Email	provided details of field officer to attend fieldwork. Advised that field officer had completed online induction.
5/06/2019	Paul Boyd/Lilly Carrol	Didge Ngunawal Clan	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology

5/06/2019	Candy Lee Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Jamie Merrick	Worimi LALC	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Steven Hickey	Widescope Indigenous Group	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Ryan Johnson	Murra Bidgee Mullangari	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Anthony Anderson	Mur-Roo-Ma Inc.	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Anthony	Muragadi	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Dave Feeney	Karuah Indigenous Corporation	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Shaun Carroll	Merrigarn	Stephanie Moore	ERM	Email	sent copy of survey report and proposed test excavation methodology
5/06/2019	Stephanie Moore	ERM	Ryan Johnson	Murra Bidgee Mullangari	Email	Endorses recommendations made by ERM
5/06/2019	Stephanie Moore	ERM	Ryan Johnson	Murra Bidgee Mullangari	Email	advised that Murra Bidgee would be available for fieldworks
10/06/2019	Stephanie Moore	ERM	Carolyn Hickey	A1 Indigenous Services	Email	email to support the survey report and proposed methodology, additionally advising their group is available to attend fieldwork
11/06/2019	Stephanie Moore	ERM	Anthony	Muragadi	Email	Agrees with recommendations made by ERM
13/06/2019	Stephanie Moore	ERM	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Email	provided written response to survey report and methodology, advising no issues with either document
19/06/2019	Stephanie Moore	ERM	Steven Hickey	Widescope Indigenous Group	Email	advising that he has reviewed and supports the survey report and providing their availability for fieldwork
27/06/2019	Bec Young/Anthony Anderson	Mur-Roo-Ma Inc.	Stephanie Moore	ERM	Email	Sent invitation to participate in test excavation
27/06/2019	Lennie Anderson	Nur-Run-Gee Pty Ltd	Stephanie Moore	ERM	Email	Sent invitation to participate in test excavation
27/06/2019	Jamie Merrick	Worimi LALC	Stephanie Moore	ERM	Email	Sent invitation to participate in test excavation
27/06/2019	Candy Towers	Worimi Traditional Owners Indigenous Corporation	Stephanie Moore	ERM	Email	Sent invitation to participate in test excavation

## **APPENDIX C   ABORIGINAL HERITAGE CONSULTATION – AGENCY LETTERS**



Hunter Local Land Services  
Via email: [admin.hunter@lls.nsw.gov.au](mailto:admin.hunter@lls.nsw.gov.au)



30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).

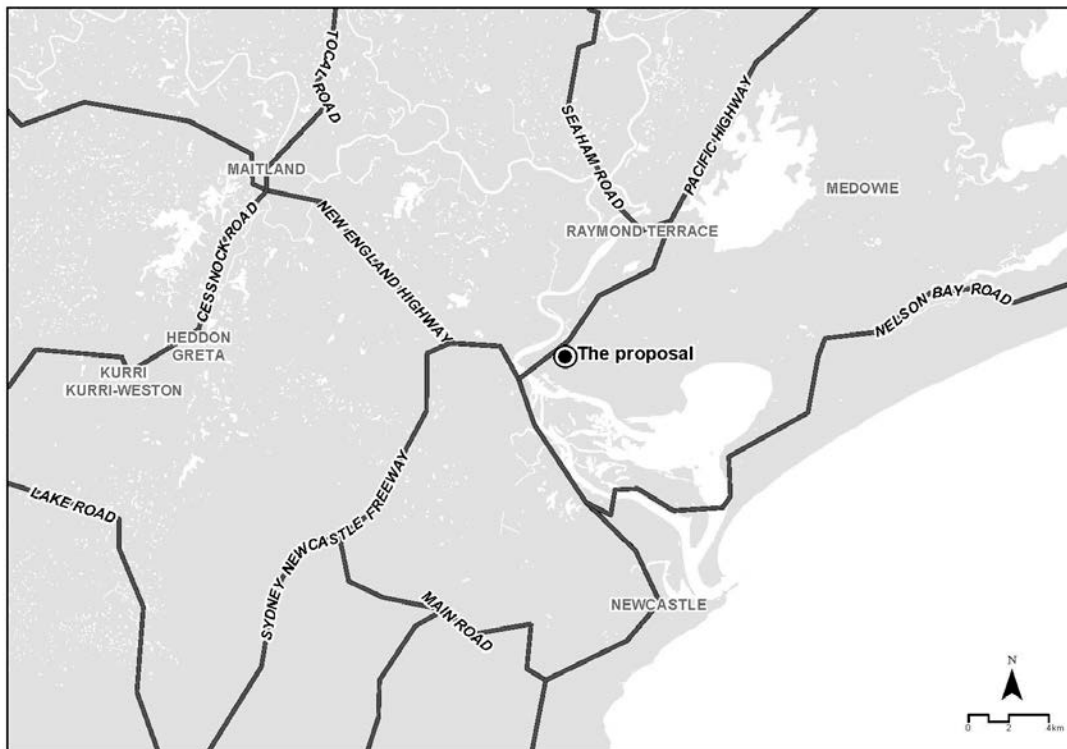


Figure 3 – Location of the proposed power station

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking

Page 5 of 14

approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a “peak load” facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

Previous archaeological studies within and surrounding the project site (not undertaken by the proponent) have indicated there may be a likelihood of identifying archaeological remains within the project footprint. The ACHA will endeavour to provide additional information about the archaeological resources present within the project area, in order to provide any necessary management recommendations.

ERM is writing to fulfil Stage 1 of the consultation requirements - *project notification and identification of stakeholders*. As part of this step, ERM would like to obtain a list of Aboriginal people who may have an interest in this project and hold relevant knowledge about the cultural significance of the area. Relevant stakeholder lists can be returned to Stephanie Moore (Project Archaeologist) at the below details.

Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant



National Native Title Tribunal  
Via email: [enquiries@nntt.gov.au](mailto:enquiries@nntt.gov.au)

30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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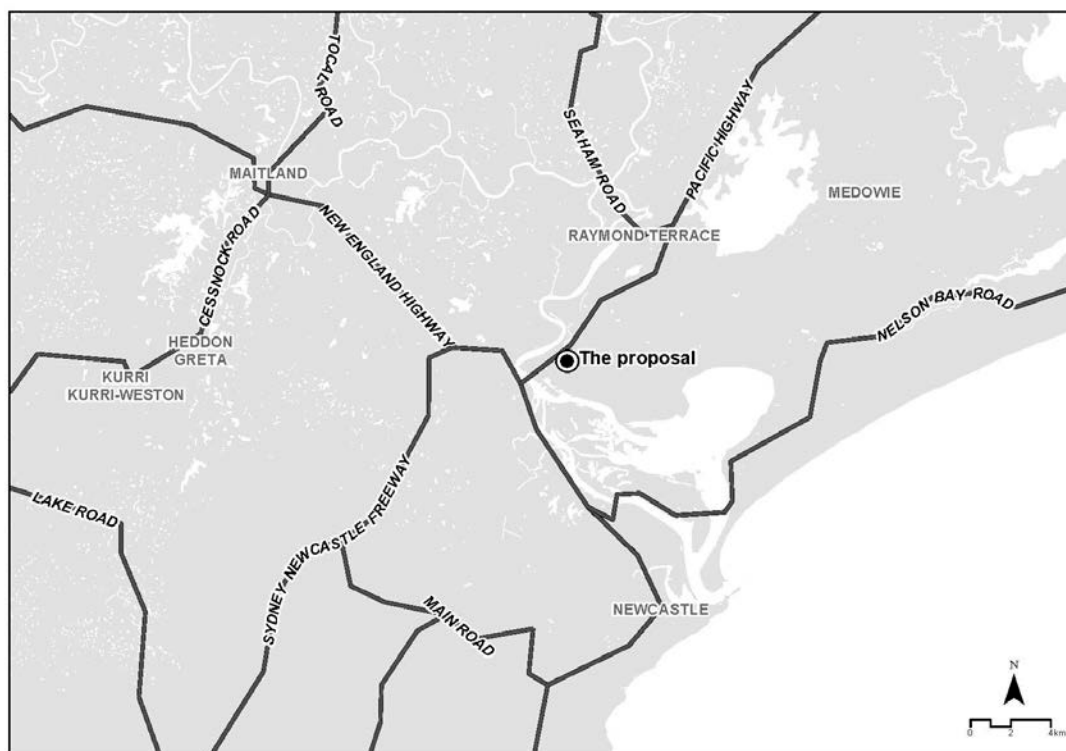


Figure 7 – Location of the proposed power station

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking



approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a “peak load” facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant

Native Title Services Corporation Ltd  
Via email: [information@ntscorp.com.au](mailto:information@ntscorp.com.au)  
PO Box 2105  
Strawberry Hills NSW 2012



30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).

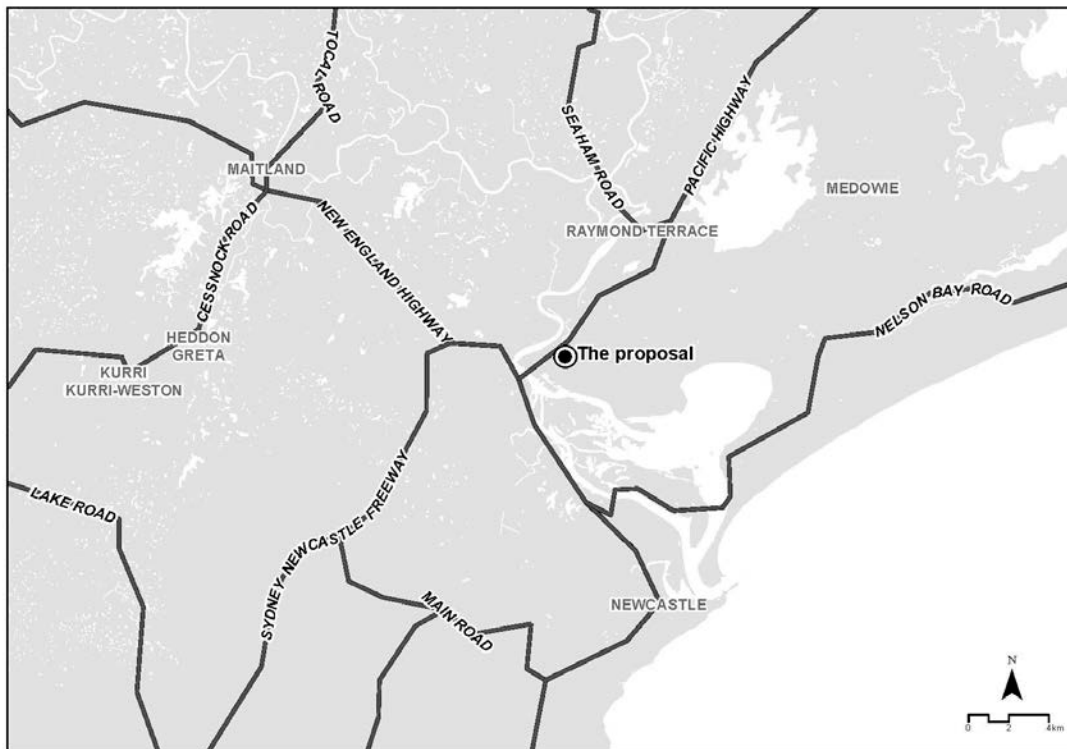


Figure 6 – Location of the proposed power station

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking

Page 11 of 14

approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a “peak load” facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant



Newcastle Regional Operations Group  
Office of Environment and Heritage  
Via email: [rog.hcc@environment.nsw.gov.au](mailto:rog.hcc@environment.nsw.gov.au)  
PO Box 1002  
Dangar NSW 2309



30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).

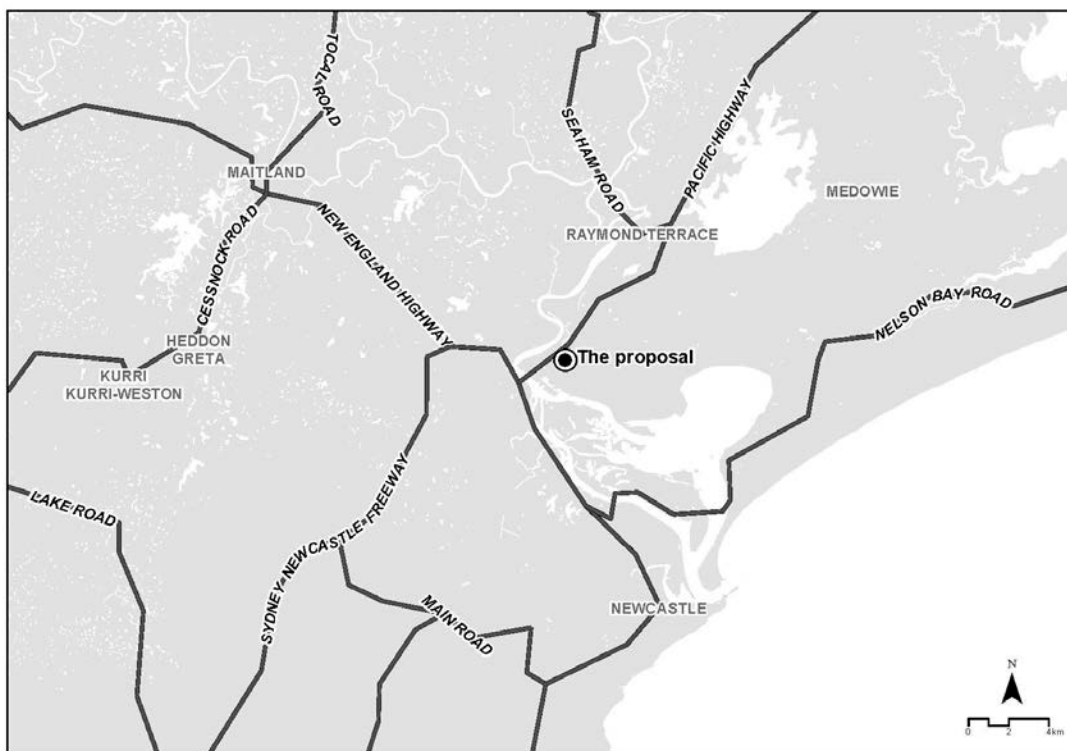


Figure 1 – Location of the proposed power station

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a "peak load" facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant

Office of the Registrar  
Aboriginal Land Rights Act 1983 (NSW)  
Via email: [adminofficer@oralra.nsw.gov.au](mailto:adminofficer@oralra.nsw.gov.au)  
PO Box 5068  
Parramatta NSW 2150



30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).

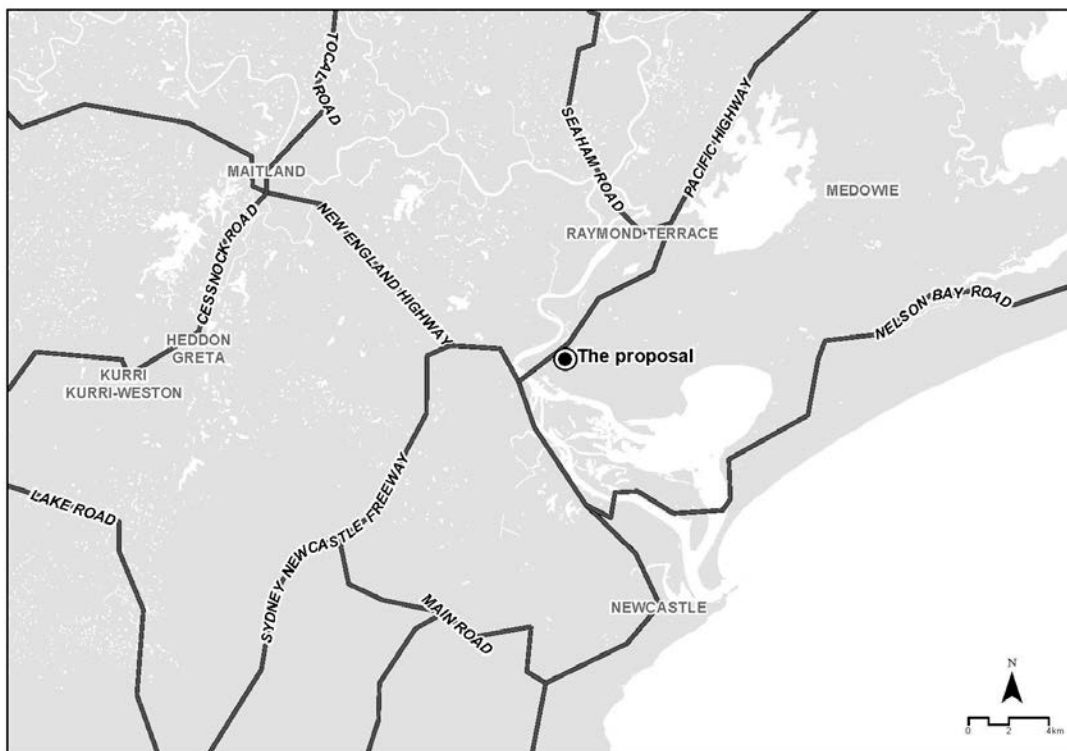


Figure 5 – Location of the proposed power station



AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant

Port Stephens Council  
Via email: [council@portstephens.nsw.gov.au](mailto:council@portstephens.nsw.gov.au)  
PO Box 42  
Raymond Terrace NSW 2324



30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).

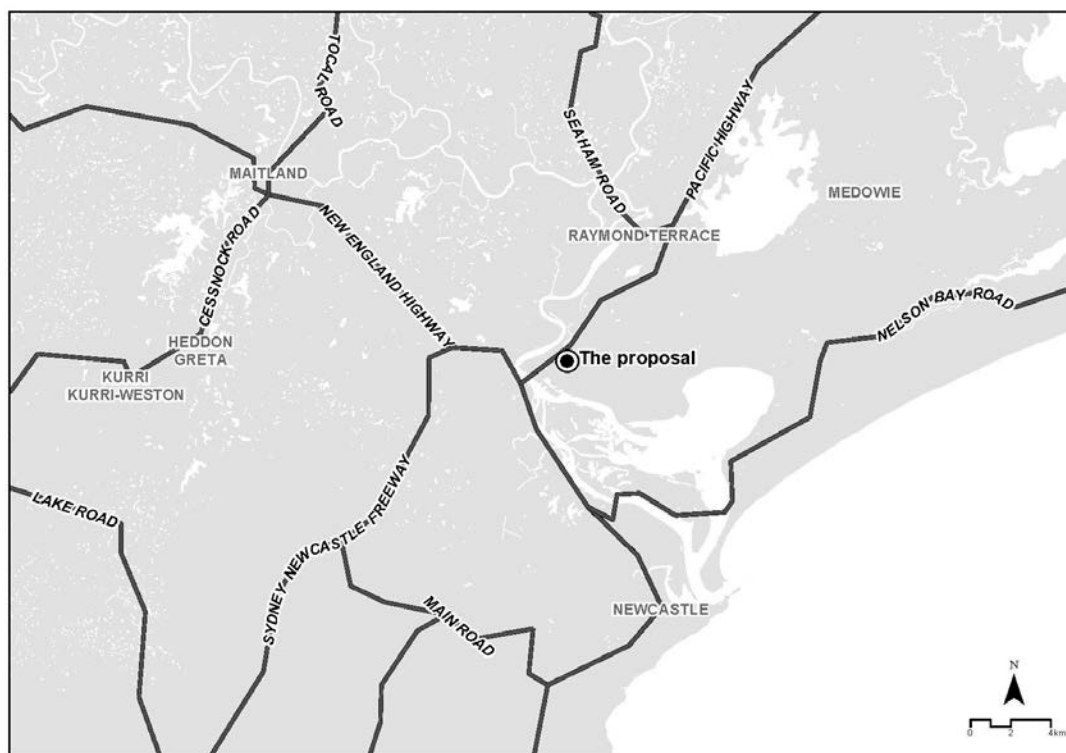


Figure 2 – Location of the proposed power station

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a "peak load" facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

Previous archaeological studies within and surrounding the project site (not undertaken by the proponent) have indicated there may be a likelihood of identifying archaeological remains within the project footprint. The ACHA will endeavour to provide additional information about the archaeological resources present within the project area, in order to provide any necessary management recommendations.

ERM is writing to fulfil Stage 1 of the consultation requirements - *project notification and identification of stakeholders*. As part of this step, ERM would like to obtain a list of Aboriginal people who may have an interest in this project and hold relevant knowledge about the cultural significance of the area. Relevant stakeholder lists can be returned to Stephanie Moore (Project Archaeologist) at the below details.

Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant



Worimi Local Aboriginal Land Council  
Via email: [reception@worimi.org.au](mailto:reception@worimi.org.au)



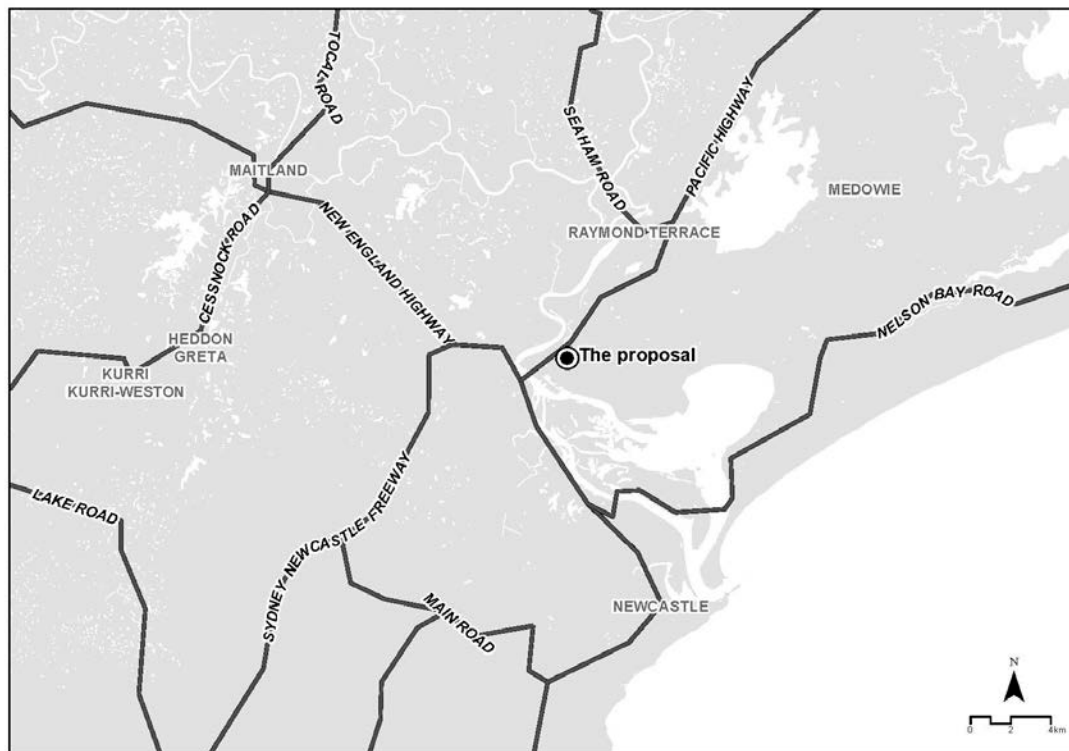
30 November 2018

Reference: 0468623

Dear Sir/Madam,

**Subject: Proposed power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a power station in Tomago, NSW (Figure 1).



*Figure 4 – Location of the proposed power station*

AGL Energy Limited (AGL) proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking

approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a nominal capacity of about 250-megawatt (MW), and associated infrastructure including gas supply and electricity transmission connections. The proposed power station would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a “peak load” facility supplying electricity at short notice during periods of high demand or low supply. The proposed power station would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the proposed power station to the existing TransGrid Tomago 132kV switchyard. The proposed power station is likely to have a minimum operating life of 25 years.

Previous archaeological studies within and surrounding the project site (not undertaken by the proponent) have indicated there may be a likelihood of identifying archaeological remains within the project footprint. The ACHA will endeavour to provide additional information about the archaeological resources present within the project area, in order to provide any necessary management recommendations.

ERM is writing to fulfil Stage 1 of the consultation requirements - *project notification and identification of stakeholders*. As part of this step, ERM would like to obtain a list of Aboriginal people who may have an interest in this project and hold relevant knowledge about the cultural significance of the area. Relevant stakeholder lists can be returned to Stephanie Moore (Project Archaeologist) at the below details.

Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868

Yours sincerely,

Stephanie Moore  
Heritage Consultant

## **APPENDIX D   ABORIGINAL HERITAGE CONSULTATION – AGENCY RESPONSES**



4 December 2018

Stephanie Moore  
ERM  
Level 15, 309 Kent Street  
SYDNEY NSW 2000

Dear Stephanie

**Re: Request - Search for Registered Aboriginal Owners**

I refer to your email dated 30 November 2018 regarding an Aboriginal Cultural Heritage Assessment for the proposed power plant located in Tomago, NSW.

I have searched the Register of Aboriginal Owners and the project area described has Registered Aboriginal Owners in the wider area, namely Worimi Conservation Lands, pursuant to Division 3 of the *Aboriginal Land Rights Act 1983*.

The Aboriginal owners for this managed national park are represented by a Board of Management (BoM) and can be contacted through Mr Graeme Russell, Joint Management Co-ordinator, NSW National Parks and Wildlife Service on (02 4984 8200). Graeme will be able to confirm whether the BoM is interested in the project or whether it is beyond their cultural area.

I suggest that you contact the Worimi Local Aboriginal Land Council regarding this on 02 4033 8800. They may be also able to assist you in identifying other Aboriginal stakeholders that may wish to participate.

Yours sincerely

A handwritten signature in blue ink, consisting of a large loop followed by a series of smaller, connected strokes.

**Jodie Rikiti**  
**Administration Officer**  
Office of the Registrar, ALRA

DOC18/924513  
0468623

Ms Stephanie Moore  
ERM  
Stephanie.moore@erm.com

Dear Stephanie

### **Proposed AGL Power Plant at Tomago – Aboriginal Stakeholder List**

In response to your request under Section 4.1.2(a) of the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010), please find attached a list of known Aboriginal parties that have self-nominated for Port Stephens Council Local Government Area (LGA). Please note the following information with respect to Aboriginal consultation for your project.

#### **Aboriginal stakeholder lists maintained by OEH are comprised of self-nominated individuals and organisations**

Please note that the attached list is comprised only of self-nominated individuals and Aboriginal organisations who could have an interest in your project. The list is not vetted by OEH. As the list comprises only of self-nominated individuals and Aboriginal organisations, it is not necessarily an exhaustive list of all Aboriginal parties who may hold an interest in the project. Further consultation in accordance with step 4.1.2 of the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010) is required to identify Aboriginal people who may hold either cultural or historical knowledge relevant to determining the significance of Aboriginal objects or places within your proposed project area.

#### **Aboriginal stakeholder lists may cover multiple Local Aboriginal Land Council boundaries**

Please note that the attached list may contain two or more Local Aboriginal Land Councils (LALCs) that occur in the LGA. Please review the boundary of your specific project area and ensure you consult with all LALC(s) that overlap with your project area. OEH does not require you to contact any LALCs on the attached list that you determine are wholly located outside your project area.

#### **Ensure you document the consultation process**

Please ensure all consultation undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010) is documented within an Aboriginal Cultural Heritage Assessment Report (ACHAR). This must include copies of all correspondence sent to or received from all Registered Aboriginal Parties (RAPs) throughout the entire consultation process. Omission of these records in the final ACHAR may cause delays in the assessment of an Aboriginal Heritage Impact Permit (AHIP) application or a major project Aboriginal cultural heritage assessment, and could require parts of the consultation process to be repeated if the evidence provided to OEH

does not demonstrate that the consultation process has been conducted in accordance with our consultation requirements.

### Demonstrate that reasonable consultation attempts have been made

Please ensure you provide evidence to demonstrate that reasonable attempts have been made to contact the relevant parties identified through step 4.1.2 of the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010). If this evidence is not provided, OEH may deem that the consultation process has not complied with the consultation requirements. Similarly, the proponent is required to record all feedback received from RAPs, along with the proponent's response to the feedback. Where concerns or contentious issues are raised by RAPs during the consultation process, OEH expects that reasonable attempts are made to address and resolve these matters, however OEH acknowledges that in some cases, this may not be achievable. In the case where conflict cannot be resolved, it is the responsibility of the proponent to record these differences and provide the necessary information in their ACHAR with their AHIP application or major project ACHAR.

### Consultation should not be confused with employment


As outlined in Section 3.4 of the *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010), the consultation process involves getting the views of, and information from, Aboriginal people and reporting on these. It is not to be confused with other field assessment processes involved in preparing a proposal and an application. OEH does not have any role with respect to commercial engagement. Where RAPs are engaged commercially to provide field services as part of an assessment process, that is a matter for the proponent to manage as they see fit. However, if a proponent is proposing to undertake consultation processes or elicit cultural information from RAPs during the course of conducting a field survey, OEH considers this to form part of the consultation process, and expects that all RAPs would be afforded the opportunity to be involved in the process.

### Contacting our office

To ensure we can respond to enquiries promptly, please direct future correspondence to our central mailbox: [rog.hcc@environment.nsw.gov.au](mailto:rog.hcc@environment.nsw.gov.au).

Should you require any further information, please do not hesitate to contact us.

Yours sincerely



**GILLIAN GOODE**  
Archaeologist  
Hunter Central Coast Branch  
Conservation and Regional Delivery Division

20 December 2018





## Attachment A

### Hunter Central Coast Branch - Aboriginal Stakeholder List for Port Stephens Council LGA

Please note that this list is valid at the time of sending only, and should not be used for subsequent projects.

Organisation	First name	Surname	Address 1	City	State	Post code	Landline	Mobile	Email
A1 Indigenous Services	Carolyn	Hickey	10 Marie Pitt Place	GLENMORE PARK	NSW	2745		0411650057	<a href="mailto:Cazadirect@live.com">Cazadirect@live.com</a>
AGA Services	Ashley, Gregory & Adam	Sampson	22 Ibis Parade	WOODBERRY	NSW	2322	Donna Sampson 0403 765 018	Ashley Sampson 0401 958 050	<a href="mailto:aga.services@hotmail.com">aga.services@hotmail.com</a>
Cacatua Culture Consultants	Donna & George	Sampson	22 Ibis Parade	WOODBERRY	NSW	2322		0403 765 019 - 0434 877 016	<a href="mailto:cacatua4service@tpg.com.au">cacatua4service@tpg.com.au</a>
Crimson-Rosie	Jeffery	Matthews	6 Eucalypt Avenue	MUSWELLBROOK	NSW	2333	02 6543 4791		
Didge Ngunawal Clan	Paul Boyd	& Lilly Carroll	7 Siskin St	QUAKERS HILL	NSW	2763		0426823944	<a href="mailto:didgengunawalclan@yahoo.com.au">didgengunawalclan@yahoo.com.au</a>
Divine Diggers Aboriginal Cultural Consultants	Deidre	Perkins	6 Ashleigh Street	HEDDON GRETA	NSW	2321	02 4937 4573	0425 654 290 (preferred)	<a href="mailto:dedemaree3@hotmail.com">dedemaree3@hotmail.com</a>
Hunters & Collectors	Tania	Matthews	U211 Walowa St	NARRABRI	NSW	2390		0409 193 612	<a href="mailto:Tamathews10@hotmail.com">Tamathews10@hotmail.com</a>
Karuah Indigenous Corporation	David	Feeney	1/7 Mustons Rd	KARUAH	NSW	2324	02 4997 5952	0421 114 853	<a href="mailto:karuahindigenous@outlook.com">karuahindigenous@outlook.com</a>
Karuah Local Aboriginal Land Council	CEO		16 Muston Road	KARUAH	NSW	2324	02 4997 5733		<a href="mailto:karuahaboriginal@bigpond.com">karuahaboriginal@bigpond.com</a>
Kawul Pty Ltd trading as Wonn1 Sites	Arthur	Fletcher	619 Main Road	GLENDALE	NSW	2285	02 4954 7751	0402 146 193	<a href="mailto:Wonn1sites@gmail.com">Wonn1sites@gmail.com</a>
Lakkari NTCG	Mick	Leon	C/- 4/39 Short Street	FORSTER	NSW	2428		0402 751 584	<a href="mailto:doowakee@gmail.com">doowakee@gmail.com</a>
Lower Hunter Aboriginal Incorporated	David	Ahoy	5 Killara Drive	CARDIFF SOUTH	NSW	2285		0421 329 520	<a href="mailto:lowerhunterai@gmail.com">lowerhunterai@gmail.com</a>

Organisation	First name	Surname	Address 1	City	State	Post code	Landline	Mobile	Email
Lower Hunter Wonnarua Cultural Services	Lea-Anne Ball and Uncle Tommy Miller		51 Bowden Street	HEDDON GRETA	NSW	2321	02 4937 2694	0402 636 521 (Uncle)	<a href="mailto:tn.miller@southernphone.com.au">tn.miller@southernphone.com.au</a>
Mindaribba Local Aboriginal Land Council	CEO		1A Chelmsford Drive	METFORD	NSW	2323	02 4934 8511		<a href="mailto:ceo@mindaribbalalc.org">ceo@mindaribbalalc.org</a>
Murra Bidgee Mullangari Aboriginal Corporation	Ryan Johnson	& Darleen Johnson-Carroll	PO Box 246	SEVEN HILLS	NSW	2147		0497 983 332	<a href="mailto:murrabidgeemullangari@yahoo.com.au">murrabidgeemullangari@yahoo.com.au</a>
Mur-Roo-Ma Inc.	Anthony	Anderson	7 Vardon Road	FERN BAY NSW	NSW	2295	02 4928 1910	0402 827 482	<a href="mailto:murroomainc1@gmail.com">murroomainc1@gmail.com</a>
Nur-Run-Gee Pty Ltd	Leonard	Anderson OAM	22 Popplewell Road	FERN BAY NSW	NSW	2295		0431 334 365	<a href="mailto:lennie.anderson011@bigpond.com">lennie.anderson011@bigpond.com</a>
Roger Matthews Consultancy	Roger	Matthews	105 View Street	GUNNEDAH	NSW	2380		0455 671 288	
Wattaka Wonnarua CC Service	Des	Hickey	4 Kennedy Street	SINGLETON	NSW	2330	02 6573 3786	0432 977 178	<a href="mailto:deshickey@bigpond.com">deshickey@bigpond.com</a>
Widescope Indigenous Group	Steven	Hickey	73 Russell Street	EMU PLAINS	NSW	2750		0425 230 693 0425 232 056	<a href="mailto:Widescope.group@live.com">Widescope.group@live.com</a>
Wonnarua Elders Council	Richard	Edwards	PO Box 844	CESSNOCK	NSW	2325			
Worimi Local Aboriginal Land Council	CEO		2163 Nelson Bay Road	WILLIAMTOWN	NSW	2318	02 4965 1500		<a href="mailto:andrew@worimi.org.au">andrew@worimi.org.au</a>
Worimi Traditional Owners Indigenous Corporation	Candy Lee	Towers	36 Avon St	MAYFIELD	NSW	2304		0412 475 362	<a href="mailto:worimitoc@hotmail.com">worimitoc@hotmail.com</a>
	Carol	Ridgeway-Bissett	33 Ullora Road	NELSON BAY	NSW	2315	02 4984 3113		
	Steve	Talbott	73 Kiah Road	GILLIESTON HEIGHTS	NSW	2321		0429 662 911	<a href="mailto:gomeri.namoi@outlook.com">gomeri.namoi@outlook.com</a>

## Robin Twaddle

---

**From:** Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>  
**Sent:** Monday, 3 December 2018 5:53 PM  
**To:** Stephanie Moore  
**Subject:** RE: SR5204 - 0468623 Tomago Power Station - Search Request - SR5204

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

### UNCLASSIFIED

**Native title search** – *NSW Freehold Parcels - Lot 2 and Lot 3 DP1043561*  
**Your ref:** 0468623 - **Our ref:** SR5204

#### Change of e-mail address for Geospatial Searches

Please ensure that from 14<sup>th</sup> August 2018 your search requests are forwarded to [GeospatialSearch@NNTT.gov.au](mailto:GeospatialSearch@NNTT.gov.au) with a **completed search request form**. The form is available from the Tribunal's website at this address: <http://www.nntt.gov.au/News-and-Publications/Pages/Forms.aspx>

Dear Stephanie Moore,

Thank you for your search request received on 03 December 2018 in relation to the above area.

**Please note:** Records held by the National Native Title Tribunal as at 03 December 2018 indicate that the identified parcels appear to be freehold, and freehold tenure extinguishes native title.

The National Native Title Tribunal does not hold data sets for freehold tenure; consequently, we **cannot** conduct searches over freehold. For confirmation of freehold data, please contact the NSW Land and Property Information office or seek independent legal advice.

For further information, please visit our [website](#).

#### Cultural Heritage Searches in NSW

The National Native Title Tribunal (the Tribunal) has undertaken steps to remove itself from the formal list of sources for information about indigenous groups in development areas. The existence or otherwise of native title is quite separate to any matters relating to Aboriginal cultural heritage. Information on native title claims, native title determinations and Indigenous Land Use Agreements is available on the Tribunal's website.



Interested parties are invited to use Native Title Vision (NTV) the Tribunal's online mapping system to discover native title matters in their area of interest. Access to NTV is available at <http://www.nntt.gov.au/assistance/Geospatial/Pages/NTV.aspx>  
Training and self-help documents are available on the NTV web page under "Training and help documents". For additional assistance or general advice on NTV please contact [GeospatialSearch@NNTT.gov.au](mailto:GeospatialSearch@NNTT.gov.au)

Additional information can be extracted from the Registers available at <http://www.nntt.gov.au/searchRegApps/Pages/default.aspx>

If you have any further queries, please do not hesitate to contact us on the free call number 1800 640 501.

Regards,

#### Geospatial Searches

National Native Title Tribunal | Perth

Email: [GeospatialSearch@nntt.gov.au](mailto:GeospatialSearch@nntt.gov.au) | [www.nntt.gov.au](http://www.nntt.gov.au)

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>

**Sent:** Monday, 3 December 2018 6:23 AM

**To:** Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>

**Subject:** SR5204 - 0468623 Tomago Power Station - Search Request

Good Morning,

Please find attached the completed search request form for 0468623 Tomago Power Station.

The request is being made as per the requirements of Stage 1 of the Aboriginal Cultural Heritage Consultation Requirements for proponents (DECCW 2010).

If you have any further questions, please don't hesitate to get in touch.

Regards,

Stephanie Moore  
Heritage Consultant

M.ICOMOS

ERM

Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia  
T +612 8584 8868 | M +614 39 720 041  
E [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | W [www.erm.com](http://www.erm.com)



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## Robin Twaddle

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**From:** Elizabeth Akerman <Elizabeth.Akerman@portstephens.nsw.gov.au>  
**Sent:** Friday, 7 December 2018 11:49 AM  
**To:** Stephanie Moore  
**Subject:** Stage 1 Project Notification - Proposed AGL Power Plan, Tomago

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Stephanie

Thank you for your enquiry to Port Stephens Council regarding Aboriginal Cultural Heritage consultation requirements for the above project.

It would probably best if you could direct your enquiry to both Worimi Local Aboriginal Land Council and Karuah Aboriginal Land Council their contact details can be found on Council's website here: <http://www.portstephens.nsw.gov.au/live/community/community-directory/aboriginal-and-torres-strait-islander>

Both of these LALCs may have some suggestions regarding contacts or the best way to go about meeting the consultation requirements for this project.

Any questions please give me a call directly.

Kind regards



**Elizabeth Akerman**  
Acting Community Development and  
Engagement Coordinator

---

p 02 4988 0405 | m 0438 886 515  
w [portstephens.nsw.gov.au](http://portstephens.nsw.gov.au)







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## **APPENDIX E    ABORIGINAL HERITAGE CONSULTATION – INVITATION TO REGISTER**



Carolyn Hickey  
A1 Indigenous Services  
10 Marie Pitt Place  
GLENMORE PARK NSW 2745  
[Cazadirect@live.com](mailto:Cazadirect@live.com)

21 January 2019

Reference: 0468623

Dear Carolyn

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

**1 Proposed Development - The Glades Estate**

The proponent of the proposed works is AGL Energy Limited (AGL).

AGL proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a 250-megawatt (MW) gas fired peaking power station and associated infrastructure including gas supply and electricity transmission connections. The Proposal would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a "peak load" facility supplying electricity at short notice during periods of high demand, low supply from intermittent supply sources or when baseload power generation is offline. The Proposal would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the Proposal to the existing TransGrid Tomago 132kV switchyard. The Proposal is likely to have a minimum operating life of 25 years.

**2 Registration**

If you wish to formally register for future consultation regarding any of these cultural heritage assessments please contact Stephanie Moore (Project Archaeologist) by **4 February 2019** at the below details:

Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

If you have any specific information concerning the cultural values of the project areas, we would also be grateful if you could let us know. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Tomago Aboriginal Cultural Heritage Assessment

Date: 21/01/2019

Drawing Size: A4

Drawn By: VN

Reviewed By: SM

Client: Aurecon (on behalf of AGL Energy)

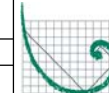
Coordinate System: GDA 1994 MGA Zone 56

0 2 4km



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F1



ERM



Ashley, Gregory & Adam Sampson  
AGA Services  
22 Ibis Parade  
WOODBERRY NSW 2322  
[aga.services@hotmail.com](mailto:aga.services@hotmail.com)

21 January 2019

Reference: 0468623

Dear Ashely, Gregory & Adam

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

If you have any specific information concerning the cultural values of the project areas, we would also be grateful if you could let us know. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd






Stephanie Moore  
Project Archaeologist



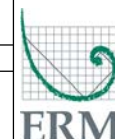
Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
Date: 21/01/2019	Drawing Size: A4		
Drawn By: VN	Reviewed By: SM	Client: Aurecon (on behalf of AGL Energy)	 
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	

F1





Donna & George Sampson  
Cacatua Culture Consultants  
22 Ibis Parade  
WOODBERRY NSW 2322  
[cacatua4service@tpg.com.au](mailto:cacatua4service@tpg.com.au)

21 January 2019

Reference: 0468623

Dear Donna & George

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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The proponent of the proposed works is AGL Energy Limited (AGL).

AGL proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

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**2 Registration**

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

If you have any specific information concerning the cultural values of the project areas, we would also be grateful if you could let us know. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Carol Ridgeway-Bissett  
33 Ullora Road  
NELSON BAY NSW 2315

21 January 2019

Reference: 0468623

Dear Carol

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Date: 21/01/2019

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

Drawing Size: A4

Reviewed By: SM

Tomago Aboriginal Cultural Heritage Assessment

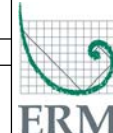
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0 2 4km



F1





Jeffery Matthews  
Crimson-Rosie  
6 Eucalypt Avenue  
MUSWELLBROOK NSW 2333

21 January 2019

Reference: 0468623

Dear Jeffery

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Stephanie Moore  
Project Archaeologist



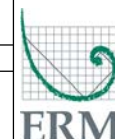
Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
Date: 21/01/2019	Drawing Size: A4		
Drawn By: VN	Reviewed By: SM	Client: Aurecon (on behalf of AGL Energy)	 
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	

F1





Paul Boyd & Lilly Carroll  
Didge Ngunawal Clan  
7 Siskin St  
QUAKERS HILL NSW 2763  
[didgengunawalclan@yahoo.com.au](mailto:didgengunawalclan@yahoo.com.au)

21 January 2019

Reference: 0468623

Dear Paul & Lilly

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Deidre Perkins  
Divine Diggers Aboriginal Cultural Consultants  
6 Ashleigh Street  
HEDDON GRETA NSW 2321  
[dedemaree3@hotmail.com](mailto:dedemaree3@hotmail.com)

21 January 2019

Reference: 0468623

Dear Deidre

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Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



Source: ESRI World Topographic Map

## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Tomago Aboriginal Cultural Heritage Assessment

Date: 21/01/2019

Drawing Size: A4

Drawn By: VN

Reviewed By: SM

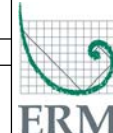
Client: Aurecon (on behalf of AGL Energy)

Coordinate System: GDA 1994 MGA Zone 56

0 2 4km



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F1



Graeme Russell  
Joint Management Co-ordinator  
NSW National Parks and Wildlife Service  
(Board of Management)

21 January 2019

Reference: 0468623

Dear Graeme

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



Source: ESRI World Topographic Map

## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Tomago Aboriginal Cultural Heritage Assessment

Date: 21/01/2019

Drawing Size: A4

Drawn By: VN

Reviewed By: SM

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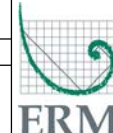
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F1





Tania Matthews  
Hunters & Collectors  
U211 Walowa St  
NARRABRI NSW 2390  
[Tamatthews10@hotmail.co](mailto:Tamatthews10@hotmail.co)

21 January 2019

Reference: 0468623

Dear Tania

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Damon Roddis  
Partner

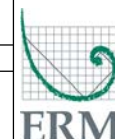


Source: ESRI World Topographic Map

## Project Location

F1

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
Date: 21/01/2019	Drawing Size: A4		
Drawn By: VN	Reviewed By: SM	Client: Aurecon (on behalf of AGL Energy)	
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	





David Feeney  
Karuah Indigenous Corporation  
1/7 Mustons Rd  
KARUAH NSW 2324  
[karuahindigenous@outlook.com](mailto:karuahindigenous@outlook.com)

21 January 2019

Reference: 0468623

Dear David

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Karuah Local Aboriginal Land Council  
16 Muston Road  
KARUAH NSW 2324  
[karuahaboriginal@bigpond.com](mailto:karuahaboriginal@bigpond.com)

21 January 2019

Reference: 0468623

Dear Karuah Local Aboriginal Land Council

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Damon Roddis  
Partner



Source: ESRI World Topographic Map

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Date: 21/01/2019

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

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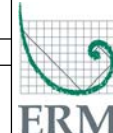
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Client: Aurecon (on behalf of AGL Energy)

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F1





Arthur Fletcher  
Kawul Pty Ltd (trading as Wonn1 Sites)  
619 Main Road  
GLENDALE NSW 2285  
[Wonn1sites@gmail.com](mailto:Wonn1sites@gmail.com)

21 January 2019

Reference: 0468623

Dear Arthur

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[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



Source: ESRI World Topographic Map

## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Date: 21/01/2019

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

Drawing Size: A4

Reviewed By: SM

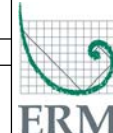
Tomago Aboriginal Cultural Heritage Assessment

Client: Aurecon (on behalf of AGL Energy)

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F1





Mick Leon  
Lakkari NTCG  
C/- 4/39 Short Street  
FORSTER NSW 2428  
[doowakee@gmail.com](mailto:doowakee@gmail.com)

21 January 2019

Reference: 0468623

Dear Mick

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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Stephanie Moore  
Project Archaeologist



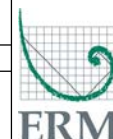
Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
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Drawn By: VN	Reviewed By: SM	Client: Aurecon (on behalf of AGL Energy)	
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F1





David Ahoy  
Lower Hunter Aboriginal Incorporated  
5 Killara Drive  
CARDIFF SOUTH NSW 2285  
[lowerhunterai@gmail.com](mailto:lowerhunterai@gmail.com)

21 January 2019

Reference: 0468623

Dear David

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Stephanie Moore  
Project Archaeologist



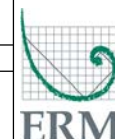
Damon Roddis  
Partner



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Lea-Anne Ball and Uncle Tommy Miller  
Lower Hunter Wonnarua Cultural Services  
51 Bowden Street  
HEDDON GRETA NSW 2321  
[tn.miller@southernphone.com.au](mailto:tn.miller@southernphone.com.au)

21 January 2019

Reference: 0468623

Dear Lea-Anne and Uncle Tommy Miller

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Mindaribba Local Aboriginal Land Council  
1A Chelmsford Drive  
METFORD NSW 2323  
[ceo@mindaribbalalc.org](mailto:ceo@mindaribbalalc.org)

21 January 2019

Reference: 0468623

Dear Mindaribba Local Aboriginal Land Council

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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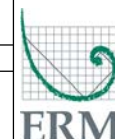
Damon Roddis  
Partner



## Project Location

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F1





Ryan Johnson  
Murra Bidgee Mullangari Aboriginal Corporation  
PO Box 246  
SEVEN HILLS NSW 2147  
[murrabidgeemullangari@yahoo.com.au](mailto:murrabidgeemullangari@yahoo.com.au)

21 January 2019

Reference: 0468623

Dear Ryan

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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For Environmental Resources Management Australia Pty Ltd






Stephanie Moore  
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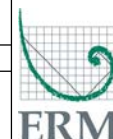
Damon Roddis  
Partner



## Project Location

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F1





Anthony Anderson  
Mur-Roo-Ma Inc.  
7 Vardon Road  
FERN BAY NSW 2295  
[murroomainc1@gmail.com](mailto:murroomainc1@gmail.com)

21 January 2019

Reference: 0468623

Dear Anthony

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For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Leonard Anderson OAM  
Nur-Run-Gee Pty Ltd  
22 Popplewell Road  
FERN BAY NSW 2295  
[lennie.anderson011@bigpond.com](mailto:lennie.anderson011@bigpond.com)

21 January 2019

Reference: 0468623

Dear Leonard

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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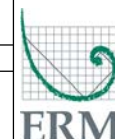
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F1





Roger Matthews  
Roger Matthews Consultancy  
105 View Street  
GUNNEDAH NSW 2380

21 January 2019

Reference: 0468623

Dear Roger

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

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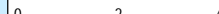


Damon Roddis  
Partner

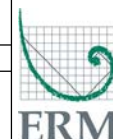


Source: ESRI World Topographic Map

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F1





Steve Talbott  
73 Kiah Road  
GILLIESTON HEIGHTS NSW 2321  
[gomeri.namoi@outlook.com](mailto:gomeri.namoi@outlook.com)

21 January 2019

Reference: 0468623

Dear Steve

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For Environmental Resources Management Australia Pty Ltd






Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner

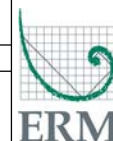


## Project Location

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
Date: 21/01/2019	Drawing Size: A4		
Drawn By: VN	Reviewed By: SM	Client: Aurecon (on behalf of AGL Energy)	
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	
			



F1





Des Hickey  
Wattaka Wonnarua CC Service  
4 Kennedy Street  
SINGLETON NSW 2330  
[deshickey@bigpond.com](mailto:deshickey@bigpond.com)

21 January 2019

Reference: 0468623

Dear Des

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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The proponent of the proposed works is AGL Energy Limited (AGL).

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**2 Registration**

If you wish to formally register for future consultation regarding any of these cultural heritage assessments please contact Stephanie Moore (Project Archaeologist) by **4 February 2019** at the below details:

Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)

Page 1 of 4



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

If you have any specific information concerning the cultural values of the project areas, we would also be grateful if you could let us know. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd






Stephanie Moore  
Project Archaeologist



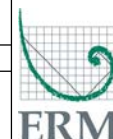
Damon Roddis  
Partner



## Project Location

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F1





Steven Hickey  
Widescope Indigenous Group  
73 Russell Street  
EMU PLAINS NSW 2750  
[Widescope.group@live.com](mailto:Widescope.group@live.com)

21 January 2019

Reference: 0468623

Dear Steven

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

If you have any specific information concerning the cultural values of the project areas, we would also be grateful if you could let us know. Any cultural knowledge provided will be treated in confidence and the information will be distributed according to the wishes of the Aboriginal stakeholders.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd






Stephanie Moore  
Project Archaeologist



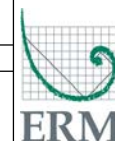
Damon Roddis  
Partner



## Project Location

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F1





Richard Edwards  
Wonnarua Elders Council  
PO Box 844  
CESSNOCK NSW 2325

21 January 2019

Reference: 0468623

Dear Richard

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)  
Locked Bag 3012



Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner





Worimi Local Aboriginal Land Council  
2163 Nelson Bay Road  
WILLIAMTOWN NSW 2318  
[andrew@worimi.org.au](mailto:andrew@worimi.org.au)

21 January 2019

Reference: 0468623

Dear Worimi Local Aboriginal Land Council

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)

Page 1 of 4



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Australia Square NSW 2000  
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Project Archaeologist






Damon Roddis  
Partner

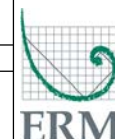


Source: ESRI World Topographic Map

## Project Location

Drawing No: 0468632s_HA_G001_R0.mxd		Tomago Aboriginal Cultural Heritage Assessment	
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F1





Candy Lee Towers  
Worimi Traditional Owners Indigenous Corporation  
36 Avon St  
MAYFIELD NSW 2304  
[worimitoc@hotmail.com](mailto:worimitoc@hotmail.com)

21 January 2019

Reference: 0468623

Dear Candy

**Subject: Proposed gas fired power station, Tomago NSW – Aboriginal Cultural Heritage Assessment**

In accordance with the NSW Office of Environment and Heritage's (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Consultation Guidelines), and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010 (Code of Practice), Environmental Resources Management Australia (ERM) wishes to inform you that we have been engaged by Aurecon (on behalf of AGL) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) associated with the proposed construction and operation of a gas fired power plant in Tomago, NSW. The proposed project location is identified in **Figure 1** below.

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Stephanie Moore  
[stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)



Locked Bag 3012  
Australia Square NSW 2000  
(02) 8584 8868  
0439 720 041

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Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Project Archaeologist



Damon Roddis  
Partner



## Project Location

Drawing No: 0468632s\_HA\_G001\_R0.mxd

Date: 21/01/2019

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

Drawing Size: A4

Reviewed By: SM

Tomago Aboriginal Cultural Heritage Assessment

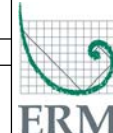
Client: Aurecon (on behalf of AGL Energy)

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0 2 4km



F1



## **APPENDIX F    ABORIGINAL HERITAGE CONSULTATION – REGISTRATIONS**



## Robin Twaddle

---

**From:** Caza X <cazadirect@live.com>  
**Sent:** Monday, 28 January 2019 11:48 AM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

## A1

### Indigenous Services

Contact: Carolyn

M: 0411650057

E: Cazadirect@live.com

A: 10 Marie Pitt Place, Glenmore Park, NSW 2745

ABN: 20 616 970 327

Hi

A1 would like to register for consultation and an field work for this project.

I am a traditional owner and hold cultural knowledge and connection to this area

Thank you

Carolyn Hickey

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, 22 January 2019 1:52 PM  
**To:** Cazadirect@live.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore  
Heritage Consultant

M. ICOMOS

**ERM**

Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

**T** +612 8584 8868 | **M** +614 39 720 041

**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)



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## Robin Twaddle

---

**From:** lilly carroll <didgengunawalclan@yahoo.com.au>  
**Sent:** Tuesday, 22 January 2019 1:22 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie,

DNC would like to register an interest into Tomago Gas Fired Plant Project,

Kind regards  
Paul Boyd & Lilly Carroll  
Directors DNC

[Sent from Yahoo Mail for iPhone](#)

On Tuesday, January 22, 2019, 1:54 pm, Stephanie Moore <Stephanie.Moore@erm.com> wrote:

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.



Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore

Heritage Consultant

M.ICOMOS

**ERM**

Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

**T** [+612 8584 8868](tel:+61285848868) | **M** [+614 39 720 041](tel:+61439720041)

**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)



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## Robin Twaddle

---

**From:** Deidre Perkins <dedemaree3@hotmail.com>  
**Sent:** Wednesday, 23 January 2019 1:58 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good afternoon Stephanie,  
Hope this finds you well. I would like to register for The Tomago project.  
Sincerely  
Deidre Perkins 😊

Get [Outlook for Android](#)

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, January 22, 2019 1:54:33 PM  
**To:** dedemaree3@hotmail.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

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Kind Regards,

Stephanie Moore  
Heritage Consultant

M.ICOMOS



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Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

**T** +612 8584 8868 | **M** +614 39 720 041

**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)



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## Robin Twaddle

---

**From:** David Feeney <karuahindigenous@outlook.com>  
**Sent:** Tuesday, 29 January 2019 3:49 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Hi Stephanie[

Karuah Indigenous Corporation would like to registrar  
there interest for the Tomago assessment

Thank you

Dave Feeney  
Snr Aboriginal Culture Officer  
0421114853

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, January 22, 2019 3:55 AM  
**To:** karuahindigenous@outlook.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

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Kind Regards,

Stephanie Moore

Heritage Consultant

M. ICOMOS

**ERM**

Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

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**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)



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## Robin Twaddle

---

**From:** Shaun Carroll <Merrigarn@hotmail.com>  
**Sent:** Wednesday, 30 January 2019 10:43 AM  
**To:** Stephanie Moore  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie,  
Can you please register me for the above project, please feel free to contact me via email or mobile 0400637554.  
Kind regards  
Shaun Carroll

Sent from [Mail](#) for Windows 10

## Robin Twaddle

---

**From:** Muragadi <muragadi@yahoo.com.au>  
**Sent:** Tuesday, 29 January 2019 2:30 PM  
**To:** Stephanie Moore  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Dear Stephanie,

I would like to register for the above project, our family and members hold the cultural knowledge relevant to identifying Aboriginal objects and or places in the project area. Our family and members have done many projects in the area and have been doing Aboriginal Cultural heritage projects for over 20 years. Please feel free to contact me via email or mble 0418970389.

Kind regards

Anthony

## Robin Twaddle

---

**From:** Ryan Johnson <murrabidgeemullangari@yahoo.com.au>  
**Sent:** Friday, 25 January 2019 6:35 PM  
**To:** Stephanie Moore  
**Subject:** RE: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

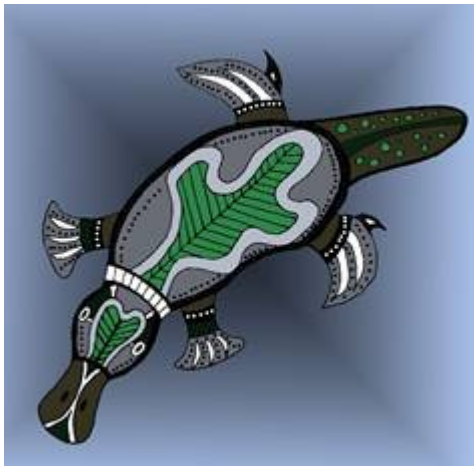
**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Dear Stephanie,

Please register our organisation for the above project, our family and members hold the cultural knowledge that is required to identifying aboriginal objects and/or places in the project area.

Kind regards

Ryan Johnson | **Murra Bidgee Mullangari**



Aboriginal Corporation Cultural Heritage

**A:** PO Box 246, Seven Hills, NSW, 2147  
**E:** [murrabidgeemullangari@yahoo.com.au](mailto:murrabidgeemullangari@yahoo.com.au)  
**ICN:** 8112



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---

**From:** Stephanie Moore [mailto:Stephanie.Moore@erm.com]  
**Sent:** Tuesday, 22 January 2019 1:57 PM  
**To:** murrabidgeemullangari@yahoo.com.au  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore  
Heritage Consultant

M.ICOMOS

**ERM**  
Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia  
**T** +612 8584 8868 | **M** +614 39 720 041  
**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)

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## Robin Twaddle

---

**From:** Anthony Anderson <murroomainc1@gmail.com>  
**Sent:** Monday, 28 January 2019 2:10 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest  
**Attachments:** ERM- Tomago Gas Fire Station.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

To Stephanie-

Please find enclosed expression of interest for Tomago ACHA

Thanks  
Bec Young  
Operations Manager

On Tue, Jan 22, 2019 at 1:58 PM Stephanie Moore <[Stephanie.Moore@erm.com](mailto:Stephanie.Moore@erm.com)> wrote:

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore

Heritage Consultant

M. ICOMOS

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--

Anthony Anderson  
CEO Mur-roo-ma Incorporated  
Justice of The Peace

## Robin Twaddle

---

**From:** lennie.anderson011 lennie.anderson011 <lennie.anderson011@bigpond.com>  
**Sent:** Tuesday, 22 January 2019 4:49 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon Stephanie!

On behalf of the Worimi Traditional Owners and Elders Group and my Company (Nur-Run-Gee Pty Ltd) I wish to give knowledge that:

- We/I wish to Register for the upcoming ACHA.

If any further information is required do not hesitate to contact our Offices (Nur-Run-Gee) or Phone Mob 0431 334 365.

Lennie Anderson OAM ASM ADM  
Worimi Traditional Custodian  
Nur-Run-Gee Pty Ltd (Director)  
Indigenous Archaeologist

----- Original Message -----

From: "Stephanie Moore" <Stephanie.Moore@erm.com>  
To: "lennie.anderson011@bigpond.com" <lennie.anderson011@bigpond.com>  
Sent: Tuesday, 22 Jan, 2019 At 1:58 PM  
Subject: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore

Heritage Consultant

M. ICOMOS

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## Robin Twaddle

---

**From:** stephen talbott <gomeri.namoi@outlook.com>  
**Sent:** Wednesday, 13 February 2019 7:25 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie

I called and registered my expression of interest however have not received any confirmation of my interest being registered  
Can you please confirm you have received this

Regards

Steven

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, 22 January 2019 1:59:50 PM  
**To:** gomeri.namoi@outlook.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore  
Heritage Consultant

M. ICOMOS

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## Robin Twaddle

---

**From:** WIDESCOPE . <widescope.group@live.com>  
**Sent:** Thursday, 24 January 2019 6:54 PM  
**To:** Stephanie Moore  
**Subject:** RE: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie

Please register my interest in the Aboriginal Cultural heritage assessment ACHA being undertaken in Tomago NSW.

I am a recognised indigenous cultural knowledge holder. I hold knowledge relevant in determining the significance of Aboriginal objects and places. I hold a cultural connection to the surrounding areas.

My preferred Method of contact is Via Email: [widescope.group@live.com](mailto:widescope.group@live.com)  
Admin 0425232056

or Mob 0425230693

My level of involvement: I would like to attend Community Consultation meetings and to be considered for field survey works.

Regards  
Steven Hickey

Sent from [Mail](#) for Windows 10

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, January 22, 2019 1:59:00 PM  
**To:** Widescope.group@live.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore  
Heritage Consultant

M. ICOMOS

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## Robin Twaddle

---

**From:** Sites <Sites@worimi.org.au>  
**Sent:** Thursday, 24 January 2019 12:15 PM  
**To:** Stephanie Moore  
**Subject:** FW: `Gas Fired Power Plant

Hi Stephanie, I understand that other stakeholders received letters of engagement for this job yesterday?  
Can you please confirm the inclusion of the WLALC as we a yet to hear back from you.

Kind Regards,

**Jamie Merrick**  
**Senior Sites Officer**  
**Worimi Local Aboriginal Land Council**  
**2163 Nelson Bay Road,**  
**WILLIAMTOWN NSW 2318**

Ph: **02) 4033 8814** | Fax: **02) 4033 8899**  
Email: [sites@worimi.org.au](mailto:sites@worimi.org.au)



---

**From:** Sites  
**Sent:** Wednesday, 5 December 2018 8:22 AM  
**To:** 'Stephanie.moore@erm.com' <Stephanie.moore@erm.com>  
**Subject:** `Gas Fired Power Plant

Hi Stephanie could you let us know if you received our expression of interest for the gas fired power plant

Kind Regards,

**Jamie Merrick**

**Senior Sites Officer**

**Worimi Local Aboriginal Land Council**

**2163 Nelson Bay Road,**

**WILLIAMTOWN NSW 2318**

Ph: **02) 4033 8814** | Fax: **02) 4033 8899**

Email: [sites@worimi.org.au](mailto:sites@worimi.org.au)



## Robin Twaddle

---

**From:** Worimi TOC <worimitoc@hotmail.com>  
**Sent:** Monday, 28 January 2019 12:02 PM  
**To:** Stephanie Moore  
**Subject:** Re: Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie,

On behalf of Worimi Traditional Owners Indigenous Corporation and its members I would like to register our interest in the above mention project for the full consultation.

Cheers,

Candy Towers  
Worimi Custodian  
Worimi Traditional Owners Indigenous Corporation  
Ph: 0412 475 362  
e: worimitoc@hotmail.com



*Guudji Yiigu, I am a Worimi and Yorta Yorta woman from Newcastle NSW, I acknowledge and pay my respects to the traditional owners and custodians of the land on which I live and work, to their continuing connection to land, water, culture and community and pay my respects to the Elders past, present and to our future generations.*

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Tuesday, 22 January 2019 1:59 PM  
**To:** worimitoc@hotmail.com  
**Subject:** Tomago Gas Fired Power Plant ACHA - Invitation to Register Interest

Good Afternoon,

Please find attached an Invitation to Register your interest for an Aboriginal Cultural Heritage Assessment (ACHA) project being undertaken in Tomago NSW.

If you would like to register your Interest, please do so either in writing or by phone by **4 February 2019**.

Should you have any further questions, please don't hesitate to get in touch.

Kind Regards,

Stephanie Moore  
Heritage Consultant

M. ICOMOS

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Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia  
**T** +612 8584 8868 | **M** +614 39 720 041  
**E** [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | **W** [www.erm.com](http://www.erm.com)



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## **APPENDIX G   ABORIGINAL HERITAGE CONSULTATION – PUBLIC ADVERTISEMENT**

Environmental Resources Management Australia Pty Ltd (ERM), on behalf of AGL Energy Limited (AGL), is undertaking an Aboriginal Cultural Heritage Assessment, to support AGL's proposal to construct and operate a gas fired peaking power station and associated infrastructure in Tomago, NSW. ERM is seeking expressions of interest from any Aboriginal people who may have cultural knowledge relating to the project area who may be able to assist.

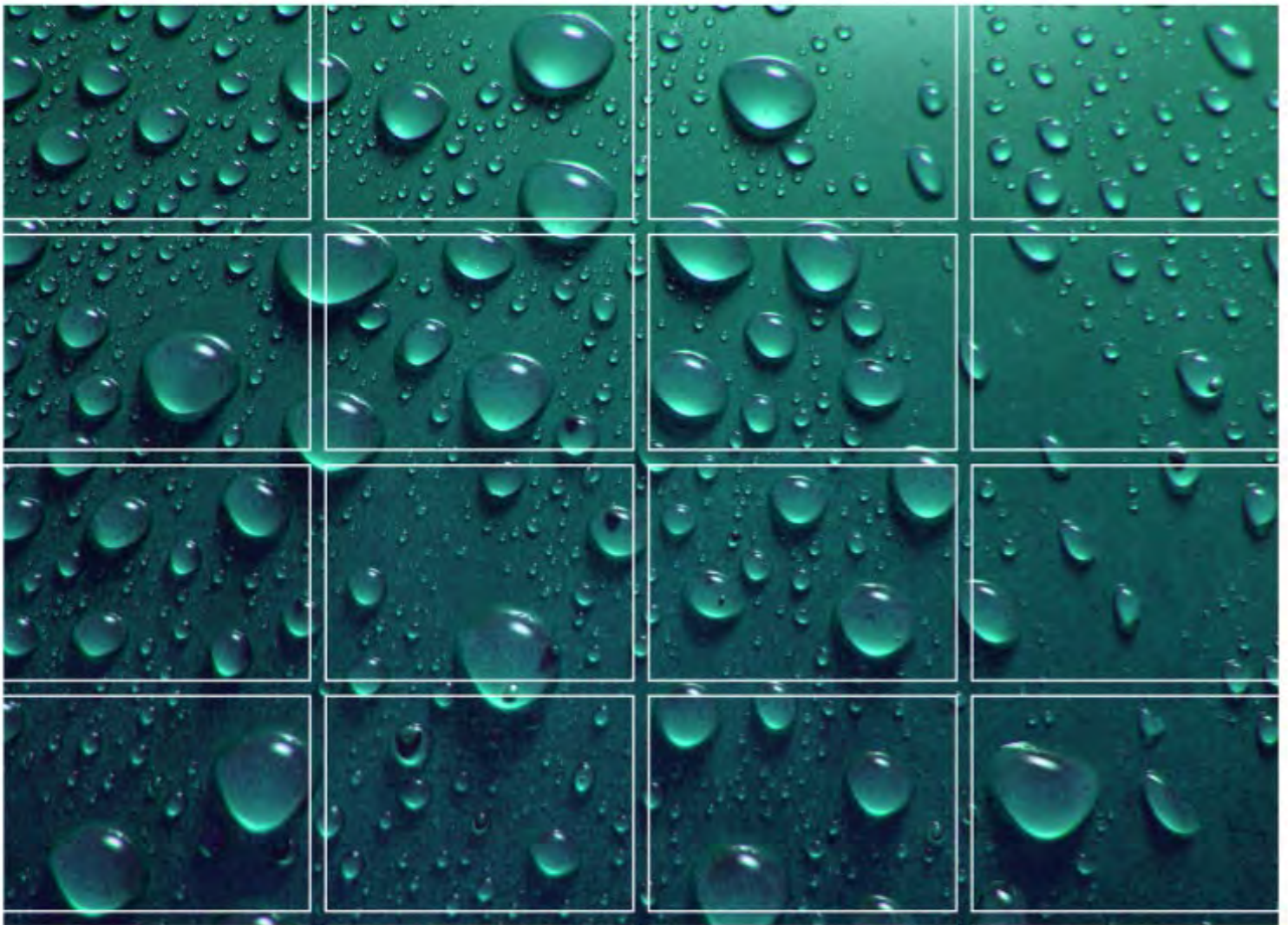


Or email to: [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)

AW3653863

## **APPENDIX H    ABORIGINAL HERITAGE CONSULTATION – PROPOSED FIELD SURVEY METHODOLOGY**





## Newcastle Power Station

### Field Survey Methodology

4 April 2019

Project No.: 0468623

<b>Document details</b>	
Document title	Newcastle Power Station
Document subtitle	Field Survey Methodology
Project No.	0468623
Date	4 April 2019
Version	1.0
Author	Dr Robin Twaddle
Client Name	Aurecon

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	Dr Robin Twaddle	S. Moore/E. Finnegan	D. Roddis	20/03/2019	
Final	00	Dr Robin Twaddle	S. Moore/E. Finnegan	D. Roddis	04/04/2019	Revised per client comments

---

## Signature Page

4 April 2019

# Newcastle Power Station

## Field Survey Methodology



---

Stephanie Moore  
Heritage Consultant



---

Damon Roddis  
Partner

Environmental Resources Management Australia Pty Ltd

Level 15

309 Kent Street

Sydney NSW 2000

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## 1. INTRODUCTION

Environmental Resource Management Australia Pty Ltd (ERM) have been commissioned by Aurecon to prepare an Aboriginal Cultural Heritage Assessment (ACHA) for a property in Tomago, NSW. The property consists of:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The ACHA will be prepared in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010* (Code of Practice) and will include Indigenous community consultation, field investigations and associated data analysis and reporting. The ACHA is being prepared to support the proposed construction and operation of a dual-fuel power station in Tomago as outlined in *Section 3*.

This document provides details of the proposed assessment methodologies for the site. This document will be provided to all Registered Aboriginal Parties (RAPs) who have registered interest in the project for their review and comment. Any comments received will be considered and incorporated into the assessment methodologies where practicable.

## 2. SITE LOCATION

This methodology document relates to field investigations and the preparation of an ACHA report for the proposed development being undertaken at the site identified as the 'Newcastle Power Station'. The location of this site is provided below.

The proposed Newcastle Power Station is in Tomago, NSW, approximately 14 km north-west of Newcastle within the Port Stephens Local Government Area (Figure 2-1). The approximately 96 ha Proposal encompasses the following lots:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The north-west boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 4 DP1043561 as well as the western boundary of Lot 1203 DP1229590 abut the Pacific Highway. The southern boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 202 DP1173564 adjoin industrial estates. Lot 202 DP1173564 is bounded to the east and north by allotments displaying dense vegetation.



Legend

Project Boundary


Cadastre (Lot)

Data Source:  
Project Boundary: Client Provided  
(February 2019)  
Nearmap Imagery January 2019



**Project Area of the Newcastle Gas Fired Power Station**

**F2-1**

Drawing No: 0468623s_HA_G002_R0.mxd		Newcastle Gas Fired Power Station	
Date: 04/04/2019	Drawing Size: A3		
Drawn By: GC	Reviewed By: RT	Client: Aurecon	
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	
<div><div><div>0</div><div>50</div><div>100m</div></div><div><div>N</div><div></div></div></div>			





### 3. PROPOSED DEVELOPMENT

The proponent of the proposed works is NGSF Asset Pty Limited, a wholly owned subsidiary of AGL Energy Limited (AGL).

AGL proposes to construct and operate a dual-fuel (gas/diesel) power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister of Planning and Environment under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act).

The Proposal involves the construction and operation of approximately 250-megawatt (MW) dual-fuel power station and associated infrastructure including gas supply and electricity transmission connections. The Proposal would employ open cycle gas turbine (OCGT) or reciprocating gas engine technology able to operate on diesel fuel if necessary. It would operate as a "peak load" facility supplying electricity at short notice during periods of high demand, low supply from intermittent supply sources or when baseload power generation is offline. The Proposal would connect to the gas supply via a new pipeline(s) to the Newcastle Gas Storage Facility (NGSF) and/or the existing high-pressure gas supply pipeline on Old Punt Road. A high voltage electrical transmission line would connect the Proposal to the existing TransGrid Tomago 132kV switchyard. The Proposal is likely to have a minimum operating life of 25 years.

With specific reference to Aboriginal cultural heritage and the assessment of potential impacts to the heritage values within the Proposal Area, construction of the power station and associated infrastructure would result in the following works:

- clearing of vegetation to enable installation of gas pipelines and associated construction yards and transmission line infrastructure as required;
- site preparation including levelling earthworks;
- excavation for foundations, services, and drainage works;
- installation of foundations and underground services;
- installation of aboveground mechanical and electrical plant and equipment;
- erection of structures and buildings; and
- landscaping.

The proposed gas and power transmission infrastructure is expected to largely follow existing easements within areas that have already been disturbed. However, there could be some potential for disturbance of Aboriginal cultural heritage sites during construction.



## 4. HERITAGE BACKGROUND

An extensive Aboriginal cultural heritage investigation was undertaken across Lot 2 DP1043561 and Lot 3 DP1043561 (located in the western portion of the current Project Area) by Jacobs Pty Ltd for RMS in 2015 as part of the M1 Pacific Motorway Extension to Raymond Terrace Project. This investigation included a pedestrian survey which identified Potential Archaeological Deposits (PADs) across both lots. This was registered with AHIMS as site # 38-4-1751.

A subsequent test pitting program of 65 shovel probes and 12 test pits was undertaken at #38-4-1751 across both lots. Stone artefacts were located in 16 of the shovel probes and five (5) of the test pits. Two additional isolated artefacts were also located on the ground surface. Angular fragments dominate the artefact assemblages with occasional flakes and cores also identified. Artefact material is primarily Indurated Mudstone/Tuff/Chert (IMTC), with quartz and silcrete also identified.

An Environmental Impact Statement (EIS) was prepared by HLA Envirosciences (HLA) in 2002 to assess the impacts of the construction and operation of a proposed power station at the same location as the Proposal. This included consultation and a survey undertaken in conjunction with the Worimi Local Aboriginal Lands Council. The EIS highlighted that the Project Area is in a zone of high archaeological sensitivity given its ready access to resources and that previous studies had located a high incidence of sites (e.g. Dean-Jones 1990).

A review of the Aboriginal Heritage Information Management System (AHIMS) sites register indicated four sites (three artefact scatters and one scarred tree) were located within 1.5 km from the Project Area boundary (HLA 2002). These sites have been assessed as forming part of a larger site complex recorded east of the Project Area. Moreover, it was found that site densities were at their highest in close proximity to water sources, particularly wetlands (refer HLA 2002).

No sites were located within or immediately adjacent to the Project Area (HLA 2002).

An extensive search of the OEH Aboriginal Heritage Information Management System (AHIMS) database was conducted on 13 March 2019, using the following details:

**Client Service ID:** 406479  
**Lat, Long from:** -32.8211, 151.7015  
**Lat, Long to:** -32.8086, 151.7363  
**Buffer:** 200 m  
**Number Sites:** 5

A total of five (5) sites were identified within the search area. Of these, the majority of these are recorded as Artefact, with Art and Potential Archaeological Deposit (PAD) also contributing to the types of recorded sites. There is one (1) recorded site within the Project Area. The results of the AHIMS search are summarised in *Table 4.1*.

**Table 4.1 AHIMS Registered Site Types**

Site Type	Number
Artefact	3
Artefact, Potential Archaeological Deposit (PAD)	1
Art (Pigment or Engraved)	1

## 5. FIELDWORK METHODOLOGY

An archaeological survey will be undertaken over 3 days in May 2019 and will aim to identify all Aboriginal sites present within the Project Area including the identification of any PADs as well as confirm the findings of the previous survey and test pitting program. The proposed methodology for the survey includes:

- the survey will be undertaken on foot where possible with up to four RAPs in attendance;
- the survey will consist of all participants traversing the Project Area using walking transects approximately 5 m apart to ensure the entire Project Area is covered (subject to visibility and accessibility);
- the survey will target each landform in the Project Area;
- areas of archaeological potential such as raised landforms in close proximity to semi-permanent water sources will also be targeted;
- areas of exposure and ground visibility will be targeted;
- any areas of interest to the RAPs will be targeted; and
- any cultural heritage information for the study area held by Aboriginal parties will be recorded during the field survey. Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

## 6. FEEDBACK

ERM requests that you respond to this information package and advise of your availability to attend the fieldwork prior to **Thursday 2 May 2019**.

Please provide feedback to **Stephanie Moore** at the following contact details:

**Post: Locked Bag 3012, Australia Square, NSW 2000**

**Phone: 02 8584 8868**

**Email: [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)**

ERM also ask if you hold any knowledge of sites within or near the study area or have any specific information concerning the cultural values of the study area, we would be grateful if you could let us know. Our contact details are listed above. Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Heritage Consultant



Paul Douglass  
Partner

## REFERENCES

Dean-Jones, P. 1990 *Newcastle Bight Aboriginal Sites Study*. Prepared for the NSW National Parks and Wildlife Service and National Estate Grant Committee.

HLA Envirosciences (HLA) 2002 *Tomago Gas Fired Power Station Environmental Impact Study*. Prepared for Macquarie Generation.



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## **APPENDIX I    ABORIGINAL HERITAGE CONSULTATION – RESPONSES TO FIELD SURVEY METHODOLOGY**

## Robin Twaddle

---

**From:** lilly carroll <didgengunawalclan@yahoo.com.au>  
**Sent:** Thursday, 4 April 2019 8:36 PM  
**To:** Stephanie Moore  
**Subject:** Re: Newcastle Power Station - Project Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Thanks Steph,

Look forward to working with you again soon

[Sent from Yahoo Mail for iPhone](#)

On Thursday, April 4, 2019, 3:29 pm, Stephanie Moore <Stephanie.Moore@erm.com> wrote:

Good Afternoon,

Please find attached a copy of the proposed project methodology for the Newcastle Power Station (Tomago) Aboriginal Cultural Heritage Assessment.

Should you have any questions or comments, please provide these in writing to:

**Stephanie Moore**

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

**Locked Bag 3012  
Australia Square NSW 2000**

Please provide comments by Close of Business **Thursday 2<sup>nd</sup> May 2019**.

Arrangements for fieldworks are currently underway and a separate email will be sent enquiring about availability.

If you have any further questions, please don't hesitate to get in touch.

Regards,

Steph

Stephanie Moore

Heritage Consultant

M.ICOMOS



## ERM

Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

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## Robin Twaddle

---

**From:** Deidre Perkins <dedemaree3@hotmail.com>  
**Sent:** Monday, 8 April 2019 4:08 PM  
**To:** Stephanie Moore  
**Subject:** Re: Newcastle Power Station - Project Methodology

Hello Stephanie, I have read over the report.  
It all seem good to me .  
Deidre☺

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---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Thursday, April 4, 2019 3:26:04 PM  
**To:** dedemaree3@hotmail.com  
**Cc:** Robin Twaddle; James Grieve; Erin Finnegan  
**Subject:** Newcastle Power Station - Project Methodology

Good Afternoon,

Please find attached a copy of the proposed project methodology for the Newcastle Power Station (Tomago) Aboriginal Cultural Heritage Assessment.

Should you have any questions or comments, please provide these in writing to:

**Stephanie Moore**  
[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)  
**Locked Bag 3012**  
**Australia Square NSW 2000**

Please provide comments by Close of Business **Thursday 2<sup>nd</sup> May 2019**.

Arrangements for fieldworks are currently underway and a separate email will be sent enquiring about availability.

If you have any further questions, please don't hesitate to get in touch.

Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

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## Robin Twaddle

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**From:** Shaun Carroll <Merrigarn@hotmail.com>  
**Sent:** Monday, 8 April 2019 11:20 AM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Project Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie,  
I have read the project information and methodology for the above project, I agree with the recommendations.  
Kind regards  
Shaun Carroll

Sent from [Mail](#) for Windows 10

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Thursday, April 4, 2019 3:17:32 PM  
**To:** merrigarn@hotmail.com  
**Cc:** Robin Twaddle; James Grieve; Erin Finnegan  
**Subject:** Newcastle Power Station - Project Methodology

Good Afternoon,

Please find attached a copy of the proposed project methodology for the Newcastle Power Station (Tomago) Aboriginal Cultural Heritage Assessment.

Should you have any questions or comments, please provide these in writing to:

**Stephanie Moore**  
[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)  
**Locked Bag 3012**  
**Australia Square NSW 2000**

Please provide comments by Close of Business **Thursday 2<sup>nd</sup> May 2019**.



Arrangements for fieldworks are currently underway and a separate email will be sent enquiring about availability.

If you have any further questions, please don't hesitate to get in touch.

Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M. ICOMOS

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## Robin Twaddle

---

**From:** jesse johnson <muragadi@yahoo.com.au>  
**Sent:** Friday, 5 April 2019 12:52 PM  
**To:** Stephanie Moore  
**Subject:** Re: Newcastle Power Station - Project Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie  
I have read the proposed methodology for the above project, I agree with the recommendations made by ERM.  
Kind regards  
Anthony  
0418970389

Sent from my iPhone

On 4 Apr 2019, at 3:19 pm, Stephanie Moore <[Stephanie.Moore@erm.com](mailto:Stephanie.Moore@erm.com)> wrote:

Good Afternoon,

Please find attached a copy of the proposed project methodology for the Newcastle Power Station (Tomago) Aboriginal Cultural Heritage Assessment.

Should you have any questions or comments, please provide these in writing to:

**Stephanie Moore**  
[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)  
**Locked Bag 3012**  
**Australia Square NSW 2000**

Please provide comments by Close of Business **Thursday 2<sup>nd</sup> May 2019**.

Arrangements for fieldworks are currently underway and a separate email will be sent enquiring about availability.

If you have any further questions, please don't hesitate to get in touch.

Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

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<0468623 - AGL Tomago ACHA Project Methodology FINAL.pdf>

## Robin Twaddle

---

**From:** Ryan Johnson <murrabidgeemullangari@yahoo.com.au>  
**Sent:** Monday, 8 April 2019 11:21 AM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Project Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Dear Stephanie,  
I have read the report and project methodology for the New Castle Power Station project, I endorse the recommendations made by ERM.  
Kind regards

Ryan Johnson | **Murra Bidgee Mullangari**



Aboriginal Corporation Cultural Heritage

**A:** PO Box 246, Seven Hills, NSW, 2147  
**E:** [murrabidgeemullangari@yahoo.com.au](mailto:murrabidgeemullangari@yahoo.com.au)  
**ICN:** 8112

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**From:** Stephanie Moore [mailto:Stephanie.Moore@erm.com]

**Sent:** Thursday, 4 April 2019 3:23 PM

**To:** murrabidgeemullangari@yahoo.com.au

**Cc:** Robin Twaddle <Robin.Twaddle@erm.com>; James Grieve <James.Grieve@erm.com>; Erin Finnegan <Erin.Finnegan@erm.com>

**Subject:** Newcastle Power Station - Project Methodology

Good Afternoon,

Please find attached a copy of the proposed project methodology for the Newcastle Power Station (Tomago) Aboriginal Cultural Heritage Assessment.

Should you have any questions or comments, please provide these in writing to:

**Stephanie Moore**

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

**Locked Bag 3012**

**Australia Square NSW 2000**

Please provide comments by Close of Business **Thursday 2<sup>nd</sup> May 2019**.

Arrangements for fieldworks are currently underway and a separate email will be sent enquiring about availability.

If you have any further questions, please don't hesitate to get in touch.

Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

## ERM

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## **APPENDIX J    NEWCASTLE POWER STATION ARCHAEOLOGICAL SURVEY REPORT (ERM 2019B)**



## Newcastle Power Station

### Aboriginal Archaeological Survey Report

6 September 2019

Project No.: 0468623



<b>Document details</b>	
Document title	Newcastle Power Station
Document subtitle	Aboriginal Archaeological Survey Report
Project No.	0468623
Date	6 September 2019
Version	1.0
Author	Dr. Robin Twaddle, Stephanie Moore, Katherine Deverson
Client Name	Aurecon Group on behalf of AGL

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	S. Moore	E. Finnegan	P. Douglass	17.05.2019	
Draft	01	S. Moore	E. Finnegan	D. Roddis	31.05.2019	Revised per client comments
Final	02	S. Moore	E. Finnegan	D. Roddis	6.09.2019	Revised per client comments

---

## Signature Page

6 September 2019

# Newcastle Power Station

## Aboriginal Archaeological Survey Report



James Grieve  
Project Manager



Damon Roddis  
Partner



Stephanie Moore  
Consultant



Erin Finnegan  
Principal Consultant

Environmental Resources Management Australia Pty Ltd

Level 15

309 Kent Street

Sydney NSW 2000

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## Acronyms and Abbreviations

Name	Description
ASR	Aboriginal Archaeological Survey Report
Aboriginal object (as defined in the NPW Act)	Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales (NSW), being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains
Aboriginal Place (as defined in the NPW Act)	A place declared under s.84 of the NPW Act that, in the opinion of the Minister, is or was of special significance to Aboriginal culture.
ACHA	Aboriginal Cultural Heritage Assessment (report)
AHC	Australian Heritage Commission
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
Burra Charter	The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CHMP	Cultural Heritage Management Plan
disturbed land or land already disturbed by previous activity	Land is disturbed if it has been the subject of a human activity that has changed the land's surface -being changes that remain clear and observable*.
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Pty Ltd
'harm' an Aboriginal object (as defined in the NPW Act)	To destroy, deface, damage an object; move an object from the land on which it is situated; or cause or permit an object to be harmed.
Heritage Act	Heritage Act 1979
LEP	Local Environmental Plan
LGA	Local Government Area
NPW Act	National Parks and Wildlife Act 1974
NPW Regulation	National Parks and Wildlife Regulation 2009
OEH	Office of Environment and Heritage (NSW)
SHR	State Heritage Register

## 1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Aurecon Group (Aurecon) on behalf of AGL Energy Limited (AGL) to prepare an Aboriginal Archaeological Survey Report (ASR) for the site of the proposed Newcastle Power Station and associated pipeline easements (the Project Area).

The ASR will be prepared in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010* (Code of Practice) and will include Indigenous community consultation, field investigations and associated data analysis and reporting. The ASR is being prepared to support the proposed construction and operation of a dual-fuel power station in Tomago, as outlined in *Section 3*.

ERM is preparing an Aboriginal Cultural Heritage Assessment (ACHA) to support the Project. The ACHA multiple stages of assessment and reporting, including the completion of a pedestrian survey across the Project Area. This document provides the results of that survey, which will be followed by additional investigation.

This ASR would be provided to all Registered Aboriginal Parties (RAPs) who have registered interest in the Project for their review and comment. Any comments received would be considered and incorporated into the assessment methodologies and final assessment documentation where practicable.

### 1.1 Objectives

This ASR assesses the potential impacts of the Project on Aboriginal cultural heritage values, and prepares strategies to manage any risks to identified heritage values during the course of the Project.

This report documents:

- the consultation process undertaken to date with Aboriginal communities and their involvement in the Project;
- the landscape and natural resources of the Project Area;
- a synthesis of local and regional Aboriginal archaeological research to develop a contextual basis for predictive modelling;
- a review of archaeological and relevant literature and heritage listings on the NSW Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database;
- a predictive model for Aboriginal cultural heritage site types and location relevant to the Project Area;
- a review of the Project Area's non-Aboriginal history to gain an understanding and appreciation of past land uses and associated historical ground disturbance;
- the archaeological methodology implemented during the study;
- the cultural and archaeological sensitivity of landforms that may be subject to impacts;
- the field survey results;
- the significance of any located Aboriginal objects and places;
- a description of the Project and whether or not it has the potential to result in impacts to Aboriginal cultural heritage and historic heritage items; and
- provision of management and mitigation measures based on the results of the investigation.

## 1.2 Site Location

The Newcastle Power Station is located in Tomago, NSW, approximately 14 km north-west of Newcastle within the Port Stephens Council Local Government Area (*Figure 1.1*). The Project Area is approximate 96 ha in size and encompasses the following lots:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The north-west boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 4 DP1043561 as well as the western boundary of Lot 1203 DP1229590 abut the Pacific Highway. The southern boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 202 DP1173564 adjoin industrial estates. Lot 202 DP1173564 is bounded to the east and north by lots displaying dense vegetation.

## 1.3 Description of Proposed Development

The proponent of the proposed works is AGL.

AGL proposes to construct and operate a gas fired peaking power station and associated infrastructure ('the Project') in Tomago, NSW. AGL is seeking approval for the Project from the NSW Minister of Planning and Environment under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The Project has been deemed to be a Critical State Significant Infrastructure Project (CSSI) and is subject to approval under the Secretary's Environmental Assessment Requirements (SEARs).

The Project involves the construction and operation of a 250-megawatt (MW) dual-fuel peaking power station and associated infrastructure including gas supply and electricity transmission connections. The Project would employ Open Cycle Gas Turbine (OCGT) or reciprocating gas engine technology. It would operate as a "peaking" facility supplying electricity at short notice during periods of high demand, low supply from intermittent supply sources or when baseload power generation is offline. The Project would connect to the gas supply with a new pipeline to the Newcastle Gas Storage Facility (NGSF) and/or its associated existing pipeline. A high voltage electrical transmission line would connect the Project to the existing TransGrid Tomago 132kV switchyard. The Proposal is likely to have a minimum operating life of 25 years

## 1.4 Authorship

This report has been prepared by Dr Robin Twaddle, Katherine Deverson and Stephanie Moore (Heritage Consultants, ERM). Technical review was undertaken by Erin Finnegan (Principal Heritage Consultant, ERM) and quality assurance review was provided by Paul Douglass (Partner, ERM).





Figure 1.1 Site Location



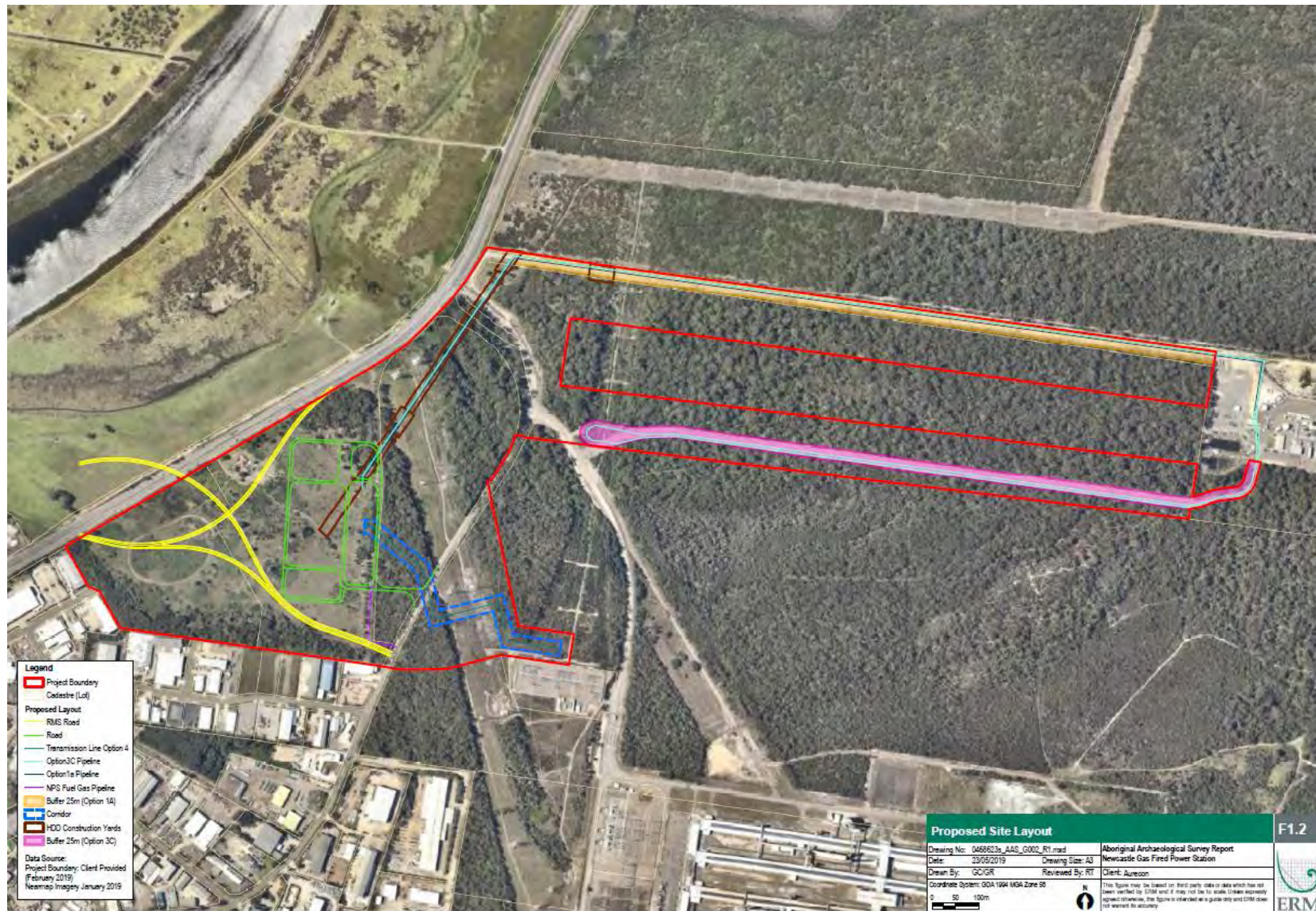


Figure 1.2 Proposed Site Layout

## 2. LEGISLATION AND GUIDELINES

Aboriginal cultural heritage in NSW is protected by the *National Parks and Wildlife Act 1974* (NP&W Act). Land managers are required to consider the effects of their activities, or proposed development, on the environment under several pieces of legislation, principally the *Environmental Planning and Assessment Act 1979* (EP&A Act). Cultural heritage, which includes Aboriginal and historical heritage, is subsumed within the definition of “environment”. In certain circumstances, Commonwealth legislation protecting Aboriginal heritage may also apply to Aboriginal heritage places in NSW. The key state legislation applying to the Project is summarised below in Section 2.1.

### 2.1 State Legislation

#### 2.1.1 NSW Environmental Planning and Assessment Act 1979

The EP&A Act requires that environmental impacts are considered in land use planning, including impacts on Aboriginal and non-Aboriginal heritage. Various planning instruments prepared under the Act identify permissible land use and development constraints.

This Project has been designated Critical SSI by the relevant authority.

The SEARs for the Project were issued on 18 February 2019 and require as follows:

- An assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the Project, including adequate consultation with the Aboriginal stakeholders having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010).

This assessment has therefore been prepared in accordance with the requirements of the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011), the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010), the Aboriginal cultural heritage consultation requirements for proponents (DECCW 2010) and the NSW Heritage Manual (1996).

#### 2.1.2 NSW National Parks and Wildlife Act 1974

All Aboriginal objects within NSW are protected under Part 6, and particularly Section 90, of the NPW Act.

Under Section 5 of the Act, “Aboriginal Object” means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Indigenous habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Sites of traditional significance that do not necessarily contain archaeological materials may be gazetted as ‘Aboriginal places’ and are protected under Section 84 of the Act. This protection applies to all sites, regardless of their significance or land tenure.

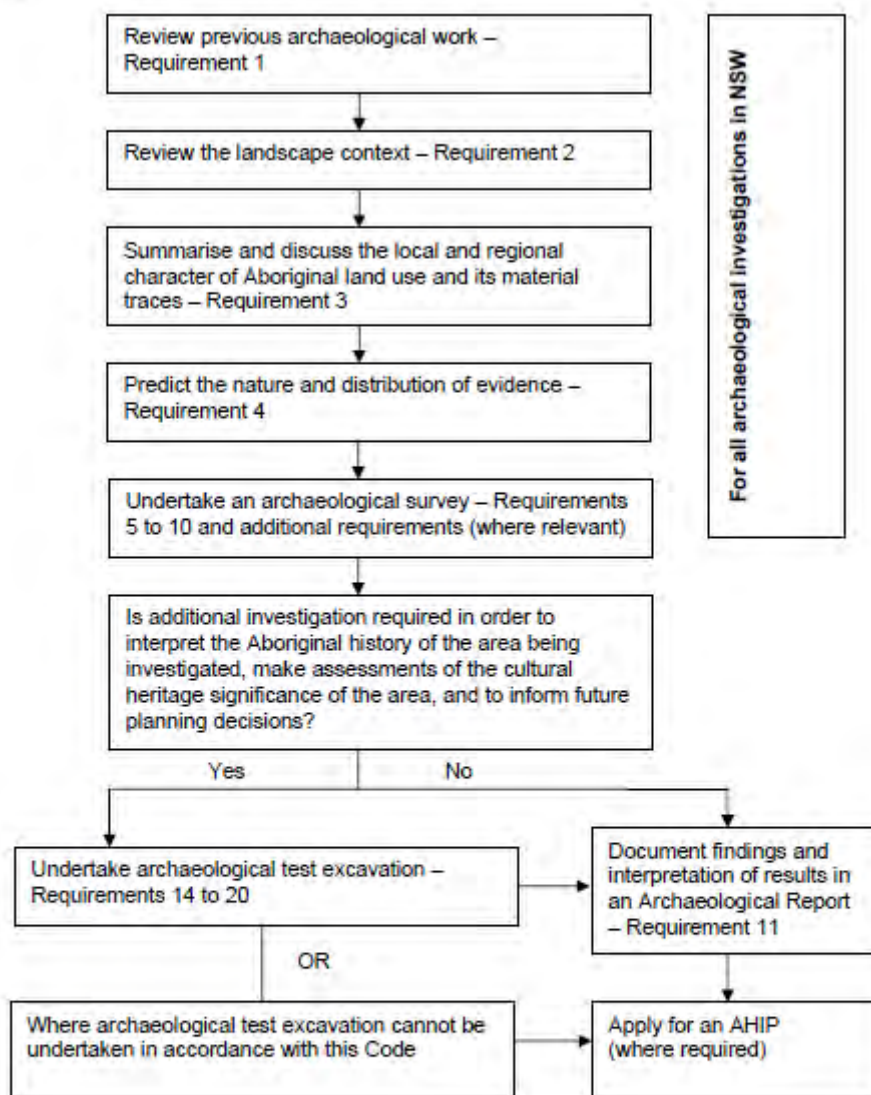
#### The due diligence process

Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to destroy, deface, damage, or move them from the land. The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW, 2010a) as adopted by the National Parks and Wildlife Regulation 2009 (NPW Regulation) made under the NPW Act, provides guidance to individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects. This code of practice can be used for all activities across all environments. The NPW Act provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object



Under Section 90, a person who, without first obtaining the consent of the Director-General, knowingly destroys, defaces or damages, or knowingly causes or permits the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place is guilty of an offence.

In most circumstances, it is required that an Aboriginal Heritage Impact Permit (AHIP) be obtained for any impact to an Aboriginal object or place. The OEH is the responsible authority, with the Director General of that department the consent authority. However, as the Project has been assessed as CSSI, the need for a permit under Section 90 is extinguished. This does not, however, exempt the proponent from managing cultural heritage matters to the same statutory standard, as is usually captured in the SEARs requirements.



### Other requirements

In addition to the requirements of this Code, you may also need to comply with the requirements of other legislation.

**Figure 2.1 Requirements of the Code (Code of Practice p.3, DECCW 20100)**

### 2.1.3 NSW Heritage Act 1977

The NSW *Heritage Act 1977* establishes the NSW Heritage Council and the State Heritage Register (SHR). The aim of the Act is to conserve the heritage of New South Wales. The aim of heritage management is not to prevent change and development, but to ensure that the heritage significance of recognised heritage items is not harmed by changes.

The SHR is a separate listing to the State Heritage Inventory and includes items which are accorded SHR listing through gazettal in the NSW Government Gazette. Nominated items are considered by the NSW Heritage Council which then makes a recommendation to the Minister for Heritage. The Minister is empowered to place Interim Heritage Orders (IHO) on an item of potential State significance on the basis of advice received from the Heritage Council.

### 2.1.4 Guidelines

This document has also been prepared in accordance with the following guidelines:

- The Burra Charter (The Australia ICOMOS charter for places of cultural significance);
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011);
- Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010);
- Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (OEH);
- NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning, 1994);
- Assessing Heritage Significance (NSW Heritage Office, 2001); and
- Statements of Heritage Impact (Heritage Office and Department of Urban Affairs and Planning, 2002).



### 3. ABORIGINAL COMMUNITY CONSULTATION

ERM has undertaken Aboriginal community consultation in accordance with the guideline *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010). The guidelines state, consultation with Aboriginal people is an essential part of the heritage assessment process:

- To determine potential harm on Aboriginal cultural heritage from proposed activities; and
- To inform decision making for any application for an AHIP where it is determined that harm cannot be avoided.

The guidelines sets out four stages of consultation requirements which we would be proposing to follow. The four stages are:

- Stage 1 - Notification of project proposal and registration of interest;  
[Insert general tasks per stage: i.e. Advertisement in local papers; identification of interested Aboriginal stakeholders through registration...more...]
- Stage 2 – Presentation of information about the proposed project;  
[Letters to registered stakeholders, more...]
- Stage 3 – Gathering information about cultural significance; and  
[Desktop assessment including relevant database and register searches, literature review, and results from field survey, i.e. this report...etc]
- Stage 4 – Review of draft cultural heritage assessment report.

The project has progressed to Stage 3 of this process. Further details regarding the consultation undertaken for this Project will be provided in the Aboriginal Cultural Heritage Assessment Report (ACHA) which is currently being prepared. This section, however, provides a high level summary of the consultation undertaken to date.

Through Stage 1 of the consultation process, ERM identified 26 organisations who may have been able to provide information about the cultural value of the Project Area. Of these 26 organisations, 12 registered their interest in being consulted throughout the course of the Project. These 12 organisations were:

- Didge Ngunawal Clan;
- Nu-Run-Gee Pty Ltd;
- Worimi Traditional Owners Indigenous Corporation;
- Divine Diggers Aboriginal Cultural Consultants;
- Worimi Local Aboriginal Land Council;
- Widescope Indigenous Group;
- Murra Bidgee Mulangari Aboriginal Corporation;
- A1 Indigenous Services;
- Mu-Roo-Ma Pty Inc.;
- Muragadi;
- Karuah Indigenous Corporation; and
- Merrigarn.

ERM has remained in contact with these registered groups throughout the course of the Project. Due to project limitations, only four of the 12 groups were invited to attend the field survey. ERM assisted in facilitating the involvement of the four selected groups in field survey.

ERM will continue to seek feedback and information from all registered groups as the assessment progresses.

## 4. ENVIRONMENTAL CONTEXT

The environmental setting in which people live has direct and indirect influences on human behaviour. This is particularly true for hunter-gatherer societies in which availability and abundance of local resources influence movement within the landscape. Environmental factors may also influence the potential that archaeological sites would be preserved and visible. Because of this, the physical setting of the Project is discussed in terms of geology and landforms, and past land use and disturbance.

A determination of the former environmental context is essential to develop accurate models of cultural activity, site distribution patterns and the archaeological potential of any given area. The environmental setting of the Project is discussed below.

### 4.1 The Sydney Basin Bioregion

Bioregions and sub-bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities. The Interim Biogeographic Regionalisation for Australia (IBRA) provides a regional and national planning framework for the systematic development of a comprehensive, adequate and representative National Reserve System. Bioregions delineate salient environmental characteristics which can highlight patterns in Aboriginal site patterning.

The Project Area is located in the Sydney Basin Bioregion, which extends north from Batemans Bay to Nelsons Bay and as far west as Mudgee. The bioregion is bordered to the north by the NSW North Coast and Brigalow Belt South bioregions, to the west by the South Eastern Highlands and South Western Slopes bioregions, and to the south by the South East Corner Bioregion. The total area of the bioregion is 2,462,500 hectares (approximately 4.53% of NSW) (NSW NPWS, 2003). The general attributes of the Sydney Basin Bioregion are outlined in *Table 4.1*.

**Table 4.1 Sydney Basin Bioregion Attributes**

Characteristic	Description
Climate	The climate of this bioregion is predominately temperate, with warm summers and no dry season. A sub-humid climate can be found in the north-east, while a montane climate zone is located around the Blue Mountains. Rainfall can occur throughout the year, but varies across the bioregion in relation to altitude and distance from the coast. Temperature also varies with the coast and Hunter Valley seeing higher temperatures, while the higher plateaux and western edge see lower temperatures.
Landforms	Landforms found within the bioregion consist of mountainous regions, gorges with weather sandstone edges, volcanic cents, coastal barriers, deep estuaries, and cliffs that exposed 'layer cake' geology.
Geology	The bioregion overlays part of the New England Fold Belt. Bedrocks are Devonian and Permian, with older rocks faulted across the basin along the north-eastern edge of the bioregion. Coal deposits accumulated and the upper parts of the basin were covered in quartz sandstone by extremely large braided rivers. Shallow marine sediments and later more river sediments continued to accumulate in the basin during the Jurassic but all of these younger rocks have been eroded, leaving only a thin cap of shale over the resistant sandstones.
Soils	High diversity in rock types, topography, and climate has resulted in a large variety of soils. The coastal area is dominated by frontal dunes, behind which are accumulations of organic matter that develops coloured topsoil. Species composition and structural form are similar on

Characteristic	Description
	sandy soils of the sandstone plateaus and the sandy soils of the dunes. Better quality shale soils form caps on sandstone and on the coastal ramps.
Vegetation	Vegetation across this bioregion is diverse and generally dictated by the soils. Limited areas of rainforest can be found in the lower Hunter, Illawarra escarpment and on Robertson basalts, as well as in protected gorges and on right soil. Alternating sandstones and shale plateaus lead to contour-patterned vegetation communities, while volcanic vents or diatremes carry locally different vegetation.

## 4.2 Geology, Soils, and Topography

Geologically, the wider Sydney Basin Bioregion overlays part of the New England Fold Belt, with Devonian and Permian bedrock and older rocks faulted across the basin along the north-eastern edge of the bioregion. Coal deposits accumulated and the upper parts of the basin were covered in quartz sandstone by extremely large braided rivers. Shallow marine sediments and later more river sediments continued to accumulate in the basin during the Jurassic but all of these younger rocks have been eroded, leaving only a thin cap of shale over the resistant sandstones.

The Project Area is situated within the Newcastle Bite dune barrier system. This barrier system is divided into an “inner” Pleistocene series of dune deposits and an “outer” Holocene sequence, which is located immediately adjacent to Stockton Beach. The Holocene dune sequence within Seaside Estate is the result of “accretion” (the increase or addition of land by the deposit of sand washed up naturally by the sea) of a series of beach ridges between 6000 and 4500 years ago (Dean-Jones 1992:4).

There have been three periods of dune transgression (movement) since 4500 BP, each of which has been separated by a period of stabilisation. The first period of transgression occurred approximately between 4500 and 4000 BP, the second between 2300 and 1200 BP and the third, which is still active, began approximately 300 years ago (Dean-Jones 1992:4). This process has resulted in three distinct Holocene dune sequences within the study area and forms three distinct parallel ridges oriented north-east to south-west. The Project Area is located in the Inner Stable dune system.

## 4.3 Hydrology

The Newcastle Power Station Project Area is located to the south and east of the Hunter River. A number of small, unnamed creeks are found within 750 m of the Project Area. Fullerton Cove is found approximately 7 km to the south-east of the Project Area, while the coast is approximately 11 km to the south-east. No reliable water sources are located within the Project Area.

## 4.4 Flora and Fauna

The Project Area contains a range of flora and fauna, reflecting the past landscape and potential resources available to Aboriginal people in the area. Previous studies have identified a variety of vegetation communities within and surrounding the Project Area, which contribute to this ecological diversity.

The Project Area has been shown to contain ‘Spotted Gum – Ironbark Open Forest’, ‘Melaleuca – Casuarina Forest’ and ‘Closed Grassland’ vegetation communities. In addition, the surrounding area contains ‘Banksia Open Woodland’ and ‘Swamp Forest’. Between these communities, the Project Area has access to a number of resource species, including those that could be utilised for manufacturing tools and weapons, and subsistence species that could be eaten.

Additionally, the vegetation communities provide a habitat for mammals and birds that may have been hunted for food and material resources. The faunal species identified within the Project Area during

previous studies include possums, koalas, and fruit bats. The Project Area also showed evidence of common bushland birds, small reptiles and several common frog species (URS, 2001).

#### 4.5 Land Use and Disturbance

The Project Area is situated within a rural setting, and there is evidence from historical aerial imagery and documentation that the land was previously utilised for crop farming and stock grazing during the mid-late 19<sup>th</sup> Century. Farming is likely to have resulted in some disturbance in the upper levels of any remnant soils; however, it is unlikely that this disturbance has had a significant effect on the archaeological potential of the area.

Investigation of parish maps from the first half of the 20<sup>th</sup> century, show greater levels of disturbance within the Project Area. The maps show construction of the transmission line and corridor between 1923 and 1933, and the resumption of land to construct the Pacific Motorway (A1) prior to 1961. Aerials for the Project Area show that an early version of the M1 had in fact been constructed prior to 1954 (refer to *Figure 3.1*). The parish maps also show that the south-western section of the Project Area is part of a flood plain for the Hunter River (refer to *Figure A.4*).

A house is located on the western boundary of the Project Area (refer to *Photograph 3.1*), from aerial photographs it appears to have been constructed prior to 1954 (refer to *Figures 3.1 to 3.3*). It faces onto the A1, and is thought to have been constructed sometime in the 1940s or early 1950s around the time the highway was constructed or shortly after. The aerial photographs show development of sheds and other small buildings at the house site throughout the second half of the 20<sup>th</sup> century. The house and its yard are still extant today.

These activities would have resulted in significant ground disturbance, which may have affected archaeological potential in the area.

Regarding land clearance, it is uncertain whether the Project Area was cleared during pastoral and agricultural activities in the mid-19<sup>th</sup> century; however, by at least the 1950s, areas of bushland had been allowed to regrow throughout the Project Area (refer to *Figures 3.1 to 3.3*). It is possible that these areas were even left as remnant bush areas from before European settlement.



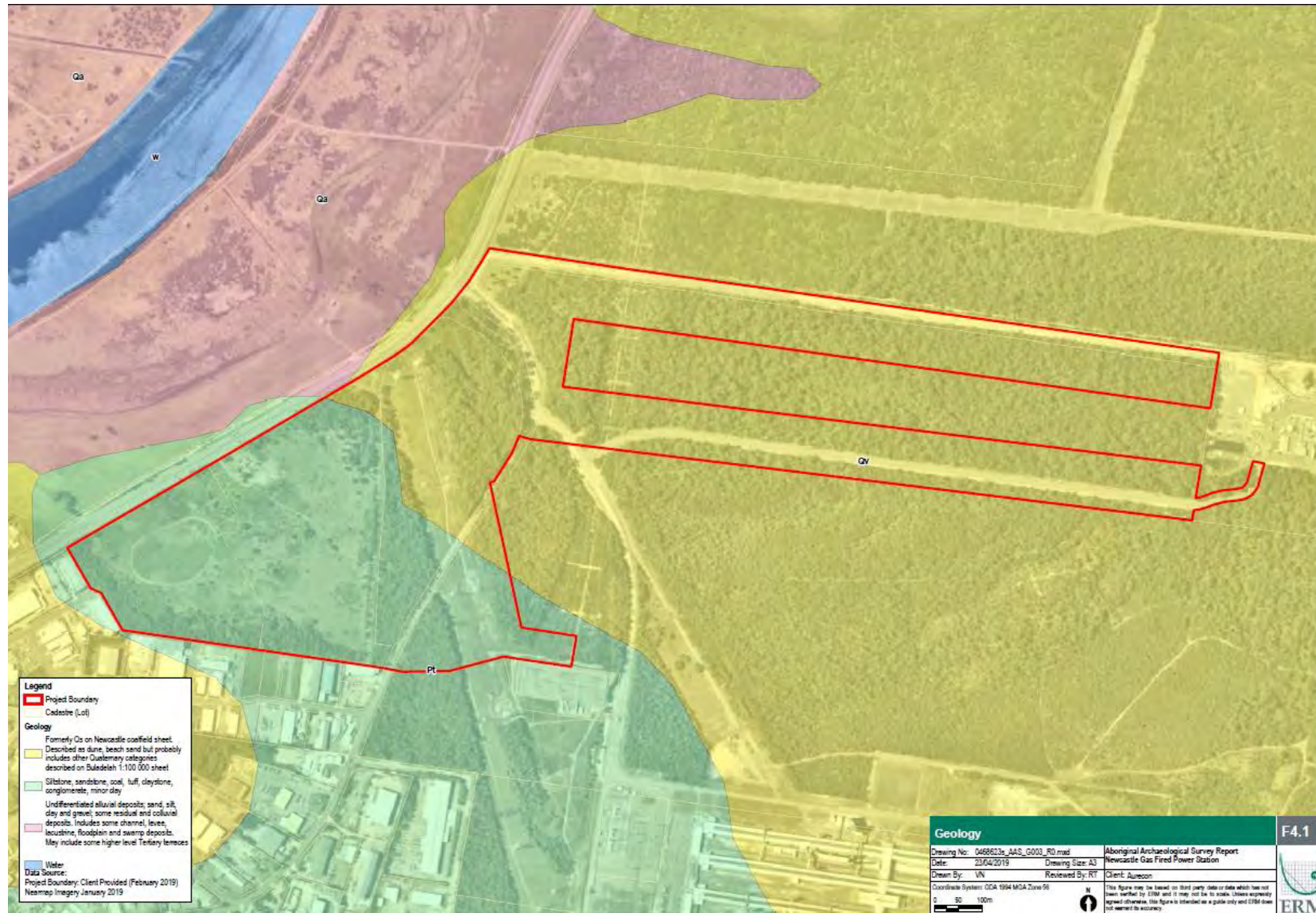


Figure 4.1 Geology of the Project Area



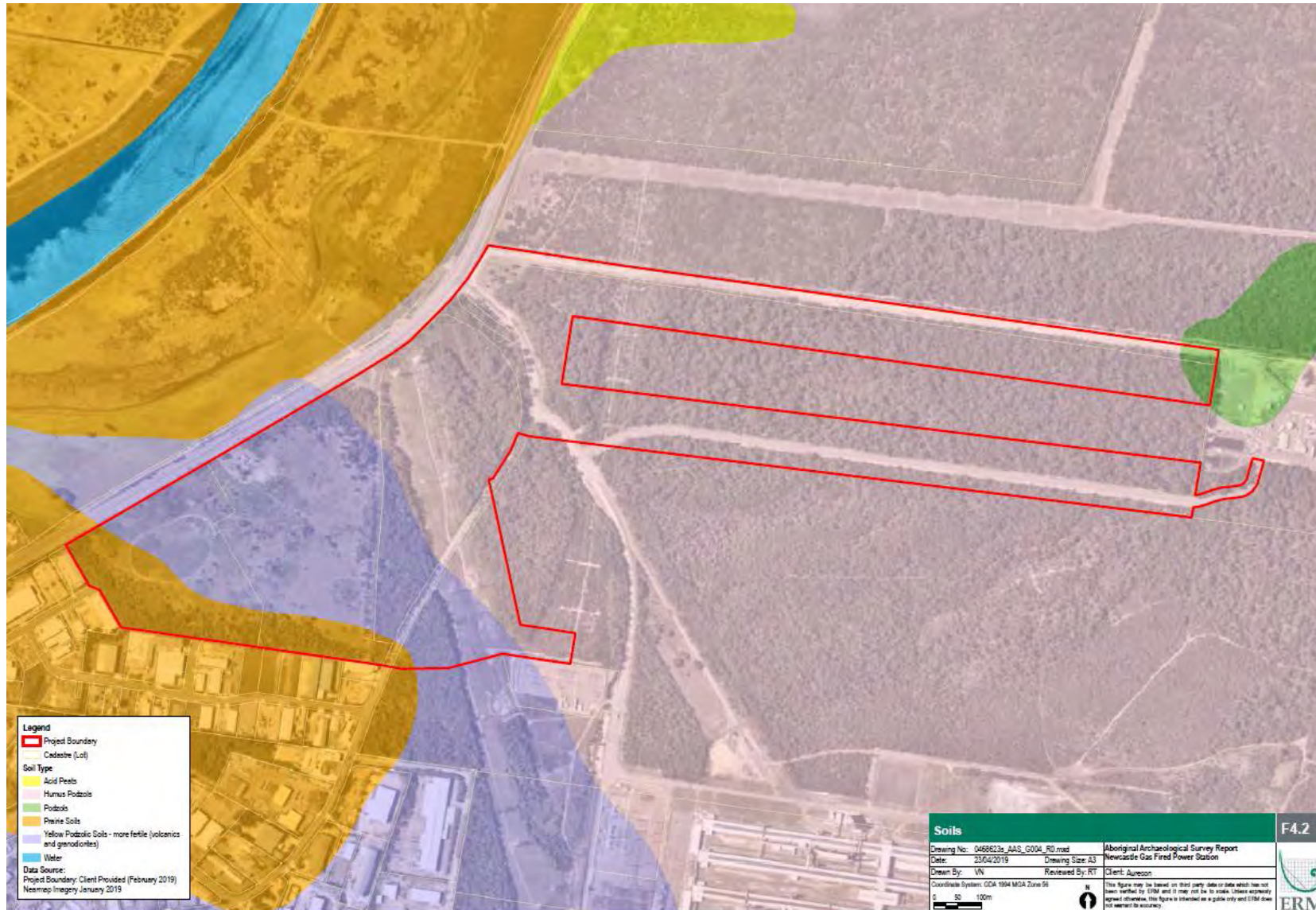


Figure 4.2 Soils of the Project Area





Figure 4.3 Topography and Hydrology of the Project Area

## 5. ARCHAEOLOGICAL BACKGROUND

The Project Area is situated in a region rich in Aboriginal cultural heritage. Numerous archaeological sites have been recorded within the region. The following information provides the context in which Aboriginal cultural heritage in the Project Area can be understood. It includes a review of early historic records relating to Aboriginal people within the region.

### 5.1 Ethno-history

The Worimi people are the traditional owners of the Tomago area. Early historical records indicate the Worimi people extended south as far as Stockton, north to Cape Hawke and inland to Dungog and Maitland (Tindale 1974). The people who lived south of the Worimi were the Awabakal and to the north were the Birpai.

By studying accounts of early European settlers and drawing on the results of archaeological investigations, we can reconstruct aspects of the Worimi lifestyle. The subsistence and economy of Aboriginal groups depended largely on the environment in which they lived. While coastal groups exploited marine and estuarine resources, hinterland groups relied on freshwater and terrestrial animals and plants. A distinction between the two lifestyles is clearly made in early European accounts. For example, during a trip along the Hawkesbury-Nepean during 1791, Watkin Tench wrote that:

[hinterland people] depend but little on fish, as the river yields only mullets, and that their principal support is derived from small animals which they kill, and some roots (a species of wild yam chiefly) which they dig out of the earth’.

In contrast, Collins wrote that for coastal people:

‘Fish is their chief support...the woods, exclusive of the animals which they occasionally find in their neighbourhood, afford them but little sustenance; a few berries, the yam and fern root, the flowers of the different Banksia, and at times some honey, make up the whole vegetable catalogue’.

Tench also noted the importance of marine foods in the economy of coastal groups (refer ERM 2005). According to Tench, the task of fishing was divided between husband and wife, the woman using a hook and line and the man using a fiz gig (spear) (Tench 1996:258-260). Bark canoes were often used by both men and women for fishing and fires were commonly placed in the middle of these canoes. When fish were scarce or the weather was foul, coastal groups turned their attention to gathering shellfish, hunting reptiles and small animals, digging fern roots, or gathering berries (Tench 1996:258-260).

The exploitation of swamps and wetlands figured prominently in the lifestyle of the Worimi people. Swamps are rich in diverse plant and animal resources and were important places in the economy of Aboriginal people living in the Hunter Valley (ERM 2005, 12). This is indicated by historic records and by archaeological investigations on the fringes of wetlands. Archaeological excavations at Seaside Estate (ERM 2005), have found dense complex occupation sites that would have supported a rich economic, social and spiritual life. Staple food plants like the Bungwall Fern, were gathered from swamps and may have been processed with specialised stone tools called ‘Worimi Cleavers’.

### 5.2 The Aboriginal Cultural Landscape

The Hunter River region is within the traditional lands of the Worimi and Awabakal people, who retain strong connections with their land and cultural traditions. *Muloobinba* (Newcastle) and *Coquon* (Hunter River) are important locations in the rich landscape, providing marine life and bush tucker, as well as locations for meetings and ceremonies (City of Newcastle 2019).



Local Dreaming stories demonstrate the interconnectedness between people, communities and landscapes, and can help us to understand how cultural significance is related to place. The Dreaming stories include those of *Biraban*, the eagle hawk, who is linked to social structure and *Koin*, a messenger who announces the coming of *Kooris* from distant lands for rites or ceremonies. These, and many other tales, speak of connection – both between people and between people and their landscape – and demonstrate a broader understanding of Country.

The cultural landscape is further represented by places of significance, which may consist of ceremonial places or sacred sites. Often places of significance are natural landscape features which play a role in Dreaming stories, or are used as landmarks in the local area. Within the Newcastle region, this includes sites such as *Whibay Gamba* (Nobbys), *Tahlbihn Point* (Fort Scratchley) and a high cliff called *Yi-ran-na-li*.

### 5.3 Regional Archaeological Context

A broad synthesis of archaeological sites in the Hunter region was undertaken in 1984 by Hughes. This found a general consistency in the types and distribution of archaeological sites throughout the Hunter Valley. Key conclusions included:

- archaeological sites would be found across the entire Hunter Valley;
- several site types are present, the most common being open artefact scatters;
- artefact scatters are most likely to occur on creek banks, especially at creek junctions, with low frequencies found over 100 m from creeks and on hillslopes and crests;
- sites will generally reduce in size as associated water courses decrease in catchment size;
- most archaeological evidence dates to the mid to late Holocene; and
- technological analysis of stone artefacts may assist in relatively dating sites that cannot be directly dated.

Archaeological investigations undertaken since Hughes' work (e.g. Hiscock 1986; Koettig 1986a, b; Baker 1994) have tended to confirm these patterns. Particularly that environmental and topographic context is key in determining the size and nature of sites:

- open artefact scatter sites are found across the landscape where original soils were preserved. Open artefact scatter sites increase in frequency, size, and complexity near creeks, rivers and swamps;
- isolated finds (stone artefacts) are found anywhere across the landscape and may represent casual discard or the remains of dispersed open scatter sites;
- midden sites are found near estuaries and coastline;
- Aboriginal burials are generally found in soft substrates such as sand and are often found within occupation contexts such as middens; and
- Scarred and carved trees are found within areas of remnant bushland that contain old growth trees.

Aboriginal rock shelters, rock shelter art, rock engravings and axe grinding stones are found in areas of sandstone outcropping and escarpment.

## 5.4 Local Archaeological Context

### *Gloucester Gas Project Pipeline Modification Environmental Impact Statement (EMM, 2013)*

In November 2013, EMM was commissioned by AGL to prepare an Environmental Impact Statement (EIS) for the modification of the high-pressure gas transmission pipeline associated with the Gloucester Gas Project (GGP). The GGP, as approved, included a gas transmission pipeline from the central processing facility at Statford to the gas delivery station at Hexham. The proposed modification sought to realign four sections of the approved pipeline to connect the GGP to the Newcastle Gas Storage Facility (NGSF) at Tomago.

EMM undertook an environmental assessment, including preparation of an Aboriginal Cultural Heritage Assessment (ACHA) for the proposed modification areas. One of the proposed modification areas (Tomago Section) is located immediately north-west of the Project Area. No field survey was undertaken of the portion between the Hunter River and the Project Area, as this section was to be underbored and would not be subject to surface disturbance.

EMM determined that none of the surveyed areas were archaeologically sensitive and no Aboriginal archaeological sites would be impacted by the proposed modification. The RAPs involved in the survey identified the area as having cultural significance through intangible links to the Awabakal ancestors.

## 5.5 Previous Assessments within the Project Area

### *Tomago Gas Fired Power Station Environmental Impact Statement (URS, 2002)*

URS were engaged by Macquarie Generation in 2002 to prepare an EIS for the proposed Tomago Gas Fired Power Station, an early phase of preparation for this current Project. As part of this assessment, URS commissioned HLA Envirosciences (2000) to prepare a Cultural Heritage Assessment, considering Aboriginal and non-Aboriginal heritage values in the Project Area. The survey was part of a larger assessment for the Development Application relating to industrial subdivision in Tomago, of which the proposed power station site (the Project Area) was included. HLA Envirosciences engaged with the Worimi Local Aboriginal Land Council to undertake the survey.

The field survey identified no Aboriginal objects within or immediately surrounding the proposed power plant site; however, it was noted that visibility was generally low throughout the survey area. HLA Envirosciences noted mitigation measures which included monitoring of initial Phase 1 construction activities to minimise potential for impact to unknown Aboriginal sites or objects.

### *M12RT Biodiversity and Aboriginal Heritage Investigations (Jacobs, 2015)*

Jacobs Pty Ltd was commissioned by Roads and Maritime Services (Roads and Maritime) to undertake biodiversity and Aboriginal heritage investigations within land owned by AGL (the Project Area). The land is associated with the proposed M1 Pacific Motorway extension to Raymond Terrace.

During this investigation, Jacobs undertook archaeological survey and test excavation of the within the Project Area (in the north-eastern portion), which identified one large site complex extending from the northern side of the M1 to the Project Area. This site was registered on the AHIMS Database as Hexham M12RT (AHIMS ID #38-4-1751).

The AHIMS Site Impact Recording (ASIR) form for Hexham M12RT shows that the site extends into the Project Area, although it is noted that the register AHIMS location is north of the M1.

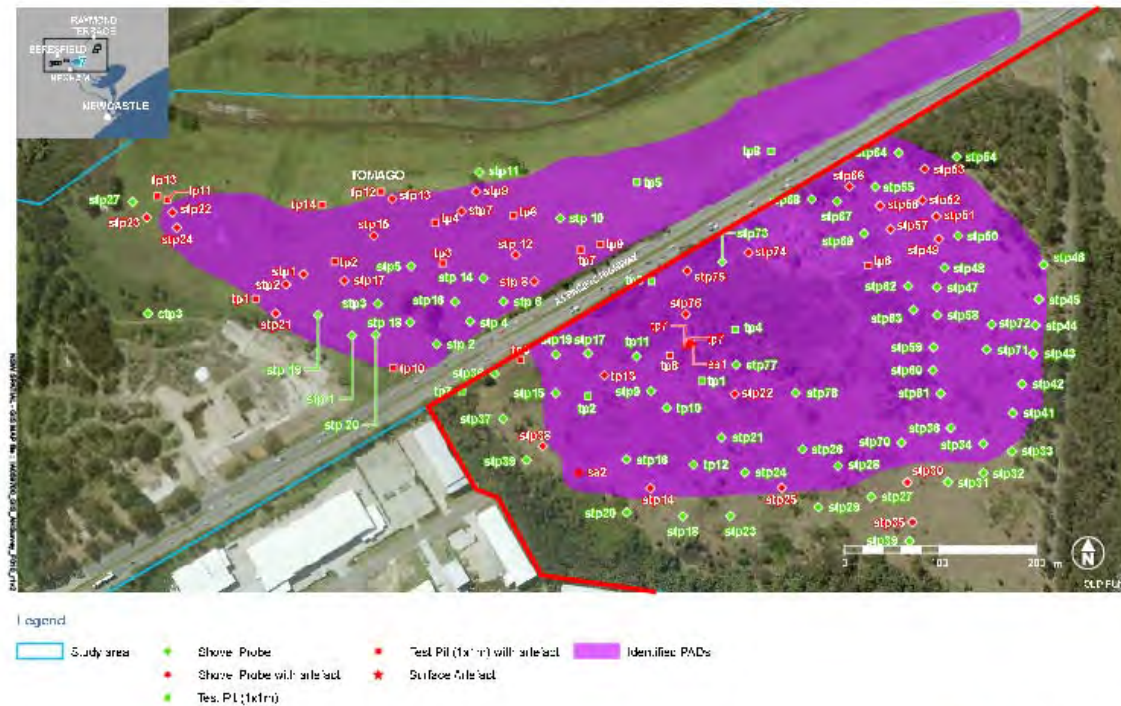


Figure H-7 Test pit location mapping

**Figure 5.1 Location of Hexham M12RT 1 from the ASIR  
(Roads and Maritime and Jacobs, 2016)  
(amended to include the current Project Area boundary in red)**

## 5.6 AHIMS Database Search Results

The AHIMS database provides information concerning previously recorded Aboriginal sites in NSW. AHIMS stores data regarding a sites location, site type, site features and a unique site identification number for all registered Aboriginal heritage sites in NSW. Mapping of an AHIMS database search results will identify any known sites that could be impacted by a proposed works as well as help to determine the overall pattern of Aboriginal sites in an area. A summary of the various site types likely to be located in the Project Area can be found in *Table 5.1* and will aid in the development of a site prediction model for the Project Area.

**Table 5.1 Parks and Wildlife Group Site Type Definitions**

Site types	Definition
Stone artefact scatters (or open camp sites)	Stone artefact scatter 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.
Isolated finds	Sites consisting of only one identified stone artefact, isolated from any other artefacts or archaeological evidence. They are generally indicative of sporadic past Aboriginal use of an area.
Shell middens	Middens consist of accumulations of shell that represent the exploitation and consumption of shellfish by Aboriginal people. Shell species may be marine, estuarine or freshwater depending on the environmental context and middens may also include other faunal remains, stone artefacts, hearths and charcoal.
Shelter sites	Sandstone shelters and overhangs were used by Aboriginal people to provide camp sites sheltered from the rain and sun. The deposits in such sites are commonly very important because they often contain clearly stratified material in a good state of preservation.
Grinding grooves	Grooves resulting from the grinding of stone axes or other implements are found on flat areas of suitable sandstone. They are often located near waterholes or creek beds as water is necessary in 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 artefacts or ground-edge artefacts, or where ochre was obtained for rock paintings, body decoration or decorating wooden artefacts.
Art sites	Aboriginal paintings, drawings and stencils are commonly to be found where suitable surfaces occur in sandstone shelters and overhangs. These sites are often referred to as rock shelters with painted art.
	Rock engravings, carvings or peckings are also to be found on sandstone surfaces both in the open and in shelters. These are referred to as rock engraving sites.
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.
Burial sites	Burials may be of isolated individuals, or they may form complex burial grounds.
Stone arrangements, carved trees and ceremonial grounds	These site types are often interrelated. Stone arrangements range from simple cairns or piles of rocks to more elaborate arrangements; patterns of stone laid out to form circles and other designs or standing slabs of rock held upright by stones around the base.
	Carved trees are trees with intricate geometric or linear patterns or representations of animals carved into their trunks. Ceremonial grounds and graves were often marked by such trees. Bora grounds are a common type of ceremonial site and they are generally associated with initiation ceremonies. They comprise two circles, generally edged with low banks of earth but sometimes of stone, a short distance apart and connected by a path.



An extensive search of the OEH Aboriginal Heritage Information Management System (AHIMS) database was conducted on 13 March 2019, using the following details:

**Client Service ID:** 406479  
**Lat, Long From:** -32.8211, 151.7015  
**Lat, Long to:** -32.8086, 151.7363  
**Buffer:** 200 m  
**Number Sites:** 5

A total of five (5) sites were identified within the search area, although no registered site locations occur within the Project Area. Of these, the majority of these are recorded as Artefact, with Art and Potential Archaeological Deposit (PAD) also contributing to the types of recorded sites. The results of the AHIMS search are summarised in *Table 5.2*.

**Table 5.2 AHIMS Registered Site Types**

Site Type	Number
Artefact	3
Artefact, Potential Archaeological Deposit (PAD)	1
Art (Pigment or Engraved)	1

## 5.7 Predictive Model

The knowledge gained from examining landforms, geology, archaeological patterning, and prior archaeological reports have enabled a set of parameters to be established to predict the potential location of Aboriginal sites within the Project Area. The background results suggest that:

- The most likely site type is artefacts;
- Stone artefacts are likely to be present across the area irrespective of landscape;
- Sites are more likely to be present in areas in close proximity to water sources such as river and creek systems; and
- PADs, art sites, middens, and scarred trees may also be present.

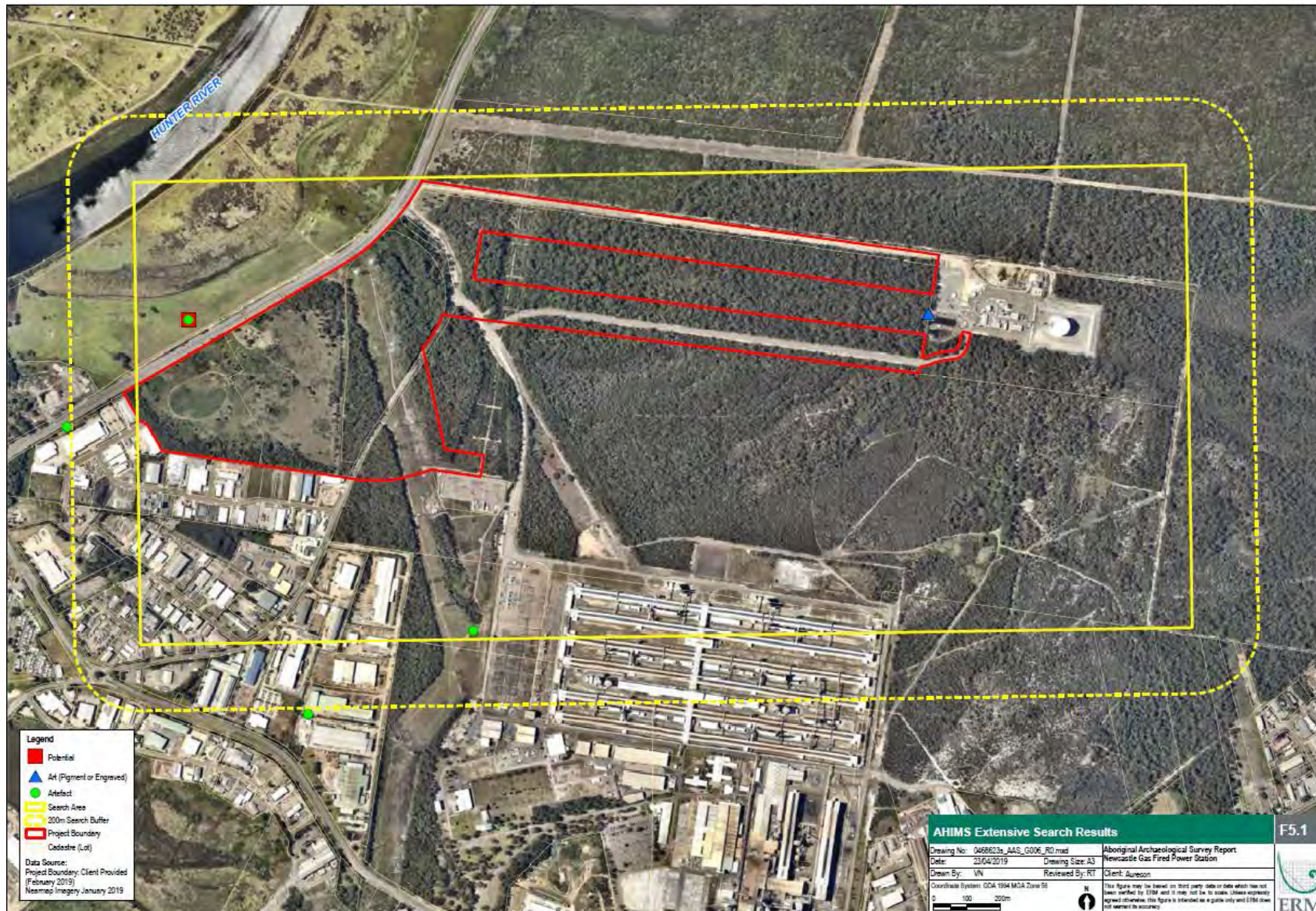


Figure 5.2 AHIMS Extensive Search Results

## 6. ARCHAEOLOGICAL SURVEY METHODOLOGY

An archaeological survey was undertaken over 3 days between 6-8 May 2019 by Stephanie Moore (Heritage Consultant, ERM) and Katherine Deverson (Heritage Consultant, ERM) in conjunction with RAPs. The survey methodology was provided to the RAPs for comment prior to fieldwork commencing. The survey aimed to identify all Aboriginal site present within the proposed impact area including the identification of any PADs. The methodology for the survey included:

- the survey was to be undertaken on foot where possible with up to four Registered Aboriginal Parties in attendance;
- the survey consisted of all participants traversing the Project Area using walking transects approximately 5 m apart to ensure the entire Project Area was covered (subject to visibility and accessibility);
- the survey targeted each landform in the study area;
- areas of potential such as raised landforms in close proximity to semi-permanent water sources were also be targeted;
- areas of exposure and ground visibility were targeted;
- any areas of interest to the Registered Aboriginal Parties were targeted; and
- any cultural heritage information for the study area held by Aboriginal parties was recorded during the field survey. Any cultural knowledge provided by Aboriginal Stakeholders would be treated in confidence and the information would be distributed according to their wishes.



## 7. FIELD SURVEY RESULTS

This chapter provides an overview of the field surveys of the Project Area that were undertaken between 6 and 8 May 2019.

### 7.1 Field Survey Methodology

The Aboriginal heritage field survey was conducted concurrently with the historic heritage survey and was carried out according to the survey methodology developed and sent to RAPs in April 2019 (refer to *Appendix A*). Survey attendees are identified in Table 7.2. The archaeological survey aimed to assess the ground surface of the Project Area and targeted all soil exposures and zones with low vegetation such as areas of erosion and any tracks or paths.

Where historical Aboriginal cultural heritage sites were identified, these were mapped and recorded by the survey team for content, GPS location, landscape features and digitally photographed. Notes were made of soil conditions, evidence of ground disturbance and possible spatial extent of sites.

Visibility refers to the amount of ground upon which artefacts could be seen. The presence of vegetation, leaf litter and other variables can obscure visibility, which is expressed as a percentage. An exposure is defined as an area in which ground surface disturbance (usually in the form of erosion) results in the removal of ground cover and soils and permits the detection of archaeological material that was formerly contained within a surface or subsurface context. The level of exposure is determined as a percentage. As a descriptive tool, *Table 7.1* has been devised which indicates the level of ground surface visibility. Although it is a subjective method of assessment, it provides a useful tool when attempting to describe the level of ground surface visible during field surveys or inspection.

**Table 7.1 Ground Surface Visibility Rating**

	Description	GSV Rating %
<b>Very Poor</b>	Heavy vegetation, scrub foliage or debris cover, dense tree or scrub cover. Soil surface of the ground very difficult to see.	0-9%
<b>Poor</b>	Moderate level of vegetation, scrub, and / or tree cover. Some small patches of soil surface visible in the form of animal tracks, erosion, scalds, blow outs etc., in isolated patches. Soil surface visible in random patches.	10-29%
<b>Fair</b>	Moderate levels of vegetation, scrub and / or tree cover. Moderate sized patches of soil surface visible, possibly associated with animal, stock tracks, unsealed walking tracks, erosion, blow outs, etc. Soil surface visible as moderate to small patches across a larger section of the Project Area.	30-49%
<b>Good</b>	Moderate to low level of vegetation, tree or scrub cover. Greater amount of areas of soil surface visible in the form of erosion, scalds, blow outs, recent ploughing, grading or clearing.	50-59%
<b>Very Good</b>	Low levels of vegetation / scrub cover. Higher incidence of soil surface visible due to recent or past land-use practices such as ploughing, grading, mining, etc.	60-79%
<b>Excellent</b>	Very low to non-existent levels of vegetation/scrub cover. High incidence of soil surface visible due to past or recent land use practices, such as ploughing, grading, mining, etc.	80-100%



The field survey team attempted to survey each of the different landforms identified in the Project Area, which included gentle slopes and flats (refer to *Table 7.3*). Mature trees, erosion scours, and vehicle and animal access tracks were all inspected where accessible. In order to ensure the highest likelihood of finding Aboriginal sites, the field survey focussed on areas of highest ground visibility. It is noted that the ground surface visibility was very poor (0-9%) across the vast majority of the survey area. The Project Area generally consisted of two vegetation area types, remnant bushland and previously cleared areas. The previously cleared areas had not been recently slashed and were dominated by grass plants and weeds, such as blackberry and lantana; ground visibility was usually 0% except on some tracks and small clearings. Due to the weed species, much of these areas were completely inaccessible. The remnant bushlands were generally densely vegetated areas with mature trees and dense ground covering plants and weeds, these areas were mostly completely inaccessible.

## 7.2 Field Survey Results

As mentioned above, the Project Area was surveyed over three days in May 2019 by Katherine Deverson, Phoebe Worth, and representatives of the RAPs as outlined in *Table 7.2*. The field survey methodology was adopted to pursue the discovery of new archaeological sites, ensure the accurate recording of such sites and provide sufficient information to provide an assessment of the Project Area's cultural significance. Discussion also included Aboriginal intangible values and the importance of Aboriginal sites to the local community.

**Table 7.2 Field Survey Attendees**

Name	Organisation
Katherine Deverson	ERM
Phoebe Worth	ERM
Caitlyn Moran	Nur-Run-Gee Pty Ltd
Bec Young	Mur-Roo-Ma Inc.
Luke Knight	Worimi Traditional Owners Indigenous Corporation
Brendan Lilley	Worimi Local Aboriginal Land Council

### 7.2.1 Description of the Project Area

The Project Area generally consisted of grazing paddocks with dense grass and weeds extending across lower and mid slope, and flat landforms (refer to *Table 7.3* and *Photographs 7.1* and *7.2*). There was generally a very poor level of ground surface visibility (GSV 0-9%) with some ground exposures along tracks. Disturbances observed include the development of fencing, tracks and roads, transmission infrastructure, and vegetation clearance. Several bush areas were also located in the Project Area (refer to *Photograph 7.3*). Exposures associated with tracks and other disturbances were examined for artefacts and features.

Soils across the Project Area range from alluvial soils adjacent to watercourses with thin sandy-silty Aeolian soil grey/brown in colour, to a white sand, particular to the north. It is evident that disturbance to the soil profile has occurred during past episodes of vegetation clearance.

**Table 7.3 Landform Summary**

Landform	% of landform effectively surveyed	Number of Sites
Mid slope	0.01%	2
Lower slope	0.015%	1
Flat	1.7%	0



**Photograph 7.1 Western section of Project Area, view to NW (ERM 2019)**



**Photograph 7.2 Central transmission line, view to north (ERM 2019)**



**Photograph 7.3** Remnant or mature regrowth bush area in SU3, view to west from Old Punt Road (ERM 2019)

### 7.2.2 Survey Coverage

The Project Area was examined in six survey units, based on fenced areas and accessibility throughout the Project Area for ease of recording and analysis. These survey units are identified as Survey Unit (SU) 1 to SU6. The location of these survey units is shown in *Figure 7.1* and detailed in *Table 7.4*.

**Table 7.4** Survey Coverage

Survey Unit	Landform	Visibility %	Exposure %	Effective Coverage %	Number of Sites
SU1	Mid slope	Very Poor (0-5%)	1%	0.01%	1
SU2	Mid slope	Very Poor (0-5%)	1%	0.01%	1
SU3	Lower slope	Very Poor (0-5%)	1%	0.01%	1
SU4	Lower slope	Very Poor (0-5%)	2%	0.02%	0
SU5	Flat/Lower Slope	Poor (10%)	10%	1%	0
SU6	Flat/Lower Slope	Poor (10%)	10%	1%	0



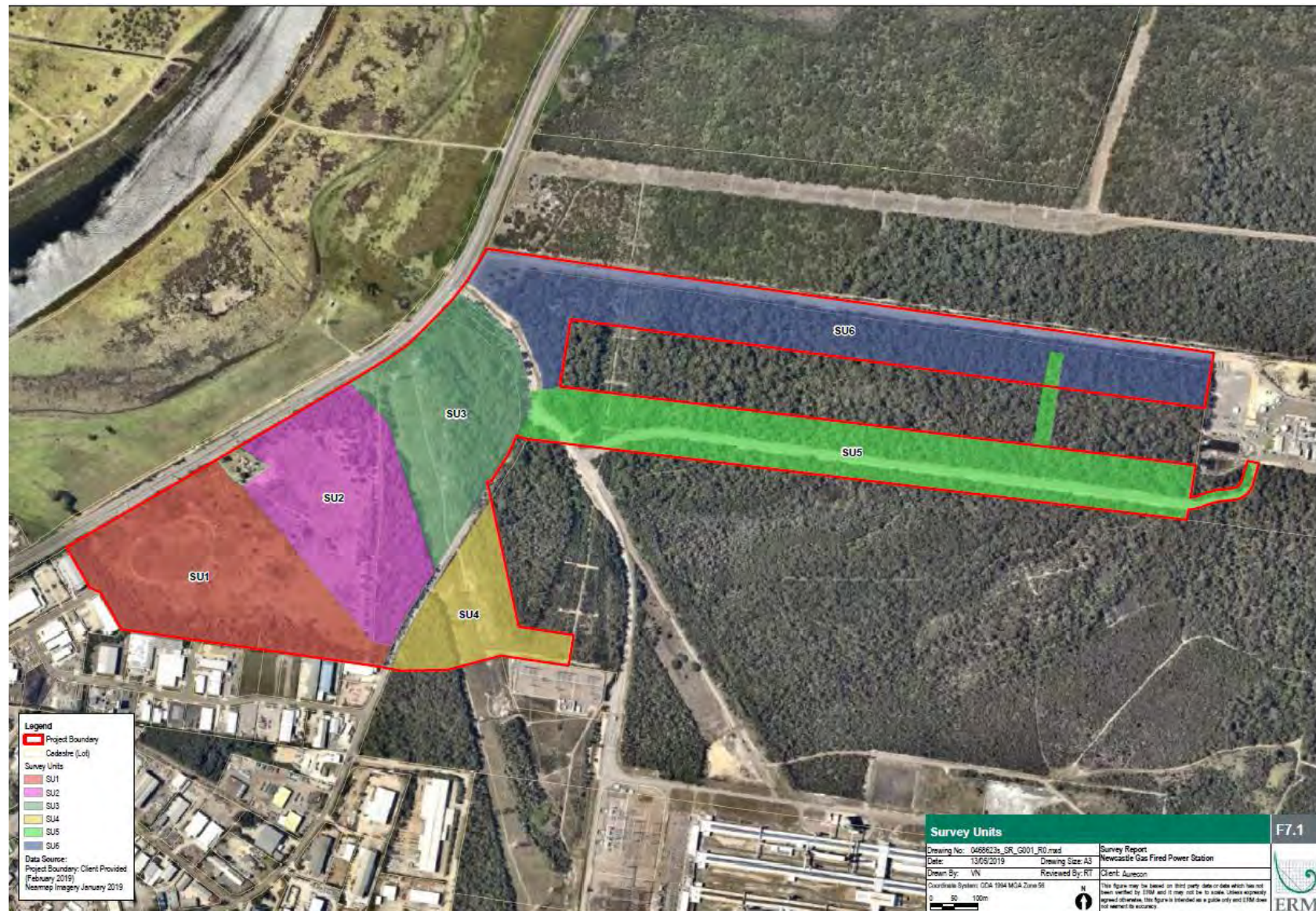


Figure 7.1 Survey Units



## 7.2.3 Survey Results

During the field survey, three previously unidentified Aboriginal heritage sites were recorded. The sites were located within 1.5 km of the Hunter River to the north-west (*Figure 7.2*). Two of these sites were isolated finds (single stone artefacts) and the other site was a large artefact scatter that is likely associated with or part of a previously identified site located to the north-west on the opposite side of the A1. The artefact scatter's proximity to a water source (Hunter River) is in line with the predictive model developed in Section 5.6 and is representative of previously recorded sites in the area. The site's location on a mid slope possibly indicates that it was washed down from a higher slope or crest. The newly recorded sites are described below in *Table 7.5*. Previously unrecorded Aboriginal cultural heritage sites located during the survey were recorded and artefacts identified were left *in situ*.

### 7.2.3.1 Survey Unit 1

Survey Unit 1 (SU1) is bordered by mature bush areas along its eastern and southern borders. The majority of SU1 has previously been cleared but has not been recently slashed (refer to *Photograph 7.4*). The vast majority of SU1 has 0% ground visibility, and is covered by grass and weed species, such as lantana and blackberry (refer to *Photograph 7.5*). An old unused road (the original Pacific Highway) runs from north to south just west of the eastern bush area and tracks run from this to a large circular track in the western portion of SU1. The tracks also generally had little or no ground visibility, but were generally free of vegetation except for grass plants, some small sections of track were clear of vegetation (refer to *Photographs 7.6* and *7.7*). A track leads from the circular track to the house that falls within the Project Area. The house is currently occupied and was not surveyed in May 2019. The soil that was visible appears to be a brown/grey sandy soil.

An artefact scatter was identified in SU1; 23 stone artefacts (and one possible bone artefact) were located in 13 different locations along a circular track in area covering approximately 175 m by 200 m. The scatter is located in the section of the Project Area that is closest to the Hunter River, on a flood plain. It is likely that the site is associated with the previously identified AHIMS Site 38-4-1751, and is part of the same occupation site related to activities along the Hunter River. The area has a high archaeological potential and it is likely that more artefacts are located on the surface beneath the grass and vegetation cover.

The artefacts consisted of:

- Two silcrete cores;
- 13 silcrete flakes;
- Four chert flakes;
- Four mudstone artefacts; and
- One small animal bone fragment.

The association of the bone fragment to the identified site is inconclusive at this stage, it is included as a find due to its proximal location to stone artefacts, and the density of the artefactual material at this location, and as it was identified in the field by the RAPs.



**Photograph 7.4**  
**SU1, view to SE (ERM 2019)**



**Photograph 7.5**  
**Vegetation in SU1 (ERM 2019)**



**Photograph 7.6**  
**Ground visibility on tracks, SU1**  
**(ERM 2019)**



**Photograph 7.7**  
**Section of track clear of vegetation, SU1**  
**(ERM 2019)**

### 7.2.3.2 Survey Unit 2

Survey Unit 2 (SU2) is bordered by mature bush areas along its eastern border (refer to *Photograph 7.8*). The majority of SU2 has previously been cleared but has not been recently slashed (refer to *Photograph 7.9*). The vast majority of SU2 has 0% ground visibility and is covered by grass and weed species, such as lantana and blackberry (refer to *Photograph 7.10*). The highest area within the Project Area was located within SU3 (mid slope), with the ground level sloping up towards west of the SU (refer to *Figure 4.3*). An old unused sealed road (the original Pacific Highway) runs from north to south just west of the south-eastern bush area and a track run from this to the house which falls within the Project Area to the west (refer to *Photograph 7.11*). Another old unused road runs from the north to the SE to the west of the eastern bush area (refer to *Photograph 7.8*). The tracks also have little or no ground visibility, but are generally free of vegetation except for grass plants. When visible the soil appears to be a brown/grey sandy soil.

One artefact was located in SU2 on a track in a small area of 100% ground visibility. The artefact is a silcrete core and negative flakes scars are evident on the artefact's surface (refer to *Table 7.5*).





**Photograph 7.8**  
**Bush area and sealed road in SU2**  
**(ERM 2019)**



**Photograph 7.9**  
**SU2, view to west (ERM 2019)**



**Photograph 7.10**  
**Vegetation in SU2 (ERM 2019)**



**Photograph 7.11**  
**Ground visibility on tracks, SU2**  
**(ERM 2019)**

### 7.2.3.3 Survey Unit 3

Survey Unit 3 (SU3) consists of a large remnant or mature regrowth bush area in the north and a transmission corridor running from north to SSW in the southern section of the survey unit (refer to *Photograph 7.12*). The transmission corridor has not been slashed for some time, and grass and weed species, such as lantana and blackberry as well as prickly pear, dominate (refer to *Photograph 7.13*). SU3 has almost 0% ground visibility. Four large transmission towers are located in this area, as well as drainage areas and notable areas of fill material (refer to *Photograph 7.14*). An old maintenance track runs along and is associated with the transmission line (refer to *Photograph 7.15*). The northern bush area is inaccessible due to dense vegetation, and has 0% ground visibility (refer to *Photograph 7.3*). When visible the soil appears to be a brown/grey sandy soil.

One artefact was located in SU3, a fine-grained stone artefact that is possibly a core, negative flakes scars are evident (refer to Table 7.5). The artefact was found at the base of a transmission tower, and it is likely that it was deposited with fill material.



**Photograph 7.12**  
**Transmission corridor, SU3 (ERM 2019)**



**Photograph 7.13**  
**Vegetation and ground visibility, SU3 (ERM 2019)**



**Photograph 7.14**  
**Drainage line, SU3, view to west (ERM 2019)**



**Photograph 7.15**  
**Maintenance track, SU3, view to east (ERM 2019)**

#### **7.2.3.4 Survey Unit 4**

Survey Unit 4 (SU4) consists of two areas of remnant or mature regrowth bush area in the north and south and a transmission corridor running from north to SSW in the central section of the survey unit (refer to *Photograph 7.16*). The transmission corridor has not been slashed for sometime and grass and weed species, such as lantana and blackberry and other weeds, dominate. SU4 has almost 0% ground visibility. Two large transmission towers are located in this area, as well as drainage areas and areas of fill material. Ecological replenishment activities have taken place in the form of nesting boxes and plantings have been undertaken in the south-eastern corner of the survey unit (refer to *Photographs 7.17* and *7.18*). A substation is located to the SE of SU4 outside the Project Area (refer to *Photograph 7.19*). An old unused track runs along the transmission line. The northern and southern bush areas are inaccessible due to dense vegetation, and has 0% ground visibility. When visible the soil appears to be a brown/grey sandy soil.

No Aboriginal cultural heritage features or items were identified in SU4.





**Photograph 7.16**  
**SU4, view to east from SU3 (ERM 2019)**



**Photograph 7.17**  
**Vegetation planting, SU4 (ERM 2019)**



**Photograph 7.18**  
**SU4, northern bush area and nesting boxes (ERM 2019)**



**Photograph 7.19**  
**SE corner of SU4 (ERM 2019)**

### 7.2.3.5 Survey Unit 5

Survey Unit 5 (SU5) consists of a new sealed road, running east to west from the gas station entrance to the gas station, grasses road shoulders, and areas of remnant or mature regrowth bush area running to the north and south of the road (refer to *Photograph 7.20*). The road shoulder areas are largely covered in fill material and grass, however some areas of ground visibility show sand and brown/grey sandy soils (refer to *Photograph 7.21*). The northern and southern bush areas are inaccessible due to dense vegetation, and has 0% ground visibility.

No Aboriginal cultural heritage features or items were identified in SU5.



**Photograph 7.20**  
**SU6, view to west (ERM 2019)**



**Photograph 7.21**  
**Sand at eastern end of SU5, view to east (ERM 2019)**

#### 7.2.3.6 Survey Unit 6

Survey Unit 6 (SU6) consists of an old sealed road, running east to west, grasses road shoulders, and an area of remnant or mature regrowth bush area running to the south of the road (refer to *Photograph 7.22*). From the historic aerial photographs the older sealed road in this survey unit was constructed after 1993, and was likely the original road leading to the gas power station, a new road is now used to the south in SU5. The road shoulder areas are largely covered in fill material, however areas of ground visibility show sand and brown/grey sandy soils (refer to *Photograph 7.23*). The southern bush area is inaccessible due to dense vegetation, and has 0% ground visibility (refer to *Photograph 7.24*). Several fire trails run through the dense bush area between SU5 and SU6, the tracks are generally overgrown and not maintained (refer to *Photograph 7.25*).

No Aboriginal cultural heritage features or items were identified in SU6.





**Photograph 7.22**  
**SU6, view to west from eastern end**  
**(ERM 2019)**



**Photograph 7.23**  
**SU6, view to east from western end**  
**(ERM 2019)**



**Photograph 7.24**  
**View to south along transmission**  
**corridor at western end of SU6**  
**(ERM 2019)**



**Photograph 7.25**  
**Tomago Fire Trail 4, view to north**  
**(ERM 2019)**











Figure 7.2 Survey Results



**Table 7.5 Aboriginal Cultural Heritage Field Survey Results**

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
NPS01	1	Mid slope	<p>Artefact Scatter</p> <p>This site comprises 23 stone artefacts located along a circular track in area covering approximately 175 m by 200 m. One piece of bone was also identified, although it is noted that this is animal bone and may not be associated with the site. It is very unlikely that all artefacts located on the surface were identified within this area, as other than the track the ground visibility was 0%, and was mostly poor to very poor along the track itself.</p> <p>Cores and flakes were identified consisting of a variety of stone material, including silcrete, chert, and mudstone.</p> <p>It is considered likely that the site is associated with the previously identified AHIMS Site 38-4-1751, and is likely a part of the same occupation site related to activities along the Hunter River.</p> <p>A PAD was identified in association with the site and is thought to extend across the entire site and, a large section of the mid slope landform and into SU2.</p> 		Yes

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
					
NPS02	2	Mid slope	<p>Isolated Find</p> <p>Silcrete core. Located on track in small area of 100% ground visibility. No further artefacts were located after search of area, however the area is surrounded by areas of 0% ground visibility</p> <p>A PAD was identified in association with this site and NPS01; it is thought to extend across a large section of the survey unit, the mid slope landform, and into SU2.</p>		Yes

Site	Survey Unit	Landform	Description	Photo/s	Associated PAD
NPS03	3	Lower slope	<p>Isolated Find</p> <p>Fine grained stone material. Possible core with negative flakes scars evident. Found at the base of a transmission tower, and likely deposited with fill material.</p>		No

## 8. SIGNIFICANCE ASSESSMENT

The following section provides a preliminary assessment of the overall Aboriginal cultural heritage significance of the Project Area. The Project Area is being assessed against the NSW significance assessment criteria for potential social, historical, scientific, and aesthetic values, contributing to the overall significance of the area.

This assessment of significance will be amended at the completion of test excavations, to be reported in the ACHA. The results of the pedestrian survey have indicated that test excavation will be required to understand the extent of the archaeological resources to be impacted by the Project. As such, the significance assessment cannot be finalised at this time.

### 8.1 Assessment of Aboriginal Cultural Significance

Cultural significance is defined in the Australia ICOMOS Burra Charter 2013 (Burra Charter) as 'a concept which helps in estimating the value of places'. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations. The Burra Charter provides a definition of cultural significance as "aesthetic, historic, scientific or social value for past, present or future generations. Aboriginal cultural heritage sites can be assessed through the application of these four principle values.

#### Description of cultural heritage values

The review of background information and information gained through consultation with Aboriginal people should provide insight into past events. These include how the landscape was used and why the identified Aboriginal objects are in this location, along with contemporary uses of the land. The following descriptions of cultural heritage values are drawn from the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011), based on the Burra Charter principles.

- **Social or cultural value** (assessed only by Traditional Owners/First Nations People) refers to the spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them;
- **Historic value** (assessed by Traditional Owners/First Nations People and/or non-Aboriginal historical specialists) refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have 'shared' historic values with other (non-Aboriginal) communities and include places of post-contact Aboriginal history;
- **Scientific** (archaeological) value (assessed by professional archaeologists) refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information.

Significance values will be graded with a basic ranking of high, moderate, or low. The grading is based on the rarity, representativeness and research (educational potential) for each value:

- High significance is usually attributed to sites, which are so rare or unique that the loss of the site would affect our ability to understand aspects of past Aboriginal use/occupation for an area;
- Moderate significance can be attributed to sites which provide information on an established research question;
- Low significance is attributed to sites which cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to sites disturbance of the nature of the site's contents; and



- **Aesthetic value** (assessed by Traditional Owners and/or non-Aboriginal specialists) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use.

### **8.1.1 Social/Cultural Significance**

No comments received relating to the social significance of the Project Area.

### **8.1.2 Historic Significance**

There is no evidence to suggest that the Project Area holds any historical significance.

### **8.1.3 Scientific Significance**

The field survey identified one artefact scatter with PAD (NPS01) and two isolated artefacts (NPS02 and NPS03) within the Project Area. Based on background research, it is likely that NPS01 is the same site as M12RT (Jacobs, 2015); however, additional investigation will need to be undertaken to confirm this.

Stone artefacts were identified in disturbed contexts, within heavily eroded exposures that often also displayed evidence of vehicle use. Based on the predictive model and results of previous surveys, it is expected that further archaeological material would be identified in areas where the ground surface could not be inspected adequately.

Based on the results of the field survey, it has been determined that further work is required to adequately assess the scientific significance of the archaeological resource within the Project Area. This additional work will be undertaken in the form of subsurface archaeological test excavations.

### **8.1.4 Aesthetic Significance**

There are no features of the Project Area or identified artefact which indicate aesthetic significance.

## **8.2 Aboriginal Heritage Statement of Significance**

It is noted that a statement of significance cannot be prepared until investigations are completed. The statement of significance will be included in the Aboriginal Cultural Heritage Assessment (ACHA) Report, which will be prepared following further investigation.

## 9. CONCLUSIONS AND RECOMMENDATIONS

### 9.1 Conclusions

This report has been to respond to the SEARs request for Aboriginal cultural heritage assessment, in accordance with the appropriate guidelines and legislation.

The field survey identified 25 stone artefacts, comprising of three (3) individual sites. One large PAD was also identified across much of SU1 and SU2 (refer to *Figure 7.2*). Two of the identified sites (NPS02 and NPS03) consist of isolated stone artefacts identified within exposures along tracks below the electrical transmission line. NPS01 is identified as an artefact scatter consisting of 23 artefacts identified in proximity to one another. The artefacts that comprise NPS01 were identified within exposures along a circular track in SU1.

Further investigation is required to adequately assess the significance of the sites which were identified during the field survey.

### 9.2 Recommendations

The following recommendations are made to assist in ongoing management of identified heritage sites. The management recommendation statements below were developed in light of information gathered from the background desktop investigation, predictive modelling, results of the field survey, heritage significance assessment, legislative requirements, and consultation with relevant Aboriginal parties:

- **Recommendation 1:** All identified sites to be registered on AHIMS

The sites identified during the field survey (NPS01, NPS02 and NPS03) will be registered on the AHIMS database as soon as practicable;

- **Recommendation 2:** Sub-surface Test Excavation

Further subsurface investigation via test excavation is recommended to confirm the extent of the potential archaeological resource associated with NPS01. Additionally, the subsurface investigation would aim to determine the relationship between NPS01 and AHIMS site #38-4-1751;

- **Recommendation 3:** Preparation of an ACHA report

An Aboriginal Cultural Heritage Assessment (ACHA) report, which includes the survey results, test excavation methodology and test excavation results, should be prepared to assess the impact of and development activities on the Project Area. The ASR will be incorporated directly into the ACHA; and

- **Recommendation 4:** Chance Finds Procedure

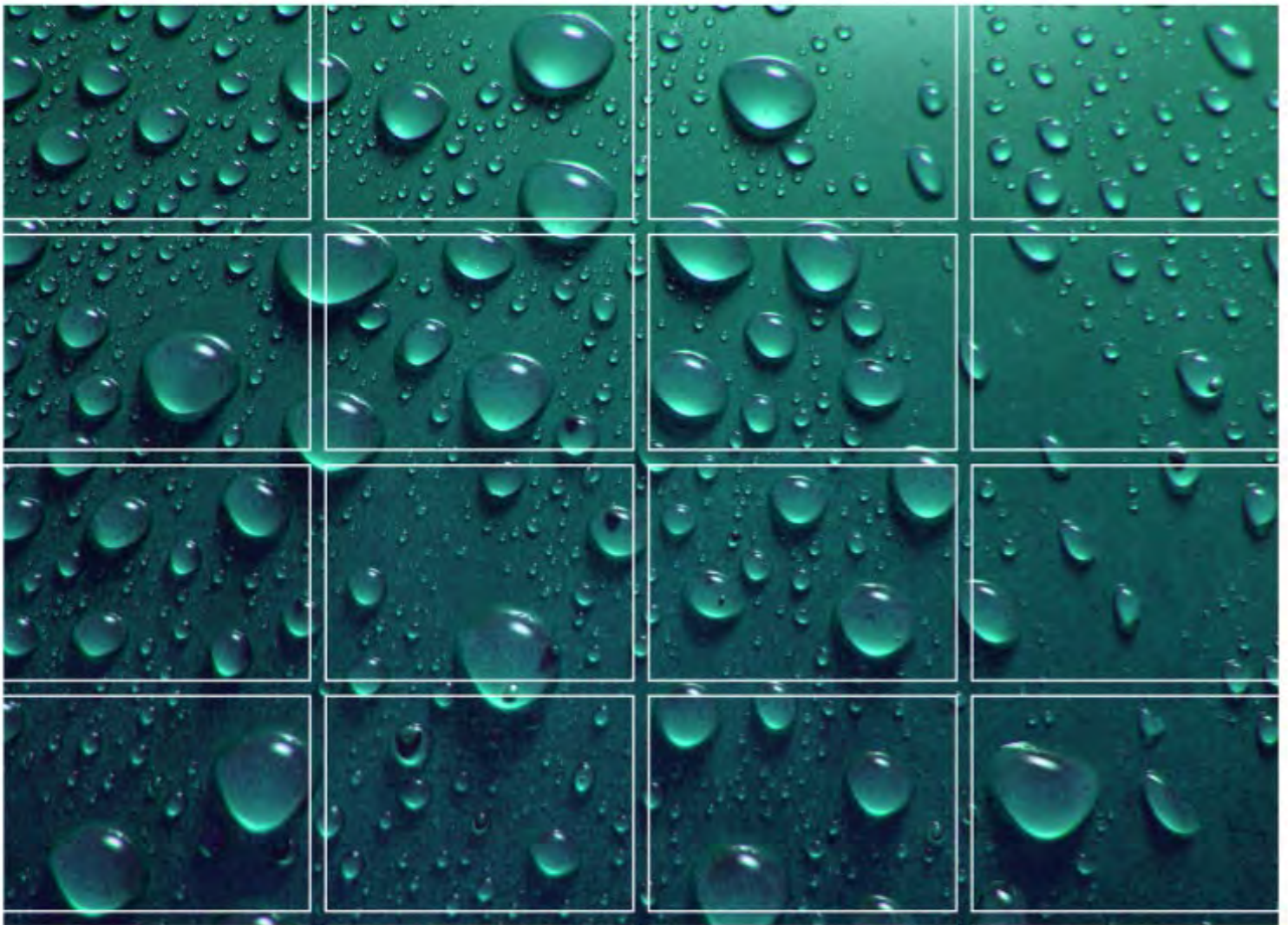
All future ground disturbance activities within the Project Area is subject to a 'chance finds procedure'. If unexpected Aboriginal objects are identified, all works should cease and the heritage consultant notified. In the event of the discovery of human skeletal material (or suspected human skeletal material) all activities and/or works in the immediate area must cease, the State Police and OEH must be contacted, and any sands/soils removed from the near vicinity of the find must be identified and set aside for assessment by investigating authorities.

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## APPENDIX A      SURVEY METHODOLOGY





## Newcastle Power Station

### Field Survey Methodology

4 April 2019

Project No.: 0468623

<b>Document details</b>	
Document title	Newcastle Power Station
Document subtitle	Field Survey Methodology
Project No.	0468623
Date	4 April 2019
Version	1.0
Author	Dr Robin Twaddle
Client Name	Aurecon

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	Dr Robin Twaddle	S. Moore/E. Finnegan	D. Roddis	20/03/2019	
Final	00	Dr Robin Twaddle	S. Moore/E. Finnegan	D. Roddis	04/04/2019	Revised per client comments

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## Signature Page

4 April 2019

# Newcastle Power Station

## Field Survey Methodology



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## 1. INTRODUCTION

Environmental Resource Management Australia Pty Ltd (ERM) have been commissioned by Aurecon to prepare an Aboriginal Cultural Heritage Assessment (ACHA) for a property in Tomago, NSW. The property consists of:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The ACHA will be prepared in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010* (Code of Practice) and will include Indigenous community consultation, field investigations and associated data analysis and reporting. The ACHA is being prepared to support the proposed construction and operation of a dual-fuel power station in Tomago as outlined in *Section 3*.

This document provides details of the proposed assessment methodologies for the site. This document will be provided to all Registered Aboriginal Parties (RAPs) who have registered interest in the project for their review and comment. Any comments received will be considered and incorporated into the assessment methodologies where practicable.

## 2. SITE LOCATION

This methodology document relates to field investigations and the preparation of an ACHA report for the proposed development being undertaken at the site identified as the 'Newcastle Power Station'. The location of this site is provided below.


The proposed Newcastle Power Station is in Tomago, NSW, approximately 14 km north-west of Newcastle within the Port Stephens Local Government Area (Figure 2-1). The approximately 96 ha Proposal encompasses the following lots:


- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The north-west boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 4 DP1043561 as well as the western boundary of Lot 1203 DP1229590 abut the Pacific Highway. The southern boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 202 DP1173564 adjoin industrial estates. Lot 202 DP1173564 is bounded to the east and north by allotments displaying dense vegetation.





Legend

 Project Boundary

 Cadastre (Lot)

Data Source:  
Project Boundary: Client Provided  
(February 2019)  
Nearmap Imagery January 2019



Project Area of the Newcastle Gas Fired Power Station		F2-1
Drawing No: 0468623s_HA_G002_R0.mxd		Newcastle Gas Fired Power Station
Date: 04/04/2019	Drawing Size: A3	Client: Aurecon
Drawn By: GC	Reviewed By: RT	
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p> 
<p>0 50 100m</p> 		



### 3. PROPOSED DEVELOPMENT

The proponent of the proposed works is NGSF Asset Pty Limited, a wholly owned subsidiary of AGL Energy Limited (AGL).

AGL proposes to construct and operate a dual-fuel (gas/diesel) power station and associated infrastructure ('the Proposal') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister of Planning and Environment under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act).

The Proposal involves the construction and operation of approximately 250-megawatt (MW) dual-fuel power station and associated infrastructure including gas supply and electricity transmission connections. The Proposal would employ open cycle gas turbine (OCGT) or reciprocating gas engine technology able to operate on diesel fuel if necessary. It would operate as a "peak load" facility supplying electricity at short notice during periods of high demand, low supply from intermittent supply sources or when baseload power generation is offline. The Proposal would connect to the gas supply via a new pipeline(s) to the Newcastle Gas Storage Facility (NGSF) and/or the existing high-pressure gas supply pipeline on Old Punt Road. A high voltage electrical transmission line would connect the Proposal to the existing TransGrid Tomago 132kV switchyard. The Proposal is likely to have a minimum operating life of 25 years.

With specific reference to Aboriginal cultural heritage and the assessment of potential impacts to the heritage values within the Proposal Area, construction of the power station and associated infrastructure would result in the following works:

- clearing of vegetation to enable installation of gas pipelines and associated construction yards and transmission line infrastructure as required;
- site preparation including levelling earthworks;
- excavation for foundations, services, and drainage works;
- installation of foundations and underground services;
- installation of aboveground mechanical and electrical plant and equipment;
- erection of structures and buildings; and
- landscaping.

The proposed gas and power transmission infrastructure is expected to largely follow existing easements within areas that have already been disturbed. However, there could be some potential for disturbance of Aboriginal cultural heritage sites during construction.



## 4. HERITAGE BACKGROUND

An extensive Aboriginal cultural heritage investigation was undertaken across Lot 2 DP1043561 and Lot 3 DP1043561 (located in the western portion of the current Project Area) by Jacobs Pty Ltd for RMS in 2015 as part of the M1 Pacific Motorway Extension to Raymond Terrace Project. This investigation included a pedestrian survey which identified Potential Archaeological Deposits (PADs) across both lots. This was registered with AHIMS as site # 38-4-1751.

A subsequent test pitting program of 65 shovel probes and 12 test pits was undertaken at #38-4-1751 across both lots. Stone artefacts were located in 16 of the shovel probes and five (5) of the test pits. Two additional isolated artefacts were also located on the ground surface. Angular fragments dominate the artefact assemblages with occasional flakes and cores also identified. Artefact material is primarily Indurated Mudstone/Tuff/Chert (IMTC), with quartz and silcrete also identified.

An Environmental Impact Statement (EIS) was prepared by HLA Envirosciences (HLA) in 2002 to assess the impacts of the construction and operation of a proposed power station at the same location as the Proposal. This included consultation and a survey undertaken in conjunction with the Worimi Local Aboriginal Lands Council. The EIS highlighted that the Project Area is in a zone of high archaeological sensitivity given its ready access to resources and that previous studies had located a high incidence of sites (e.g. Dean-Jones 1990).

A review of the Aboriginal Heritage Information Management System (AHIMS) sites register indicated four sites (three artefact scatters and one scarred tree) were located within 1.5 km from the Project Area boundary (HLA 2002). These sites have been assessed as forming part of a larger site complex recorded east of the Project Area. Moreover, it was found that site densities were at their highest in close proximity to water sources, particularly wetlands (refer HLA 2002).

No sites were located within or immediately adjacent to the Project Area (HLA 2002).

An extensive search of the OEH Aboriginal Heritage Information Management System (AHIMS) database was conducted on 13 March 2019, using the following details:

**Client Service ID:** 406479  
**Lat, Long from:** -32.8211, 151.7015  
**Lat, Long to:** -32.8086, 151.7363  
**Buffer:** 200 m  
**Number Sites:** 5

A total of five (5) sites were identified within the search area. Of these, the majority of these are recorded as Artefact, with Art and Potential Archaeological Deposit (PAD) also contributing to the types of recorded sites. There is one (1) recorded site within the Project Area. The results of the AHIMS search are summarised in *Table 4.1*.

**Table 4.1 AHIMS Registered Site Types**

Site Type	Number
Artefact	3
Artefact, Potential Archaeological Deposit (PAD)	1
Art (Pigment or Engraved)	1

## 5. FIELDWORK METHODOLOGY

An archaeological survey will be undertaken over 3 days in May 2019 and will aim to identify all Aboriginal sites present within the Project Area including the identification of any PADs as well as confirm the findings of the previous survey and test pitting program. The proposed methodology for the survey includes:

- the survey will be undertaken on foot where possible with up to four RAPs in attendance;
- the survey will consist of all participants traversing the Project Area using walking transects approximately 5 m apart to ensure the entire Project Area is covered (subject to visibility and accessibility);
- the survey will target each landform in the Project Area;
- areas of archaeological potential such as raised landforms in close proximity to semi-permanent water sources will also be targeted;
- areas of exposure and ground visibility will be targeted;
- any areas of interest to the RAPs will be targeted; and
- any cultural heritage information for the study area held by Aboriginal parties will be recorded during the field survey. Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

## 6. FEEDBACK

ERM requests that you respond to this information package and advise of your availability to attend the fieldwork prior to **Thursday 2 May 2019**.

Please provide feedback to **Stephanie Moore** at the following contact details:

**Post: Locked Bag 3012, Australia Square, NSW 2000**

**Phone: 02 8584 8868**

**Email: [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)**

ERM also ask if you hold any knowledge of sites within or near the study area or have any specific information concerning the cultural values of the study area, we would be grateful if you could let us know. Our contact details are listed above. Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Heritage Consultant



Paul Douglass  
Partner

## REFERENCES

Dean-Jones, P. 1990 *Newcastle Bight Aboriginal Sites Study*. Prepared for the NSW National Parks and Wildlife Service and National Estate Grant Committee.

HLA Envirosciences (HLA) 2002 *Tomago Gas Fired Power Station Environmental Impact Study*. Prepared for Macquarie Generation.



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## **APPENDIX K    ABORIGINAL HERITAGE CONSULTATION – PROPOSED TEST EXCAVATION METHODOLOGY**



## Newcastle Power Station Project

Project Methodology – Archaeological  
Investigation

4 June 2019

Project No.: 0468623

<b>Document details</b>	
Document title	Newcastle Power Station Project
Document subtitle	Project Methodology – Archaeological Investigation
Project No.	0468623
Date	4 June 2019
Version	1.0
Author	Dr Robin Twaddle, Stephanie Moore
Client Name	Aurecon

#### Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
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Draft	01	Dr Robin Twaddle	E. Finnegan	D. Roddis	24.05.19	Draft for client review
Final	01	Dr Robin Twaddle	E. Finnegan	D. Roddis	24.05.19	Final



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## Signature Page

4 June 2019

# Newcastle Power Station Project

## Project Methodology – Archaeological Investigation



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Stephanie Moore  
Heritage Consultant



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Damon Roddis  
Partner

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## 1. INTRODUCTION

Environmental Resource Management Australia Pty Ltd (ERM) have been commissioned by Aurecon to prepare an Aboriginal Cultural Heritage Assessment (ACHA) for a property in Tomago, NSW. The property consists of:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The ACHA will be prepared in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (the Guidelines), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW 2010* (Code of Practice) and will include Indigenous community consultation, field investigations and associated data analysis and reporting. The ACHA is being prepared to support the proposed construction and operation of a dual-fuel power station in Tomago as outlined in *Section 3*.

Results of the site survey (undertaken from 6-8 May 2019) have indicated the need for additional investigation, to accurately assess the Aboriginal archaeological significance of the Project Area (as defined in Figure 2.1).

This document provides details of the proposed archaeological test excavation methodology for the Project Area. This document will be provided to all Registered Aboriginal Parties (RAPs) that have registered interest in the Project for their review and comment. Any comments received would be considered and incorporated into the methodology where practicable.

The Project is detailed further in *Section 3*.

## 2. SITE LOCATION

This methodology document relates to an archaeological testing program and the preparation of an ACHA report for the proposed development being undertaken at the site identified as the 'Newcastle Power Station'. The location of this site is provided below.

The proposed Newcastle Power Station is in Tomago, NSW, approximately 14 km north-west of Newcastle within the Port Stephens Local Government Area (Figure 2.1). The Proposal encompasses the following lots having a total site area of approximately 96 ha:

- Lot 2 DP1043561;
- Lot 3 DP1043561;
- Lot 4 DP1043561 (partial lot);
- Lot 202 DP1173564 (partial lot); and
- Lot 1203 DP1229590 (partial lot).

The north-west boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 4 DP1043561 as well as the western boundary of Lot 1203 DP1229590 abut the Pacific Highway. The southern boundaries of Lot 2 DP1043561, Lot 3 DP1043561, and Lot 202 DP1173564 adjoin industrial estates. Lot 202 DP1173564 is bounded to the east and north by allotments displaying dense vegetation.





Legend

Project Boundary


Cadastral (Lot)

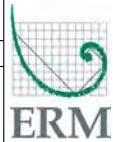
Data Source:

Project Boundary: Client Provided

(February 2019)

Nearmap Imagery January 2019

Site Location		
Drawing No: 0468623s_AAS_G001_R0.mxd		Aboriginal Archaeological Survey Report Newcastle Gas Fired Power Station
Date: 23/04/2019	Drawing Size: A3	
Drawn By: GC/VN	Reviewed By: RT	Client: Aurecon
Coordinate System: GDA 1994 MGA Zone 56		<div>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</div>
<div><div>050100m</div><div><div>N</div><div></div></div></div>		





### 3. PROPOSED DEVELOPMENT

The proponent of the proposed works is AGL Energy Limited (AGL).

AGL proposes to construct and operate a dual-fuel (gas/diesel) power station and associated infrastructure ('the Project') in Tomago, NSW. AGL ('the proponent') is seeking approval for the project from the NSW Minister of Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

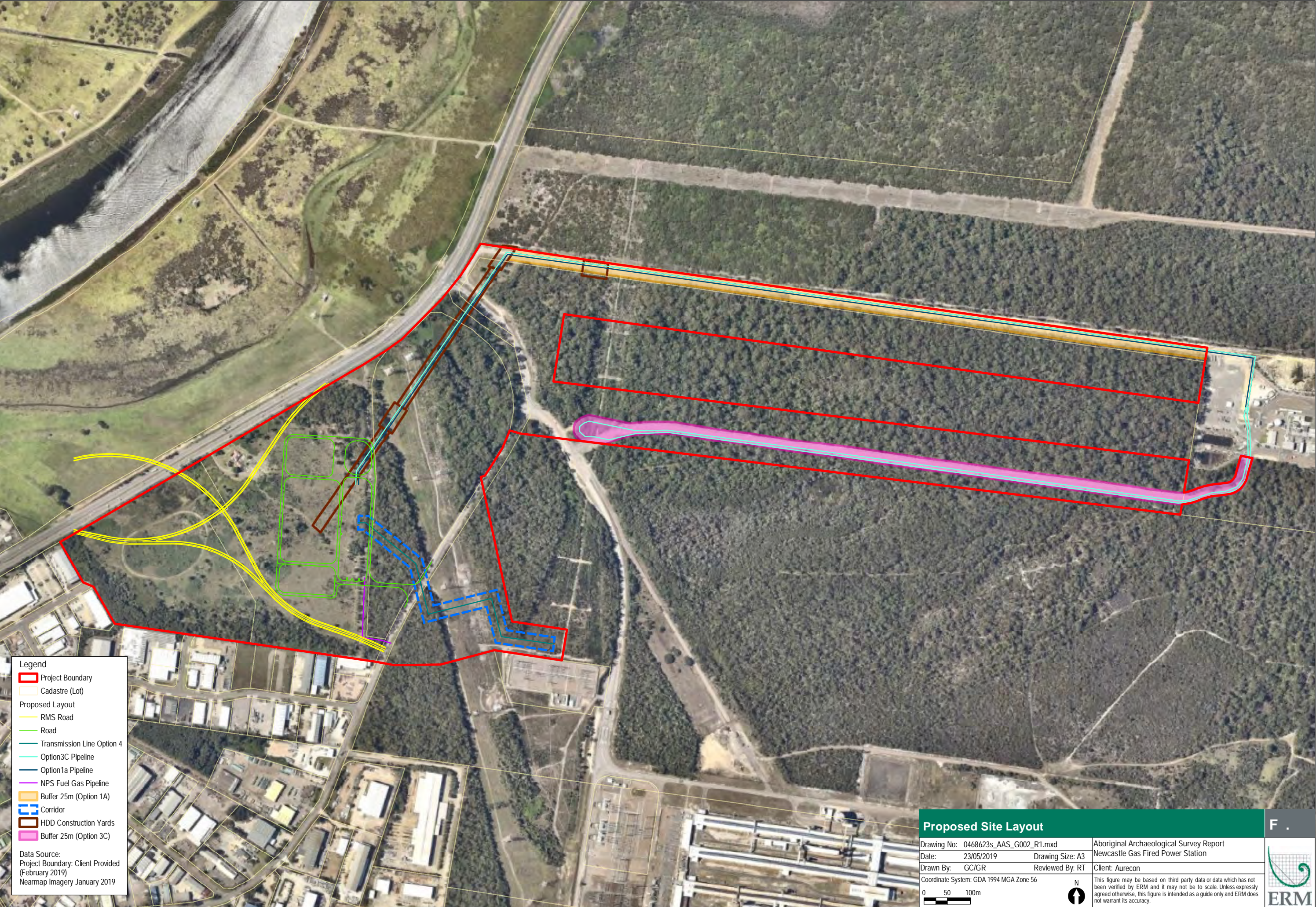
The Project involves the construction and operation of an approximately 250-megawatt (MW) dual-fuel power station and associated infrastructure including gas supply and electricity transmission connections. The power station would be a dual fuel power plant, capable of generating approximately 250MW of electricity. Power generation would either be by the use of reciprocating engine generators or aero-derivate gas turbine generators. Generation units would be dual fuel capable, meaning they would be able to be supplied by natural gas and/or liquid fuel.

With specific reference to Aboriginal cultural heritage and the assessment of potential impacts to the heritage values within the Project Area, construction of the power station and associated infrastructure would result in the following works:

- clearing of vegetation to enable installation of gas pipelines and associated construction yards and transmission line infrastructure as required;
- site preparation including levelling earthworks;
- excavation for foundations, services, and drainage works;
- installation of foundations and underground services;
- installation of aboveground mechanical and electrical plant and equipment;
- erection of structures and buildings; and
- landscaping.

The proposed gas and power transmission infrastructure is expected to largely follow existing easements within areas that have already been disturbed. However, there is potential for disturbance of Aboriginal cultural heritage sites during construction.






**Legend**

- Project Boundary
- Cadastral (Lot)
- Proposed Layout
  - RMS Road
  - Road
  - Transmission Line Option 4
  - Option3C Pipeline
  - Option1a Pipeline
  - NPS Fuel Gas Pipeline
  - Buffer 25m (Option 1A)
  - Corridor
  - HDD Construction Yards
  - Buffer 25m (Option 3C)

Data Source:  
Project Boundary: Client Provided (February 2019)  
Nearmap Imagery January 2019

Proposed Site Layout

Drawing No: 0468623s_AAS_G002_R1.mxd		Aboriginal Archaeological Survey Report	
Date: 23/05/2019	Drawing Size: A3	Newcastle Gas Fired Power Station	
Drawn By: GC/GR	Reviewed By: RT	Client: Aurecon	
Coordinate System: GDA 1994 MGA Zone 56		<div>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</div>	
<div><div><div>0</div><div>50</div><div>100m</div></div><div><div>N</div><div></div></div></div>			



F .





## 4. HERITAGE BACKGROUND

An extensive Aboriginal cultural heritage investigation was undertaken across Lot 2 DP1043561 and Lot 3 DP1043561 (located in the western portion of the current Project Area) by Jacobs Pty Ltd for Roads and Maritime Services (RMS) in 2015 as part of the M1 Pacific Motorway Extension to Raymond Terrace Project. This investigation included a pedestrian survey which identified Potential Archaeological Deposits (PADs) across both lots. This was registered with AHIMS as site # 38-4-1751.

A subsequent test pitting program of 65 shovel probes and 12 test pits was undertaken at #38-4-1751 across both lots. Stone artefacts were located in 16 of the shovel probes and five (5) of the test pits. Two (2) additional isolated artefacts were also located on the ground surface. Angular fragments dominate the artefact assemblages with occasional flakes and cores also identified. Artefact material is primarily Indurated Mudstone/Tuff/Chert (IMTC), with quartz and silcrete also identified.

An Environmental Impact Statement (EIS) was prepared by URS in 2002 to assess the impacts of the construction and operation of a proposed power station at the same location as the Proposal. This included consultation and surveys undertaken in conjunction with the Worimi Local Aboriginal Lands Council. The EIS highlighted that the Project Area is in a zone of high archaeological sensitivity given its ready access to resources, furthermore, previous studies had located a high incidence of sites (e.g. Dean-Jones 1990).

### 4.1 AHIMS Search

A review of the Aboriginal Heritage Information Management System (AHIMS) sites register indicated four (4) sites (three (3) artefact scatters and one (1) scarred tree) were located within approximately 1.5 km from the Project Area boundary. These sites have been assessed as forming part of a larger site complex recorded east of the Project Area. Moreover, it was found that site densities were at their highest in close proximity to water sources.

No sites were located within or immediately adjacent to the Project Area.

One (1) site (AHIMS #38-4-1753) is located on the eastern boundary of the Project Area. This site is listed as "Repatriated Aboriginal artefacts" [sic].

An extensive search of the OEH Aboriginal Heritage Information Management System (AHIMS) database was conducted on 13 March 2019, using the following details:

**Client Service ID:** 406479  
**Lat, Long from:** -32.8211, 151.7015  
**Lat, Long to:** -32.8086, 151.7363  
**Buffer:** 200 m  
**Number Sites:** 5

A total of five (5) sites were identified within the search area. Of these, the majority of these are recorded as Artefact, with Art and Potential Archaeological Deposit (PAD) also contributing to the types of recorded sites. There is one (1) recorded site within the Project Area. The results of the AHIMS search are summarised in Table 4-1

**Table 4-1 AHIMS Registered Site Types**

Site Type	Number
Artefact	3
Artefact, Potential Archaeological Deposit (PAD)	1
Art (Pigment or Engraved)	1



## 4.2 Field Survey Results

The Aboriginal heritage field survey was conducted in conjunction with the historic heritage survey and was carried out according to the survey methodology developed and sent to RAPs in April 2019. The survey was undertaken by ERM Consultants Katherine Deverson and Phoebe Worth in conjunction with representatives of four (4) RAP groups, from 6-8 May 2019.

During the field survey, three (3) previously unidentified Aboriginal heritage sites were recorded. The sites were located within 1.5 km of the Hunter River to the north-west (*Figure 4.1*). Two (2) of these sites were isolated finds (single stone artefacts) and the other site was a large artefact scatter that is likely associated with or part of a previously identified site located to the north-west on the opposite side of the M1 Pacific Motorway. The artefact scatter's proximity to a water source (Hunter River) is in line with the predictive model developed for the Project Area and is representative of previously recorded sites in the area. Previously unrecorded Aboriginal cultural heritage sites located during the survey were recorded and artefacts identified were left *in situ*.

The identified sites are identified in Table 4-2 below.

**Table 4-2 Identified Sites**


Site Name	Description
NPS01	<p>This site comprises 23 stone artefacts located along a circular track in area covering approximately 175 m by 200 m. One piece of bone was also identified. It is very unlikely that all artefacts located on the surface were identified within this area, as other than the track the ground visibility was 0% and was mostly poor to very poor along the track itself.</p> <p>Cores and flakes were identified consisting of a variety of stone material, including silcrete, chert, and mudstone.</p> <p>It is considered likely that the site is associated with the previously identified AHIMS Site 38-4-1751 and is likely a part of the same occupation site related to activities along the Hunter River. A PAD was identified in association with the site and is thought to extend across the entire site and, a large section of the mid slope landform and into SU2.</p>
NPS02	<p>Isolated Find</p> <p>Silcrete core. Located on track in small area of 100% ground visibility. No further artefacts were located after search of area; however, the area is surrounded by areas of 0% ground visibility. A PAD was identified in association with this site and NPS01; it is thought to extend across a large section of the survey unit, the mid slope landform, and into SU2.</p>
NPS03	<p>Isolated Find</p> <p>Fine grained stone material. Possible core with negative flakes scars evident. Found at the base of a transmission tower, and likely deposited with fill material.</p>

Based on the information obtained from database searches and the field survey results, assessed against the proposed ground surface impacts, ERM has recommended further investigation in the form of subsurface archaeological test excavations at the location of site NPS02 and associated PAD. Further details are provided in *Section 5* below.





Survey Results

Drawing No: 0468623s_SR_G002_R1.mxd		Survey Report
Date: 16/05/2019	Drawing Size: A3	Newcastle Gas Fired Power Station
Drawn By: VN	Reviewed By: RT	Client: Aurecon
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
<div><div><div>0</div><div>50</div><div>100m</div></div><div><div>N</div><div></div></div></div>		



## 5. TEST EXCAVATION METHODOLOGY

The aim of this test excavation program is to understand more completely the nature of the sub surface archaeological material within the Project Area to better inform management and mitigation strategies. The results of the archaeological excavation program will enable an informed assessment of the archaeological significance of the Proposal and will be used to:

- collect information about the nature and extent of sub-surface Aboriginal objects;
- obtain a representative sample of the archaeology that will be impacted by the Proposal;
- provide additional information on spatial patterning;
- assess the cultural heritage significance of the area; and
- inform the management and mitigation measures to be applied to the Proposal.

The results of archaeological test excavations may also contribute to the understanding of site characteristics and local and regional prehistory and they can be used to inform conservation goals. Through excavation and analysis of the artefacts the following research questions may also be addressed:

- What Aboriginal activities and/or types of occupation occurred on site?
- Does spatial patterning of activity areas occur?
- How do the Aboriginal activities and/or types of occupation represented in the Project Area compare with evidence from other locations in the Southern Tablelands region?

### 5.1 Sampling Strategy

This methodology has been prepared in accordance with the guiding principles of the Code of Practice and identifies eleven areas to be initially investigated. Testing will be limited to areas subject to impact by the proposed development, thus test excavations will be concentrated at NPS02 and its associated PAD. Excavation has not been recommended for NPS01 as it lies within the RMS area of responsibility and is therefore outside the scope of this ACHA.

- Test excavations are proposed to be conducted in two stages using a systematic grid. Stage 1 entails 0.5 m by 0.5 m test pits located on a 50 m offset grid, to be excavated by hand using trowels, mattocks and shovels. At least 60% of the 23 locations shown in Figure 5.1 will be excavated with areas of raised terrain given preference. Final locations of test pits will be decided on site with input from the RAPs.
- Should dense concentration of artefacts (in excess of 60 artefacts per square metre) and/or archaeological features such as heaths be identified, the methodology allows for an additional eight (8) second stage 0.5 m x 0.5 m pits to be placed on a grid at 20 m intervals encircling the pit containing the artefacts/feature to allow a full examination.
- All excavations will be carried out in accordance with standard sampling strategy and Requirements 16 and 17 of the Code of Practice as follows:
  - the first excavation unit would be excavated in the centre of the PAD and documented in 5 cm 'spits'. Subsequent test pits would be excavated in 10 cm spits or stratigraphical unit (whichever is smaller);
  - all test pits would be excavated to a sterile layer below the base of identified Aboriginal object bearing units and/or would cease at clay or bedrock;
  - all deposits would be sieved on-site using 5 mm and 8 mm nested sieves. Deposit would be sieved using dry sieving methods as appropriate to the soil type, access to Project Area and environmental context;

- the sub-surface soils and sediments would be examined to identify whether the deposits are intact or disturbed or a combination of both;
- the context of artefacts, if present, would be examined (i.e. disturbed or intact deposit);
- photographic and scale drawn records would be made. If no archaeological stratigraphy is recorded, digital photographs would still be taken showing soil profile, depth of pit and base of pit; and
- test excavations units would be backfilled as soon as practicable.

## 5.2 Artefact Recording

The analysis of artefacts recovered during the excavation program would be undertaken in a transparent and replicable fashion so as to permit the comparison of the entire excavated assemblage with data from other areas. This would also allow for an interpretation of the Project Area's archaeological significance.

Artefacts recovered during the test excavation program would be initially analysed on-site to enable evidence-based decisions regarding the quantity of excavation at each archaeological site and immediate input from Aboriginal stakeholders. Excavations would cease when sufficient information has been obtained.

Faunal remains, if recovered, would be analysed by a fauna consultant. Remnant bone and shell may assist in determining food sources, processing and possible foraging strategies.

Field analysis would record basic data, such as material type, number and any significant technological characteristics, such as backing or bipolar techniques; added to this would be any provenance data such as pit ID and spit number.

Detailed (laboratory) analysis would be undertaken off site and would entail recording a larger number of characteristics for each individual artefact as outlined in *Appendix A*. If charcoal from a secure context is recovered, it may be sent to a laboratory for C14 dating (subject to proponents' agreement).

An Aboriginal Site Impact Recording (ASIR) form would be completed and submitted to the AHIMS Registrar as soon as practicable, for each of the three AHIMS sites that have been the subject of test excavation.

## 5.3 Care and Control for Aboriginal Objects

In accordance with Requirement 26 of the Code of Practice, artefactual material would be collected, interpreted and catalogued then reburied within a portion of the Project Area that is to be conserved and not impacted during the development. The artefacts would be reburied upon the completion of the test excavation and detailed (off site) analysis. Should a sufficient density of artefacts be encountered during the test excavation which prohibits the proposed care and control strategy then a suitable alternative would be negotiated with the Aboriginal stakeholders and OEH prior to the artefact removal from site.

The artefacts would be placed in a closed container and the location of the reburied artefacts would be recorded with the information forwarded to the OEH.

## 5.4 Aboriginal Stakeholder Involvement

It is proposed that the excavation team would consist of two archaeologists and four RAPs each day. It would be the site archaeologist's responsibility to perform all photographic tasks, complete any sectional drawings and to ensure that the correct location, size and depth of each pit is maintained in accordance with the Code of Practice and this methodology.

A copy of this proposed sampling strategy and excavation methodology has been sent to all Registered Aboriginal Stakeholders to provide any comments. Participation in the test excavation



program would be limited to a set number of RAP groups, as determined by the proponent. A copy of the test excavation report would be included in the final ACHA and would be sent to all Registered Aboriginal Stakeholders for comment upon the completion of the excavation, analysis and reporting.

## 5.5 Notification

At least 14 days before undertaking any test excavations, OEH Newcastle Regional Operations Group would be notified of the test excavations in writing and provided this methodology as per the Code of Practice.







## 6. FEEDBACK

ERM requests that you respond to this information package and advise of your availability to attend the fieldwork prior to 3rd July 2019.

Please provide feedback to **Stephanie Moore** at the following contact details:

**Post: Locked Bag 3012, Australia Square, NSW 2000**

**Phone: 02 8584 8868**

**Email: [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com)**

ERM also ask if you hold any knowledge of sites within or near the study area or have any specific information concerning the cultural values of the study area, we would be grateful if you could let us know. Our contact details are listed above. Any cultural knowledge provided by Aboriginal Stakeholders will be treated in confidence and the information will be distributed according to their wishes.

Yours sincerely,

For Environmental Resources Management Australia Pty Ltd



Stephanie Moore  
Heritage Consultant



Paul Douglass  
Partner

## REFERENCES

Dean-Jones, P. 1990 *Newcastle Bight Aboriginal Sites Study*. Prepared for the NSW National Parks and Wildlife Service and National Estate Grant Committee.

URS Pty Ltd 2002 *Tomago Gas Fired Power Station Environmental Impact Statement*. Prepared for Macquarie Generation.



## **APPENDIX A      ARTEFACT ANALYSIS METHODOLOGY**

## METHODOLOGY FOR LITHICS ANALYSIS.

Analysis of the recovered assemblage will be undertaken in order to provide some interpretation of the type of activities being undertaken within the site and the significance of the site in relation to the surrounding landscape and the regional context of archaeological sites. The features that will be recorded for artefacts identified during excavation are provided below.

Artefact Analysis (flakes)	
Artefact Class	Artefact class is a technological category reflecting the mechanical processes which resulted in the physical form of the artefact at the time of recording. Classes used will include flakes, broken flakes, retouched flakes, flaked pieces, cores, flake-cores, hammerstones, grindstones, ground-edge axes, heat-shattered fragments, and non-diagnostic fragments.
Raw Material	The material resource with which artefacts are made. Raw materials expected to be present include silcrete, chert, quartz, rhyolite
Artefact Weight	Artefact weight will be measured for all recovered artefacts to one tenth of a gram.
Dimensions	Percussive dimensions measure the length of the flake in the direction of force application from the point that force was applied. In this regard it relates to the length of core face that was removed during the manufacture of the artefact. Width is oriented across the face of the flake from the mid-point of length, and thickness from the mid-point of length and width of the ventral to the corresponding point on the ventral.
Cortex	Cortex refers to the outer weathered surface of a rock. The amount of cortex as a percentage of surface area will be measured on all artefacts (in relation to flakes, cortex can, by definition only occur on the dorsal, termination and platform surfaces). The type of cortex will vary depending on where the raw material was sourced. Cortex type is described in terms of thickness, hardness and texture and will be recorded in all instances where cortex is present.
Knapping Type	Three main knapping methods are used in the production of flakes, resulting in flakes with distinctive characteristics. The first is freehand percussion, where the objective piece is held in the hand and struck with a hard hammer (e.g. a hammerstone), resulting in 'classic' flakes with a single bulb, and a ringcrack/Point of Force Application (PFA). The second is bipolar, where the objective piece is rested against an anvil and struck. This results in flakes that have straight sheer faces and crushing at both ends. The third is pressure flaking, where an indenter is placed against the edge from which the flake is to be removed and force is applied. The resulting flakes have a characteristically diffuse bulb, with no errailure scar and no PFA.
Artefact Type	Artefact type is a formal (e.g. less strictly technological), nominal category, similar to artefact class. Artefact types expected to be located include Bondi points, backed blades, eloueras, grindstones, geometric microliths, scrapers, and adzes.
Breakage	At a basic level, flakes break in six different ways. Three are transverse (at 90° to the direction of percussion) – proximal, medial, distal; two are longitudinal (along the plane of percussion) – left, right (oriented from the ventral view); and one ambiguous – marginal (where dorsal and ventral can be clearly distinguished, but the margin from which the piece has detached is uncertain). All such breaks will be recorded.
Heat Treatment	Heat will affect artefacts in different ways, depending on the way it has occurred. Most heat affected flakes on fine-grained material will reveal a greasy surface lustre on newly flaked surfaces and some discoloration (e.g. silcrete turns from grey or tan to red), however as heat becomes excessive signs such as pot-lidding (the 'popping' of small plate-like pieces off the flake) or crazing (multiple fracture lines in multiple directions

	across the face of the flake) will occur. The presence of any of these features will be recorded.
Platform	<p><b>Dimensions</b></p> <p>The platform is the surface into which force is applied in the formation of a flake. Platform width is measured across the platform in the same direction as flake width, while platform thickness follows flake thickness.</p> <p><b>Type</b></p> <p>Platform surface will be recorded as one of the following: cortical, single flake scar, multiple flake scars, or faceted.</p> <p><b>Overhang removal</b></p> <p>Frequently prior to the detachment of a flake from a core, the thin overhanging 'lip' of the core was removed in order to stop 'crushing' or force dissipation at the point of force application. This process is known as overhang removal.</p>
Dorsal Scars	<p><b>Count</b></p> <p>The dorsal face of a flake provides a partial record of previous flaking episodes to have occurred down the core face at or near the same point. The number of flake scars on the dorsal surface of a flake which can be oriented relative to their direction of percussion and which are clearly discernable will be recorded.</p> <p><b>Aberrantly terminating dorsal scars</b></p> <p>Number of flake scars terminating as steps and hinges.</p> <p><b>Number of parallel dorsal scars</b></p> <p>A basic count of the number of parallel flake scars.</p> <p><b>Parallel arrises</b></p> <p>Arrises or dorsal ridges are a way of controlling artefact morphology. Flakes struck down an existing ridge will tend to follow the direction that the ridge takes. This attribute will involve noting the presence or absence of dorsal ridges that run parallel to the length of the flake.</p> <p><b>Dorsal Scar Rotation</b></p> <p>As a core is reduced it may be turned or rotated to provide new platforms or overcome problems with increasing platform angles. As a result, flakes may be detached which cut across old flake scars. The result should be apparent as dorsal scars in different direction to the direction of percussion of the flake being recorded.</p>
Termination	Termination refers to the way in which force leaves a core during the detachment of a flake. Every complete flake has a termination. There are patterns in the form terminations will take, with the four major categories being: feather, hinge, step, and outrepasse (or plunging).
Retouch	<p>Retouch is the term given to alterations made to a flake by the striking of subsequent flakes from its surface. Retouching may be done either to alter artefact form or to rejuvenate (resharpen) dulled edges, and possibly both. Degree/amount of will be recorded as presence/absence.</p> <p><b>Retouch Type</b></p> <p>Retouch type is a technological attribute relating the way in which retouch was carried out. Categories to be used are steep, acute, unifacial, bifacial, tranchet and/or used as core.</p> <p><b>Retouch Location</b></p> <p>Each flake will be divided into eight segments: proximal end, proximal left, proximal right, marginal left, marginal right, distal left, distal right, and distal end; with the presence or absence of retouch in each to be recorded.</p>

### Artefact analysis (cores)

Artefact Class	Artefact class is a technological category reflecting the mechanical processes which resulted in the physical form of the artefact at the time of recording. Classes used will include flakes, broken flakes, retouched flakes, flaked pieces, cores, flake-cores, hammerstones, grindstones, ground-edge axes, heat-shattered fragments, and non-diagnostic fragments.
Raw Material	The material resource with which artefacts are made. Raw materials expected to be present include silcrete, chert, quartz, rhyolite.
Artefact Weight	Artefact weight will be measured for all recovered artefacts to one tenth of a gram.
Dimensions	Maximum length, width and thickness will be measured on all cores. 'Length' will arbitrarily be measured along the longest plain, with width the longest of the plains at 90° to length, and thickness measured at 90° to both..
Cortex	Cortex refers to the outer weathered surface of a rock. The amount of cortex as a percentage of surface area will be measured on all artefacts (in relation to flakes, cortex can, by definition only occur on the dorsal, termination and platform surfaces). The type of cortex will vary depending on where the raw material was sourced. Cortex type is described in terms of thickness, hardness and texture and will be recorded in all instances where cortex is present.
Percentage of Artefact Flaked	This attribute involves an estimate of the percentage of the outer surface of the core which has had flake scars removed from it.
Number of Flake Scars	All scars over the length of 10 mm will be measured (there are usually large numbers of flake scars between 10-3 mm, which relate more to platform preparation than flake production.
Number of Rotations	As a core is reduced it may be turned or rotated to provide new platforms or overcome problems with increasing platform angles. As a result, flakes may be detached which cut across old flake scars. The result should be apparent as dorsal scars in different direction to the direction of percussion of the flake being recorded.
Aberrantly Terminating Dorsal Scars	Number of flake scars terminating as steps and hinges.
Number of Parallel Dorsal Scars	A basic count of the number of parallel flake scars.



### Artefact Analysis (Ground Stone)

Artefact Class	Artefact class is a technological category reflecting the mechanical processes which resulted in the physical form of the artefact at the time of recording. Classes used will include flakes, broken flakes, retouched flakes, flaked pieces, cores, flake-cores, hammerstones, grindstones, ground-edge axes, heat-shattered fragments, and non-diagnostic fragments.
Raw Material	The material resource with which artefacts are made. Raw materials expected to be present include silcrete, chert, quartz, rhyolite.
Artefact Weight	Artefact weight will be measured for all ground stone artefacts to one tenth of a gram.
Dimensions	Maximum length, width and thickness will be measured on all ground stone artefacts. 'Length' will arbitrarily be measured along the longest plain, with width the longest of the plains at 90° to length, and thickness measured at 90° to both..
Number of Ground Surfaces	The total number of ground surfaces will be recorded on all ground stone objects.
Type of Abrasion	The method of grinding that has been used in creating the ground surface of an artefact. Ground stone artefacts may be created by a process of pecking or grinding.
Surface Morphology	The nature of curvature and grain smoothening on a ground surface. In stone material with courser grains, inclusions will be ground to a very level finish and create a surface that is convex, level or concave.
Polish	The presence or absence of polish on a ground surface.

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**ERM Sydney**

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## **APPENDIX L    ABORIGINAL HERITAGE CONSULTATION – RESPONSES TO PROPOSED TEST EXCAVATION METHODOLOGY**

## Stephanie Moore

---

**From:** Caza X <cazadirect@live.com>  
**Sent:** Monday, 10 June 2019 7:42 PM  
**To:** Stephanie Moore  
**Subject:** Re: Newcastle Power Station - Survey Report and Test Excavation Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

## A1

### Indigenous Services

Contact: Carolyn  
M: 0411650057  
E: Cazadirect@live.com  
A: 10 Marie Pitt Place, Glenmore Park, NSW 2745  
ABN: 20 616 970 327

Hi Stephanie,  
A1 supports the Survey Report and test Excavation Methodology.  
A1 would like to be considered for future field work.  
Thank you  
Carolyn Hickey

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Wednesday, 5 June 2019 10:24 AM  
**To:** Cazadirect@live.com  
**Cc:** Martin Hicks; Damon Roddis; James Grieve  
**Subject:** Newcastle Power Station - Survey Report and Test Excavation Methodology

Good Morning,

Please find attached a copy of the Draft Archaeological Survey Report and Final Test Excavation Methodology relating to the Newcastle Power Station Project.

Should you have any comments on these documents, please don't hesitate to get in touch.

All comments must be forwarded to Stephanie Moore by **COB 3 July 2019**.

Please send any comments to:  
[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)  
Or  
Stephanie Moore  
Locked Box 3012  
Australia Square NSW 2000

Arrangements for the test excavation will be made in the coming weeks, and groups will be contacted regarding participation.



We thank you in advance for your feedback, and look forward to working with you further on this project.

Kind Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

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Level 15, 309 Kent Street | Sydney, NSW 2000 | Australia

T +612 8584 8868 | M +614 39 720 041

E [stephanie.moore@erm.com](mailto:stephanie.moore@erm.com) | W [www.erm.com](http://www.erm.com)



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## Stephanie Moore

---

**From:** Muragadi <muragadi@yahoo.com.au>  
**Sent:** Tuesday, 11 June 2019 3:44 PM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Survey Report and Test Excavation Methodology

Hi Stephanie,  
I have read the survey report and test excavation methodology for the above project, I agree with the recommendations made.  
Thanks  
Anthony  
0418970389

---

**From:** Stephanie Moore [mailto:Stephanie.Moore@erm.com]  
**Sent:** Wednesday, 5 June 2019 10:17 AM  
**To:** muragadi@yahoo.com.au  
**Cc:** Martin Hicks <Martin.Hicks@aurecongroup.com>; Damon Roddis <Damon.Roddis@erm.com>; James Grieve <James.Grieve@erm.com>  
**Subject:** Newcastle Power Station - Survey Report and Test Excavation Methodology

Good Morning,

Please find attached a copy of the Draft Archaeological Survey Report and Final Test Excavation Methodology relating to the Newcastle Power Station Project.

Should you have any comments on these documents, please don't hesitate to get in touch.

All comments must be forwarded to Stephanie Moore by **COB 3 July 2019**.

Please send any comments to:

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

Or

*Stephanie Moore*

*Locked Box 3012*

*Australia Square NSW 2000*

Arrangements for the test excavation will be made in the coming weeks, and groups will be contacted regarding participation.

We thank you in advance for your feedback, and look forward to working with you further on this project.

Kind regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

**ERM**

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## Stephanie Moore

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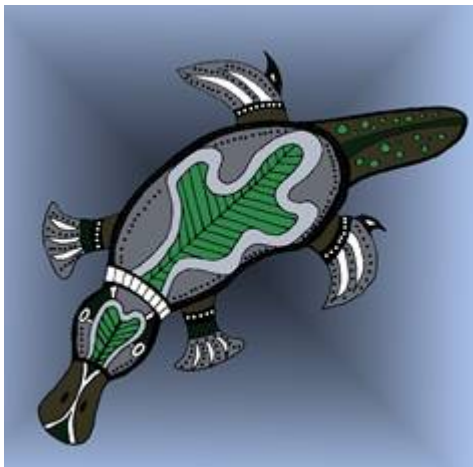
**From:** Ryan Johnson <murrabidgeemullangari@yahoo.com.au>  
**Sent:** Wednesday, 5 June 2019 3:19 PM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Survey Report and Test Excavation Methodology

Dear Stephanie,

I have read the survey report and test excavation methodology for the above project, I endorse the recommendations made by ERM. Please feel free to contact me if you require further details via email or mobile 0475565517.

Kind regards

Ryan Johnson | **Murra Bidgee Mullangari**



Aboriginal Corporation Cultural Heritage

**A:** PO Box 246, Seven Hills, NSW, 2147  
**E:** [murrabidgeemullangari@yahoo.com.au](mailto:murrabidgeemullangari@yahoo.com.au)  
**ICN:** 8112

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---

**From:** Stephanie Moore [mailto:Stephanie.Moore@erm.com]  
**Sent:** Wednesday, 5 June 2019 10:26 AM  
**To:** murrabidgeemullangari@yahoo.com.au  
**Cc:** Martin Hicks <Martin.Hicks@aurecongroup.com>; Damon Roddis <Damon.Roddis@erm.com>; James Grieve <James.Grieve@erm.com>  
**Subject:** Newcastle Power Station - Survey Report and Test Excavation Methodology

Good Morning,

Please find attached a copy of the Draft Archaeological Survey Report and Final Test Excavation Methodology relating to the Newcastle Power Station Project.



Should you have any comments on these documents, please don't hesitate to get in touch.

All comments must be forwarded to Stephanie Moore by **COB 3 July 2019**.

Please send any comments to:

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

Or

*Stephanie Moore*

*Locked Box 3012*

*Australia Square NSW 2000*

Arrangements for the test excavation will be made in the coming weeks, and groups will be contacted regarding participation.

We thank you in advance for your feedback, and look forward to working with you further on this project.

Kind Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

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9 Vardon Road Fern Bay 2295 NSW  
49281910  
0402827482

ABN: 97 807 719 484

Thursday 13<sup>th</sup> of June 2019

ERM

Att: Stephanie Moore

Re: Draft Archaeological Survey Report and Final Test Excavation Methodology- Newcastle Power Station Project.

Murrooma has received your reports and we have fully read, understand and agree with all points.

This includes the archaeological survey report which was a true and accurate assessment of the works completed.

We agree with the recommendation of subsurface assessment and the test excavation methodology report for this area to gain further knowledge due to the artefacts that we found whilst completing the survey, our cultural knowledge of the area and the potential to protect/manage our local sites.

We are happy with the consultation process up to this point and we will be in continued contact with Stephanie regarding the proposed works for Newcastle Power Station and provide information as required regarding the cultural values associated with the project.

Yours Truly

Bec Young- Operations Manager

Anthony Anderson- CEO

## Stephanie Moore

---

**From:** WIDESCOPE . <widescope.group@live.com>  
**Sent:** Wednesday, 19 June 2019 10:02 AM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Survey Report and Test Excavation Methodology

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Stephanie,

I have reviewed and support the Draft Archaeological Survey Report and Final Test Excavation Methodology relating to the Newcastle Power Station Project.

I would like to be considered for test excavation/ Field work

Regards  
Steven Hickey

---

**From:** [Stephanie Moore](#)  
**Sent:** Wednesday, 5 June 2019 10:29 AM  
**To:** [Widescope.group@live.com](mailto:widescope.group@live.com)  
**Cc:** [Martin Hicks](#); [Damon Roddis](#); [James Grieve](#)  
**Subject:** Newcastle Power Station - Survey Report and Test Excavation Methodology

Good Morning,

Please find attached a copy of the Methodology relating to the Newcastle Power Station Project Draft Archaeological Survey Report and Final Test Excavation

Should you have any comments on these documents, please don't hesitate to get in touch.

All comments must be forwarded to Stephanie Moore by **COB 3 July 2019**.

Please send any comments to:  
[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

Or  
*Stephanie Moore*  
*Locked Box 3012*  
*Australia Square NSW 2000*

Arrangements for the test excavation will be made in the coming weeks, and groups will be contacted regarding participation.

We thank you in advance for your feedback, and look forward to working with you further on this project.

Kind Regards,  
Steph

Stephanie Moore

Heritage Consultant

M. ICOMOS

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## **APPENDIX M   AHIMS BASIC AND EXTENSIVE SEARCH RESULTS**

# AHIMS Web Services (AWS)

## Extensive search - Site list report

Your Ref/PO Number : 0406468

Client Service ID : 406479

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0248	T 7;	AGD	56	378900	6367400	Open site	Valid	Artefact : -	Open Camp Site	1845,102116,102568
	<u>Contact</u>	<u>Recorders</u>	Pam Dean-Jones					<u>Permits</u>		
38-4-1291	RPS PHWY AS2	GDA	56	378274	6368460	Open site	Valid	Artefact : 8		
	<u>Contact</u>	<u>Recorders</u>	RPS Australia East Pty Ltd -Hamilton, Miss. Philippa Sokol					<u>Permits</u>		
38-4-1751	HEXHAM M1RT 1	GDA	56	378643	6368784	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr. Andrew Costello					<u>Permits</u>		
38-4-1753	Repatriated Aboriginal afts	GDA	56	380886	6368803	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	RPS Australia East Pty Ltd -Hamilton					<u>Permits</u>		
38-4-1837	Tomago Power Artefact 1	GDA	56	379506	6367843	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Jacobs Group (Australia) Pty Ltd - Newcastle, Mr. Andrew Costello					<u>Permits</u>		

Report generated by AHIMS Web Service on 15/03/2019 for Robin Twaddle for the following area at Lat, Long From : -32.8211, 151.7015 - Lat, Long To : -32.8086, 151.7363 with a Buffer of 200 meters. Additional Info : Data to be used in an ACHA. Number of Aboriginal sites and Aboriginal objects found is 5

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

## **APPENDIX N ABORIGINAL HERITAGE CONSULTATION – RESPONSES TO DRAFT ACHAR**



9 Vardon Road  
Fern Bay NSW 2295  
Ph: 02 49281910  
M: 0402827482  
Murroomainc1@gmail.com  
ABN: 97 807 719 484

Friday 6<sup>th</sup> September 2019

ERM

Att: Stephanie Moore

Re: Draft Aboriginal Cultural Heritage Assessment for Proposed Newcastle Gas Power Station

To Stephanie,

Murrooma Incorporated has read and fully understands the draft Aboriginal Cultural Heritage Assessment report. We agree with all aspects of this report and have viewed the proposed works, survey and test excavation results which are a true and accurate assessment of the works completed.

We are aware of the sites within this area including the large artefact scatter site which is located in the project area, on the southern side and extends across the highway toward the Hunter River- This site has many stone artefacts that are a connection to our ancestors. We would like to note that although this area may be disturbed from previous land owners and the artefacts are out of context scientifically however these are still culturally our tangible connection to our people which is significant to our Worimi Community.

As stated within this report this project is classified as a critical SSI and an AHIP is not required/extinguished however as there is evidence of cultural material within the footprint of construction Murrooma would like to recommend/propose a CHMP for this area. This would include all of the recommendations that ERM have highlighted as well as possible monitoring and salvage of any artefacts that may be identified in the initial earthworks. This would take the onus off of the workers (unexpected finds) on site and the RAP groups can complete a community collection and re-bury any artefacts identified with the test excavations artefacts.

As Traditional Knowledge Holders of the Worimi area we are required to maintain the protection and best options for our local Aboriginal sites.

Please contact if you have any questions,

Thankyou

Bec Young- Murrooma -Operations Manager/Sites Officer

Anthony Anderson - Murrooma- CEO.



## Stephanie Moore

---

**From:** David Feeney <karuahindigenous@outlook.com>  
**Sent:** Monday, 19 August 2019 6:18 PM  
**To:** Stephanie Moore  
**Subject:** Re: Newcastle Power Station - Draft ACHA

Hi Stephane;

Please find attached my response to the  
Draft Newcastle Power Station;

Date: 19<sup>th</sup> August 2019

**ERM**

**Stephanie Moore**

Heritage Consultant  
Level 15, 309 Kent Street  
Sydney, NSW 2000

Hi Stephen;

Firstly; thanks for re-sending the Draft report, I have read the report and understand all parts of the report also the including the archaeological survey report in which I found to be OK.

I also agree to all recommendation of the report and happy to continue with any works around the Newcastle Power Station and give and information as required around Cultural & Heritage with this project.

Thank you

*Dave Feeney*

Dave Feeney  
Snr Aboriginal Cultural Officer  
Karuah Indigenous Corporation

---

**From:** Stephanie Moore <Stephanie.Moore@erm.com>  
**Sent:** Monday, August 19, 2019 1:06 AM  
**To:** David Feeney <karuahindigenous@outlook.com>  
**Subject:** RE: Newcastle Power Station - Draft ACHA

Hi Dave,

Please find attached a copy of the report. Subsequent to our original emails, we were able to prepare a compressed version.

Please let me know if you need anything further.

Kind Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS

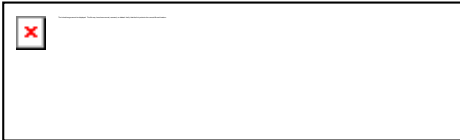
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**From:** David Feeney <[karuahindigenous@outlook.com](mailto:karuahindigenous@outlook.com)>  
**Sent:** Monday, August 19, 2019 7:27 AM  
**To:** Stephanie Moore <[Stephanie.Moore@erm.com](mailto:Stephanie.Moore@erm.com)>  
**Subject:** Re: Newcastle Power Station - Draft ACHA

Hi Stephanie;

Can not open link as it has expired

Dave Feeney  
Snr Aboriginal Cultural Officer  
Karuah Indigenous Corporation

---

**From:** Stephanie Moore <[Stephanie.Moore@erm.com](mailto:Stephanie.Moore@erm.com)>  
**Sent:** Friday, August 9, 2019 2:40 AM  
**To:** [karuahindigenous@outlook.com](mailto:karuahindigenous@outlook.com) <[karuahindigenous@outlook.com](mailto:karuahindigenous@outlook.com)>  
**Cc:** Robin Twaddle <[Robin.Twaddle@erm.com](mailto:Robin.Twaddle@erm.com)>; James Grieve <[James.Grieve@erm.com](mailto:James.Grieve@erm.com)>; Martin Hicks <[Martin.Hicks@aurecongroup.com](mailto:Martin.Hicks@aurecongroup.com)>  
**Subject:** Newcastle Power Station - Draft ACHA

Good Morning,

Please find below a sharing link for the Draft ACHA for the Newcastle Power Station.  
If you have any trouble accessing the document via this link, please contact me as soon as possible and I will arrange alternate transfer.

[https://theermgroup-my.sharepoint.com/:f:/g/personal/stephanie\\_moore\\_erm\\_com/EvWdC7x9bgZOrXI0KQI2JqUBvoJXa8lQHosQeMOr7iqcQ?e=AcacA4](https://theermgroup-my.sharepoint.com/:f:/g/personal/stephanie_moore_erm_com/EvWdC7x9bgZOrXI0KQI2JqUBvoJXa8lQHosQeMOr7iqcQ?e=AcacA4)

If you have any comments relating to this document, or the management recommendations included, please provide them in writing to:

Stephanie Moore

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

0439 720 041

Comments are to be provided before Close of Business on the 6<sup>th</sup> September 2019.

Any issues or queries, please don't hesitate to get in touch.

Kind Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M. ICOMOS

#### **ERM**

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## Stephanie Moore

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**From:** Muragadi <muragadi@yahoo.com.au>  
**Sent:** Thursday, 15 August 2019 4:37 PM  
**To:** Stephanie Moore  
**Subject:** RE: Newcastle Power Station - Draft ACHA

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi stephanie,

I have read the project information and draft ACHA for the above project I agree with the recommendations made by ERM, please feel free to contact me if you require further information.

Kind regards

Anthony

0418970389

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**From:** Stephanie Moore [mailto:Stephanie.Moore@erm.com]  
**Sent:** Friday, 9 August 2019 10:41 AM  
**To:** muragadi@yahoo.com.au  
**Cc:** Robin Twaddle <Robin.Twaddle@erm.com>; James Grieve <James.Grieve@erm.com>; Martin Hicks <Martin.Hicks@aurecongroup.com>  
**Subject:** Newcastle Power Station - Draft ACHA

Good Morning,

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Stephanie Moore

[Stephanie.moore@erm.com](mailto:Stephanie.moore@erm.com)

0439 720 041

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Kind Regards,  
Steph

Stephanie Moore  
Heritage Consultant

M.ICOMOS



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