



Mandalong Southern Extension Project

Heritage Impact Assessment

Prepared by:

RPS AUSTRALIA EAST PTY LTD

PO Box 428
Hamilton NSW 2303

T: +61 2 4940 4200
F: +61 2 4961 6794
E: newcastle@rpsgroup.com.au

Client Manager: Tess Boer-Mah
Report Number: PR107666-1
Version / Date: Final August 2013

Prepared for:

CENTENNIAL MANDALONG PTY LIMITED

PO Box 1000
Toronto NSW 2283
Attn. James Wearne

T: 02 49730153
F: 0407207530
E: James.Wearne@centennialcoal.com.au
W: www.centennialcoal.com.au

Document Status

Version	Purpose of Document	Orig	Review	Review Date	Approval for Issue	Date Issued
Draft	Draft for Client	Laraine Nelson Darrell Rigby	T. Boer-Mah	18.10.12	T. Boer-Mah	23.10.12
Draft	Draft 2 for Client	Laraine Nelson	T. Boer-Mah	1.11.2012	T. Boer-Mah	1.11.12
Draft	Draft 3 for Client	Laraine Nelson	T. Boer-Mah	6.12.2012	T. Boer-Mah	6.12.2012
Final	Issued to Client	Laraine Nelson	T. Boer-Mah	8.12.2013	T. Boer-Mah	8.12.2013
Final A	Issued to Client	Laraine Nelson	T. Boer-Mah	25.7.2013	D. Rigby	25.7.2013
Final B	Issued to Client	Laraine Nelson	T. Boer-Mah	25.7.2013	T. Boer-Mah	19.8.2013

Contents

ABORIGINAL STATEMENT OF SIGNIFICANCE	VII
EXECUTIVE SUMMARY	X
ACRONYMS AND UNITS	XIII
1.0 INTRODUCTION	1
1.1 Project Overview	1
1.2 Legislative Context	9
1.2.1 Aboriginal Land Rights Act (1983)	9
1.2.2 Native Title Act (1993)	9
1.2.3 National Parks and Wildlife Act (1974)	9
1.2.4 National Parks and Wildlife Regulation (2009)	10
1.2.5 Heritage Act 1977	10
1.2.6 Environmental Planning and Assessment Act 1979 [EP&A Act (1979)]	10
1.3 Authorship and Acknowledgement	11
2.0 ABORIGINAL CONSULTATION	12
2.1 Stage 1 - Notification of project proposal and registration of interest	12
2.2 Stage 2 - Presentation of information about the project	13
2.3 Stage 3 - Gathering information about cultural significance	13
2.4 Stage 4 - Review of draft Mandalong Southern Extension Project Heritage Impact Assessment report	13
3.0 ENVIRONMENTAL CONTEXT	16
3.1 Geology and Soils	16
3.2 Topography and Hydrology	17
3.3 Climate	17
3.4 Flora and Fauna	18
3.5 Environmental Synthesis	18
4.0 ABORIGINAL CULTURAL HERITAGE - BACKGROUND	19
4.1 Historic Records of Aboriginal Occupation	19
4.2 Regional Archaeological Heritage Context	19
4.3 Local Archaeological Heritage Context	20
4.3.1 Aboriginal Heritage Information Management System (AHIMS)	20
4.4 Previous Archaeological Investigations in the Southern Extension Area	22
4.5 Predictive Model	22
4.6 Synthesis	23
5.0 ABORIGINAL CULTURAL HERITAGE - FIELD SURVEY	24
5.1 Survey Methodology	24
5.2 Field Survey	25
5.3 Survey Outcomes	28

5.3.2	OEH Advice on rock cavities and overhangs	31
5.4	Interpretation of Field Results for Aboriginal Sites	34
5.5	Alluvial and Residual Landscapes	34
5.6	Mid Slope to Upper Slope Landscapes.....	34
5.7	Upper Slopes, Ridgelines and Crests	35
5.8	Synthesis of Survey Results.....	35
6.0	ABORIGINAL CULTURAL HERITAGE – SIGNIFICANCE ASSESSMENT	38
6.1	Aboriginal Cultural Significance.....	38
6.1.1	Method of Assessing Cultural Significance	38
6.1.2	Structure of the Cultural Significance Assessment Table	39
6.1.3	Outcome of the Cultural Mapping Workshop.....	39
6.2	Scientific Significance	39
6.2.1	Methodology-Assessment Criteria and Ranking System	39
7.0	ABORIGINAL CULTURAL HERITAGE SITES – IMPACT ASSESSMENT	43
7.1	Background	43
7.2	Impact Avoidance and Minimisation	43
7.2.1	Predicted Subsidence Effects.....	43
7.3	Potential Impacts	46
8.0	ABORIGINAL SITE IDENTIFICATION, MONITORING AND MANAGEMENT	53
8.1.1	Monitoring Protocols for Structurally Sensitive Sites (Grinding Grooves, Stone Arrangements & Rockshelters).....	54
8.2	Monitoring Protocols for Scarred Trees/Carved Trees	55
8.3	Monitoring Protocols for Artefact Scatters and Isolated Finds	55
9.0	OFFSET MEASURES	57
9.1	Access.....	57
9.2	Research	57
10.0	MANDALONG SOUTH SURFACE SITE.....	58
10.1	Archaeological Testing – Prior to Construction	58
10.2	Installation of Fencing	59
11.0	PRE-EXPLORATION PLANNING AND MITIGATION STRATEGIES TO AVOID HARM TO ABORIGINAL SITES	60
11.1	Consultation Requirements for Due Diligence Assessments	60
12.0	NON-INDIGENOUS CULTURAL HERITAGE - BACKGROUND	63
12.1	Historical Overview.....	63
12.2	Local History.....	63
12.3	Heritage Databases.....	64
12.3.1	World Heritage List	64
12.3.2	National Heritage Database.....	64
12.3.3	NSW Heritage Register	64
12.3.4	Local Government Heritage Registers	64

12.3.5	National Trust Register	65
12.4	Potential Non-Indigenous Heritage Items	65
12.4.1	Simpsons Track	65
12.4.2	Brisbane Waters to Wallis Plains Road	66
12.4.3	Forestry Heritage	66
13.0	NON-INDIGENOUS CULTURAL HERITAGE – ARCHAEOLOGICAL FIELD SURVEY	68
13.1	Field Survey	68
13.2	Non Indigenous Items Identified.....	68
13.2.1	Landing Skid1	68
13.2.2	Landing Skid 2	70
13.2.3	Landing Skid 3	70
13.2.4	Landing Skid 4	70
14.0	NON-INDIGENOUS CULTURAL HERITAGE - HISTORICAL THEMES AND SIGNIFICANCE ASSESSMENT	71
14.2	NSW State Heritage Criteria Significance Assessment	71
14.2.2	Conclusion of Significance Assessment.....	75
14.3	Outcome.....	75
15.0	NON-INDIGENOUS CULTURAL HERITAGE – IMPACT ASSESSMENT	76
16.0	NON-INDIGENOUS CULTURAL HERITAGE – MANAGEMENT.....	77
16.1	Sites	77
17.0	INTERGENERATIONAL EQUITY	78
18.0	CONCLUSION AND RECOMMENDATIONS.....	79
19.0	REFERENCES	82
20.0	PLATES	85

Tables

Table 1 - Mandalong Southern Extension Project – Director General's Requirements	3
Table 2 - Acknowledgements	11
Table 3 – Registered Aboriginal Parties contacted and who registered an interest.....	14
Table 4 - Project meetings and registered Aboriginal Party participation	14
Table 5 - AHIMS registered sites in the Southern Extension Area	20
Table 6 - Survey Areas and Team Leaders.....	25
Table 7 - Registered Aboriginal Parties who participated in the field survey	25
Table 8 - Survey Coverage.....	26
Table 9 - Aboriginal cultural heritage sites on AHIMS plus RPS sites recorded in Feb – May 2011	28
Table 10 - Site type and frequency.....	28
Table 11 - All Aboriginal cultural heritage sites recorded in the Southern Extension Area (GDA94 Zone 56)	29
Table 12 - Landform Units in the Southern Extension Area	34
Table 13 - Cultural Significance Criteria (developed from the Burra Charter with input by ATOAC and	

ADTOAC).....	38
Table 14 - Cultural Significance Assessment for each Site and Overall Assessment	39
Table 15 - Cultural significance ranking	39
Table 16 - Assessment of Scientific Significance Criteria	40
Table 17 - Overall Scientific Significance	40
Table 18 - Scientific Assessment Rating by Site type and characteristics	42
Table 19 – Predicted Subsidence Effects At Aboriginal Heritage Sites	44
Table 20 – Impact Potential Criteria for Aboriginal Heritage Sites	47
Table 21 – Predicted Subsidence Impacts At Aboriginal Heritage Sites.....	48
Table 22 - Historical themes.....	71
Table 23 - Significance assessment for non-Indigenous heritage using the NSW State heritage significance criteria	73

Figures

Figure 1 - Project Application Area.....	7
Figure 2 - Southern Extension Area - Mine Plan and Surface Facility Footprints	8
Figure 3 : Local Aboriginal Land Councils and Mandalong Southern Extension Area.....	15
Figure 4 - Location of AHIMS Sites	21
Figure 5 - Detail of Areas Surveyed	27
Figure 6 - Aboriginal cultural heritage sites and Southern Extension Area Mine Plan.....	33
Figure 7 - Landform Units and AHIMS Sites	37
Figure 8 – Centennial owned land and Aboriginal cultural heritage sites	52
Figure 9 - Aboriginal cultural heritage sites in the vicinity of the Mandalong South Surface Area.....	62
Figure 10 : Non-Indigenous cultural heritage sites in the Southern Extension Area.....	69

Appendices

Appendix 1	Aboriginal Consultation Log and Documents
Appendix 2	AHIMS Report
Appendix 3	Aboriginal Sites – Cultural Significance Assessment
Appendix 4	Aboriginal Sites – Scientific Significance Assessment
Appendix 5	Registered Aboriginal Parties Responses

Aboriginal Statement of Significance

The following statements of Aboriginal cultural significance have been prepared by the Registered Aboriginal Parties that participated in the preparation of this report. The statements of Aboriginal cultural significance have been included at the beginning of this report to ensure that all readers are aware that the Lake Macquarie and Central Coast regions, particularly the land in which this assessment was undertaken is of cultural and spiritual significance to the Aboriginal people.

Awabakal Traditional Owners Aboriginal Corporation (ATOAC)

“The Awabakal iconic landmarks feature prominently within its surrounding landscape. This regions mythology, mystery and organic presence that are quite simply, uniquely Awabakal still to this day has an undeniable amount of fascination and attention regarding its cultural value and purpose. The Centennial Coal Mining Project areas are also included within the Awabakal landscape.

The Awabakal Traditional Owners have a personalised and ever-revitalised bond with our ancestors’ culture, tradition & heritage. This inexplicable connection is reverberated within the surrounding landscape of the Awabakal region.

Additionally, we appreciate our unique role and responsibility for the care and protection of the integrity of this landscape, for and on behalf of its original First Peoples and their descendants.

We would like to take this opportunity to assert our focus on the critical flow of intergenerational equity and aim to ultimately safeguard the immeasurable life-changing impact to this and future generations. Intergenerational equity lays the foundation for identifying, assessing, protecting and maintaining the important cultural and heritage values of landscapes, resources, places, objects, customs and traditions so that we, and generations to come, can enjoy, learn from them, and appropriately manage these values

We believe that the principles of the Awabakal tradition and culture still exist today to keep intact the moral and spiritual fibre of this land. Equally, we also believe it is essential to nurture new visions that are inspired by the cultural integrity of our ancestral family and we are encouraged that so many people in the region are focused on gaining an ever growing respect and understanding for the Awabakal Peoples, this land and environment.

This land has had a wealth of knowledge walk over it, with each one of us deepening the footprints of our ancestral family, the Awabakal People”

(Quote from statements by Awabakal Traditional Owners Aboriginal Corporation and speeches by Nola Hawken, Awabakaleen Elder. Copyright, 2010).

Awabakal Descendants Traditional Owners Aboriginal Corporation (ADTOAC)

“This area, as part of what is the Traditional Awabakal Country, is considered by our People to be of great importance within our Cultural Heritage. There are a variety of reasons our People have benefited from using this location over thousands of years.

One of the earliest documented accounts of the importance of the areas around Lake Macquarie for the Awabakal is attributed to the Rev. L.E. Threlkeld. For us, this area has not just a physical presence within the Cultural Heritage of our People but it is part of our oral history and incorporates places of spiritual significance. The landforms and resources of this locale fulfilled not just the basic needs that underpinned our Peoples subsistence but also satisfied the many other aspects that made up what can only be described here as being part of the very cultural foundations of our People.

Needless to say, our People have had a long history within this area which is unsurpassed. Our apical Ancestor, Mahrahkah, an Awabakal woman and her two daughters were recorded by the Reverend L.E.Threlkeld and Jonathan Warner as living in and around these areas which all formed part of their Traditional Country. This apart from everything else makes it a very important location for our family, knowing that Mahrahkah walked these areas before any

white man was ever seen in the Newcastle and Lake Macquarie region. She was intrinsically acquainted with her Land and she has left a legacy for us to carry on in this day and age and to pass onto our Descendants.

This area is of very high significance to the Awabakal and therefore it would be expected that after many generations of our People that have walked the pathways of their Ancestors it should be obvious there would be many areas that contain evidence of this connection resulting from thousands of years of occupation on varying levels by our People. Traditionally these areas were the supply of rich resources of which our People have depended on over millennia. There are physical reminders left by our Ancestors, some in the form of middens, scarred trees or stone tools (artefacts) and grinding grooves which provide us as Descendants of the Awabakal People an opportunity to make a connection through time with our Ancestors. This connection is manifest in a variety of ways; one is through the physical senses such as knowing we are seeing where they lived or touching what they used. By holding or touching something our Ancestors handled, something they made, possibly many thousands of years previously, gives rise to a sense of perception, appreciation, familiarity and recognition of who we are and reinforces where we belong and our birthright as Awabakal Descendants".

(Shane Frost, Managing Director – Awabakal Descent Traditional Owner Aboriginal Corporation March 2012)

Bahtabah Local Aboriginal Land Council

"We acknowledge the Elders past and present and the Aboriginal people who are the traditional custodians of the Mandalong area. Aboriginal people have utilised this area for their cultural, spiritual and ceremonial purposes. The Mandalong landscape is covered with the traditions and customs of Aboriginal people and the flora and fauna that inhabit these areas have a special significance to the Aboriginal people of the Mandalong area. The Aboriginal people of Mandalong took a holistic approach to incorporate the environment into their way of life.

Today, the Bahtabah Local Aboriginal Land Council our sites officers that participate in the recording of sites for this management plan are still working to protect our cultural heritage sites to ensure that the Aboriginal traditional and customary values of Mandalong are sustainable for the current and future generations to enjoy".

(Michael Green CEO Bahtabah Local Aboriginal Land Council 2012)

Darkinjung Local Aboriginal Land Council

"To the Darkinjung people, the significance of the Mandalong area lies within the landscape, the hills, valleys, creeks and rivers, including areas surrounding an Aboriginal cultural heritage site. These places can be seen in a spiritual sense and is very important to them. The landscape can be an extension of a site, or the landforms and features within the landscape can be the Aboriginal cultural heritage site. These sites can also be connected intangibly through sight lines or connected through walking and trading tracks, including dreaming tracks to other sites or places of significance. These features are all part of the Darkinjung cultural landscape.

Darkinjung cultural heritage sites, sight lines, walking, trading tracks and dreaming tracks are associated with stories. These stories connect sites with other sites across Darkinjung country and beyond and could have been utilised and handed down over hundreds of years. The spiritual and cultural connection that the Darkinjung people have to the land, cultural heritage sites and the cultural landscape provides a physical and intangible link to ancestors and the past. This connection attaches the Aboriginal community to land, traditions and strengthens bonds within the Darkinjung Aboriginal community."

(Sharon Hodgetts Project Officer Culture and Heritage and Suzanne Naden Operations Manager Darkinjung Local Aboriginal Land Council 5th October 2012)

Westlakes Aboriginal Community (WLAC)

“The area in which the Aboriginal Heritage Assessment is to be conducted is located in the Tribal Country of our people. The area is significant because our people have been the custodians of this Country for thousands of years, our people have hunted the land and fished the waters in traditional way that has been passed down through the centuries. The area is in close proximity to significant sites that was used by our people. There are many sites located within the surrounding area which proves our spiritual connection to Country”.

(Margaret Harvey CEO Awabakal Local Aboriginal Land Council 2012 for (WLAC).

Executive Summary

RPS Australia East Pty Ltd (RPS) has been engaged by Centennial Mandalong Pty Ltd (Centennial Mandalong) to undertake a Heritage Impact Assessment (HIA) as part of an Environmental Impact Statement (EIS) for the proposed Mandalong Southern Extension Project (the Project). Centennial Mandalong is seeking approval under Part 4 Division 4.1 of the Environmental Planning and Assessment Act 1979 with the long term objective of optimising resource recovery from the Mandalong Mine within the proposed Southern Extension Area and to provide ongoing employment opportunities both directly and indirectly.

The Project aim is for the extension of mining operations into exploration licence EL 6317 using a combination of continuous miner and longwall mining methods. The process will extract up to 6 million tonnes per annum (Mtpa) of run of mine (ROM) coal from within the current mining lease areas and the area covered by EL 6317. The Southern Extension Area covers approximately 45 square kilometres in the southern section of the Lake Macquarie and northern section of the Wyong Local Government Areas (LGA).

This assessment included both Aboriginal and non-Indigenous cultural heritage. Desktop research for Aboriginal cultural heritage sites was followed by a five week survey in 2011 by a team of archaeologists in conjunction with the Registered Aboriginal Parties. The survey resulted in 93 new Aboriginal cultural heritage sites being recorded. Desktop research and survey for non-Indigenous heritage sites found no sites of state or local significance recorded in the area. However, the survey did record five items associated with early timber getting in the Southern Extension Area.

This HIA supports the development application by undertaking the following:

- Background research to identify the statutory requirements relevant to the Project (Section 1.0);
- Consultation with the Aboriginal community and relevant parties in accordance with requirements (Section 2.0);
- Literature review of previous archaeological studies relevant to the Southern Extension Area [Section 4.0 (Aboriginal) and Section 12.0 (Non-Indigenous)];
- Conduct a current search of the Aboriginal Heritage Information Management System database (Section 4.3);
- Field surveys [Section 5.0 (Aboriginal) and 13.0 (Non-Indigenous)];
- Baseline inventory of all Aboriginal heritage sites inside the Southern Extension Area (Section 5.3 - Table 11);
- An assessment of cultural heritage items within the Southern Extension Area [Section 6.0 (Aboriginal) and Section 14.0 (Non-Indigenous)]; and
- The identification of mitigation measures together with recommended management strategies to minimise the impacts to identified Aboriginal and/or European heritage items, including an evaluation of the effectiveness and reliability of those measures [Section 8.0 (Aboriginal) and Section 15.0 (Non-Indigenous)].

With regard Aboriginal cultural heritage sites at the conclusion of the above process it has been assessed that 13 Aboriginal heritage sites (12% of known sites) are 'likely' to be impacted by the Project and 15 (13%) may 'possibly' be impacted by the Project. The remaining 85 (75%) Aboriginal heritage sites are unlikely or very unlikely to be impacted by the Project.

With regard non-Indigenous heritage it is considered that all items recorded are of low local heritage significance. There is only one item, a Landing Skid (L2) which is in the vicinity of the surface works

associated with the construction of the Mandalong South Surface Site; if this item cannot be avoided then it should be archivally recorded before its removal.

Based on the outcome of the impact assessment to Aboriginal and European sites, the following recommendations have been provided:

Aboriginal Cultural Heritage

Recommendation 1

Archaeological testing is required in Areas A, B and C prior to the construction of the Mandalong South Surface Site and access road.

Recommendation 2

A combination of silt and protective fencing be installed prior to and/or during the construction of the Mandalong South Surface Site to ensure that run-off does not impact Aboriginal sites down slope of this area and that Aboriginal sites upslope are not inadvertently impacted by construction activities.

Recommendation 3

If further Aboriginal site(s) are identified in the Southern Extension Area, any surface works in the area should cease and a suitably qualified archaeologist and representatives from the Registered Aboriginal Parties contacted, so that it can be adequately assessed and managed.

Recommendation 4

With regard small areas of land unable to be accessed by RPS for field surveys due to lack of landowner access agreements. Prior to mining activities occurring under those areas Centennial Mandalong should make further attempts to obtain access for field surveys to be undertaken by a suitably qualified archaeologist and representatives from the Registered Aboriginal Parties. Any new sites located should be recorded as required under legislation and monitored and managed in accordance with the protocols detailed in the Aboriginal Cultural Heritage Management Plan (RPS 2012).

Recommendation 5

Prior to the commencement of exploration drilling, Centennial Mandalong must ensure that the OEH Due Diligence Code of Practice is followed prior to the commencement of any onsite works. It is recommended that proposed drilling locations and associated access tracks be inspected according to the protocols in the Centennial's Northern Holdings ACHMP which adheres to the requirements of the OEH Due Diligence Code of Practice and has been developed in consultation with the Registered Aboriginal Parties.

Recommendation 6

If human remains are identified; all works must halt in the immediate area and the NSW Police are to be contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Environment Line on 131555 and representatives of the local Aboriginal community. No work may proceed prior to the proponent having received written notification from OEH.

Non-Indigenous Heritage

Recommendation 7

If it is not possible to avoid impact on Landing Skid (L2) the skid should be archivally recorded by a qualified historical archaeologist prior to impact.

Recommendation 8

In the event that any non-Indigenous cultural heritage material is identified or uncovered during development works, any surface works in the area should cease in the area and a heritage consultant must be contacted to assess the condition of the item. Centennial Mandalong must adopt the appropriate mitigation measures, as provided by the heritage consultant, before work may recommence.

General

Recommendation 9

All relevant Centennial Mandalong employees and contractors working within the Southern Extension Area should be made aware of their statutory obligations for heritage under NSW NPW Act (1974) and the NSW Heritage Act (1977), which may be implemented as a heritage induction.

Recommendation 10

Centennial Mandalong must implement the offset strategy, as detailed in Section 9 of this Heritage Impact Assessment.

Recommendation 11

All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with Centennial's Northern Holdings ACHMP (RPS 2012). The ACHMP should be implemented and updated where required to take into consideration the commitments made in this heritage assessment and any subsequent conditions of approval.

Acronyms and Units

ACHCRs	Aboriginal Cultural Heritage Consultation Requirements
ADTOAC	Awabakal Descendants Traditional Owners Aboriginal Corporation
ALRA 1983	<i>Aboriginal Land Rights Act (1983)</i>
AHIMS	Aboriginal Heritage Information Management System
ATOAC	Awabakal Traditional Owners Aboriginal Corporation
BP	Before Present
CCC	Cacatua Cultural Consultants
CPP	Coal Preparation Plan
DA	Development Application
DLALC	Darkinjung Local Aboriginal Land Council
DoP	Former Department of Planning (now part of DP&I)
DP&I	Department of Planning and Infrastructure
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EP&A Act (1979)	Environmental Planning and Assessment Act 1979
HIA	Heritage Impact Assessment
ILUA	Indigenous Land Use Agreement
KLALC	Koompahtoo Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LW	Longwall
Mtpa	Million Tonnes Per Annum
NTA 1993	Native Title Act (1993)
NSW NPW Act (1974)	New South Wales National Parks and Wildlife Act (1974, as amended)
OEH	Office of Environment and Heritage
PAD	Potential Archaeological Deposit
REF	Review of Environmental Factors
ROM	Run of Mine
SHR	State Heritage Register
SREA	Southern Reject Emplacement Area
SMP	Subsidence Management Plan
WLAC	West Lakes Aboriginal Community
YPEAHC	Yula-Punaal Education and Healing Aboriginal Corporation

1.0 Introduction

RPS Australia East Pty Ltd (RPS) has been engaged by Centennial Mandalong Pty Ltd (Centennial Mandalong) to undertake a Heritage Impact Assessment (HIA) as part of an Environmental Impact Statement (EIS) for the proposed Mandalong Southern Extension Project (the Project).

Mandalong Mine is an existing underground longwall coal mining operation located approximately 130 kilometres north of Sydney near Morisset, NSW. The currently approved Mandalong Mine comprises the underground workings and surface infrastructure of the following:

- The Mandalong Mine Access Site encompassing underground workings and associated surface infrastructure near Morisset;
- The Cooranbong Entry Site encompassing a coal delivery system and surface infrastructure near Dora Creek; and
- The Delta Entry Site encompasses a coal delivery system, near Wyee at the Vales Point Rail Unloader Facility.

Mandalong Mine is operated by Centennial Mandalong, a wholly owned subsidiary of Centennial Coal Company (Centennial). Centennial is a wholly owned subsidiary of Banpu Public Company Limited (Banpu).

1.1 Project Overview

Centennial Mandalong is seeking approval for the Mandalong Southern Extension Project (the Project) under Part 4 Division 4.1 of the *Environmental Planning and Assessment Act 1979* [EP&A Act (1979)]. In short, the Project proposes to extend Mandalong Mine's existing underground mining operations into the area covered by exploration licence EL 6317 in order to access, develop and extract additional coal reserves identified within the West Wallarah Seam and Wallarah-Great Northern Seam at a rate of up to six million tonnes per annum (Mtpa) of run-of-mine (ROM) coal. Among other things, the Project also proposes to continue the utilisation of existing surface infrastructure integral to the mining operation in terms of coal delivery, handling and transport, and install new surface infrastructure to service the extended mining operation.

Specifics of the Project include, but are not limited to, the following:

- Continue the Mandalong Mine underground mining operations into the area covered by EL 6317 using a combination of continuous miner and longwall mining methods;
- Continue to utilise the existing surface infrastructure of the Mandalong Mine Access Site and Delta Entry Site;
- Install and operate additional surface infrastructure for mine ventilation, storage and underground delivery of stone dust, concrete and ballast, hydrocarbon storage, electrical reticulation, water reticulation, water management, communications and other ancillary services and activities;
- Undertake ongoing exploration drilling activities within the bounds of Centennial Mandalong's mining leases and exploration licences; and
- Increase the life of the mine to 25 years from the granting of a mining lease(s) of EL 6317.

The Project Application Area (**Figure 1**), which is on the western side of Lake Macquarie within both the Lake Macquarie and Wyong Local Government Areas (LGA), includes:

- The existing Mandalong Mine Access Site encompassing underground workings and associated surface infrastructure near Morisset;
- The existing Delta Entry Site encompassing a coal delivery system near Wyee at the Vales Point Rail Unloader Facility;
- The extent of existing approved workings of the Mandalong Mine and Cooranbong Entry Site for water

management, mine ventilation, men and materials access and delivery of coal;

- The proposed Mandalong Southern Extension Project mining area within EL 6317 (Southern Extension Area); and
- The proposed new surface facilities site for the Mandalong Southern Extension mining area (Mandalong South Surface Site).

The footprint of the proposed mine plan encompasses 40 longwall panels (LWs 25 to 64), ranging in length between approximately 1,000 and 3,500 metres, and 160 and 200 metres in width (dependant on seam conditions and site constraints). The proposed mine plan, together with the surface facility footprint, is shown in **Figure 2**.

For the purposes of this report, the Southern Extension Area is shown in **Figure 2** and is been defined as:

- The proposed Mandalong Southern Extension Project mining area within EL 6317; and
- The proposed new Mandalong South Surface Site (surface facilities site for the Mandalong Southern Extension mining area).

The Director-General's Requirements (DGRs) and the environmental assessment requirements of other government agencies consulted for the Project, together with the relevant section of this report in which they are addressed, are outlined in **Table 1**.

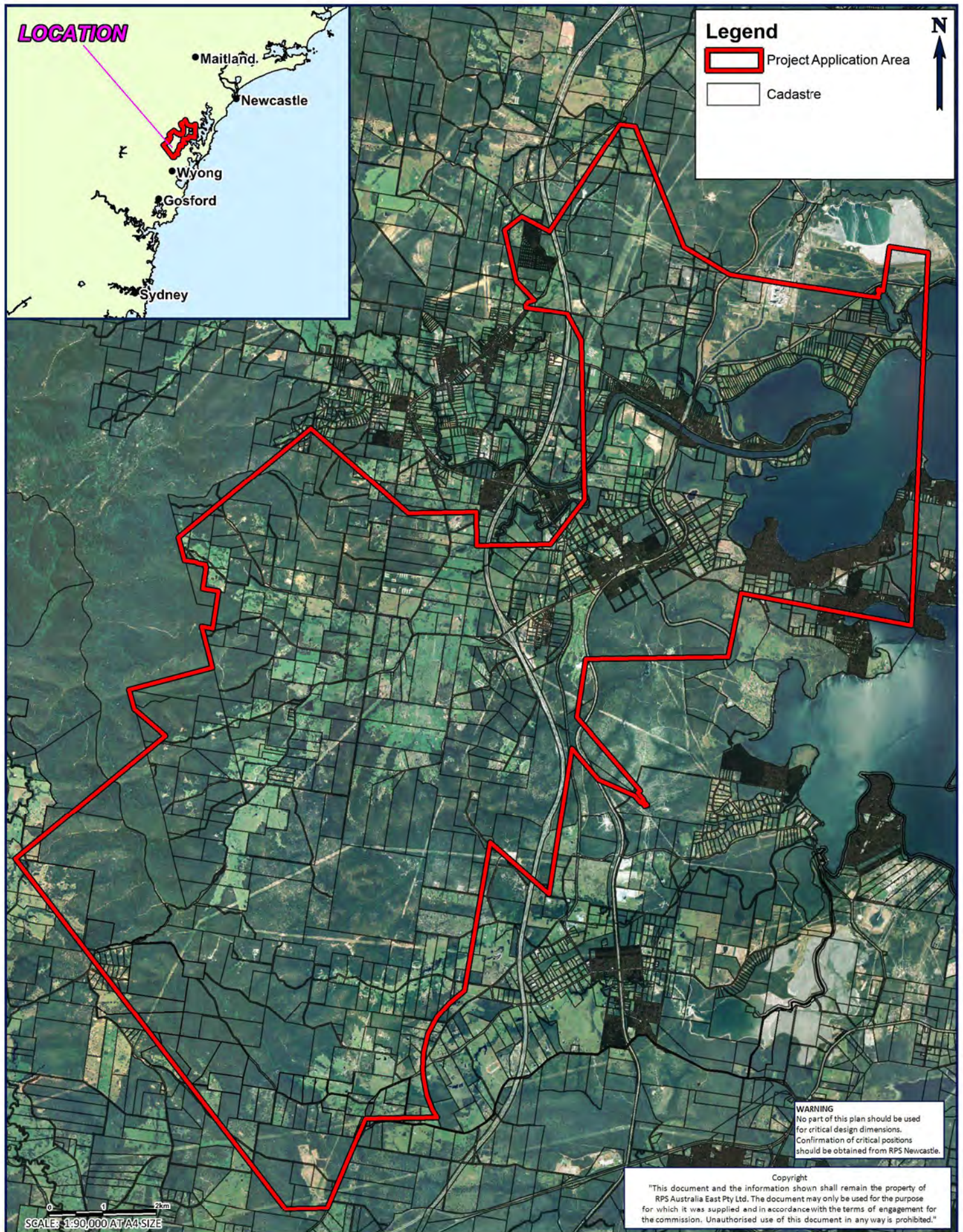
Table 1 - Mandalong Southern Extension Project – Director General's Requirements

Agency	Requirements	Addressed in this Report
Director-General	Heritage - including an assessment of impacts on Aboriginal cultural heritage and Historic heritage, including: Aboriginal cultural heritage assessment (including both cultural and archaeological significance) which must: ▪ Demonstrate effective consultation with Aboriginal communities in determining and assessing impacts, and developing and selecting mitigation options and measures;	Section 2.0
	▪ Outline any proposed impact mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures);	Section 7.0; Section 8.0
	Historic heritage assessment (including archaeology) which must: ▪ Include a statement of heritage impact (including significance assessment) for any state significant or locally significant historic heritage items; and	No sites of local or state significance, Section 14
	▪ Outline any proposed mitigation and management measures (including an evaluation of the effectiveness and reliability of the measures).	No sites of significance however Section 15 addresses recommended mitigation and management measures
Environment Protection Authority	Aboriginal Cultural Heritage The EPA notes the existence of numerous registered Aboriginal sites in the regional locality. It is recommended that the proponent consider any potential impacts of the proposal on these known sites, the sensitivity and significance of these sites to the traditional Aboriginal knowledge holders and any relationship that may exist between these sites and any Aboriginal cultural heritage values of the project area. Impacts of the project on Aboriginal cultural heritage values Standard requirements:	
	▪ The EIS must address and document the information requirements set out in the draft 'Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation' (Department of Environment and Conservation, 2005);	Section 2.0
	▪ The EIS must include surveys by suitably qualified archaeological consultants in consultation with all of the local Aboriginal knowledge holders;	Section 5.0
	▪ The EIS should identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area and clearly articulate strategies proposed to avoid/minimise these impacts. If impacts are proposed as part of the final development, clear justification for such impacts should be provided;	Section 7.0

Agency	Requirements	Addressed in this Report
	The EIS must assess and document the archaeological and Aboriginal significance of the site's Aboriginal cultural heritage values;	Section 6.0
	Describe the actions that will be taken to avoid or mitigate impacts of the project on Aboriginal cultural heritage values. This must include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented. Any proposed methodology for Aboriginal cultural heritage investigation should reflect best practice standards recommended by the EPA in the 'Code of Practice for Archaeological Investigations of Objects in New South Wales (2010)';	Section 8.0
	The EIS must provide documentary evidence to demonstrate that effective community consultation with Aboriginal communities has been undertaken in assessing impacts, developing protection and mitigation options and making final recommendations. The EPA supports broad-based Aboriginal community consultation and as a guide the EPA's 'Aboriginal cultural heritage consultation requirements for proponents 2010' provides a useful model to follow;	Section 2.0
	If impacts on Aboriginal cultural heritage values are proposed as part of the final development, an assessment of the proposed impacts in the context of 'inter generational equity' and cumulative impact must be undertaken. This assessment must examine both cultural and archaeological perspectives equally at both the local and regional levels, with consideration given to the site level and broader landscape level. <i>Note: If the EIS is relying on past surveys, it is critical to confirm that the surveys are consistent with the requirements of the above State Significant development guidelines. Further, whilst there may be no requirement for obtaining an Aboriginal Heritage Impact Permit (AHIP) under Part 6 of the National Parks and Wildlife Act 1974 (NPVV Act) for projects approved under the State Significant Development requirements of the Environmental Planning and Assessment Act 1979, there are other sections of the NPW Act which remain valid. This includes the requirement to obtain a Care Agreement for salvaged objects (Section 85) and reporting to the EPA on the status of new or impacted Aboriginal sites (Section 89A).</i>	Section 6.0, Section 7.0 and Section 17.0
	Notes: - An Aboriginal Site Impact Recording Form must be completed and submitted to the AHIMS Registrar, for each AHIMS site that is harmed through archaeological investigations required or permitted through these environmental assessment requirements. - Under section 89A of the National Parks and Wildlife Act 1974, it is an offence for a person not to notify the EPA of the location of any Aboriginal object the person becomes aware of, not already recorded on the Aboriginal Heritage Information Management System (AHIMS). An AHIMS Site Recording Form should be completed and submitted to the AHIMS Registrar for each Aboriginal site found during investigations.	
Forests NSW	No heritage requirements	-
Heritage Council of NSW	The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site;	Section 6.0 (Aboriginal) & Section 14.0 (non-Indigenous)
	The Heritage Council maintains the State Heritage Inventory which lists some items protected under the Heritage Act, 1977 (e.g. listed on the NSW State Heritage Register) and other statutory instruments. This register can be accessed through the Heritage Office home page;	Section 12.3

Agency	Requirements	Addressed in this Report
	It should be noted that the legal standing of items listed on the State Heritage Register can also be provided by applying for a section 167 Certificate through the Heritage Branch home page;	NA
	You should consult lists maintained by the Office of Environment & Heritage, the National Trust of Australia (NSW), the Australian Government under the Environment Protection and Biodiversity Conservation Act 1999 and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed;	Section 12.0
	Non-Aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual. The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience;	Section 13.0
	The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures;	Section 2.0, Section 7.0 & Section 8.0
	Where possible refer to archaeological zoning plans or archaeological management plans held by Local Councils.	-
Lake Macquarie City Council	Heritage (SSD 5142, SSD 5144)	
	Assessment of all listed European heritage items and potential and provisional heritage items;	Section 12.3
	Identification and assessment of all Aboriginal significant sites;	Section 4.3, Section 6.0
	The Statement of Heritage Impact should include management recommendations for potential impacts of subsidence and extraction and other new work for items of European and Aboriginal heritage significance;	NA
	Management and mitigation measures are to be prepared in accordance with the relevant policies, consultation requirements, assessment standards and methodologies;	NA
Mine Subsidence Board	No heritage requirements	-
Department of Primary Industry	No heritage requirements	-
Division of Resources & Energy	No heritage requirements	-

Agency	Requirements	Addressed in this Report
Road and Maritime Services	No heritage requirements	-
Wyong Shire Council	The potential impact on Aboriginal and non-Aboriginal heritage should be considered and appropriate consultation undertaken.	Section 7.0 (Aboriginal)& Section 15.0 (Non-Indigenous)



TITLE: FIGURE 1: LOCATION

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

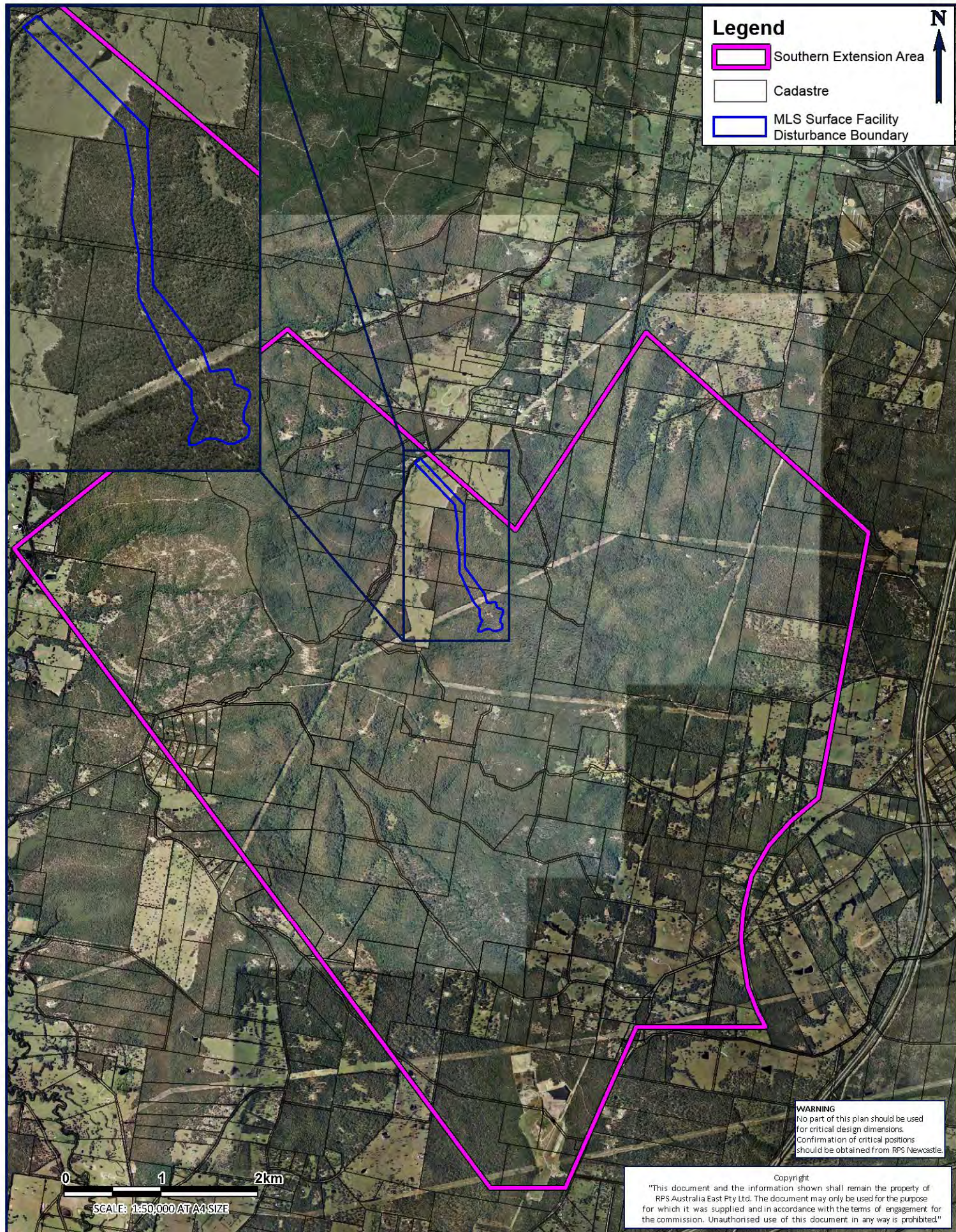
DATE: 6/02/2013
PURPOSE: HERITAGE

LAYOUT REF: I:\JOBS\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): D A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS



TITLE: FIGURE 2: SOUTHERN EXTENSION
AREA AND SURFACE
FACILITY FOOTPRINT

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 6/02/2016
PURPOSE: HERITAGE

LAYOUT REF: J:\08\S\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY) D A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

1.2 Legislative Context

Aboriginal heritage (places, sites and objects) in NSW are protected by the National Parks and Wildlife Act (1974, as amended) [NPW 1974]. In some cases, Aboriginal heritage may also be protected under the Heritage Act (1977), the Environmental Planning and Assessment Act (1979) [EP&A Act 1979] and other environmental planning instruments, which triggers the requirement for the investigation and assessment of Aboriginal heritage as part of the development approval process. For Crown Land, provisions under the Aboriginal Land Rights Act (1983) [ALRA 1983] and the Native Title Act (1993) [NTA 1993] may also apply.

1.2.1 Aboriginal Land Rights Act (1983)

The purpose of this legislation is to provide land rights for Aboriginal people within NSW and to establish Local Aboriginal Land Councils (LALCs). The land able to be claimed by LALCs, on behalf of Aboriginal people, includes Crown Land that (s36):

- Is able to be lawfully sold, leased, reserved or dedicated;
- Is not lawfully used or occupied;
- Does not comprise lands which, in the opinion of the Crown Lands Minister, are needed or are likely to be needed for residential purposes;
- Are not needed, nor likely to be needed for an essential public purpose;
- Does not comprise land under determination by a claim for native title; and
- Is not the subject of an approved determination under Native Title.

Claims for land are by application to the Office of the Registrar, Aboriginal Land Rights Act (1983).

1.2.2 Native Title Act (1993)

The Commonwealth Government enacted the Native Title Act (1993) to formally recognise and protect native title rights in Australia following the decision of the High Court of Australia in *Mabo & Ors v Queensland* (No. 2) (1992) 175 CLR 1 ("Mabo").

Although there is a presumption of native title in any area where an Aboriginal community or group can establish a traditional or customary connection with that area, there are a number of ways that native title can be extinguished. For example, land that was designated as having freehold title prior to 1 January 1994 extinguishes native title, as does any commercial, agricultural, pastoral or residential lease. Land that has been utilised for the construction or establishment of public works also extinguishes any native title rights and interests for as long as they are used for that purpose. Other land tenure, such as mining leases, may be subject to native title depending on when the lease was granted.

1.2.2.1 Indigenous Land Use Agreement under the Native Title Act

An Indigenous Land Use Agreement (NIA2000/001) between Power Coal Pty Ltd, Victor Perry, Stephen Seiver & NSW Aboriginal Land Council occurs over an area approximately eight kilometres to the north of and outside the Mandalong Southern Extension Area but within the Project Application Area. National Parks and Wildlife Act (1974, as amended)

1.2.3 National Parks and Wildlife Act (1974)

The NSW Government is working toward standalone legislation to protect Aboriginal cultural heritage - a significant reform for NSW. The first stage of this work has been completed and includes significant changes in relation to this commission. The primary State legislation relating to Aboriginal cultural heritage in NSW is the NPW Act (1974, as amended). The legislation is overseen by the Office of Environment and Heritage

(OEH) (formerly part of the Department of Environment, Climate Change and Water, DECCW) and specifically the Director-General of the OEH. Changes to the NPW Act made effective on 1 October 2010 include:

- Increased penalties for Aboriginal heritage offences, in some cases from \$22,000 up to \$1.1 million in the case of companies who do not comply with the legislation;
- Ensuring companies or individuals cannot claim 'no knowledge' in cases of serious harm to Aboriginal heritage places and objects by creating new strict liability offences under the Act;
- Introducing remediation provisions to ensure people who illegally harm significant Aboriginal sites are forced to repair the damage, without need for a court order; and
- Unites Aboriginal heritage permits into a single, more flexible permit and strengthens offences around breaches of Aboriginal heritage permit conditions.

1.2.4 National Parks and Wildlife Regulation (2009)

The National Parks and Wildlife Regulation 2009 provides a framework for undertaking activities and exercising due diligence in respect to Aboriginal heritage. The *Regulation* (2009) outlines the recognised due diligence codes of practice, as well as procedures for Aboriginal Heritage Impact Permit (AHIP) applications and Aboriginal Cultural Heritage Consultation Requirements (ACHCRs); amongst other regulatory processes.

1.2.5 Heritage Act 1977

Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the Heritage Act (1977) (as amended 1999) and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order. Certain types of historic Aboriginal sites may be listed on the SHR or be subject to an active Interim Heritage Order; in such cases they would be protected under the Heritage Act (1977) and may require approvals or excavation permits from the NSW Heritage Branch.

1.2.6 Environmental Planning and Assessment Act 1979 [EP&A Act (1979)]

This Act regulates a system of environmental planning and assessment for NSW. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage. Within the EP&A Act (1979), Parts 3, 4 and 5 have provisions relating to Aboriginal heritage.

Part 3 regulates the preparation of planning policies and plans. Part 4 governs the manner in which consent authorities may determine development applications and outlines those that require an EIS. Part 5 regulates the government agencies that act as determining authorities for activities conducted by that agency or by authority from the agency. The National Parks & Wildlife Service comes under the authority of Part 5 of the EP&A Act (1979). As advised above, the NPW Act provides protection for Aboriginal objects or places, while the EP&A Act (1979) ensures that Aboriginal cultural heritage is properly assessed in land use planning and development.

1.3 Authorship and Acknowledgement

This report was prepared by Laraine Nelson, Senior Archaeologist (Aboriginal Cultural Heritage) and Sarah Ward, Senior Archaeologist (Non-Indigenous Heritage). The final review was conducted by Tessa Boer-Mah, Newcastle Cultural Heritage Manager. The project team wishes to acknowledge the assistance of the following individuals in preparing this report.

Table 2 - Acknowledgements

Organisation	Name
Awabakal Descendants Traditional Owners Aboriginal Corporation	Shane Frost
Awabakal Traditional Owners Aboriginal Corporation	Kerrie Brauer
Bahtabah Local Aboriginal Land Council	Michael Green
Darkinjung Local Aboriginal Land Council	Sharon Hodgetts
Guringai Tribal Link	Tracey Howie
Yula-Punaal Education and Healing Aboriginal Corporation	Deborah Swan

2.0 Aboriginal Consultation

The purpose of Aboriginal community consultation is to provide an opportunity for the relevant Aboriginal parties to have input into the heritage management process. OEH encourages consultation with Aboriginal people for matters relating to Aboriginal heritage. Frameworks for Aboriginal community consultation have been developed to be implemented in accordance with the relevant sections of the EP&A Act (1979) where applicable and the NPW Act (1974) including Aboriginal Cultural Heritage Consultation Requirements (ACHCRs).

Centennial Mandalong has conducted consultation with the Aboriginal community for the Mandalong Southern Extension Project since 2010. Initial meetings were held in early 2010 with representatives from the LALCs whose boundaries overlap the Southern Extension Area to introduce the Project and Project Team and seek any initial feedback on the significance of the area. The following details the four stage consultation process required under the ACHCR. Table 3 identifies those parties who registered while Table 4 records participation in the consultation process.

It should be noted that Koombahtoo Local Aboriginal Land Council, representing the Aboriginal community of western Lake Macquarie, was formally dissolved by the Minister for Aboriginal Affairs in March 2010. Following this the community was represented by West Lakes Aboriginal Community administered in the first instance by the NSW Aboriginal Land Council and later by the Awabakal Local Aboriginal Land Council. In 2013, after the consultation process for this EIS, the new Biraban Local Aboriginal Land Council was appointed.

Full details on the consultation undertaken for the Project with the Registered Aboriginal Parties are provided in **Appendix 1** with response to draft the Mandalong South Extension Project Heritage Impact Assessment at **Appendix 5Appendix 2**.

2.1 Stage 1 - Notification of project proposal and registration of interest

In July 2010, formal consultation processes were initiated in accordance with the ACHCRs (DECCW 2010) with regards to this Project. On 7 July 2010, letters requesting the identification of Aboriginal groups to be contacted by Centennial Mandalong regarding the Aboriginal consultation process were mailed to DECCW, Hunter Central Rivers Catchment Authority, NSW Aboriginal Land Council (on behalf of the West Lakes Aboriginal Community), Lake Macquarie City Council, National Native Title Tribunal, Native Title Services Corporation Limited, Registrar of Aboriginal Owners, Wyong Shire Council, Darkinjung LALC and Bahtabah LALC. Each Aboriginal party identified through this process was contacted by letter (13 August 2010) inviting a registration of interest for the Project consultation process. In addition, an advertisement was placed in the Lakes Mail (29 July 2010) seeking expressions of interest from Aboriginal parties for the Southern Extension Area. **Table 3** records all Aboriginal groups identified through the ACHCR process (DECCW 2010) and who registered an interest in participating in the consultation process.

A meeting with the Registered Aboriginal Parties in November 2010 identified Guringai Tribal Link as a potential additional Aboriginal party that should be contacted and invited to participate in the consultation process for the Project. Guringai Tribal Link had not been identified through the implementation of the ACHCRs. Guringai Tribal Link was contacted by letter (17 December 2010) inviting their participation in the consultation process for the Project, this invitation was accepted (email 21 December 2012). The inclusion of Guringai Tribal Link resulted in nine Registered Aboriginal Parties.

2.2 Stage 2 - Presentation of information about the project

In December 2010, a draft Aboriginal Community Consultation Strategy for the Project was developed and distributed to all Registered Aboriginal Parties for comment. Comments were received from: the Awabakal Descendants Traditional Owners Aboriginal Corporation (ADTOAC); Awabakal Traditional Owners Aboriginal Corporation (ATOAC); and the Darkinjung LALC. Following feedback from the Registered Aboriginal Parties on the draft Aboriginal Community Consultation Strategy, the Strategy was finalised, incorporating where appropriate any feedback or comments received. The document was distributed to all Registered Aboriginal Parties (April 2011). **Table 4** documents the Project Meetings and registered Aboriginal Party participation.

Field surveys over the Southern Extension Area were undertaken in conjunction with a number of the Registered Aboriginal Parties. These surveys commenced on 28 February 2011 and continued until 9 May 2011. **Table 7** identifies the groups who participated in the field surveys for the Project. At the completion of the surveys, a field visit was scheduled (8 November 2011) with all Registered Aboriginal Parties invited to attend. This field visit provided an opportunity for Registered Aboriginal Parties who did not participate in the field surveys, or those who were involved in a different survey team, to inspect some of the Aboriginal heritage sites that were identified.

2.3 Stage 3 - Gathering information about cultural significance

Centennial Mandalong conducted a three day workshop with Registered Aboriginal Parties to collectively discuss and rank the cultural significance of Aboriginal sites identified during the field surveys. In addition Regular update meetings have been held throughout the Project with the Registered Aboriginal Parties. Table 4 provides details of those meetings. Copies of all Project Newsletters have been provided to the Registered Aboriginal Parties throughout the Project to date with invitations provided to attend information sessions or open days.

2.4 Stage 4 - Review of draft Mandalong Southern Extension Project Heritage Impact Assessment report

In December 2012 the draft Mandalong Southern Extension Project Heritage Impact Assessment Report was forwarded to the Registered Aboriginal Parties for response. Those responses can be found at **Appendix 5**. Centennial Mandalong also provided a response to each of the Registered Aboriginal Parties regarding the draft report after receiving comments and feedback. Centennial Mandalong's reply letters can be found at **Appendix 5**.

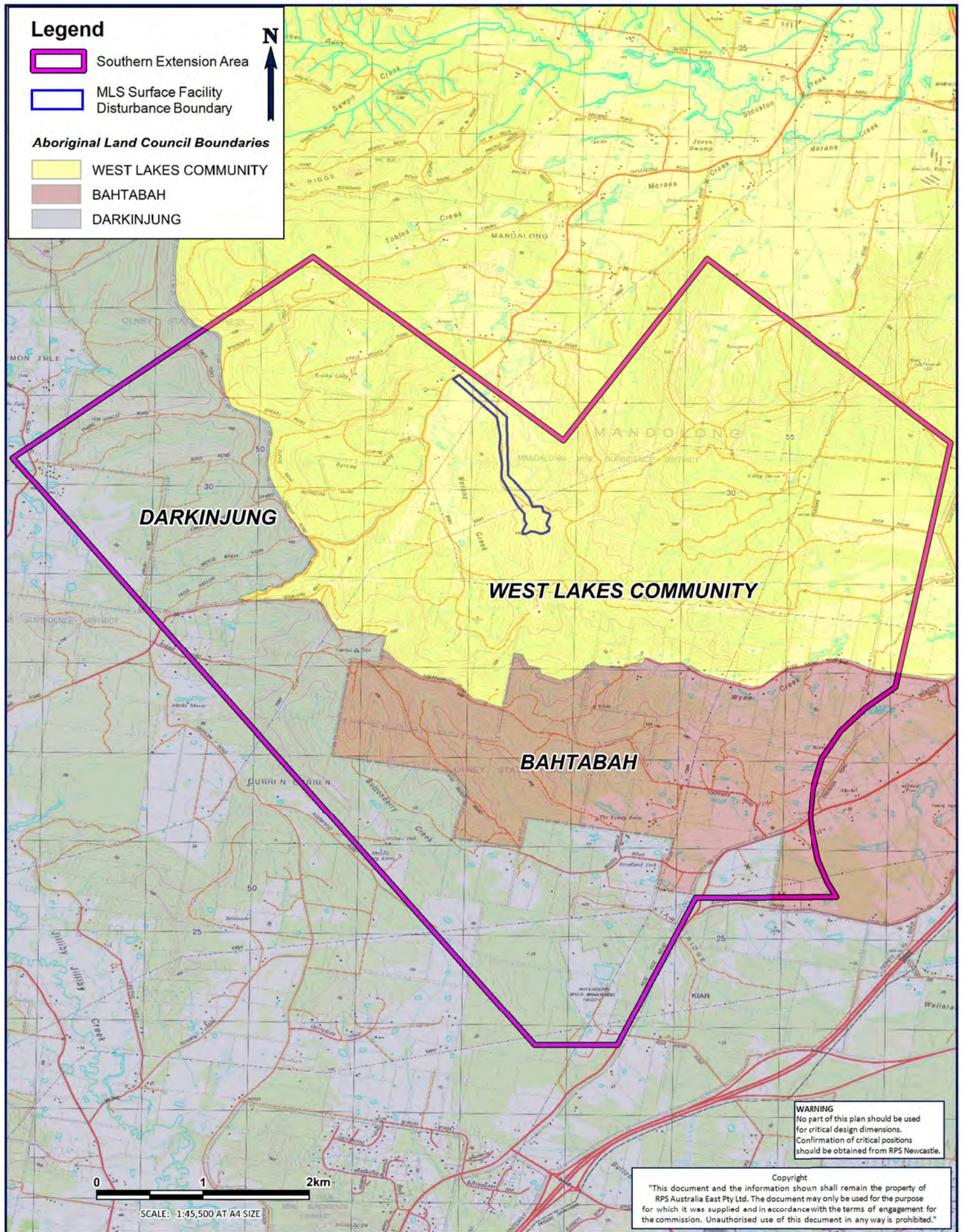
Incorporated into the draft Mandalong Southern Extension Project Heritage Impact Assessment Report was the Aboriginal Cultural Heritage Management Plan (ACHMP) developed in 2012 in consultation with the Registered Aboriginal Parties and the relevant government agencies. The ACHMP is designed to provide a consistent approach to how Centennial consults with the Aboriginal community regarding Aboriginal heritage matters across its northern region and a consistent approach to monitoring and management of Aboriginal heritage sites. The ACHMP was finalised in November 2012 and subsequently approved by the NSW Department of Planning and Infrastructure (DP&I).

Table 3 – Registered Aboriginal Parties contacted and who registered an interest

Organisation	Contact	Registration of Interest
Awabakal LALC on behalf of the West Lakes Aboriginal Community	Cheryl Kitchener	Yes
Bahtabah LALC	Michael Green	Yes
Darkinjung LALC	Sean Gordon	Yes
Awabakal Descendants Traditional Owners Aboriginal Corporation	Shane Frost	Yes
Awabakal Newcastle Aboriginal Co-operative	Kevin McKenney	No
Awabakal Traditional Owners Aboriginal Corporation	Kerrie Brauer	Yes
Arwabukarl Cultural Resource Association	Daren McKenney	No
Cacatua Culture Consultants	Donna and George Sampson	Yes
Guringai Tribal Link	Tracey Howie	Yes
Yula-Punaal Education and Healing Aboriginal Corporation	Victor Wright	Yes
Wonn 1	Arthur Fletcher	Yes

Table 4 - Project meetings and registered Aboriginal Party participation

Meeting Date	Meeting Objectives	Representation
28/01/2010	Introduction to the Project	Bahtabah Local Aboriginal Land Council
28/01/2010	Introduction to the Project	Darkinjung Local Aboriginal Land Council
27/08/2010	Introduction to the Project	Yula Punnal Education and Healing Aboriginal Corporation
7/09/2010	Introduction to the Project	Awabakal Local Aboriginal Land Council (on behalf of the West Lakes Aboriginal Community)
29/10/2010	Project update meeting	Darkinjung Local Aboriginal Land Council, Bahtabah Local Aboriginal Land Council
14/12/2010	Introduction to the Project	Awabakal Descendants traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal Corporation, Cacatua Culture Consultants, Wonn 1 Contracting
12/8/2011	Project Update Meeting	Darkinjung Local Aboriginal Land Council, Bahtabah Local Aboriginal Land Council, Awabakal Descendants traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal
8/11/2011	Project update meeting and site inspection	Darkinjung Local Aboriginal Land Council, Bahtabah Local Aboriginal Land Council, Awabakal Descendants traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal, Guringai Tribal Link, Yula Punnal Education and Healing Aboriginal Corporation
26/4/2012 – 30/4/2012	Cultural ranking workshops	Darkinjung Local Aboriginal Land Council, Bahtabah Local Aboriginal Land Council, Awabakal Descendants traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal, Guringai Tribal Link, Yula Punnal Education and Healing Aboriginal Corporation



TITLE: FIGURE 3: LOCAL ABORIGINAL LAND COUNCIL BOUNDARIES AND THE SOUTHERN EXTENSION AREA

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 21/02/2013
PURPOSE: HERITAGE

LAYOUT REF: I:\JOBS\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): E A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

3.0 Environmental Context

An understanding of environmental context is important for both the predictive modelling of Aboriginal sites and their interpretation. The natural environment provided resources for local Aboriginal people, including: stone (for manufacturing stone tools), food and medicines, wood and bark (for implements such as shields, spears, canoes, bowls, shelters, amongst others), as well as areas for camping and other activities. The nature of Aboriginal occupation and resource procurement is inextricably linked to the local environment and, therefore, must be considered in any cultural heritage assessment.

3.1 Geology and Soils

Aboriginal people often made stone tools using siliceous, metamorphic or igneous rocks. An understanding of the local geology can provide important information regarding resources in an area. The nature of stone exploitation by Aboriginal people depends on the characteristics of the source, for example, whether it outcrops on the surface (a primary source), or whether it occurs as gravels (secondary source) (Doleman, 2008).

Doyalson

The Doyalson soil type is described as being Erosional with the geology of the Narrabeen Group, Clifton Subgroup - Munmorah Conglomerate Formation. The soils (do1, do2, do3, do4, do5) range from Brown loose loamy sand through Earthy bright yellowish brown sandy clay loam to Strongly pedal clay. The soils have low water retention capacity and low fertility (Murphy 1993:49).

Mandalong

The majority of the Southern Extension Area comprises a colluvial Mandalong soil landscape. The geology is of the Narrabeen Group, Clifton Subgroup and the Patonga claystone formation. Sandstone capping may occur on crests and ridges. Sandstone benches and boulders are exposed along drainage lines. Soils are generally a fine sandy loam to sandy clay loam (Murphy 1993: 38).

Gorokan

The Gorokan soil landscape is an erosional landscape with geology of the Narrabeen Group; Gosford subgroup - Tuggerah Formation. The Gorokan Soil landscape generally comprises four dominant soil materials (gk1, gk2, gk3 and gk4). Topsoil in this landscape, where present, comprises loose dark brown loamy sand (Matthei 1995: 7).

Watagan

The Watagan soil landscape is also colluvial and occurs with geology of the Narrabeen Group; Gosford subgroup - Terrigal Formation. The Watagan soil types (wn1, wn2, wn3, wn4, wn5, wn6) range from dark brown sandy loam to through to sandstone colluviums and a light grey mottled clay (Murphy 1993: 41). The complex soils result from a combination of varied parent material and the steep slopes that cause a down-slope movement of soils.

Woodburys Bridge

Woodburys Bridge is a residual landscape on the Narrabeen Group, Clifton Subgroup. The dominant soil types are wo1; wo2; wo3; wo4; which range from a dark brown fine sandy loam through to a pedal clay. The two main soil types are indicative of the underlying bedrock, Patonga Claystone (Murphy 1993: 31).

Wyong

The Wyong soil landscape is alluvial and associated with the Quaternary sediments of the Central Coast Lowlands. The soils (wy1, wy2) comprise Brownish black pedal loam and mottles brownish grey plastic clay. The soils whilst having moderate to high water retention capacity are low in fertility and tend to seasonal water logging.

Yarramalong

Yarramalong is an alluvial soil, with the dominant soil types (ya1, ya2, ya3, ya4) ranging from a loose brown sand through to a brown pedal clay. Soil fertility is low to moderate and is heavily impacted by flooding (Murphy 1993: 84).

The geology and the soils in the Southern Extension Area indicate that a number of natural resources were available. The area includes fine sandstone sheets often used for producing ground stone tools or processing food or ochres. It is also noted that to the west of the Southern Extension Area [Mt Warrawolong and Bar Lookout (Olney State Forest)] Tertiary volcanics may be a potential source of basalt for the production of stone artefacts (Murphy 1993: 3). The Mandalong soil type has outcrops of sandstone as a feature; this provides potential locations for rockshelters.

3.2 Topography and Hydrology

The main topographic features of the Southern Extension Area are steeply inclined ridges and wide valley floors (Department of Lands 2006). The majority of ridges are associated with Yambo (264m elevation AHD) at the top of Toepfers and Buangi Roads in the western portion of the Southern Extension Area. The second highest point is in Olney State Forest (200m elevation AHD), located in the north-western portion of the Southern Extension Area. Morans Creek drains the northern portion of the Southern Extension Area and is associated with a wide valley floor. The upper tributaries of Wyee and Mannering Creeks, which drain the eastern portion of the area, are also associated with wide valley floors. However, the upper tributaries of Jilliby Jilliby Creek and Buttonderry Creek, along the western boundary of the Southern Extension Area, are relatively steep and only join the valley floor further to the west and south of the Southern Extension Area. Permanent water in the area was likely provided by Morans Creek, although portions of Wyee and Mannering Creeks may have provided semi-permanent water sources. Elevation of the Southern Extension Area ranges from 10m to 264m AHD. The steep ridges are dissected by a number of narrow watercourses which drain into the following creeks: Morans, Wyee, Mannering, Jilliby Jilliby and Buttonderry. Many of the smaller watercourses are not marked on the topographic map for the area.

3.3 Climate

Approximately 18,000 years ago, climatic conditions began to alter significantly. This affected the movement and behaviour of past populations within their environments. During this time, notably at the start of the Holocene (more than 11,000 years ago), the melting of the ice sheets in the Northern Hemisphere and Antarctica caused the sea levels to rise, with a corresponding increase in rainfall and temperature. The change in climatic conditions reached its peak about 6,000 years ago (Short 2000: 19-21). Up until 1,500 years ago, temperatures decreased slightly before stabilising around 1,000 years ago at a point similar to the temperatures currently experienced. Consequently, the climate of the Southern Extension Area for the past 1,000 years would probably have been much the same as present day, providing a year round habitable environment.

The Southern Extension Area is located in the Lake Macquarie and Wyong areas of the NSW central coast. As such, it has a temperate climate that is affected by its proximity to the coast, swamps and mountain

ranges. Summer and Autumn are the wettest seasons with an average of rainfall of approximately 840 millimetres and the temperatures can range between 6 degrees and 30 degrees Celsius (Bureau of Meteorology 2010). The temperate climate would be suitable for occupation for the majority of the year, provided that suitable shelter could be obtained during the wet periods.

3.4 Flora and Fauna

The following summary provides an indication of the types of flora and fauna which may have been available to Aboriginal people in the past for sustenance and as a source of raw material; it does not replace more detailed ecological studies, including that undertaken by RPS (2013) for the Mandalong Southern Extension Project.

The vegetation of the Southern Extension Area is dominated by tall open forest species such as Spotted Gum, Grey Ironbark and Forest Oak, with low lying areas characterised by Swamp Oak Sedge Forest and Melaleuca Swamp Woodland (Murphy 1993:4). In the areas associated with land use, vegetation clearing has resulted in a low open forest. Tree species include Smooth Barked Apple and Scribbly Gum, with Mountain Devil and Hill Banksias dominating the undergrowth (Murphy 1993: 56).

Fauna species identified in and around the region of the area include various macropods, possums and bird species (National Parks and Wildlife Service NSW 2003). Such faunal species have been recovered from Aboriginal occupation sites in the Sydney region (Attenbrow and Bow 2002: 72-73), but were also likely exploited in the Hunter region.

3.5 Environmental Synthesis

An overview of the environmental context of the area, specifically regarding its relevance to heritage items, is an important part of a cultural heritage assessment. The purpose of reviewing such environmental and heritage information is to assist in identifying whether Aboriginal or non-Indigenous sites or places may be present within the Southern Extension Area.

The environmental context overview of this Southern Extension Area has indicated that there are several factors that would have made it conducive for occupation by Aboriginal people and for later settlement by Europeans.

With regard to Aboriginal occupation, the area has good supply of fresh water. This would have resulted in a diversity of flora and fauna that would have provided food resources for local inhabitants. The presence of sandstone outcrops may have also provided rockshelters and suitable surfaces for grinding axes, ochre or seeds. Until recently, Aboriginal occupation of the region was viewed in terms of the frequent utilisation of the large saltwater Lake Macquarie and Lake Munmorah to the east and south-east. These expansive lakes provided a considerable number of resources and were considered to have been the focus of occupation. However, further survey work is indicating that there is evidence for frequent Aboriginal occupation of the inland areas west of the lakes and is thus not limited to the foreshore areas.

4.0 Aboriginal Cultural Heritage - Background

In order to inform the assessment of significance, it is important to contextualise Aboriginal sites within the local and regional landscape. The Aboriginal heritage context is also needed in order to develop a predictive model of Aboriginal sites in the Southern Extension Area and historical information provides additional information for the interpretation of archaeological sites, as well as informing the significance assessment.

4.1 Historic Records of Aboriginal Occupation

It is important to acknowledge that early historical documents were produced for a variety of reasons and may contain inaccuracies and/or bias in their reporting of events and other aspects of Aboriginal culture. Nonetheless, some historical documents provide important information and insights into local Aboriginal customs and material culture at the time of non-Indigenous settlement and occupation. There are a number of ethno-historical descriptions from the late nineteenth century of various Aboriginal groups of the Lake Macquarie and Wyong areas.

The Southern Extension Area is considered to include the lands and boundaries of the Awabakal people, the Guringai/Kuringai and the Darkinjung/Darlingjunga peoples. There is uncertainty on the exact boundaries because of contradictions between the historic accounts. It is known primarily from the work of Threlkeld (Threlkeld in Gunson 1974) that the Awabakal peoples' land included Lake Macquarie. Reverend Lancelot Threlkeld established a mission for Aboriginal people on the eastern shores of Lake Macquarie at Belmont in 1824 and another later at Toronto on the western shore. Threlkeld recorded the daily life of the Awabakal people in some detail. When noting their resource gathering strategies, he observed that the lake provided an abundance of fish and that Aboriginal people used canoes to exploit estuarine resources. Threlkeld also accompanied them on hunting expeditions and noted their adeptness in using spears (Threlkeld in Gunson 1974: 190).

According to Tindale (1974), the area south of Lake Macquarie was the land of the Darkinjung and Guringai people. The Darkinjung were thought to occupy the more westerly land and the Guringai people on the coast. However, it is possible that the whole area was utilised by both Guringai and Darkinjung.

There is ethnographic evidence of interaction and communication between the clans, with Threlkeld reporting on the Awabakal visiting the Tuggara Beach tribe (Threlkeld in Gunson 1974: 96).

4.2 Regional Archaeological Heritage Context

In 2011, Lake Macquarie City Council released the Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area (Umwelt Environmental Consultants 2011). This management strategy was developed over six years by a working group. Providing a comprehensive strategy for managing Aboriginal cultural heritage sites, the report is valuable in establishing a concept of Sensitive Aboriginal Cultural Landscapes. The report addresses each landform type in the LGA and identifies potentially sensitive Aboriginal cultural landscapes within that type. The sensitive landscapes of relevance to this study are *Mountain Landscapes* and *Freshwater (Creek Corridor) Landscapes*. The strategy recorded that *Mountain Landscapes* have important links to ceremonial activities, traditional Awabakal stories and historical events. The *Freshwater (Creek Corridor) Landscapes* are significant as sources of freshwater and in providing important resources.

In 1986 Haglund, commissioned by Lake Macquarie City Council, produced an assessment of the prehistoric heritage of the Lake area. Using a combination of interviews and desktop research, the author found that the lifestyle of the inhabitants before European settlement would have resulted in few records remaining within the environment (Haglund 1986). This assessment was confirmed by subsequent archaeological survey.

Tools, weapons, utensils, housing and food stuffs were of organic materials that are rarely preserved. The most durable remnants were stone tools and shell debris from shellfish meals. The conclusion was that the limited number of site types identified did not fully reflect the Aboriginal culture or their use of the environment. Those sites identified were shell middens, open or camp sites, rockshelters, engraving and art sites, stone arrangements, ceremonial sites, burials, axe grinding grooves or mythological sites.

Haglund concluded that the Aboriginal people utilised the resources of the open, rocky coast as well as the swamp and hilly hinterland. It was also found likely that the preferred resource areas were the coastal strip and the swampy margins of the lake, while the rugged western area would have been less utilised.

Haglund provides a settlement model of the Aboriginal people in this region based on the resource rich areas of Lake Macquarie - the wetlands that fringe the Lake, and the hinterland, which includes the Watagan Mountains to the west. The lake foreshore, with its abundance of resources and the considerable number of recorded sites, has led most researchers to believe that this would have been the preferred environment of the Aboriginal people, with the hinterland forest areas being used for short term foraging and hunting.

4.3 Local Archaeological Heritage Context

This section reviews previous archaeological work in the area, determines whether Aboriginal sites are recorded in the Southern Extension Area (AHIMS search) and informs the predictive model of Aboriginal sites for the Southern Extension Area.

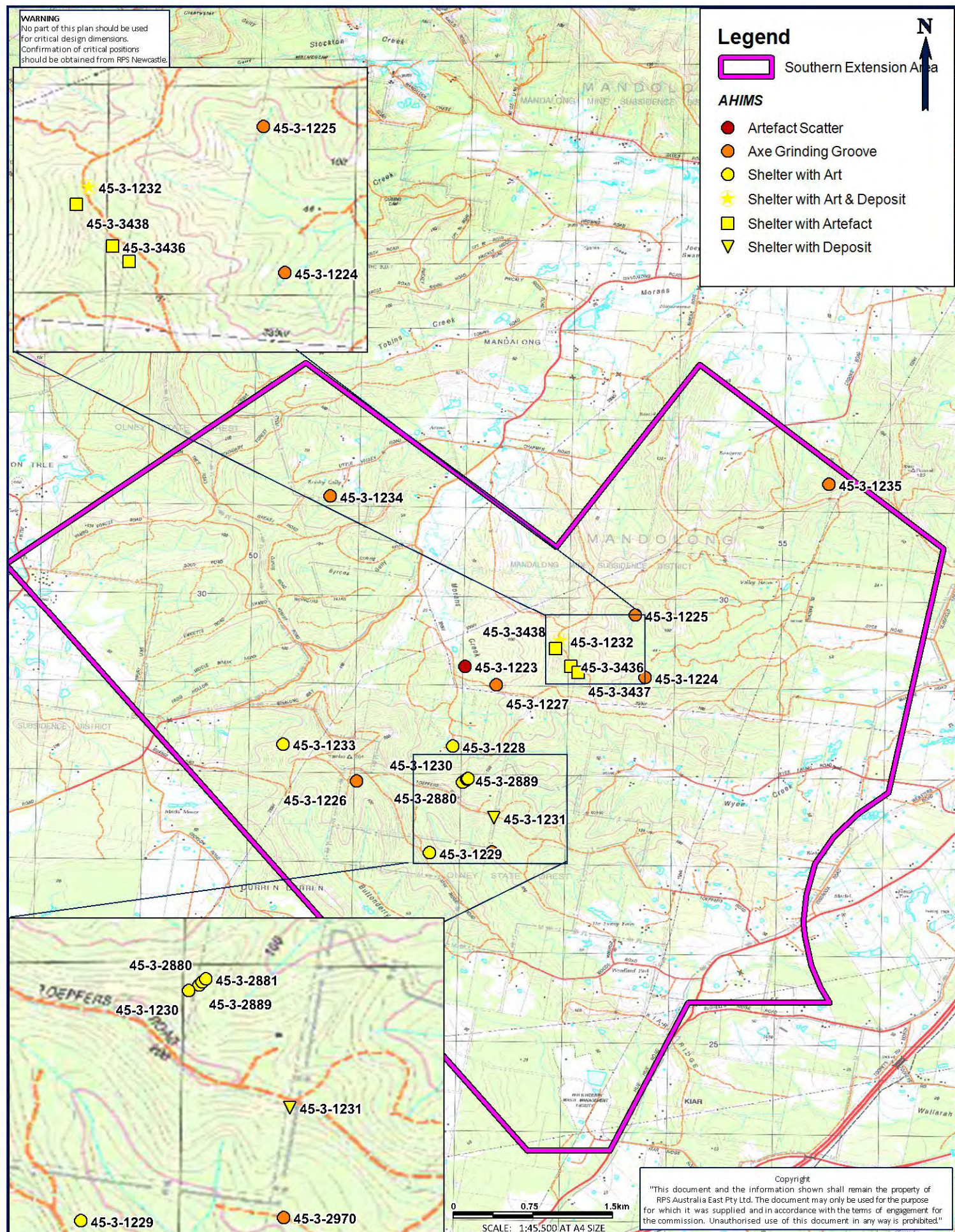
4.3.1 Aboriginal Heritage Information Management System (AHIMS)

A search was undertaken (7 June 2011) of the OEH Aboriginal Heritage Information Management System (AHIMS) for the area E346600 - 357600 to N6323000 – 6333000. **Table 5** shows the site types recorded on AHIMS in the Southern Extension Area.

Table 5 - AHIMS registered sites in the Southern Extension Area

Site Type	Frequency	Percentage
Shelter with Art	7	35
Grinding Groove	7	35
Rockshelter	3	15
Shelter with Deposit	1	5
Shelter with Art/with Deposit	1	5
Open Camp Site	1	5
TOTAL	20	100

The location of those sites is shown in **Figure 4**, while the AHIMS results are contained in Appendix 2.



TITLE: FIGURE 4: LOCATION OF AHIMS SITES

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 6/02/2013
PURPOSE: HERITAGE

LAYOUT REF: J:\08\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): C A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

4.4 Previous Archaeological Investigations in the Southern Extension Area

An overview of some of the heritage projects conducted over the Southern Extension Area prior to 2010 is provided below.

Dyall, L (1981) Preliminary assessment of Aboriginal Relics on Power Station Site at Olney

Dyall surveyed an area of 120 square kilometres that included part the current Southern Extension Area, as part of an investigation of Aboriginal heritage in an area proposed for a power station that never eventuated. Thirteen sites were recorded, 12 of these were associated with a sandstone ridge. The only exception was an artefact scatter (two artefacts). The sites recorded included: six rockshelters containing Aboriginal material (art gallery, drawings, hand stencils, stone artefacts and shell [*Anadara trapezia*]); six sets of grinding grooves and the isolated find. Dyall considered that while a number of drawings were old and therefore likely related to Aboriginal occupation, at least of one of the group of drawings in the art gallery (AHIMS #45-3-1228) was new and he was advised by a local resident that it had not been present twenty years previous. Dyall considered that there were no more art galleries in the area.

Dyall considered the sandstone ridges with rock overhangs and areas for potential grinding groove sites warranted further investigation. However, he noted that the rugged nature of the terrain would make such investigations difficult.

RPS HSO (2009), Aboriginal and European Heritage Impact Assessment for Mandalong South Exploration Project

In 2009, RPS HSO carried out a detailed heritage assessment to be included in a Review of Environmental Factors (REF) submitted to the NSW Department of Primary Industries (DPI) for the Mandalong South Exploration Project (RPS HSO 2009). This assessment examined environmental data, previous archaeological work in the area and the location of known Aboriginal and European heritage sites. A predictive model of potential site locations within the exploration area of EL 6317 was produced from the collection of this data. The predictive model was then translated into a landform sensitivity diagram to be used by Centennial Mandalong as 'constraint risk mapping' during planning of potential drill locations to determine whether there was a risk of impacting archaeological sites. All known Aboriginal sites were considered as high risk areas in sensitivity risk mapping for the exploration area. Research into European heritage found that Simpsons Track and the original Brisbane Water to Wallis Plains Road both crossed through the exploration area, but neither were believed to remain in any conservable form within the boundaries. While the predictive model assisted in determining the potential for sites, there was no assumption that the locations of sites were limited to high sensitivity areas.

4.5 Predictive Model

The predictive model aimed to provide testable statements about the nature and distribution of evidence of Aboriginal occupation on the basis of environmental information, as well as the review of relevant archaeological and heritage reports. The predictive model was necessary to formulate appropriate field methodologies and provide information for the assessment of archaeological significance.

There are a number of factors which influence Aboriginal occupation of an area. These include essential subsistence resources such as food (flora and fauna) and fresh water. However, the availability of other resources such as raw stone materials, wood and bark, animal skins and reeds for basket weaving, string, clothing and similar, was also important. Landscape features such as ridges, flat elevated areas, rockshelters and similar, would have further influenced Aboriginal occupation of an area. Finally, cultural

activities may have also taken place at certain locations in the landscape, for example corroborees, mythological places and initiation sites.

Site Type Predictions

Artefact scatters, grinding grooves and rockshelters were predicted to occur in the Southern Extension Area, along with scarred trees at lower frequencies.

Landform Predictions (Site Location and Distribution)

The two prominent landforms associated with Aboriginal sites are valley floors and ridges. Artefact scatters were predicted to occur on the open valley floors near watercourses. Rockshelters were predicted to occur on ridges where suitable sandstone outcrops existed. These will generally be on upper slope landforms and ridge crests. Grinding grooves were predicted to occur on sandstone shelves along watercourses. In general this site type/ location hypothesis is consistent with the Sensitive Aboriginal Cultural Landscapes Model developed by Lake Macquarie City Council (Umwelt Environmental Consultants 2011).

4.6 Synthesis

With regard Aboriginal occupation, the area has good supply of fresh water. This would also have resulted in a diversity of flora and fauna that would have provided food resources for local inhabitants. The presence of sandstone outcrops may have also provided rockshelters and suitable surfaces for grinding axes, ochre or seeds. Until recently, Aboriginal occupation of the region was viewed in terms of the frequent utilisation of the large saltwater Lake Macquarie and Lake Munmorah to the east and south-east. These expansive lakes provided a considerable number of resources and were considered to have been the focus of occupation; however, further survey work is indicating that there is evidence for frequent Aboriginal occupation of the inland areas west of the lakes and is thus not limited to the foreshore areas.

Background information indicates that artefact scatters, grinding grooves and rockshelters have been recorded both in the Southern Extension Area and the wider general area. Scarred trees, while present in the general area, occur at lower frequencies: a trend expected to continue in the Southern Extension Area.

5.0 Aboriginal Cultural Heritage - Field Survey

This heritage assessment has been undertaken in accordance with best practice guidelines for survey reporting. The survey methodology aimed to provide adequate coverage of the Southern Extension Area, sample coverage of all landforms, areas of exposure, and vegetated areas. Where possible, the locations of previously recorded sites were also inspected.

The survey team recorded observations using digital photography, GPS recording (differential) and field notes. In accordance with OEH guidelines, photographic recording of landforms, survey units, Aboriginal cultural material, areas of archaeological or cultural sensitivity, levels of disturbance, and other areas/items of interest, were undertaken. Photographs were scaled as appropriate. The location of each Aboriginal cultural heritage site was recorded by differential GPS. The GPS, used as a tracking device also recorded the survey units. Field notes detailed the size, location, contents and condition of Aboriginal heritage in the area, as well as, survey units. Physical features in the area of Aboriginal sites/areas of sensitivity were recorded and included disturbances such as, erosion, land clearing and similar.

The Aboriginal representatives participating in the survey were consulted regarding the cultural significance of the survey area and, where applicable and/or appropriate, regarding the significance of Aboriginal sites and/or areas of archaeological sensitivity. An opportunity to comment on cultural significance was also provided in the survey preparation documentation and during workshops conducted following the survey.

5.1 Survey Methodology

The survey methodology required the investigation of all landscape types within the Southern Extension Area. These landscape types or features included drainage lines, ridgelines, mid slopes and crests. While a number of private landholdings were inaccessible due to landowner access agreement, the five-week survey covered approximately 75% of the Southern Extension Area. Particular landform features were important as they reflect environments of particular value to past hunter-gatherers. These landforms include:

Drainage lines

- Provided a source of drinking water which also attracts animals.
- In association with sandstone outcrops they may contain grinding grooves.

Valley floors and ridgelines

- Access corridors that enabled movement through the landscape.

Mid slopes

- May contain old growth trees exhibiting bark removal.

Upper slopes

- Associated with sandstone escarpments they may contain rockshelters suitable for human occupation.
- May contain old growth trees exhibiting bark removal.

Crests

- Potential vantage points or spiritual significance.
- May contain old growth trees exhibiting bark removal.

Although maximum ground surface coverage is preferred, it was not possible to cover 100% of the Southern Extension Area for reasons including: scale of the Southern Extension Area; land owner access permission (private property); and inaccessible terrain. However, it was possible to visually inspect a large representative sample of the landscape types in the Southern Extension Area.

5.2 Field Survey

The field survey was undertaken from 28 February 2011 to 9 May 2011. The Archaeology team was led by Tessa Boer-Mah (RPS' Newcastle Cultural Heritage Manager) and participating archaeologists. The archaeological team survey areas are listed in **Table 6**, while the Registered Aboriginal Parties' survey participants are detailed in **Table 7**. Survey coverage is detailed in **Table 8** and **Figure 5** shows the areas surveyed.

Table 6 - Survey Areas and Team Leaders

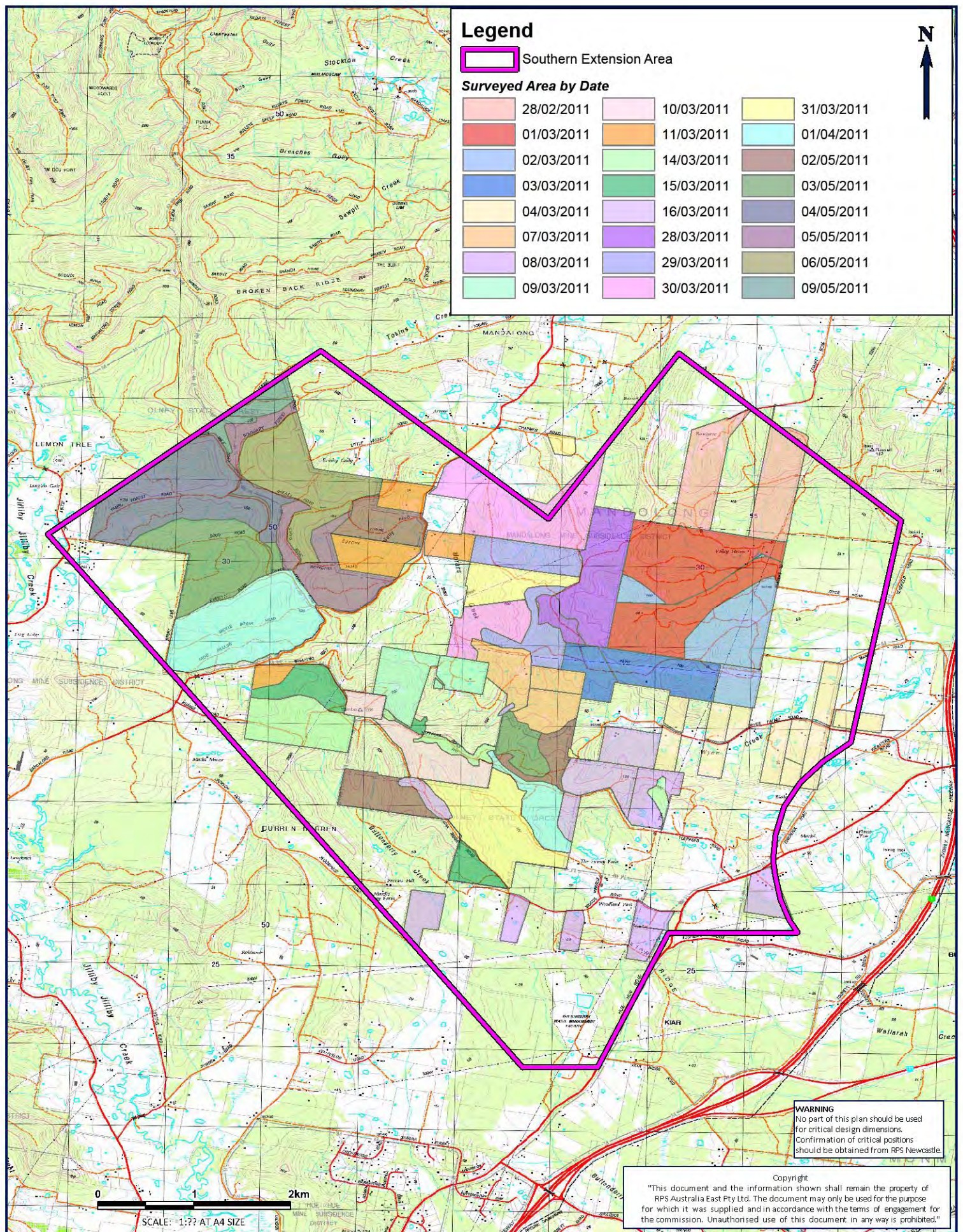
Team leader	Lot and DP
Tessa Boer-Mah	4//8926; 8//8926; 1//8926; 2//261460; 7//8926; 101//755238; 70//882407; 3//8926; 1002//819530; 36//755238
Cheng Yen Loo	145//755238; 22//1003511; 1//7917; 5//7917; 21//248498; 18//248498; 1//552101; 7//247539; 226//755271; 2//620993; 1//805044; 175//755271; 72//755238; 60//1007162; 194//755238; 193//755238.
Philippa Sokol	3//805044; 42//1037312; 107//755238; 9//262720; 131//755238.
Ali Byrne	59//755238;
Ashley Hudson	152//755238; 180//755238; 179//755238;

Table 7 - Registered Aboriginal Parties who participated in the field survey

Aboriginal Party	Representative	Dates Participated
Awabakal LALC	Richard Strong; Chris Smith (representing West Lakes Aboriginal Community)	RS: 9/03/2011; 10/03/2011; 11/03/2011. CS: 14/03/2011;15/03/2011;16/03/2011
Bahtabah LALC	Scott Murray; Jason McKenzie	SM: 28/02/2011; 1/03/2011; 2/03/2011 3/03/2011; 8/03/2011; 9/03/2011; 15/03/2011 16/03/2011 JM: 10/03/2011;11/03/2011;14/03/2011 30/03/2011
Darkinjung LALC	Sharon Hodgetts; Andrew Smeaton;	AS: 4/03/2011;10/03/2011;11/03/2011 14/03/2011;30/03/2011;31/03/2011 2/05/2011;3/05/2011;5/05/2011 SH: 28/02/2011;1/03/2011;2/03/2011 3/03/2011;4/03/2011;7/03/2011;8/03/2011 9/03/2011;15/03/2011;16/03/2011 28/03/2011;29/03/2011;1/04/2011 4/05/2011;6/05/2011;9/05/2011
ADTOAC	Shane Frost	28/02/2011;1/03/2011;3/03/2011;4/03/2011 7/03/2011;8/03/2011;9/03/2011;10/03/2011 14/03/2011;15/03/2011;16/03/2011;28/03/2011 29/03/2011;30/03/2011;31/03/2011;1/04/2011 2/05/2011;3/05/2011;4/05/2011;5/05/2011 6/05/2011;9/05/2011
ATOAC	Kerrie Brauer; Jodie Wilson	KB: 3/03/2011;4/03/2011;7/03/2011;8/03/2011 9/03/2011;10/03/2011 JW: 3/03/2011;4/03/2011;9/03/2011; 10/03/2011;28/03/2011;29/03/2011;31/03/2011 1/04/2011;2/05/2011;3/05/2011;4/05/2011 5/05/2011;6/05/2011;9/05/2011

Table 8 - Survey Coverage

Landform/Survey Unit	Survey Unit Area (square metres)	Exposure (%)	Visibility (%)	Effective Coverage (square metres)	Effective Coverage (%)
Upper slope, steep ridges and crests > 100m AHD	9,591,000	20	30	8,631,900	90
Low slopes to mid slopes contour 50m - 100m AHD	17,670,000	10	30	15,019,500	85
Creek lines and flats <50m AHD	17,440,000	30	40	15,696,000	90



TITLE: FIGURE 5: DETAIL OF AREAS SURVEYED

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 6/02/2013
PURPOSE: HERITAGE

LAYOUT REF: J:\08\S\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): E A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

5.3 Survey Outcomes

The survey teams recorded 93 new Aboriginal cultural heritage sites for inclusion on AHIMS. **Plates 1 – 34** in Section 19 provide a representative sample of the sites recorded. Where previously recorded AHIMS sites were on accessible land, all efforts were made to ground truth them.

A total of 113 sites have been recorded in the Southern Extension Area: 20 already recorded on AHIMS; and 93 sites newly recorded by RPS and awaiting AHIMS listing (**Table 9**). Three site types accounted for 75% of all site types recorded, these being: grinding grooves (51%); rockshelter with potential archaeological deposits (PAD) (14%); and culturally modified trees (10%) (**Table 10**).

The location of the sites identified and recorded in the Southern Extension Area is shown in **Figure 6**, and a list of all sites can be found in **Table 11**.

Table 9 - Aboriginal cultural heritage sites on AHIMS plus RPS sites recorded in Feb – May 2011

Site Type	Already on AHIMS	Recorded Feb-Mar 2011	Total
Grinding grooves	7	51	58
Rockshelter	3		3
(Rock)shelter with art	7	1	8
Rockshelter with PAD/ with deposit	1	15	16
(Rock)shelters with art/ with deposit	1		1
Culturally modified tree		11	11
Artefact scatter/open camp site	1	8	9
Isolated artefact		3	3
Stone arrangement		3	3
Water source		1	1
Total	20	93	113

Table 10 - Site type and frequency

Site Type	Number of sites	Percentage
Grinding grooves	58	51
Rockshelter with PAD/ with deposit	16	14
Rockshelter with art	8	7
Rockshelter	3	2
Rockshelters with art/ with deposit	1	1
Culturally modified tree	11	10
Artefact scatter/open camp site	9	8
Isolated artefact	3	3
Stone arrangement	3	3
Water source	1	1
Total	113	100

Table 11 - All Aboriginal cultural heritage sites recorded in the Southern Extension Area (GDA94 Zone 56)

Site Name	Site Type
45-3-1223	OPEN CAMP SITE
45-3-1224	GRINDING GROOVE
45-3-1225	GRINDING GROOVE
45-3-1226	GRINDING GROOVE
45-3-1227	GRINDING GROOVE
45-3-1228	ROCKSHELTER WITH ART
45-3-1229	ROCKSHELTER WITH ART
45-3-1230	ROCKSHELTER WITH ART
45-3-1231	ROCKSHELTER WITH DEPOSIT
45-3-1232	ROCKSHELTER WITH ART / DEPOSIT
45-3-1233	ROCKSHELTER WITH ART
45-3-1234	GRINDING GROOVE
45-3-1235	GRINDING GROOVE
45-3-2880	ROCKSHELTER WITH ART
45-3-2881	ROCKSHELTER WITH ART
45-3-2889	ROCKSHELTER WITH ART
45-3-2970	GRINDING GROOVE
45-3-3436	ROCKSHELTER
45-3-3437	ROCKSHELTER
45-3-3438	ROCKSHELTER
RPS AH01	GRINDING GROOVE
RPS AH02	GRINDING GROOVE
RPS AH03	GRINDING GROOVE
RPS AH04	GRINDING GROOVE
RPS AH05	SCARRED TREE
RPS AH06	STONE ARTEFACTS
RPS AH07	GRINDING GROOVE
RPS AH08	GRINDING GROOVE
RPS AH09	GRINDING GROOVE
RPS AH10	ROCKSHELTER WITH PAD
RPS AH11	ROCKSHELTER WITH PAD
RPS AH12	SCARRED TREE
RPS AH13	SCARRED TREE
RPS AH14	STONE ARRANGEMENT
RPS AH15	STONE ARRANGEMENT
RPS AH16	ROCKSHELTER WITH PAD
RPS AH17	SCARRED TREE
RPS AH18	ISOLATED FIND
RPS CYL01	GRINDING GROOVE

Site Name	Site Type
RPS CYL02	GRINDING GROOVE
RPS CYL03	SCARRED TREE
RPS CYL04a	GRINDING GROOVE
RPS CYL04b	GRINDING GROOVE
RPS CYL04c	GRINDING GROOVE
RPS CYL05	GRINDING GROOVE
RPS CYL06	GRINDING GROOVE
RPS CYL07	GRINDING GROOVE
RPS DF01	GRINDING GROOVE
RPS DF02	GRINDING GROOVE
RPS DF03	GRINDING GROOVE
RPS DF04	GRINDING GROOVE
RPS PS06	ROCKSHELTER WITH ART
RPS PS08	ROCKSHELTER WITH PAD
RPS PS09	ROCKSHELTER WITH PAD
RPS PS11	GRINDING GROOVE
RPS PS12A	GRINDING GROOVE
RPS PS12B	GRINDING GROOVE
RPS PS20	ROCKSHELTER WITH PAD
RPS PS22	ROCKSHELTER WITH PAD
RPS PS25	ARTEFACT SCATTER
RPS PS26	GRINDING GROOVE
RPS PS28	ROCKSHELTER WITH PAD
RPS PS32	ROCKSHELTER WITH PAD
RPS PS33	SCARRED TREE
RPS TBM01	GRINDING GROOVE
RPS TBM02	GRINDING GROOVE
RPS TBM03	ARTEFACT SCATTER
RPS TBM04	ISOLATED FIND
RPS TBM05	GRINDING GROOVE
RPS TBM06	GRINDING GROOVE
RPS TBM07	GRINDING GROOVE
RPS TBM08	GRINDING GROOVE
RPS TBM09	WATER SOURCE
RPS TBM10	GRINDING GROOVE
RPS TBM11	ARTEFACT
RPS TBM12	GRINDING GROOVE
RPS TBM13	GRINDING GROOVE
RPS TBM14	GRINDING GROOVE
RPS TBM17	SCARRED TREE
RPS TBM19	ROCKSHELTER WITH PAD
RPS TBM20	SCARRED TREE
RPS TBM22	SCARRED TREE

Site Name	Site Type
RPS TBM26	GRINDING GROOVE
RPS TBM27	GRINDING GROOVE
RPS TBM28	GRINDING GROOVE
RPS TBM29	ARTEFACT SCATTER
RPS TBM30a	ARTEFACT SCATTER
RPS TBM30b	ARTEFACT SCATTER
RPS TBM31	GRINDING GROOVE
RPS TBM32	STONE ARRANGEMENT
RPS TBM33	SCARRED TREE
RPS TBM34	GRINDING GROOVE
RPS TBM35	ROCKSHELTER WITH PAD
RPS TBM37	ARTEFACT SCATTER
RPS TBM38	GRINDING GROOVE
RPS TBM40	GRINDING GROOVE
RPS TBM41	ROCKSHELTER WITH PAD
RPS TBM42	ROCKSHELTER WITH PAD
RPS TBM43	GRINDING GROOVE
RPS TBM44	GRINDING GROOVE
RPS TBM45	GRINDING GROOVE
RPS TBM46	GRINDING GROOVE
RPS TBM47	GRINDING GROOVE
RPS TBM49	GRINDING GROOVE
RPS TBM50	GRINDING GROOVE
RPS TBM51	GRINDING GROOVE
RPS TBM52	SCARRED TREE
RPS TBM53	ROCKSHELTER WITH PAD
RPS TBM54	GRINDING GROOVE
RPS TBM58	ROCKSHELTER WITH PAD
RPS TBM60	ISOLATED FIND
RPS TBM63	GRINDING GROOVE
RPS TBM64	GRINDING GROOVE

5.3.2 OEH Advice on rock cavities and overhangs

During the survey 38 rock cavities and overhangs were observed. Some of the Aboriginal representatives suggested these rock cavities and overhangs may have been used by Aboriginal people in the past. These cavities and overhangs had no material evidence for Aboriginal occupation and did not have any archaeological features such as art, artefacts, or potential archaeological deposits (PADs) either inside or outside the cavities and overhangs. RPS' Tessa Boer-Mah discussed these rock cavities and overhangs with OEH (Carlos Torres. 7 May 2012) and was advised that:

Any Aboriginal site to be registered with AHIMS must have a feature from the OEH AHIMS Registrations and Features List associated with the site. In the case of rockshelters it must have art and/or it must have PAD (inside or immediately outside) the shelter and/or associated with another feature which demonstrates occupation nearby e.g. artefact scatter. In short, a rockshelter needs to have features associated with it.

Following this advice 38 rock cavities and overhangs were not registered with AHIMS; and justifications for why they haven't been submitted for registration has been submitted to OEH.

5.4 Interpretation of Field Results for Aboriginal Sites

The survey results indicate that Aboriginal cultural heritage site types were linked to particular landform units: Alluvial and residual landscapes; mid slope to upper slope; and upper slopes, ridgelines and crests. This information is valuable in the interpretation of Aboriginal occupation across the Southern Extension Area (**Table 12, Figure 7**). The landscape units were considered in terms of elevation at Australian Height Datum (AHD).

Table 12 - Landform Units in the Southern Extension Area

Site type	Alluvial and residual landscapes <50 m AHD	Mid slope to Upper slope 50M – 100 m AHD	Upper slopes ridgelines, crests >100 m AHD
Grinding grooves	2	45	11
All Rockshelter types		1	27
Artefact scatter	5	2	2
Isolated artefact			3
Stone arrangement		1	2
Culturally modified tree		3	8
Water source			1
TOTAL	7	52	54

*For the purposes of this analysis all rockshelter types have been combined.

5.5 Alluvial and Residual Landscapes

Alluvial and residual landscapes, of the Yarramalong soil type, are characterised by low to gently undulating landform with remnant landscapes such as oxbows, terraces and swamps (Murphy1993:84). The landscape is considered highly active, a result of erosion, run-off and inundation.

Morans Creek (north); Wyee Creek (east); and Buttonderry Creek (south west) are third order streams within the Southern Extension Area. In addition there are numerous first and second order streams with low lying areas more often found in the eastern sector of the Southern Extension Area.

In the distant past, this landform type would have provided an access corridor for transient hunter-gather groups as the low lying alluvial plains would have enabled easy and fast travel to and from the coast. The creeks and tributaries would have provided fresh water for drinking while vegetation may have been used for shelter/food and also attracted animals to the area. The active nature of this landform type often results in the loss of Aboriginal cultural heritage sites through regular flooding. However, there is potential for sites to remain on higher alluvial terraces associated with those creek lines.

Seven sites were recorded on this landform type – comprising artefact scatters (5) and grinding grooves (2). All sites were located between 30m and 40m AHD.

5.6 Mid Slope to Upper Slope Landscapes

Mid to upper slopes across the Southern Extension Area have been cleared in the past and now have regrowth forest with an open canopy. The mid to upper slopes in the Southern Extension Area were between 50m and 100m AHD. Fifty two of the recorded sites were found in this landform type they were: grinding grooves (45); scarred trees (3); artefact scatters (2); rockshelter (1) and stone arrangement (1).

A significant factor contributing to the high number of grinding grooves recorded was the combination of Hawkesbury sandstone outcrops and the presence of first and second order drainage lines within this landscape. The existence of homogenous flat beds of sandstone, together with a reliable water source, would have provided an ideal medium for grinding stone tools such as hatchets.

5.7 Upper Slopes, Ridgelines and Crests

The majority of the Southern Extension Area is comprised of upper slopes, steep ridges and crests, and is part of the Mandalong soil landscape (Murphy1993:35). This is described as steep rugged hills (gradient 20-60%), with narrow crests, deep incised valleys, scarps, boulders and outcroppings of Hawkesbury sandstone and Patonga Claystone. Outside of forestry, the steep and rugged topography has limited land use and the 100m AHD line and above is used to define the area.

Fifty four sites that incorporated a variety of site types were found above 100m AHD: Artefact scatter (2); Stone arrangements (2); isolated artefacts (3); culturally modified trees (8); grinding grooves (11); water source (1) and significantly, rockshelters (27). For this analysis all rockshelter types (rockshelter; rockshelter with art; rockshelter with deposit; rockshelter with PAD) have been combined.

All rockshelters (with the exception of one) were located above 150m AHD. In general, the rock morphology of this area comprises continuous sandstone outcrops; as well as large, free standing boulders which have eroded and subsequently separated from the sandstone outcrops. Rockshelters were commonly identified in cavities beneath the free standing boulders, although some cavities occurred in the sandstone outcrops.

The majority of culturally modified trees that remain above 100m AHD can likely be attributed to the difficulty in accessing this area for logging. Due to the steep terrain, this area was more difficult for the harvesting of trees; in addition some of the culturally modified trees had been hollowed out by bushfire and, therefore, were not suitable for felling. All culturally modified trees recorded exhibited the removal of bark generally associated with economic use (bark for shelters, vessels, medicines, etc) rather than the carved panels associated with ceremonial purposes.

The two stone arrangements (RPS AH14; RPS AH15) were found in close proximity on a north-east trending spur and a third arrangement (RPS TBM32) on the upper slope of a north-west trending ridgeline.

5.8 Synthesis of Survey Results

The survey results generally conform to the predictive model; as expected rockshelters, grinding grooves and artefact scatters were identified; with scarred trees observed in lower frequencies. Consistent with the predictive model, rockshelters were identified on the upper slopes and ridge crests. Grinding grooves were identified in watercourses on ridge slopes; interestingly, the majority of grinding grooves occurred at elevations of between 50m and 100m AHD. Sandstone between these elevations tended to be good quality for grinding, it was smooth, homogenous and was often exposed in slabs - particularly at the confluence of two watercourses. Sandstone above this elevation tended to be blocky and/or has ironstone banding which made it unsuitable for grinding grooves. As sandstone became uncommon below 50m AHD elevation, fewer locations suitable for grinding grooves were present. A few grinding groove sites in the area had over 20 hatchet grinding grooves, usually existing grooves are used for sharpening hatchets; thus sites with 20 grooves suggest that up to 20 people may have been sharpening hatchets at these locations. Ethnographic evidence suggests that stone hatchets were primarily used by Aboriginal men and thus if women and children were travelling with the men; it could be expected that 20-40 people were occupying/camping at these locations.

Artefact scatters were identified on valley floors as expected from the predictive model. However, three artefact sites (one scatter and two isolated finds) were identified on the upper slope and crest landforms which was not anticipated from the predictive model. The presence of these artefact sites in these locations

is likely to be associated with the Aboriginal use of rockshelters in this region; as well as the use of watercourses for navigating in this landscape. Interestingly all of the artefact sites in the upper slope/crest locations were at the head of watercourses; which suggests that the watercourses were likely being used as travel routes between valley floors and ridges; the number of grinding grooves in watercourses also attests to their frequent use. It was noted during the survey that the slopes between the valley floors and the ridges are often vegetated by a dense shrubby understorey; by using watercourses as travel routes, these more difficult shrubby areas could be bypassed.

The original distribution of scarred trees is likely to have been across all landform types; that the majority of scarred trees were identified in upper slope/crest locations is likely because these landforms were difficult to access for logging purposes. This distribution is likely to reflect historic land use practices rather than the original distribution of scarred trees. Three stone arrangements also occur on upper slope/crest landforms. This site type was not expected from the predictive model. With so few examples, it is difficult to provide interpretation of these sites, although two occur in close proximity to each other in the north-west portion of the Southern Extension Area that leads towards the Watagan range. This suggests that they may have been a directional geographic marker.

Overall, the site types correlate with the landform locations as expected from the predictive model. The distribution of sites indicates that Aboriginal camping activities took place on the valley floors and in rockshelters and benches up on the ridgelines upper slope/crest landforms. Travel routes between these areas appear to have been along watercourses (first and second order) as evidenced by the regular occurrence of hatchet grinding grooves. The presence of grinding groove sites with over 20 grooves suggests that groups of 20-40 people may have been travelling between the valley floors and ridge areas.

6.0 Aboriginal Cultural Heritage – Significance Assessment

In order to develop appropriate heritage management outcomes, it is necessary for the significance of Aboriginal sites or areas of archaeological sensitivity to be assessed. Aboriginal heritage sites can have a number of values which make them significant. Four values for identification and assessment of significance have been outlined in the Burra Charter (Australia ICOMOS 1999) and have been used in this assessment according to the guidelines (OEH 2011). The four values outlined in the Burra Charter are: scientific, social, historical and aesthetic. The Registered Aboriginal Parties have been provided with the opportunity to identify social, historical and aesthetic values during the consultation process. Scientific value, also referred to as archaeological value, has been assessed by RPS archaeologists.

6.1 Aboriginal Cultural Significance

Archaeological field investigations are an effective way of determining the location of Aboriginal sites in the landscape. However, the cultural significance of the sites and landscape can only be assessed by the cultural knowledge holders, as they draw on knowledge from their ancestors and their own experiences. Understanding the cultural significance of the landscape is an integral part of undertaking a cultural heritage impact assessment in the Southern Extension Area.

All Registered Aboriginal Parties were invited to participate in cultural significance assessment workshops conducted on 26, 27 and 30 April 2012. The intention was to ensure the Aboriginal Parties were given the opportunity to discuss the significance of the sites as a group. The workshop also provided an opportunity for this significance to be relayed to Centennial and RPS.

6.1.1 Method of Assessing Cultural Significance

Cultural significance is assessed according to the principals outlined in the Burra Charter (Australian National Committee of the International Council on Monuments and Sites (Australia ICOMOS) 1999) and the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011). In the Burra Charter (1999:12), cultural significance means the aesthetic, historic, scientific or social value for past, present or future generations. Under NSW NPWS Heritage Guidelines (OEH 2011: 9), the assessment of value and significance must consider the aesthetic, historic, social and scientific value that the heritage item possesses. The representatives of ATOAC and ADTOAC, for the cultural significance workshop, adopted some of criteria from the Burra Charter and the OEH guidelines (2011) in addition to their own culturally determined criteria (**Table 13**).

Table 13 - Cultural Significance Criteria (developed from the Burra Charter with input by ATOAC and ADTOAC)

Criteria	Description
Social: Ceremonial/Spiritual/Dreaming Connection	This criterion refers to any ceremonial, spiritual or dreaming connection that the site may have to the Traditional Owner Group/s. This criterion also considers its past teaching potential.
Rarity	This criterion refers to how rare the site is in reference to location, site type, site integrity on a local and regional scale. Rarity is also assessed on its archaeological potential.
Inter-relatedness	This criterion refers to whether the site is believed to be related or associated to another site in the landscape.
Historic and Teaching Potential	This criterion refers to any potential future and/or present use for educational purposes in the teaching of culture and history.
Aesthetic	This criterion refers to the sites aesthetic qualities. Please note that the notion of visual appeal is a subjective concept.
Outlook	Outlook refers to whether the site has an extensive outlook over ADTOAC and ATOAC country and/or if the area of the site has an attractive perspective to the Traditional Owners.

6.1.2 Structure of the Cultural Significance Assessment Table

At the commencement of the workshops, the Aboriginal Parties decided that the cultural significance ranking would be gained through group consensus. The participants then assessed each site on the criteria provided in **Table 13** giving 1 to 5 points according to the level of cultural significance. The cumulative score then provided a ranking for each site. **Table 14** details the potential point/s given per site and the cumulative potential score.

Table 14 - Cultural Significance Assessment for each Site and Overall Assessment

Ranking System	Points allotted	Cumulative Points
High Cultural Significance	1 Point	1 to 6 Points
High to Very High Cultural Significance	2 Points	7 to 13 Points
Very High Cultural Significance	3 Points	14 to 20 Points
Very High to Extremely High Cultural Significance	4 Points	21 to 27 Points
Extremely High Cultural Significance	5 Points	28 to 30 Points

6.1.3 Outcome of the Cultural Mapping Workshop

The cultural mapping workshop resulted in the assignment of a cultural significance assessment. The full list of sites and their ranking is presented in Appendix 3. **Table 15** provides an overall indication of the cultural significance ranking by site type.

Table 15 - Cultural significance ranking

Site type	Ranking range
Grinding grooves	19-30
Rockshelter	23-30
Rockshelters with art	30
Rockshelter with PAD	26-30
Artefact scatter	19-30
Isolated artefact	19-30
Stone arrangement	30
Culturally modified tree	26-30
Water source	27

All site types assessed by the group, apart from the Water Source, were considered to have sites ranked at 30 points, *Extremely High Cultural Significance*.

6.2 Scientific Significance

Scientific significance has been assessed in accordance with the NSW OEH Guidelines (OEH 2011: 9) where scientific significance refers to the importance of landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information.

6.2.1 Methodology-Assessment Criteria and Ranking System

The scientific significance of sites was assessed according to the criteria listed in **Table 16**. Aesthetic, historic, and social values were considered by the Aboriginal Parties as part of the cultural assessment. The scientific significance of each Aboriginal site has been assessed at local and regional scales. In cases

where high regional significance was identified, state significance was also assessed. No sites of state significance were identified.

Scientific significance criteria is assessed in three levels to which scores are assigned; low (score=1), moderate (score=2) and high (score=3). A combination of these scores then provides an overall significance ranking of the site to be determined (**Table 17**). A list of all sites with their scientific ranking is provided in **0**.

Table 16 - Assessment of Scientific Significance Criteria

Criteria	Description
Research Potential	This criteria is used to identify whether a site has the potential to contribute new information which to the interpretation of Aboriginal occupation in the area.
Rarity	This criterion examines the frequency of the identified site types with others previously recorded in the local or regional landscape.
Representativeness	All sites are representative of a site type, however, some sites may be in better condition, or demonstrate more clearly a particular site type. Representativeness is based on the understanding of extant sites in the local or regional landscape and the purpose of this criterion is to ensure a representative sample of sites area conserved for future generations.
Integrity	This refers to site intactness. A site with contextual integrity can provide information relating to chronology, social systems, tool technology, site formation processes, habitation, frequency of use as well as other occupation indicators. Moderate to high levels of disturbance will generally result in low integrity.
Educational Potential	This refers to whether the subject area contains teaching sites or sites that might have teaching potential.

Table 17 - Overall Scientific Significance

Significance	Ranking
Low Significance	5 to 7 Points
Moderate Significance	8 to 12 Points
High Significance	13 to 15 Points

To provide a coherent approach to the analysis the sites were grouped by site type and site characteristics (such as numbers of artefacts or numbers of grinding grooves). Those site types, together with a description are as follows:

Artefact scatters Artefact scatters reflect accidental loss or intentional discard of stone artefacts, when numerous artefacts are found it could reflect a campsite, a raw material procurement site or a quarry. There were nine artefact scatters comprising 8% of the identified site types, this is in contrast to the majority of sites recorded in NSW, with artefacts being the most common site type (OEH Culture and Heritage). Artefact raw materials identified in the Southern Extension Area included: silcrete; quartz; chert; tuff; and rhyolite. The position of these artefact scatters (and lack of a raw material source) suggests that these sites are the result of campsite activity. With regards to stone artefact types, two flake tools and one core was recorded, with the remainder of artefacts recorded as flakes. Three sites could be considered large for the Southern Extension Area having 11, 12 and 14 artefacts, one site had 7 artefacts and the remainder were smaller having two and three artefacts.

Culturally Modified Trees Culturally modified or scarred trees area are most often found in areas that have not been impacted on by extensive tree felling and clearing. Scarred trees are the result of the removal of bark for the production of implements. These implements can range from utensils for carrying food to shields for defence to canoes for navigating waterways. In the Southern Extension Area, scarred trees tend to be found on the upper slopes and crests, it is likely they were far more prevalent prior to the intensive logging that occurred in the 19th and 20th century. Eleven culturally modified trees were recorded in the

Southern Extension Area. Seven trees were recorded with one scar, two trees with two scars, and two trees with three scars. The scars ranged in length from 200mm long to 2,700mm long. The relatively large number of culturally modified trees recorded reflects that while the area has been extensively logged mature trees are still present. Culturally modified trees are accorded high importance in terms of site significance because there are few developed agricultural regions in the world that still have evidence of pre-modern Indigenous activity (DECC 2005: 12). As few bark artefacts remain, scarred trees have potential to inform about resource strategies of Aboriginal people.

Grinding Grooves Grinding Grooves were by far the most commonly recorded site type (51%). Of the 58 grinding groove sites recorded the majority were either single grooves or small clusters (65%). This result should be treated with caution as the drainage lines they are situated on, over time, have changed, silted over and/or been covered with vegetation. Consequently there is potential for further grooves to be present but obscured by soil and vegetation. The majority of these sites were recorded as having between one and five grooves (65%), with the larger sites having between 20 and 31 grooves (9%).

Isolated Artefacts Isolated artefacts were found to be relatively uncommon in the Southern Extension Area comprising only 3% of the sites recorded in the Southern Extension Area. Isolated finds are usually considered to be the result an isolated event such as the discard of an artefact during hunting and as such have limited interpretative value.

Rockshelter with Art Eight rockshelters with art have been recorded in the Southern Extension Area. These have been afforded the highest scientific classification because of the rarity of this site type and because of the ability of these sites to add to our knowledge of the practices of the local Aboriginal people.

Rockshelter with deposit /with PAD A rockshelter with either artefacts found on the floor or at the entrance to the shelter or with a depth of soil or debris on the shelter floor /or at the immediate entrance to the shelter that has potential for containing artefacts. A PAD designation means that while there are no visible artefacts present, it is considered there is potential for artefacts to exist sub surface. This is drawn from the evidence of high utilization of rockshelters and the entrance to rockshelters as occupation zones. These sites have high potential to add to our knowledge of Aboriginal use of the local environment.

Stone arrangements Stone arrangements comprise a collection of stones that have been deliberately placed by Aboriginal people. The arrangements may form shapes, circles or lines and have significant importance because they are often linked to ceremonial occasions. Three stone arrangements were recorded with two on a north-east trending spur and the third on a north-west trending ridgeline.

Water source The waterhole identified was formed naturally in an indentation in a boulder. The position of a water source on a ridgeline was potentially important as the nearest permanent water is up to two kilometres away. The water source has the potential to provide insight into how Aboriginal people utilised the local environment.

The most common site type recorded was Grinding Grooves (51%), Rockshelter site types combined [i.e. Rockshelter (2%); Rockshelter with art (7%); Rockshelter with PAD/with deposit (14%); and Rockshelters with art, with deposit (1%)] comprise 24% of sites. Table 18 provides a summary of the scientific assessment rating of each of the site types.

Table 18 - Scientific Assessment Rating by Site type and characteristics

Site Type	Scope of Assessment	Research Potential	Rarity	Representativeness	Integrity	Educational Potential	Local significance	Regional significance	State Significance*
Artefact Scatter (10 -14 artefacts)	Local	2	3	3	1	3	High	Low	N/A
	Regional	1	1	1	1	1			
Artefact Scatter (5 -10 artefacts)	Local	1	2	2	1	2	Moderate	Low	N/A
	Regional	1	1	1	1	1			
Artefact Scatter (2 - 4 artefacts)	Local	1	1	2	1	1	Low	Low	N/A
	Regional	1	1	1	1	1			
Culturally modified trees	Local	3	3	3	3	3	High	Moderate	N/A
	Regional	2	2	3	2	3			
Grinding groove cluster (small 1-5)	Local	2	2	2	3	2	Moderate	Moderate	N/A
	Regional	2	2	2	3	3			
Grinding groove cluster (large 6-31)	Local	3	2	3	3	3	High	Moderate	N/A
	Regional	2	2	2	3	3			
Isolated artefacts	Local	1	1	1	1	1	Low	Low	N/A
	Regional	1	1	1	1	1			
Rockshelter with art	Local	3	3	3	3	3	High	High	Nil
	Regional	3	3	3	3	3			
	State	1	1	1	1	1			
Rockshelter with deposit/PAD	Local	3	3	3	3	3	High	High	Nil
	Regional	2	3	3	2	3			
	State	1	1	1	1	1			
Stone arrangements	Local	2	3	3	2	3	High	High	Nil
	Regional	2	3	3	2	3			
	State	1	1	1	1	1			
Water source	Local	2	3	2	3	2	High	Moderate	N/A
	Regional	1	2	2	2	2			

*State significance was only assessed for sites with high regional significance

7.0 Aboriginal Cultural Heritage Sites – Impact Assessment

7.1 Background

There are two main types of activity associated with the Project which have the potential to impact on Aboriginal heritage sites: subsidence associated with underground mining and surface disturbance activities.

The primary considerations for the mining method adopted were the depth of cover to the seam ranging up to 500 metres and Mandalong Mine's existing underground mining operation to the north. Analysis of the options available for coal extraction concluded that longwall mining will provide the best option in terms of resource recovery, production efficiency, financial viability and workforce safety. On this basis, Centennial Mandalong proposes to continue using the same longwall mining techniques currently adopted to extract coal within the Southern Extension Area.

In terms of surface disturbance, the Project includes the construction and operation of a new surface facilities site in the Southern Extension Area. This is to be known as the Mandalong South Surface Site and will comprise infrastructure for mine ventilation, storage and underground delivery of stone dust, concrete and ballast, hydrocarbon storage, floxal unit, electrical reticulation, water reticulation, water management, communications and other ancillary services and activities (including bush fire asset protection zones). An access road and power easement will also be established to service the surface facilities. The disturbance footprint for the Mandalong South Surface Site will be approximately 20 hectares. There are no Aboriginal cultural heritage sites in the footprint of the Mandalong South Surface Site. There is however areas considered archaeologically sensitive and the archaeological testing program designed to address this is detailed in Section 10.

7.2 Impact Avoidance and Minimisation

Numerous mine plan options and variations were considered by Centennial Mandalong for the Southern Extension Area during the project planning phase. The proposed mine plan was developed and selected as the optimal option in light of various constraints, including the existing surface environment and Aboriginal heritage items. Where practicable, the mine plan was adjusted or refined to avoid or minimise the potential for impact on Aboriginal cultural heritage sites. This included, wherever possible, adjusting the widths of the proposed longwalls and locating the Aboriginal sites over main headings or over gateroad pillars to minimise subsidence effects.

The selected mine plan resulted in the avoidance of potential impact on 38 Aboriginal cultural heritage sites, with a further 28 sites located above roadways and pillars that provides greater ground surface stability (**Figure 8**).

7.2.1 Predicted Subsidence Effects

A subsidence assessment (Ditton Geotechnical Services 2013) has been undertaken as part of the development application for the Project. The predicted final subsidence, tilt and horizontal strain for each Aboriginal site are presented in **Table 19**.

Table 19 – Predicted Subsidence Effects At Aboriginal Heritage Sites

Site #	Site Type	Final Subsidence (mm/m)	Tilt (mm/m)	Horizontal Strain (mm/m)^
RPS TBM11	Artefact	-0.61	1.6	-2.0
RPS PS25	Artefact Scatter	-0.98	1.1	-0.2
RPS TBM03	Artefact Scatter	-0.40	2.4	-0.1
RPS TBM29	Artefact Scatter	-0.63	7.5	4.6
RPS TBM30a	Artefact Scatter	0.00	0.0	0.0
RPS TBM30b	Artefact Scatter	0.00	0.0	0.0
RPS TBM37	Artefact Scatter	-0.59	1.3	-1.5
RPS AH06	Stone Artefacts	0.00	0.0	0.0
RPS AH18	Isolated Find	0.00	0.0	0.0
RPS TBM04	Isolated Find	-0.47	4.6	-0.4
RPS TBM60	Isolated Find	0.00	0.0	0.0
RPS AH05	Scarred Tree	0.00	0.0	0.0
RPS AH12	Scarred Tree	0.00	0.0	0.0
RPS AH13	Scarred Tree	0.00	0.0	0.0
RPS AH17	Scarred Tree	0.00	0.0	0.0
RPS CYL03	Scarred Tree	0.00	0.0	0.0
RPS PS33	Scarred Tree	0.00	0.0	0.0
RPS TBM17	Scarred Tree	-0.24	3.7	0.3
RPS TBM20	Scarred Tree	-0.49	1.7	-0.4
RPS TBM22	Scarred Tree	-0.47	2.0	0.6
RPS TBM33	Scarred Tree	-0.95	1.5	-3.1
RPS TBM52	Scarred Tree	-0.44	2.3	3.7
45-3-1223	Open Camp Site	-0.96	2.8	-4.1
45-3-1224	Grinding Groove	-0.28	4.7	4.6
45-3-1225	Grinding Groove	-0.66	7.7	-1.0
45-3-1226	Grinding Groove	-1.03	1.4	0.4
45-3-1227	Grinding Groove	0.00	0.0	0.0
45-3-1234	Grinding Groove	0.00	0.0	0.0
45-3-1235	Grinding Groove	0.00	0.0	0.0
45-3-2970	Grinding Groove	-0.58	2.0	2.1
RPS AH01	Grinding Groove	-0.40	1.3	2.3
RPS AH02	Grinding Groove	-0.12	3.8	1.9
RPS AH03	Grinding Groove	-0.01	0.4	0.4
RPS AH04	Grinding Groove	0.00	0.2	0.2
RPS AH07	Grinding Groove	-0.01	1.1	0.4
RPS AH08	Grinding Groove	-0.01	1.2	0.4
RPS AH09	Grinding Groove	0.00	0.0	0.0
RPS CYL01	Grinding Groove	-0.54	4.8	-3.3
RPS CYL02	Grinding Groove	-0.18	5.2	2.0

Site #	Site Type	Final Subsidence (mm/m)	Tilt (mm/m)	Horizontal Strain (mm/m)^
RPS CYL04a	Grinding Groove	-0.41	1.3	3.6
RPS CYL04b	Grinding Groove	-0.41	1.0	3.8
RPS CYL04c	Grinding Groove	-0.45	3.8	3.0
RPS CYL05	Grinding Groove	-1.01	3.4	-1.6
RPS CYL06	Grinding Groove	-0.61	2.2	-0.5
RPS CYL07	Grinding Groove	-0.03	1.4	1.3
RPS DF01	Grinding Groove	0.00	0.0	0.0
RPS DF02	Grinding Groove	0.00	0.0	0.0
RPS DF03	Grinding Groove	-0.82	8.3	-3.0
RPS DF04	Grinding Groove	-0.77	8.5	-2.4
RPS PS11	Grinding Groove	-0.95	4.1	-4.1
RPS PS12A	Grinding Groove	-0.74	4.6	-2.1
RPS PS12B	Grinding Groove	-0.62	5.6	0.4
RPS PS26	Grinding Groove	-0.80	2.5	-0.5
RPS TBM01	Grinding Groove	0.00	0.1	0.0
RPS TBM02	Grinding Groove	-0.50	2.6	0.5
RPS TBM05	Grinding Groove	-0.57	2.7	-0.6
RPS TBM06	Grinding Groove	-0.64	0.9	-1.2
RPS TBM07	Grinding Groove	-0.54	1.5	0.9
RPS TBM08	Grinding Groove	-0.52	2.4	-0.8
RPS TBM09	Water Source	-0.68	2.5	0.3
RPS TBM10	Grinding Groove	-0.54	2.8	2.0
RPS TBM12	Grinding Groove	0.00	0.9	0.0
RPS TBM13	Grinding Groove	0.00	0.7	0.2
RPS TBM14	Grinding Groove	0.00	0.3	0.2
RPS TBM26	Grinding Groove	-0.02	0.8	0.6
RPS TBM27	Grinding Groove	0.00	0.1	0.1
RPS TBM28	Grinding Groove	0.00	0.2	0.2
RPS TBM31	Grinding Groove	-0.91	5.9	-3.2
RPS TBM34	Grinding Groove	-0.74	9.4	1.9
RPS TBM38	Grinding Groove	-0.69	3.7	-0.2
RPS TBM40	Grinding Groove	-1.03	9.0	0.1
RPS TBM43	Grinding Groove	-0.54	5.9	2.1
RPS TBM44	Grinding Groove	-0.47	2.7	3.8
RPS TBM45	Grinding Groove	-0.54	5.8	2.9
RPS TBM46	Grinding Groove	-0.69	7.3	-0.4
RPS TBM47	Grinding Groove	-0.84	2.5	-4.1
RPS TBM49	Grinding Groove	-0.44	2.5	3.1
RPS TBM50	Grinding Groove	-0.43	0.7	3.5
RPS TBM51	Grinding Groove	-0.47	4.1	3.4
RPS TBM54	Grinding Groove	-0.46	1.1	3.1
RPS TBM63	Grinding Groove	0.00	0.0	0.0

Site #	Site Type	Final Subsidence (mm/m)	Tilt (mm/m)	Horizontal Strain (mm/m)^
RPS TBM64	Grinding Groove	0.00	0.0	0.0
45-3-1228	Rockshelter + Art	-0.11	3.4	1.6
45-3-1229	Rockshelter + Art	-0.01	0.9	0.1
45-3-1230	Rockshelter + Art	0.00	0.0	0.0
45-3-1233	Rockshelter + Art	-1.04	0.2	0.7
45-3-2880	Rockshelter + Art	-0.01	0.2	0.2
45-3-2881	Rockshelter + Art	-0.01	0.3	0.2
45-3-2889	Rockshelter + Art	-0.01	0.2	0.1
RPS PS06	Rockshelter + Art + Deposit	-0.40	4.0	-0.1
45-3-1232	Rockshelter + Art	-0.39	4.3	-0.1
45-3-1231	Rockshelter + Deposit	-0.72	0.6	-0.7
RPS AH10	Rockshelter + PAD	0.00	0.0	0.0
RPS AH11	Rockshelter + PAD	0.00	0.0	0.0
RPS AH16	Rockshelter + PAD	0.00	0.0	0.0
RPS PS08	Rockshelter + PAD	-0.52	3.1	-0.4
RPS PS09	Rockshelter + PAD	-0.47	3.5	-0.3
RPS PS20	Rockshelter + PAD	-0.72	0.8	-0.7
RPS PS22	Rockshelter + PAD	-0.69	1.4	-0.4
RPS PS28	Rockshelter + PAD	-1.02	1.4	-0.6
RPS PS32	Rockshelter + PAD	-0.92	3.6	-1.3
RPS TBM19	Rockshelter + PAD	-0.46	2.2	-0.6
RPS TBM35	Rockshelter + PAD	-0.56	1.9	-0.3
RPS TBM41	Rockshelter + PAD	-1.12	3.4	-1.2
RPS TBM42	Rockshelter + PAD	-1.16	3.5	0.0
RPS TBM53	Rockshelter + PAD	-0.46	2.2	3.1
RPS TBM58	Rockshelter + PAD	0.00	0.0	0.0
45-3-3436	Rockshelter	-0.53	2.6	-0.1
45-3-3437	Rockshelter	-0.42	0.6	0.9
45-3-3438	Rockshelter	-0.30	3.1	-0.2
RPS AH14	Stone Arrangement	0.00	0.0	0.0
RPS AH15	Stone Arrangement	0.00	0.0	0.0
RPS TBM32	Stone Arrangement	-0.93	3.1	-2.5

^ - Tensile strain is positive.

Source: Ditton Geotechnical Services 2013

7.3 Potential Impacts

The likelihood of damage occurring at the sites has been assessed based on the following impact parameter criteria (**Table 20**) by Ditton Geotechnical Services (2013). The criteria consider the theoretical cracking limits of rock of 0.3 to 0.5 mm/m and the 'system' slackness or strain 'absorbing' properties of a jointed and weathered rock mass during subsidence deformation. The lack of measured observed impact (i.e. surface cracking) due to measured strains of up to 2 to 3 mm/m above the Mandalong Mine is an example of the

difference between theoretical and in-situ rock mass cracking behaviour (Ditton Geotechnical Services 2013).

Table 20 – Impact Potential Criteria for Aboriginal Heritage Sites

Cracking Damage Potential - Indicative Probabilities of Occurrence	Predicted 'smooth profile' Horizontal Strain (mm/m)	
	Tensile	Compressive
Very Unlikely (<5%)	<0.5	<2
Unlikely (5 - 10%)	0.5 - 1.5	2 - 3
Possible (10 - 25%)	1.5 - 2.5	3 - 5
Likely (>25%)	>2.5	>5
Erosion Damage Potential - Indicative Probabilities of Occurrence	Predicted Surface Gradient Change or Tilt Increase	
	<0.3% (<3 mm/m)	
	0.3-1% (3 - 10 mm/m)	
	1-3% (10 - 30 mm/m)	
	>3% (>30 mm/m)	

Source: Ditton Geotechnical Services 2013

The 'Cracking Damage Potential' is considered the primary damage potential indicator and the 'Erosion Damage Potential' is an additional secondary criterion that is relevant to features exposed to concentrated water flows along creeks or sites that have been damaged by cracking. Therefore, for the cases where cracking is deemed 'possible' or 'likely' at a site, the potential for erosion damage will also be considered 'possible' or 'likely' (Ditton Geotechnical Services 2013).

The results of the impact assessment to Aboriginal sites are presented in **Table 21**.

Table 21 – Predicted Subsidence Impacts At Aboriginal Heritage Sites

Site No	Site Type	Subsidence (m)	Horizontal Strain (mm/m)^	Cracking Damage Potential*	Tilt (mm/m)	Erosion Damage Potential *
RPS TBM11	Artefact	-0.61	-2.0	V. Unlikely	1.6	V. Unlikely
RPS PS25	Artefact Scatter	-0.98	-0.2	V. Unlikely	1.1	V. Unlikely
RPS TBM03	Artefact Scatter	-0.40	-0.1	V. Unlikely	2.4	V. Unlikely
RPS TBM29	Artefact Scatter	-0.63	4.6	Likely	7.5	Likely
RPS TBM30a	Artefact Scatter	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM30b	Artefact Scatter	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM37	Artefact Scatter	-0.59	-1.5	V. Unlikely	1.3	V. Unlikely
RPS AH06	Stone Artefacts	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH18	Isolated Find	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM04	Isolated Find	-0.47	-0.4	V. Unlikely	4.6	Unlikely
RPS TBM60	Isolated Find	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH05	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH12	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH13	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH17	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS CYL03	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS PS33	Scarred Tree	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM17	Scarred Tree	-0.24	0.3	V. Unlikely	3.7	Unlikely
RPS TBM20	Scarred Tree	-0.49	-0.4	V. Unlikely	1.7	V. Unlikely
RPS TBM22	Scarred Tree	-0.47	0.6	Unlikely	2.0	V. Unlikely
<i>RPS TBM33</i>	<i>Scarred Tree</i>	<i>-0.95</i>	<i>-3.1</i>	<i>Possible</i>	<i>1.5</i>	<i>V. Unlikely</i>
RPS TBM52	Scarred Tree	-0.44	3.7	Likely	2.3	Likely
<i>45-3-1223</i>	<i>Open Camp Site</i>	<i>-0.96</i>	<i>-4.1</i>	<i>Possible</i>	<i>2.8</i>	<i>V. Unlikely</i>
45-3-1224	Grinding Groove	-0.28	4.6	Likely	4.7	Likely
45-3-1225	Grinding Groove	-0.66	-1.0	V. Unlikely	7.7	Unlikely
45-3-1226	Grinding Groove	-1.03	0.4	V. Unlikely	1.4	V. Unlikely
45-3-1227	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
45-3-1234	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
45-3-1235	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
<i>45-3-2970</i>	<i>Grinding Groove</i>	<i>-0.58</i>	<i>2.1</i>	<i>Possible</i>	<i>2.0</i>	<i>V. Unlikely</i>
<i>RPS AH01</i>	<i>Grinding Groove</i>	<i>-0.40</i>	<i>2.3</i>	<i>Possible</i>	<i>1.3</i>	<i>V. Unlikely</i>
<i>RPS AH02</i>	<i>Grinding Groove</i>	<i>-0.12</i>	<i>1.9</i>	<i>Possible</i>	<i>3.8</i>	<i>Unlikely</i>
RPS AH03	Grinding Groove	-0.01	0.4	V. Unlikely	0.4	V. Unlikely
RPS AH04	Grinding Groove	0.00	0.2	V. Unlikely	0.2	V. Unlikely
RPS AH07	Grinding Groove	-0.01	0.4	V. Unlikely	1.1	V. Unlikely
RPS AH08	Grinding Groove	-0.01	0.4	V. Unlikely	1.2	V. Unlikely
RPS AH09	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
<i>RPS CYL01</i>	<i>Grinding Groove</i>	<i>-0.54</i>	<i>-3.3</i>	<i>Possible</i>	<i>4.8</i>	<i>Unlikely</i>
<i>RPS CYL02</i>	<i>Grinding Groove</i>	<i>-0.18</i>	<i>2.0</i>	<i>Possible</i>	<i>5.2</i>	<i>Unlikely</i>
RPS CYL04a	Grinding Groove	-0.41	3.6	Likely	1.3	Likely

Site No	Site Type	Subsidence (m)	Horizontal Strain (mm/m)^	Cracking Damage Potential*	Tilt (mm/m)	Erosion Damage Potential *
RPS CYL04b	Grinding Groove	-0.41	3.8	Likely	1.0	Likely
RPS CYL04c	Grinding Groove	-0.45	3.0	Likely	3.8	Likely
RPS CYL05	Grinding Groove	-1.01	-1.6	V. Unlikely	3.4	Unlikely
RPS CYL06	Grinding Groove	-0.61	-0.5	V. Unlikely	2.2	V. Unlikely
RPS CYL07	Grinding Groove	-0.03	1.3	Unlikely	1.4	V. Unlikely
RPS DF01	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS DF02	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
<i>RPS DF03</i>	<i>Grinding Groove</i>	<i>-0.82</i>	<i>-3.0</i>	<i>Possible</i>	<i>8.3</i>	<i>Unlikely</i>
RPS DF04	Grinding Groove	-0.77	-2.4	Unlikely	8.5	Unlikely
<i>RPS PS11</i>	<i>Grinding Groove</i>	<i>-0.95</i>	<i>-4.1</i>	<i>Possible</i>	<i>4.1</i>	<i>Unlikely</i>
RPS PS12A	Grinding Groove	-0.74	-2.1	Unlikely	4.6	Unlikely
RPS PS12B	Grinding Groove	-0.62	0.4	V. Unlikely	5.6	Unlikely
RPS PS26	Grinding Groove	-0.80	-0.5	V. Unlikely	2.5	V. Unlikely
RPS TBM01	Grinding Groove	0.00	0.0	V. Unlikely	0.1	V. Unlikely
RPS TBM02	Grinding Groove	-0.50	0.5	Unlikely	2.6	V. Unlikely
RPS TBM05	Grinding Groove	-0.57	-0.6	V. Unlikely	2.7	V. Unlikely
RPS TBM06	Grinding Groove	-0.64	-1.2	V. Unlikely	0.9	V. Unlikely
RPS TBM07	Grinding Groove	-0.54	0.9	Unlikely	1.5	V. Unlikely
RPS TBM08	Grinding Groove	-0.52	-0.8	V. Unlikely	2.4	V. Unlikely
<i>RPS TBM10</i>	<i>Grinding Groove</i>	<i>-0.54</i>	<i>2.0</i>	<i>Possible</i>	<i>2.8</i>	<i>V. Unlikely</i>
RPS TBM12	Grinding Groove	0.00	0.0	V. Unlikely	0.9	V. Unlikely
RPS TBM13	Grinding Groove	0.00	0.2	V. Unlikely	0.7	V. Unlikely
RPS TBM14	Grinding Groove	0.00	0.2	V. Unlikely	0.3	V. Unlikely
RPS TBM26	Grinding Groove	-0.02	0.6	Unlikely	0.8	V. Unlikely
RPS TBM27	Grinding Groove	0.00	0.1	V. Unlikely	0.1	V. Unlikely
RPS TBM28	Grinding Groove	0.00	0.2	V. Unlikely	0.2	V. Unlikely
<i>RPS TBM31</i>	<i>Grinding Groove</i>	<i>-0.91</i>	<i>-3.2</i>	<i>Possible</i>	<i>5.9</i>	<i>Unlikely</i>
<i>RPS TBM34</i>	<i>Grinding Groove</i>	<i>-0.74</i>	<i>1.9</i>	<i>Possible</i>	<i>9.4</i>	<i>Unlikely</i>
RPS TBM38	Grinding Groove	-0.69	-0.2	V. Unlikely	3.7	Unlikely
RPS TBM40	Grinding Groove	-1.03	0.1	V. Unlikely	9.0	Unlikely
<i>RPS TBM43</i>	<i>Grinding Groove</i>	<i>-0.54</i>	<i>2.1</i>	<i>Possible</i>	<i>5.9</i>	<i>Unlikely</i>
RPS TBM44	Grinding Groove	-0.47	3.8	Likely	2.7	Likely
RPS TBM45	Grinding Groove	-0.54	2.9	Likely	5.8	Likely
RPS TBM46	Grinding Groove	-0.69	-0.4	V. Unlikely	7.3	Unlikely
<i>RPS TBM47</i>	<i>Grinding Groove</i>	<i>-0.84</i>	<i>-4.1</i>	<i>Possible</i>	<i>2.5</i>	<i>V. Unlikely</i>
RPS TBM49	Grinding Groove	-0.44	3.1	Likely	2.5	Likely
RPS TBM50	Grinding Groove	-0.43	3.5	Likely	0.7	Likely
RPS TBM51	Grinding Groove	-0.47	3.4	Likely	4.1	Likely
RPS TBM54	Grinding Groove	-0.46	3.1	Likely	1.1	Likely
RPS TBM63	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM64	Grinding Groove	0.00	0.0	V. Unlikely	0.0	V. Unlikely

Site No	Site Type	Subsidence (m)	Horizontal Strain (mm/m)^	Cracking Damage Potential*	Tilt (mm/m)	Erosion Damage Potential *
45-3-1228	Rockshelter + Art	-0.11	1.6	Possible	3.4	Unlikely
45-3-1229	Rockshelter + Art	-0.01	0.1	V. Unlikely	0.9	V. Unlikely
45-3-1230	Rockshelter + Art	0.00	0.0	V. Unlikely	0.0	V. Unlikely
45-3-1233	Rockshelter + Art	-1.04	0.7	Unlikely	0.2	V. Unlikely
45-3-2880	Rockshelter + Art	-0.01	0.2	V. Unlikely	0.2	V. Unlikely
45-3-2881	Rockshelter + Art	-0.01	0.2	V. Unlikely	0.3	V. Unlikely
45-3-2889	Rockshelter + Art	-0.01	0.1	V. Unlikely	0.2	V. Unlikely
RPS PS06	Rockshelter + Art + Deposit	-0.40	-0.1	V. Unlikely	4.0	Unlikely
45-3-1232	Rockshelter + Art	-0.39	-0.1	V. Unlikely	4.3	Unlikely
45-3-1231	Rockshelter + Deposit	-0.72	-0.7	V. Unlikely	0.6	V. Unlikely
RPS AH10	Rockshelter + PAD	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH11	Rockshelter + PAD	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH16	Rockshelter + PAD	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS PS08	Rockshelter + PAD	-0.52	-0.4	V. Unlikely	3.1	Unlikely
RPS PS09	Rockshelter + PAD	-0.47	-0.3	V. Unlikely	3.5	Unlikely
RPS PS20	Rockshelter + PAD	-0.72	-0.7	V. Unlikely	0.8	V. Unlikely
RPS PS22	Rockshelter + PAD	-0.69	-0.4	V. Unlikely	1.4	V. Unlikely
RPS PS28	Rockshelter + PAD	-1.02	-0.6	V. Unlikely	1.4	V. Unlikely
RPS PS32	Rockshelter + PAD	-0.92	-1.3	V. Unlikely	3.6	Unlikely
RPS TBM19	Rockshelter + PAD	-0.46	-0.6	V. Unlikely	2.2	V. Unlikely
RPS TBM35	Rockshelter + PAD	-0.56	-0.3	V. Unlikely	1.9	V. Unlikely
RPS TBM41	Rockshelter + PAD	-1.12	-1.2	V. Unlikely	3.4	Unlikely
RPS TBM42	Rockshelter + PAD	-1.16	0.0	V. Unlikely	3.5	Unlikely
RPS TBM53	Rockshelter + PAD	-0.46	3.1	Likely	2.2	Likely
RPS TBM58	Rockshelter + PAD	0.00	0.0	V. Unlikely	0.0	V. Unlikely
45-3-3436	Rockshelter	-0.53	-0.1	V. Unlikely	2.6	V. Unlikely
45-3-3437	Rockshelter	-0.42	0.9	Unlikely	0.6	V. Unlikely
45-3-3438	Rockshelter	-0.30	-0.2	V. Unlikely	3.1	Unlikely
RPS AH14	Stone Arrangement	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS AH15	Stone Arrangement	0.00	0.0	V. Unlikely	0.0	V. Unlikely
RPS TBM32	Stone Arrangement	-0.93	-2.5	Unlikely	3.1	Unlikely
RPS TBM09	Water Source	-0.68	0.3	V. Unlikely	2.5	V. Unlikely

^ - Tensile strain is positive; V. Unlikely - Very Unlikely; * - see Table 20 for Impact Potential definitions.

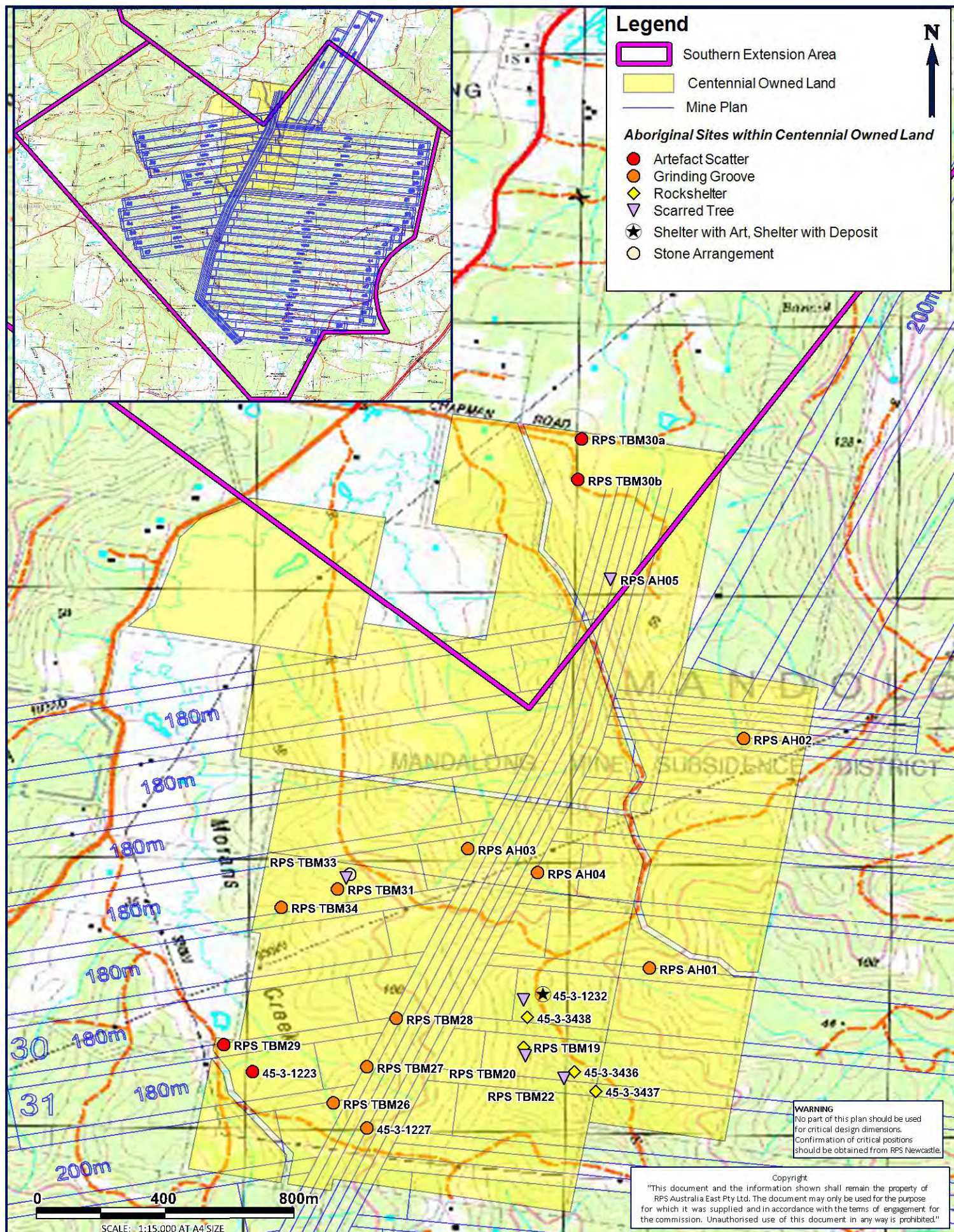
Source: Ditton Geotechnical Services 2013

The results in **Table 21** indicate the following potential impacts to the Aboriginal Heritage Sites due to the proposed longwalls:

- One artefact scatter site is 'likely' to be impacted or lost into surface cracking by erosional processes and one site may be 'possibly' impacted.
- One scared tree site is 'likely' to be impacted by surface cracking and one site may 'possibly' be impacted.
- Ten grinding groove sites are 'likely' to be impacted by cracking and 12 may 'possibly' be impacted.
- One rockshelter with PAD is 'likely' to be impacted by cracking and erosion damage.
- One rockshelter with Art may 'possibly' be impacted by cracking and erosion damage.

All other sites are 'unlikely' or 'very unlikely' to be affected by surface cracking and erosion damage.

Overall, it is assessed that 13 of the 113 sites (12% of known sites) are 'likely' to be impacted by surface cracking and erosion damage, and 15 of the 113 site (13%) may 'possibly' be impacted by surface cracking and erosion damage.



TITLE: FIGURE 8: CENTENNIAL OWNED LAND WITH ABORIGINAL CULTURAL HERITAGE SITES AND AHMS

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 6/02/2013
PURPOSE: HERITAGE

LAYOUT REF: J:\08\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): AA4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

8.0 Aboriginal Site Identification, Monitoring and Management

In order to monitor and manage Aboriginal sites, Centennial commissioned the development of an Aboriginal Cultural Heritage Management Plan (ACHMP) which covers Centennial's Northern Holdings and includes the area covered by the Mandalong Southern Extension Project (RPS 2012). The ACHMP was developed in consultation with the Registered Aboriginal Parties and relevant government agencies. The ACHMP outlines procedures for monitoring sites so that any effects of subsidence can be assessed and appropriate mitigation measures implemented. The relevant sections of this ACHMP have been reproduced in this document.

All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with the ACHMP (RPS 2012).

While the field survey carried out as part of this heritage assessment was extensive there were some areas that were not investigated, most commonly because of private landownership access issues. Prior to the mining under these areas Centennial Mandalong should endeavour to gain access to properties so that cultural heritage surveys can be conducted by suitably qualified and experienced archaeologists. Any new sites located should be recorded as required under legislation and monitored and managed in accordance with the protocols detailed in the ACHMP (RPS 2012).

The aim of the monitoring program is to identify the potential for harm to Aboriginal sites as a result of mining activities and to identify appropriate mitigation strategies to be implemented, if required. Mitigation measures will be determined in consultation with the Registered Aboriginal Parties. This monitoring program has been developed in accordance with the principles of due diligence as defined by the NP&W Regulation 2009. While the broad principles of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010) and the NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects (Minerals Council 2010) have been adopted; additional (and more specific heritage) management protocols have been developed to manage the complexities of mining activities, the nature of the Aboriginal sites present and the assessment of harm. The monitoring program involves a staged assessment of potential impacts, as well as providing a framework for implementation of mitigation measures. Due to the staged nature of the monitoring program, the effectiveness and reliability of measures can be assessed during the latter stages of monitoring to ensure that any residual impacts are addressed after mitigation measures have been implemented.

The monitoring program requires the recording of the condition of the site before mining (baseline survey and baseline check) and the condition of the site after mining (post mining initial condition and post mining secondary condition check) with the program separated into three phases:

- Phase 1: Baseline recording (prior to site being undermined)
- Phase 2: Post mining initial condition (within a reasonable time-frame following undermining)
- Phase 3: Post mining secondary condition (approximately 8 months after undermining)
- Phase 3a: (Longwall Mining) - In instances where final subsidence is not achieved until after a number of longwall extractions have taken place, then additional inspections by a qualified cultural heritage consultant may be required to assess any further risks to Aboriginal sites.

Phase 1, the baseline survey aims to record the condition of the site before mining (for example, has a scarred tree tilted prior to mining as result of tree growth or, is there cracking of a rockshelter site due to natural weathering processes). **Phase 2**, the post mining initial condition check is to establish whether there has been any change to site and, if change has occurred, whether it is from the effects of subsidence. The purpose of **Phase 3**, the post mining secondary condition check, is to identify whether there has been any change to the site in the period since mining and to make an assessment on whether the ground surface

conditions have stabilised. If ground surface conditions have stabilised, then further monitoring should not be required.

Note: Access to Aboriginal sites to undertake monitoring is subject to landowner approval.

8.1.1 Monitoring Protocols for Structurally Sensitive Sites (Grinding Grooves, Stone Arrangements & Rockshelters)

Phase 1: In order to manage rockshelter/grinding groove site, a baseline recording must be undertaken before the commencement of mining. This baseline recording must include the following:

- Detailed archaeological recording;
- Archival-quality photos; and
- The designation of survey control points for monitoring.

The heritage consultant will be responsible for undertaking the detailed recording and taking photographs of the site and observations of the rock morphology (surface) should be recorded. The archival-quality photographs should be taken in accordance with OEH and Heritage Branch guidelines. A 3D terrestrial scan of the rockshelter/grinding groove site(s) may also be considered if appropriate.

A minimum of six control points should be nominated on the rockshelter/grinding groove site(s). The recording of control points must be undertaken by a suitably qualified surveyor (appointed by Centennial or heritage consultant) in consultation with the heritage consultant using a total station (or better equipment if available). The purpose of the control points is to provide points of reference on the rockshelter/grinding groove in order to later monitor the effects of subsidence. The location of these control points should preferably be tied to known surveyed points outside the zone of influence and/or other permanent points such as electricity transmission towers.

Measures to reduce potential adverse impacts to sites as a result of mining activities are to be considered in consultation with the Aboriginal Parties.

Phase 2: Within a reasonable timeframe after the completion of undermining, the condition of the site must be reinspected and the condition of the site compared to the last documented results. Again, observations of the rock morphology (surface) should also be recorded, particularly if there is widening of existing cracks and/or development of new cracks. Signs of sheet erosion or exfoliation must also be recorded and archived. This data must be compared to recorded information in Phase 1.

If the site is assessed to be at a greater risk of harm as a result of mining activities, Centennial must notify and inform the OEH (Environment Line: 131 555) that there is a potential for harm to the site and follow the advice given by OEH.

Phase 3: The post mining secondary check must be undertaken approximately eight months after the mining activity was finished. A final check of the six control point measurements must be undertaken and compared to previous results. If there are no changes to the rock surface morphology, widening of existing cracks or signs of sheet erosion/surface exfoliation, then no further monitoring is required.

If there is a discrepancy from the baseline recording, and determined to be as a result of subsidence, Centennial must contact a suitably qualified cultural heritage consultant to assess the potential risk of harm to the site. The appropriate mitigation measures provided by the inspecting heritage consultant must be followed and implemented accordingly.

Phase 3a: (Longwall Mining) - In instances where final subsidence is not achieved until after a number of longwall extractions have taken place, then additional inspections by a qualified cultural heritage consultant may be required to assess any further risks to Aboriginal sites.

8.2 Monitoring Protocols for Scarred Trees/Carved Trees

Phase 1: A baseline recording of the site's condition must be ascertained and tabulated for future monitoring purposes. The baseline assessment will involve recording the position and tilt of the tree prior to sub-surface mining. The baseline recording requires the following measurements to be recorded:

- Level of the tree (base);
- V-notch (top) tilt measurement (as an easting and northing location);
- V-notch (top) level;
- V-notch (bottom) tilt measurement (as an easting and northing location);
- V-notch (bottom) level; and
- Degree of tilt.

Phase 2: The tilt and condition of the scarred/carved tree must be re-assessed immediately post mining. During the monitoring, if it is identified that the tilt of the tree exceeds 10° from the baseline recording, Centennial must endeavour to protect the tree from further tilting by erecting a non-invasive framework which may be in the form of bracing or other exterior supports. In this instance, Centennial must inform and notify the OEH (Environmental Line: 131 555) that there is a potential for harm to the site.

Phase 3: The post mining secondary check must be undertaken approximately 8 months after the mining activity has finished. The inspection is required to make an assessment on whether the ground surface conditions have stabilised. If ground conditions have stabilised and no change to the site's condition is observed, then no further monitoring should be required.

If it is identified that the tilt of the tree exceeds 10° from the baseline recording, Centennial must endeavour to protect the tree from further tilting by erecting a non-invasive framework to prevent further tilt to the tree where possible. Centennial must also inform and notify the OEH (Environment Line: 131 555) that there is a potential for harm to the site and follow the advice given by OEH.

Phase 3a: (Longwall Mining) - In instances where final subsidence is not achieved until after a number of longwall extractions have taken place, then additional inspections by a qualified cultural heritage consultant may be required to assess any further risks to Aboriginal sites.

8.3 Monitoring Protocols for Artefact Scatters and Isolated Finds

Once an open site has been assessed to be at risk of harm and it is not feasible for Centennial to modify the mining footprint to eliminate the risk, then irrespective of whether the risk is related to surface facilities and/or ground surface subsidence the following protocol must be adopted.

Phase 1: Immediately before the commencement of mining activity, a baseline check of the sites condition must be undertaken. The purpose of this exercise is to document the condition of the site immediately before mining related activities take place and gauge whether there are impacts to the site related to natural processes rather than mining activities. Monitoring of the site should be undertaken using the following documentation methods:

- Digital photography (scaled as appropriate);
- Field notes to record the current condition and status of the site;
- GPS (using differential, preferably) to locate and confirm site location; and

- Produce a site plan using baseline and offsets (tape measure), or GPS plotted polygons, as appropriate

During the due diligence inspection and baseline recording, the location of the site must be verified using a GPS and the site dimensions and content must be confirmed. Photos of the site need to be taken so that the overall condition can be documented.

If the site is determined by the archaeologist and representatives of the Aboriginal Parties to be at an inappropriate risk of harm, consideration should be given to salvage the artefacts with the aim of returning the objects to their original location after the completion of mining following notification of OEH.

Phase 2: Within a reasonable timeframe after the completion of undermining, the condition of the site must be reinspected and the condition of the site compared to the last documented results. If the level of harm to the site becomes evident immediately post-mining, Centennial must endeavour to protect the site from further harm for example, by using non-invasive barrier fencing to prevent erosion. The Centennial Environmental Team must notify and inform OEH (Environment Line: 131 555) if that there is a potential for harm to the site and follow the advice given by OEH.

Phase 3: The post mining secondary check must be undertaken approximately 8 months after the mining activity has finished. The inspection is required to make an assessment on whether the ground surface conditions have stabilised. If ground conditions have stabilised and no changes to site condition is observed, then no further monitoring should be required. If noticeable amounts of erosion or disturbance is identified, Centennial's Environmental Team must also notify and inform OEH (Environment Line: 131 555) that there is a potential for harm to the site and follow the advice given by OEH.

Phase 3a: (Longwall Mining) - In instances where final subsidence is not achieved until after a number of longwall extractions have taken place, then additional inspections by a qualified cultural heritage consultant may be required to assess any further risks to Aboriginal sites.

9.0 Offset Measures

As outlined in Section 7.0, the proposed mine plan was developed and selected as the optimal option in light of various constraints, including the existing surface environment and Aboriginal heritage items. Where practicable, the mine plan was adjusted or refined to avoid or minimise the potential for impact on Aboriginal cultural heritage sites. This included, wherever possible, adjusting the widths of the proposed longwalls and locating the Aboriginal sites over main headings or over gateroad pillars to minimise subsidence effects.

In summary, it is assessed that 13 of the 113 sites (12% of known sites) are 'likely' to be impacted by surface cracking and erosion damage, and 15 of the 113 site (13%) may 'possibly' be impacted by surface cracking and erosion damage. All other sites are 'unlikely' or 'very unlikely' to be impacted.

While monitoring and mitigation measures have been developed to manage the Aboriginal heritage sites, given there is a possibility that some sites will be impacted or destroyed as a result of the Project, Centennial Mandalong will adopt the following additional measures to offset such impacts.

9.1 Access

This Heritage Impact Assessment prepared as part of the EIS for the Project is supported by the ACHMP (2012) development in consultation with the Registered Aboriginal Parties and the relevant government agencies for all of Centennial Coal's northern holdings. Together, these reports set a strategy for the management of identified Aboriginal cultural heritage sites and also a framework of consultation and engagement with the Aboriginal community for the life of Centennial Coal's projects within its northern holdings.

A consequence of the historical development of land has seen the loss of Aboriginal cultural heritage sites through disturbance, destruction and restricted access due to private land ownership. Centennial Coal's landholdings within the Southern Extension Area contain a number of Aboriginal cultural heritage sites and through this Heritage Impact Assessment and the ACHMP an opportunity has been identified to allow Aboriginal community access to a number of Aboriginal sites which would not have been otherwise possible.

As a strategy to off-set the impacts on Aboriginal cultural heritage sites, Centennial Coal will formalise an agreement to authorise access to suitable areas within its landholdings in the Southern Extension Area to the Aboriginal community, allowing for cultural preservation, development, education and management of these important sites. This strategy will be supported via the ongoing consultation and engagement framework for all of Centennial Coal's operations that has been set out in the ACHMP. **Figure 8** shows the Centennial land holdings together with Aboriginal cultural heritage sites and AHIMS.

9.2 Research

Centennial will undertake research activities on:

- Two Aboriginal rockshelter sites located on Centennial-owned land in consultation with the Registered Aboriginal Parties and OEH. Of all site types in the Southern Extension Area, rockshelters have the greatest potential to add to the cultural record. The research programme will involve detailed investigations into the rockshelter art and/or PADS to improve the cultural knowledge and understating of how the area was utilised by the Aboriginal people; and
- Subsidence monitoring and trial mitigation works for a grinding groove site that is located on Centennial-owned land and over the proposed longwall mining area. The research programme will be developed in consultation with OEH and the Registered Aboriginal Parties.

These detailed investigations have potential to improve the cultural knowledge and understanding of how the hinterland of Lake Macquarie was utilised by Aboriginal people.

10.0 Mandalong South Surface Site

The Project includes the construction and operation of a new surface facilities site in the Southern Extension Area. This is to be known as the Mandalong South Surface Site and will comprise infrastructure for mine ventilation, storage and underground delivery of stone dust, concrete and ballast, hydrocarbon storage, floxal unit, electrical reticulation, water reticulation, water management, communications and other ancillary services and activities (including bush fire asset protection zones). An access road and power easement will also be established to service the surface facilities. The disturbance footprint for the Mandalong South Surface Site will be approximately 20 hectares.

The conceptual layout of the proposed Mandalong South Surface Site together with the identified Aboriginal cultural heritage sites is shown in Figure 9. The Mandalong South Surface Site is located on a mid slope bench of a ridge line and is flanked by watercourses associated with Morans Creek. The access road runs along the top of the ridge and then across the creek flat associated with Morans Creek. The Mandalong South Surface Site is in close proximity (65-200 metres) to eight Aboriginal cultural heritage sites and the surfaces facilities (including access road) crosses three areas with potential for archaeological deposit (Figure 9). Mitigation strategies (archaeological testing) are therefore required before construction of the surface facilities. In addition during construction fencing should be erected to protect nearby sites from inadvertent impact.

10.1 Archaeological Testing – Prior to Construction

Archaeological testing is recommended in three areas (**Figure 9**). Archaeological testing is required under the Code of Practice (DECCW 2010) if it is considered that there is a high probability of Aboriginal objects being present in an area where disturbance cannot be substantially avoided. Archaeological testing requires consultation and the development of a sampling strategy (DECCW 2012:25). The three areas: Area A; Area B; and Area C have been selected because of their potentially archaeologically sensitive landform and topographic characteristics.

Area A this area is archaeologically sensitive because of its location between two watercourses (similar to artefact scatters RPS TBM 30a and 30b) and its location on a bench along a ridgeline and in close proximity to rockshelter sites. Artefact sites have been identified in similar locations between watercourses (RPS TBM 30a and 30b); on ridgeline locations (RPS PS25; RPS TBM 60; and RPS TBM04) and on benches below rockshelters (TBM04 and RPS TBM60). Ground surface visibility and exposure around the proposed Mandalong South Surface Site was low which hindered the identification of surface artefacts. Given the identification of artefacts in similar locations; Area A is assessed to have moderate subsurface archaeological potential.

Area B is located on the toe slope of a ridgeline and overlooks tributaries to Morans Creek; artefact scatters (RPS TBM30a and 30b) were identified in a similar landform and topographic location. RPS TBM 30a also had the highest number of surface artefacts in the Southern Extension Area. The landform of Area B is assessed to have moderate-high subsurface archaeological potential.

Area C is located within 100m of Morans Creek on a slightly elevated rise, artefact sites have been identified in similar location near watercourses on the valley floor (e.g. AHIMS 45-3-1223; RPS TBM11; RPS TBM29; and RPS TBM37). Due to the type of landform and its proximity to Morans Creek, Area C is assessed to have moderate potential for subsurface archaeological deposit.

Before the commencement of construction works Areas A, B and C should be subject to subsurface archaeological testing under the guiding principles of the Code of Practice (DECCW 2010) where applicable. If Aboriginal cultural heritage material is identified then the ACHMP is to be implemented. In brief this requires application for a Care and Control Agreement from OEH and/or salvage of artefacts.

If during works human remains are identified; all works must halt in the immediate area and the NSW Police are to be contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Environmental Line on 131555 and representatives of the local Aboriginal community. No work may proceed prior to the proponent having received written notification from OEH.

10.2 Installation of Fencing

Aboriginal sites (RPS TBM31, RPS TBM 32, RPS TBM33, RPS AH03 and RPS TBM28) occur in catchment areas below the proposed surface facility footprint (65m-200m). To ensure there is no sediment runoff which could potentially impact these sites, sediment fencing should be installed during construction with appropriate drains established to ensure water is drained away from the sites.

Aboriginal sites (RPS TBM17, AHIMS 45-3-1232 and AHIMS45-3-3438) are 150m upslope and southeast of the surface facilities. This area should be cordoned off with high-visibility fencing to ensure that no works (including tree clearance) impact these sites. A suitable fencing method is shown in Plate 35; fencing may be removed after construction provided there is no ongoing risk of harm to the Aboriginal site/s.

11.0 Pre-Exploration Planning and Mitigation Strategies to Avoid Harm to Aboriginal Sites

In the event that Centennial Mandalong is to undertake exploration drilling inside the Project Area, the OEH Due Diligence Guidelines must be followed where a suitably qualified heritage consultant must be engaged to conduct a due diligence assessment of the following:

- All proposed borehole drilling locations;
- Areas of existing tracks which must be enlarged to accommodate for the drill rig; and
- Areas which must be cleared for drill site pad construction.

The purpose of the due diligence assessment is to ensure that practical measures are taken to prevent harm to Aboriginal objects or places. The code provides practical steps for land owners and organisations to identify whether or not Aboriginal objects are, or are likely to be present and to make an informed decision as to whether proposed activities are likely to harm those objects.

In the process of conducting a due diligence assessment to determine if Aboriginal sites/objects are present, the areas of proposed drilling must also be assessed for heritage items by the heritage consultant.

If the due diligence assessment results show that the proposed borehole locations are clear of Aboriginal sites and heritage items, Centennial Mandalong is to keep a copy of the due diligence report onsite once approval has been granted before proceeding with drilling works.

If Aboriginal sites were identified; Centennial Mandalong in consultation with the heritage consultant should attempt to move the borehole location in question to an area with no heritage constraints and/or develop an alternative mitigation measure to avoid harm to the site (ie: cordon off the area with sensitive material culture). A copy of the due diligence report must also be kept onsite by Centennial Mandalong for reference.

If Aboriginal sites are identified and Centennial Mandalong is unable to move the proposed borehole location to an area of no heritage constraints, then Centennial Mandalong must apply for an AHIP application and receive approval from OEH before proposed works may proceed.

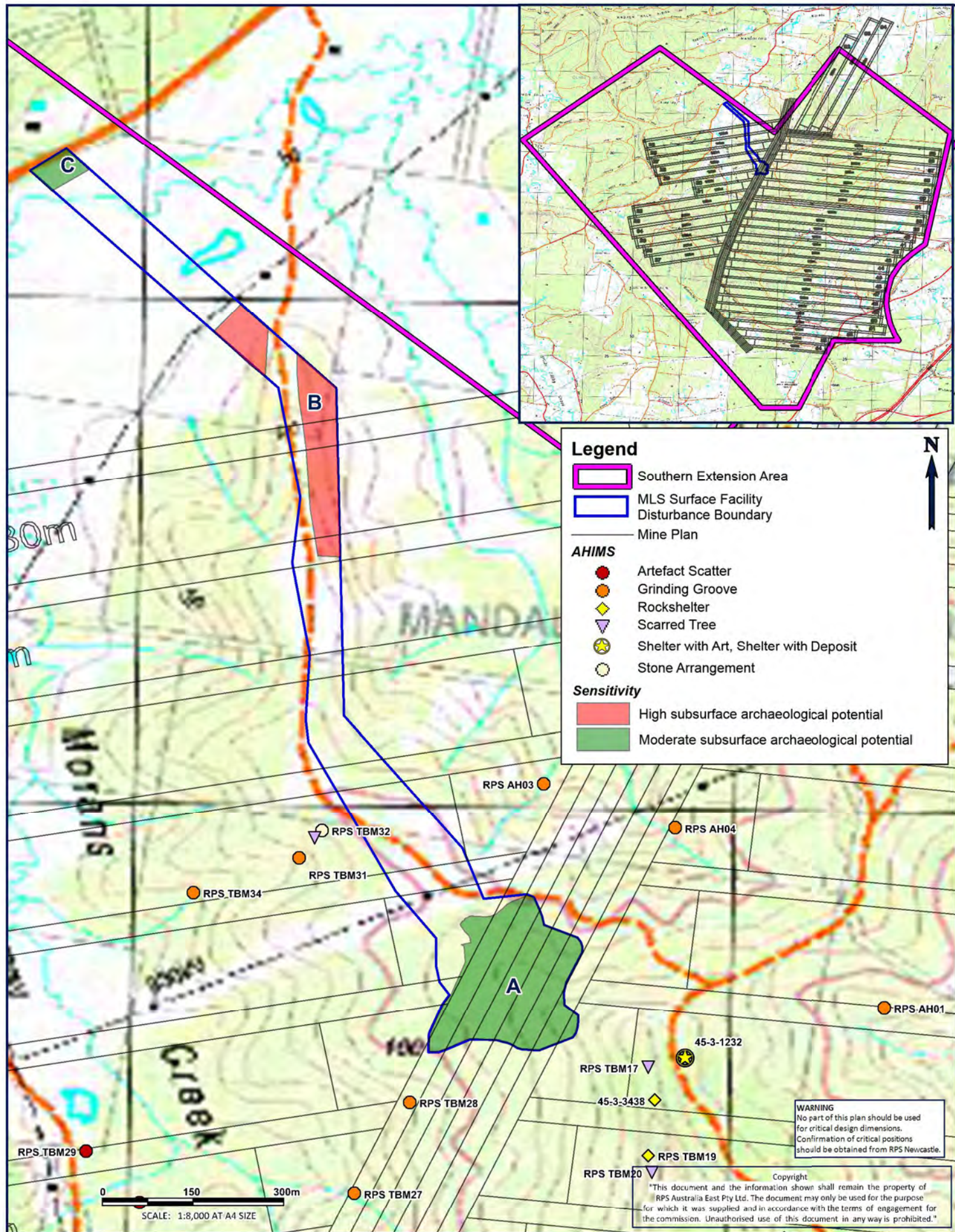
In the event that heritage items and/or Aboriginal objects were unearthed during earthworks activity, then work must stop immediately and Centennial Mandalong must contact the heritage consultant to assess the situation and follow the appropriate mitigation strategy provided by the consultant before drilling works can continue.

11.1 Consultation Requirements for Due Diligence Assessments

Consultant with the relevant Aboriginal parties is paramount in Australian archaeology, as it is a living culture, If Centennial requires an AHIP in any portion of the Project Application Area, the legal requirements are for Centennial Mandalong to conduct a due diligence inspection which relates to the physical identification of Aboriginal objects. Community consultation is only required once Aboriginal objects have been detected and an Aboriginal Heritage Impact Permit (AHIP) is deemed necessary. Section 5.2 of the 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW specifically states that"

"Consultation with the Aboriginal community is not a formal requirement of the due diligence process" (2010:3).

Centennial Mandalong will complete the due diligence process in accordance to the protocols in the Centennial's Northern Holdings ACHMP which has been developed in consultation with the Registered Aboriginal Parties.



TITLE: FIGURE 9: NEWLY RECORDED
ABORIGINAL CULTURAL
HERITAGE SITES AND AHIMS

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 21/02/2013
PURPOSE: HERITAGE

LAYOUT REF: I:\JOBS\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): D A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

12.0 Non-Indigenous Cultural Heritage - Background

This section provides an overview of the non-Indigenous history of the region and provides a framework and context in which potential non-Indigenous heritage items can be assessed.

12.1 Historical Overview

In 1797, a whaleboat party led by Lieutenant Shortland searching for runaway convicts first observed the mouth of the Hunter River (Newcastle Council 2010). Lieutenant Shortland became the first European to explore the area and upon returning to Sydney he brought sketches of the river and reports of coal. In the following years, several boats visited the area and gathered enough coal for an export shipment to be sent to Bengal. Before long a small penal settlement had been established at Newcastle, however due to the difficulty faced in administering a convict group at such a distance from Sydney, the settlement was abandoned in 1802 (Zierer Jan. 1941).

Two years later, the site was re-established as a penal colony to be populated by those convicts considered too dangerous and unruly to remain in the Sydney penal settlements. These convicts worked a drift mine beneath Beacon Head. In addition to coal, cedar logging became a major product of the area now known as Maitland. It is believed that around 700 convicts were stationed in the area in 1818. However, with such industry being successfully established, free settlers followed and arrived in growing numbers. By 1822, Newcastle was released from martial law and ceased to operate as a convict centre. The remaining convicts were sent to the penal colony of Port Macquarie (Zierer Jan. 1941).

The earliest European occupants around Lake Macquarie were most likely timber getters targeting the cedar of the Watagan Mountains to the west and the stands of timber around the lake foreshore. There is record of a land selection in 1830 by Thomas Walker over the present day Wyee Point area, though there is no evidence that the land was developed (Clouten 1967: 53). From the 1830's onward the south-western boundary of Lake Macquarie was a known haunt of cattle thieves. Nearby Wyee was an important crossroads and a stopping point on Aboriginal and European tracks as it was here that the track diverged in one direction, to the east of Lake Macquarie and the other, westward towards Maitland (Bennett 1969: 16).

12.2 Local History

Mandalong, part of the original 2,000 acre grant of John Simpson, was settled as a result of Simpsons Track (Section 11.4.1). The Track followed the main valley which later intersected Stockton Creek, which drained the hill country west of Cooranbong (Clouten 1967: 19). The earliest settlement in the Mandalong area is documented with the purchase of blocks by Henry Osborne and Thomas Walker sometime between 1838 and 1840. In the 1840s a new route for the Old Maitland Road was surveyed through the district but, with a severe economic depression, the project was shelved.

In 1852 Carl F. Solling purchased the first block in Mandalong but he had probably occupied the area from an earlier date. It would appear there were few permanent residents with Osborne, Walkers and Capes referred to as running cattle in the area, but not as residents. From 1861 onward, farmers were moving to the area with family names of Bonnell, Kelly, Frost, Moran, Booth, Tobin, Durrington, Carroll and Kennedy recorded. The main industries appeared to be timber extraction, dairying, raising horse and cattle.

The local population was mainly Roman Catholic with the first church built in 1876 also serving as a private school. In 1878 'Mandelong' Provisional School was first opened. Mandalong's prosperity depended on the timber trade, as the availability and need for timber dwindled so did the village. By 1953 the school and church had permanently closed. With poor soil quality and a decline in the timber industry, Mandalong remained a quiet rural area for much of the twentieth century.

With poor soil quality and a decline in the timber industry Mandalong for much of the twentieth century has remained a quiet rural area (History of Mandalong).

12.3 Heritage Databases

12.3.1 World Heritage List

The World Heritage List was established by United Nations Educational, Scientific and Cultural Organization (UNESCO) to protect, safeguard and manage tangible and intangible heritage through the promotion of diversity of cultural expressions and the dialogue of cultures with a view to fostering a culture of peace. The World Heritage List consists of properties of cultural and natural heritage which the World Heritage Committee considers as having outstanding universal value.

A search of the World Heritage List found no references for the Mandalong area.

12.3.2 National Heritage Database

The National Heritage Database incorporates: the National Heritage List; the Register of the National Estate and the Commonwealth Heritage List.

The National Heritage List is now the lead statutory document for the protection of heritage places considered to have national importance. This list comprises Indigenous, natural and historic places that are of outstanding national heritage significance to Australia. Listed places are protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). There are no items within the Southern Extension Area on the National Heritage List.

Prior to this, the Register of the National Estate was the primary document. While the Register of the National Estate still exists it is now frozen and no longer has statutory status. The Register is now maintained on a non-statutory basis as a publicly available archive and educational resource.

The Commonwealth Heritage List comprises natural, Aboriginal and historic heritage places owned or controlled by the Commonwealth. Places on this list are also protected under the EPBC Act.

A search of the National Heritage Database, that incorporates all of the above lists, found no references for the Mandalong area.

12.3.3 NSW Heritage Register

The NSW Heritage Register comprises items registered by the NSW Heritage Council under the NSW Heritage Act (1977) and deemed to be of State significance. Those items are protected under Section 136 of the NSW Heritage Act (1977) or are under an Interim Heritage Order.

A search of the NSW Heritage Register found no references to items of State Significance in the Mandalong area.

12.3.4 Local Government Heritage Registers

Items of significance at the local government level are listed in the Council's Local Environmental Plan(s) (LEP) in Heritage Schedules. This comprises a list of non-Indigenous and some Aboriginal items which have been listed with council as having heritage value. The Southern Extension Area is in both in both the Lake Macquarie and Wyong LGAs.

The Lake Macquarie Council LEP 2004 contains those items considered of heritage value within the local area. There are no items listed for the Mandalong area. A more extensive search was conducted of the City

of Lake Macquarie Heritage Study. The Heritage Study conducted in 1992-1993 is an inventory of heritage sites in the Lake Macquarie LGA. There are no heritage items listed in the Southern Extension Area.

The Wyang Council LEP 1991 Schedule 1 - Heritage was reviewed. There are no heritage items listed in the Southern Extension Area.

12.3.5 National Trust Register

The National Trust was contacted for information on potential sites in the Southern Extension Area (Mara Barnes, Conservation Services Coordinator, 1 August 2012). The advice was that there were no National Trust sites registered in the Southern Extension Area.

12.4 Potential Non-Indigenous Heritage Items

While there are no registered heritage items in the Project Area, desktop research indicated that potential heritage items may exist. These items are:

- Simpsons Track;
- Brisbane Water to Wallis Plains Road; and
- Remnants of previous forestry practices.

Simpsons Track and the Brisbane Water to Wallis Plains Road were early thoroughfares on the NSW Central Coast and there is evidence they may have traversed part of the Project Area. Forestry was one of the earliest industries in the western Lake Macquarie area with remnants existing in the Southern Extension Area. These potential heritage items are discussed in further detail below.

12.4.1 Simpsons Track

Simpsons Track was developed as a branch of the convict-built Great Northern Road. Named after Thomas Simpson, who had a landholding near Dora Creek at one point, Simpsons Track was promoted by interested parties to be developed as the main route to the Hunter Region. It was determined however, that the path to the more affluent mid and upper Hunter Region, centred on Maitland, should follow the route now known as the Great Northern Road.

Simpsons Track was mostly unformed, but was suitable for horse drawn transport. The only formed section of the track was the descent from Ten Mile Hollow to Mangrove Creek, outside the Southern Extension Area. The track was formed concurrently with works on the Great Northern Road, between 1826 and 1836.

It is documented (Convict Trail 2006) that Aboriginal tracks dating to the pre-contact period mostly dictated the route taken by Simpsons Track. Previous work by RPS showing connected valley routes with fresh water, abundant native grasses, food, and the least relief, were the most likely paths of pre-contact Aboriginal populations and early European settlers alike (RPS HSO 2009).

12.4.1.1 Mapping Simpsons Track

The location of Simpsons Track was considered in detail by RPS HSO during the preparation of the heritage assessment for the Mandalong South Exploration Project REF. That report assessed and correlated the work of Payne (n.d.), Umwelt (2006) and Nexus Archaeology (2007). The results of this process were then tested by RPS HSO using GIS mapping and information gleaned from the Convict Trail Project.

Based on the initial assessment (RPS HSO 2009), further investigation of early parish maps held by the NSW Department of Lands was carried out for the Southern Extension Area. The parish maps indicate that

a track or road existed during the nineteenth century along the line of what is now referred to as Mandalong Road. It is considered following research that Mandalong Road most likely follows Simpsons Track.

12.4.1.2 Current Condition of Simpsons Track

Considering that Simpsons Track was never a formed road in the Southern Extension Area, it is unlikely that any evidence of it remains. There is now no reliable indicator of the actual route of Simpsons Track, but given that its limited traffic was intended to be horse-drawn vehicle and walking stock, it is presumed that the route followed valley floors and gentle slopes where possible. This is consistent with the line of Mandalong Road which follows a logical line skirting along a low slope between the low lying creek valley and the steep escarpment. Given the evidence it is considered that the currently formed and bitumen sealed Mandalong Road is along the alignment of Simpsons Track.

This is supported by The Convict Trail Project's (2006) comments that, "parts of the route of Simpsons Track have become today's roads, with the original track lying under or beside them". It would be reasonable to believe that material remains of Simpsons Track in the Southern Extension Area are unlikely.

12.4.2 Brisbane Waters to Wallis Plains Road

An examination of the maps, reports and documents assessed during the preparation of the heritage assessment for the Mandalong South exploration project REF (RPS HSO 2009) was used to inform this assessment of the route of the Brisbane Water to Wallis Plains Road. A focus of the research was the known convergence between the path of the Brisbane Water to Wallis Plains Road and the likely path of Simpsons Track at the approximate location of a recorded road fragment and bridge at Stockton Creek (RPS HSO 2009).

This work was supplemented by a detailed examination of the relevant parish maps as discussed in Section 12.4.1.1 *Mapping Simpsons Track*.

12.4.2.1 Current Condition of Brisbane Waters to Wallis Plain Road

Other than the single road fragment remaining near Stockton Creek recorded by Nexus Archaeology in 2007, there is no other known archaeological material evidence to confirm the route of the Brisbane Water to Wallis Plains road in the Southern Extension Area. As with the route of Simpsons Track, further research using the NSW Department of Lands parish maps indicates that the line of the current Hue Hue Road is on a similar line to what was probably the Brisbane Water to Wallis Plains Road. This road intersects the Southern Extension Area briefly in the south east corner, but given the construction methods used in modern day road construction it is unlikely that any remnants of the earlier road would survive.

12.4.3 Forestry Heritage

State Forests of NSW commissioned a study (ERM 1995) of the Morisset Forestry District that included a portion of the Southern Extension Area. European settlement of the area occurred as a direct result of the need for coal, agricultural land and timber. Timber getting commenced in the area in the 1820s-30s and continued until their inclusion under the NPW Act 1974, although stands were almost exhausted by the 1890s (DECCW 2010:4, 22). The harvesting of red cedar was commonplace, spearheaded by the needs of gold rushes, coal mining, railway construction and the associated building boom.

A number of timber mills were located near the Olney State Forest. In the late 19th century an American named Frederick Carson bought a sawmill at Yarramalong, which he relocated to the junction of Cedar Brush and Ravensdale Creeks. He had been granted a licence to log timber in the area of the Olney State Forest known as The Null. Initially the logs were snigged out of the gullies and slopes to several loading dumps that were located along the main ridge and then transported by bullock wagon down circuitous tracks (ERM 1995: 17).

Sometime between 1926 and 1928 a flying-fox was constructed to improve transportation. However, this was almost immediately replaced by a tramway on the northern side of the flying-fox route. The tramway continued to be used until the closure of the mill around 1934. Bushfires have destroyed much of the flying fox and tramway infrastructure, with only small areas remaining (ERM 1995: 17).

Around 1890, construction began on the Unemployed Road or Road to Nowhere now known as Mt Faulk Road, which crosses part of the Southern Extension Area. This road, as the name would suggest, did not lead anywhere and was devised as a method of providing work for the unemployed. The road was completed in 1961 (ERM 1995: 17).

The Forests NSW inventory lists three sites in the Southern Extension Area:

- OSF20 Olney Roding Camp and Shield Tree. Former camp now just a grassy clearing. No physical evidence, though archaeological remains may exist. A shield tree used to identify a bench mark for road construction occurs on the northern side of the road.
- OSF27 Frog Hollow Board Tree. Four metre high blackbutt stump with two sets of board holes.
- OSF30 Former residence and gardens. Now known as Curtis's Paddock, this was the site of a former private residence later used as a forestry camp. While the house has been removed, a corrugated iron shed and remains of a post and rail stock-yard remains. Of the house, the timber stumps and a brick and stone fireplace remain together with plantings of mature exotic trees. A rubbish dump was also recorded.

The sites are not listed on the NSW Heritage Database (either at the local or state level) and they are not listed on the NSW Forests Section 170 register. Under Section 170 of the Heritage Act (1977) a government instrumentality must maintain a register is a list of all items of environmental heritage that are owned or occupied by that statutory body. NSW Forests was contacted (Jeff Duggins. 18 October 2012) with Mr Duggins confirming that the sites were not listed on a Section 170 register.

13.0 Non-Indigenous Cultural Heritage – Archaeological Field Survey

13.1 Field Survey

A non-Indigenous survey of the Southern Extension Area was conducted on Tuesday 20 March 2012. The survey focussed on structures noted during the Indigenous field survey undertaken by RPS as part of this heritage impact assessment between February and May 2011. The survey was conducted by Sarah Ward, Senior Archaeologist and Philippa Sokol, Archaeologist, both of RPS.

Location was recorded using a GPS. Field notes incorporated details including the size, location, contents and condition of the non-Indigenous heritage items identified in the area. Dimensions of the items were recorded, either by GPS or tape measure. The condition of the items were recorded providing descriptions and any disturbances such as, erosion, land clearing, etc. pertaining to the objects. The results of the field survey together with the possible location of Simpsons Track and the Brisbane Water to Wallis Plains Road are shown in **Figure 10**.

13.2 Non Indigenous Items Identified

Four non-Indigenous sites were investigated and evaluated during the survey. All four items were determined to be landing skids (also known as log landings). All of these items were related to the area's recent logging history and each displayed chainsaw cut marks on the end grains where they had been cut.

The earliest portable chainsaw has been attributed to the German mechanical engineer, Andreas Stihl who patented the "Cutoff Chain Saw for Electric Power" in 1926 (Bellis, 2012: para. 5). Later, in 1929, Stihl patented the first gasoline-powered chainsaw. These were the first successful patents for hand-held mobile chainsaws designed for woodcutting in the world.

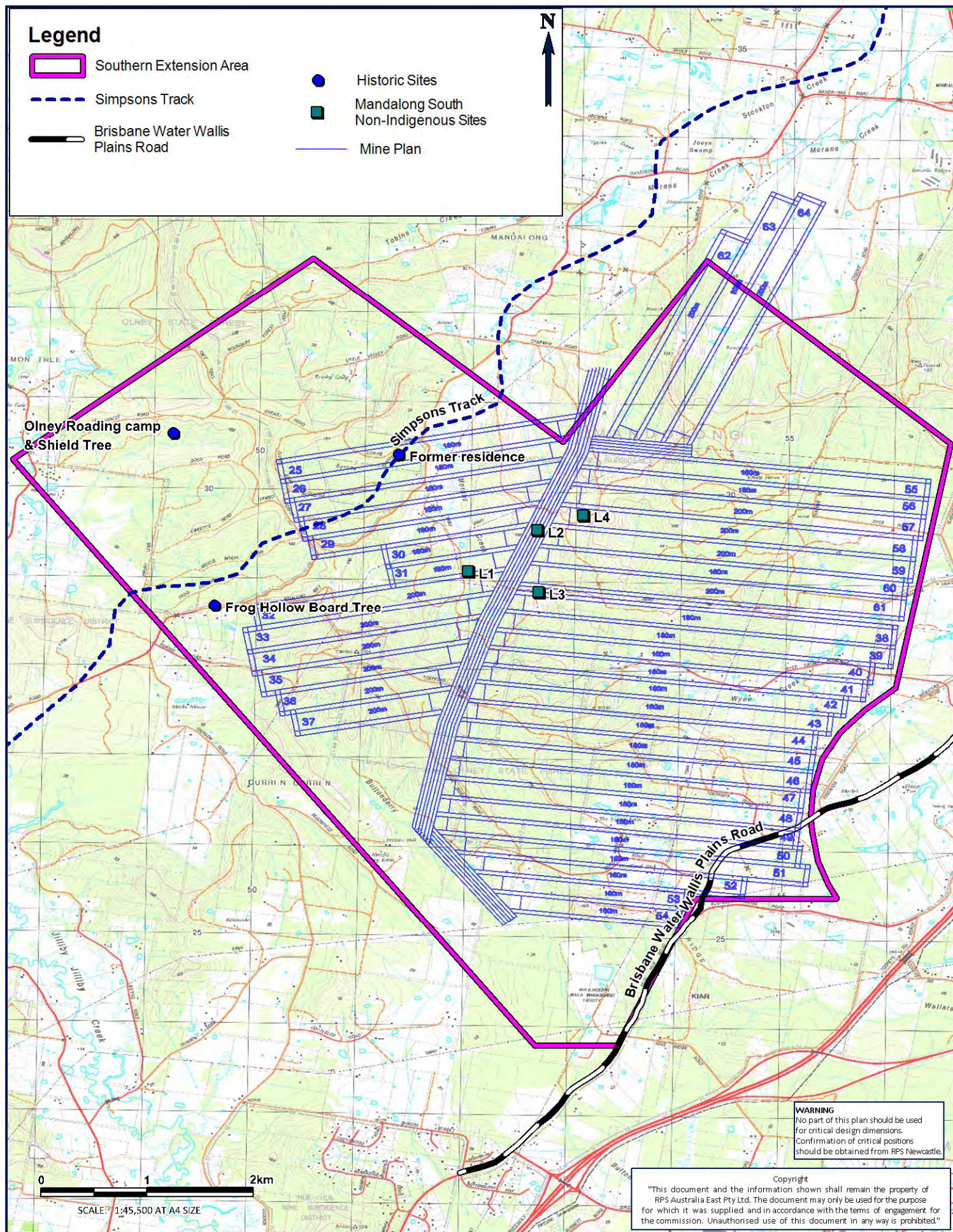
Landings skids or log landings are neither rare nor in this case historically significant, with the practice of fashioning them still being practiced in the timber industry today in order to aid the loading of logs onto trucks for transportation elsewhere. Supporting evidence for this position is taken from the Forests NSW prime facts sheet# 693 of October 2008 which states;

*"A bulldozer or skidder then takes the tree to a **log landing**, or log dump, where an excavator removes bark. The logs are then sorted and graded by a qualified log grader before being hauled by truck to a timber mill".*

In almost all cases logging skids are roughly fashioned to assist the job at hand. Intended for immediate use there is no intention to construct them in such a way as to ensure their life beyond the immediate need. They generally represent a haphazard utilitarian construction based on surrounding and immediately available material to suit the general topographic conditions encountered. They are, by virtue of being built to assist log loading onto trucks, almost always situated alongside access tracks.

13.2.1 Landing Skid

This feature displayed two elevated ramps either side at the end of a track in the Olney State Forest (Plate 36). The soil is cut on both the east and west of the termination of the track, with horizontal and vertical timber supports placed in the cuts as retaining walls. When viewed from the south, the entire feature forms a rough, inverted "U" shape, with the track substantially lower than the sides.



TITLE: FIGURE 10: NON-INDIGENOUS CULTURAL HERITAGE SITES IN SOUTHERN EXTENSION AREA

LOCATION: MANDALONG SOUTH

DATUM: (GDA 94)
PROJECTION: MGA ZONE 56

DATE: 6/02/2013
PURPOSE: HERITAGE

LAYOUT REF: J:\08\Centennial\All Jobs\107666 Mandalong South
VERSION (PLAN BY): C A4 (LN-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 107666

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

On the west, the horizontal timber supports running parallel to the track measure approximately 13.72 metres in length and approximately 86 centimetres in height from the track surface to the raised earth surface above. Two split log skids protrude from the embankment at a slight angle. The skids measured approximately 12 metres in length running west to east and are partially overgrown with grass (Plate 37).

On the east, the horizontal timber supports measure 5.51 metres in length and the uprights approximately one metre in height.

13.2.2 Landing Skid 2

This item is a timber ramp elevated along the northern side of an existing track in the Olney State Forest (Plate 38). The soil is cut on the northern side of the track, with horizontal and vertical timber supports placed in the cut as retaining walls. Two skids are placed perpendicular to the horizontal beam, forming a ramp. The area between the skids is filled with soil to the level of the horizontal supports.

The timber beam parallel to the track, measuring approximately 15 metres in length, is supported by *in situ* tree uprights and in-filled with soil - one of whose trunks has been sawn off at the height of the ramp, and one which is still growing (Plate 39). The log has not been sawn or dressed with the exception of its ends, presumably when the tree was harvested. The height from the ground surface beside the track to the top of the landing skid is approximately 80 centimetres in the centre.

Two log skids have been placed along the surface of the ramp at right angles to the horizontal beam which is parallel to the track alignment. The undersides of the skids, where they meet the horizontal timber supports, have been cut with a chainsaw in order to fit precisely over the track-side beam (Plate 40). Both are approximately 12 metres long, although it was difficult to measure as they were partially buried. The diameter of the southern skid is 40 centimetres and the northern skid 43 centimetres.

13.2.3 Landing Skid 3

This item presents as a timber ramp elevated along the northern side of a track in the Olney State Forest and is more legible and intact than the other examples investigated. As with the others, it displays a single horizontal log running above and parallel to the track elevated and supported underneath by soil. Its construction differs as there is only a single upright post positioned in the centre providing support (Plate 41). This support log is cut in such a way so as to form a roughly fashioned bracket for the first log to fit into.

Two landing skids are positioned perpendicular to the horizontal beam, as is the case with the other landing skids inspected. The ends of both skids resting on the horizontal beam have been sawn at right angles forming a bracket, with the sawn edge placed face-down atop it. Unlike the other examples, the northern-most skid also has a length of thick chain attaching it to the first log, as well a large nail resembling a railway spike driven through it (Plate 42). The centre vertical-support log also has a railway spike-like nail attaching it to the horizontal beam. The southern skid does not appear to be attached to the main crossbeam in any way. Erosion appears to be causing the southern skid to be sliding south, destabilising the structure.

13.2.4 Landing Skid 4

This item is a ramp elevated and parallel to a track in the Olney State Forest (Plate 43). It comprises a single un-sawn log beam approximately eight metres in length supported by soil and two upright timber posts in front. Slots have been sawn out of the main horizontal beam to accommodate the vertical supports.

Two log skids each approximately 12 metres long have been placed on top of, and perpendicular to, the horizontal beam. At the end of the skids where they meet the horizontal beam, the undersides have been sawn flat so they form a stable platform (Plate 44).

14.0 Non-indigenous Cultural Heritage - Historical Themes and Significance Assessment

In assessing the significance of non-indigenous heritage items, it is useful to identify historical themes. The use of themes provides a framework for identifying and assessing remaining physical evidence on a site or within an area (NSW Heritage Office, 2004:10, **Table 22**).

All of the identified items relate to the following historical themes:

Table 22 - Historical themes

Item	Australian Theme	NSW Theme	Local Theme
Brisbane Water to Wallis Plains Road	Development local, regional and national economies	Moving goods and people	Building and maintaining roads
Simpsons Track	Development local, regional and national economies	Moving goods and people	Building and maintaining roads
OSF20 Olney Roding Camp and Shield Tree.	Development local, regional and national economies	Working	Associated with the establishment of houses and camps for forestry workers.
OSF27 Frog Hollow Board Tree	Development local, regional and national economies	Working	Activities associated with identifying and managing land covered in trees for commercial timber purposes. Activities associated with manufacture, production and distribution of goods.
OSF30 Former Residence and gardens	Development local, regional and national economies	Working	Associated with the establishment of houses and camps for forestry workers.
Landing Skids 1, 2, 3 & 4	Development local, regional and national economies	Forestry Industry	Activities associated with identifying and managing land covered in trees for commercial timber purposes. Activities associated with manufacture, production and distribution of goods.

14.2 NSW State Heritage Criteria Significance Assessment

The poor condition of the four Landing Skids remains has a bearing on the assessment of their heritage significance due to the amount of fabric lost and the various stages of deterioration for each. The NSW Heritage Significance Assessment Guidance identifies gradings of significance to be used in evaluating the relative contribution made by different components of a heritage place. They are a useful guide in determining whether criteria are satisfied, but may need to be modified to suit particular sites. Each grading is listed and described below:

- Exceptional – rare or outstanding element directly contributing to significance and consequently, fulfils criteria for local or State listing.
- High – high degree of original fabric and demonstrates a key element of an item's significance and consequently, fulfils criteria for local or State listing.

- Moderate – altered or modified elements with little heritage value but which make some contribution to significance and likely to fulfil criteria for local or State listing.
- Little – alterations detract from significance. Difficult to interpret and as such, does not fulfil criteria for local or State listing.
- Intrusive – damaging to the item's heritage significance and as such, does not fulfil criteria for local or State listing.

In order to provide appropriate management recommendations for the four landing skids, an assessment of each item's significance must be undertaken. There are seven assessment criteria in NSW against which each item must be assessed. These criteria were developed to encompass the four values in the Australia ICOMOS *Burra Charter*: historical significance, aesthetic significance, scientific significance and social significance. An item is considered to be of state or local heritage significance if it meets one or more of the seven criteria.

An assessment of the heritage significance of the four landing skids and the sites recorded by NSW Forests, using the NSW State heritage significance criteria (NSW Heritage Office, 2001), is provided in **Table 23**. Simpsons Track and the Brisbane Water to Wallis Plains Road are not included as there is no indication they still exist in the Southern Extension Area.

Table 23 - Significance assessment for non-Indigenous heritage using the NSW State heritage significance criteria

NSW State heritage significance criterion	Response	Landing Skid 1 - 4	<u>OSF20 Olney Rooding Camp and Shield Tree</u>	<u>OSF27 Frog Hollow Board Tree</u>	<u>OSF30 Former Residence and gardens</u>
(a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	Historic logging practices provide information on the history of primary industry development. There is no connection between the late 19 th century timber mills located near the Olney State Forest.	Displays no historic value as a record of a historic 19 th century logging activity in Olney State Forest. Criterion A is not met.	Displays no historic value as a record of a historic 19 th century logging activity in Olney State Forest. Criterion A is not met.	Although this site has some historical value these types of trees are better represented elsewhere in the area. Criterion A is not met.	The house is no longer extant and therefore displays no historic value of a residence or garden. Criterion A is not met.
(b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	There is no evidence to suggest that the site has particular associative value with individuals or groups of persons of cultural historic importance.	The items are not of an age to be related to Frederick Carson's Yarramalong sawmill. Criterion B is not met.	The items are not related to any person or group of persons. Criterion B is not met.	The items are not related to any person or group of persons. Criterion B is not met.	The items do not appear to relate to any person or group of persons. Criterion B is not met.
(c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	The Landing skids are crudely constructed and are not considered to fulfil this criterion. They are roughly fashioned and represent haphazard utilitarian construction based on surrounding and immediately available material.	The items do not demonstrate aesthetic characteristics or a high degree of creative or technical achievement for either NSW or the local area Criterion C is not met.	No aesthetic characteristic of high degree of creative achievement. Criterion C is not met	There are no aesthetic , creative or technical achievements associated with this tree. Criterion C is not met.	There is no evidence of aesthetic, creative or technical achievement associated with the former residence or garden. Criterion C is not met.
(d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	There is no evidence to suggest that the site has community/social or spiritual value.	No community /social or spiritual value. Criterion D is not met.	No community /social or spiritual value. Criterion D is not met.	No community /social or spiritual value. Criterion D is not met	No community /social or spiritual value. Criterion D is not met.

NSW State heritage significance criterion	Response	Landing Skid 1 - 4	OSF20 Olney Rooding Camp and Shield Tree	OSF27 Frog Hollow Board Tree	OSF30 Former Residence and gardens
(e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	There is no evidence to suggest that the site has particular 'scientific interest' such that the Landing skids remains could provide information that could not be found at a more intact site elsewhere or through documentary evidence.	Landing skids are still used in the timber industry and there are significant plans and details available about them. Criterion E is not met.	There is no longer any evidence of the Rooding Camp remaining. Criterion E is not met.	The tree is a remnant with two board holes as the only evidence. Criterion E is not met.	The former residence was destroyed and only a stockyard and remnant exotic trees remain. It is therefore unlikely that these remaining features would contribute to current knowledge of local or State cultural/natural history. Criterion E is not met.
(f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	It is understood that Landing skids in the timber industry are common. As such, it is considered that intact mid – late 20 th century versions are unlikely to meet this rarity criterion.	The common occurrence and advanced stage of the Landing skids deterioration means that structural integrity has been compromised. Criterion F is not met.	The rooding camp and shield tree are not uncommon, rare or endangered locally or within NSW generally. Criterion F is not met.	These sort sorts of site types are evident in many places both locally and in New South Wales generally. Criterion F is not met.	None of the remaining features are considered uncommon, rare or endangered. Criterion F is not met.
(g): An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places; or cultural or natural environments	Landing skids to assist the transportation of logs is not considered to be a symbol of rural Australia. They are used globally where logging occurs such as the USA, Finland, Norway, Malaysia etc.	Landing skids are not limited to use in the Olney State Forest. Criterion G is not met.	The advanced stage of the deterioration means that structural integrity has been compromised. Criterion G is not met.	The tree is in poor condition having been damaged by fire and only board holes remain. Criterion G is not met.	The former residence and gardens are well represented and in better forms both locally and across the State. Criterion G is not met.

14.2.2 Conclusion of Significance Assessment

Based on the above assessment of each of the four landing skids and the three items listed in the Forests NSW inventory against NSW Heritage significance criteria, it is concluded that none of the items possess heritage elements that meet local or state heritage significance.

14.3 Outcome

The non-Indigenous heritage items recorded are consistent with the extraction and transport of timber practiced widely in the Olney State Forest and elsewhere across NSW.

With regard the Landing Skids these were constructed to aid the transportation of logs to saw mills for processing. Given that the four landing skids exhibit chainsaw marks where the logs have been cut off, there is no possible connection between them and early 19th century logging in the Olney State Forest. There is ample evidence to confirm chainsaws did not appear for logging purposes in the world prior to the late 1920s, with the penetration of them into the Australian forestry sector not occurring until the mid to late 1950s. Their use was not widespread until the 1960s.

Discussions with ecologist Chris McLean, (pers. comm. 5 July 2012) whose PHD research included detailing log consumption from fire and level of decay in bush environments indicated that although logs in the bush decay slowly, this decay rate is increased by fire events, with a single fire having the potential to remove up to 50% of logs. The four Landing Skids inspected as part of this work all display signs of fire impact and all are decayed to some degree. As such, it is likely that the Landing Skids all date from the 1970s or later. All of the research undertaken indicates that the landing skids are not rare, are not old and are not unique in any way.

15.0 Non-Indigenous Cultural Heritage – Impact Assessment

Non-Indigenous cultural heritage sites have been recorded in the Southern Extension Area. The significance of these sites has been assessed and none of them have local or state significance and therefore do not requiring listing (Section 13).

With regard the surface facilities only one item, Landing Skid (L2) has the potential to be impacted on during the construction of the facilities. If it is not possible to avoid harming the skid it is recommended that the skid be archivally recorded by a qualified historical archaeologist prior to impact.

16.0 Non-Indigenous Cultural Heritage – Management

16.1 Sites

As physical remnants of the forestry history of the Olney State Forest, all items are considered to be of low local significance. Whilst forestry practices are of high local interest in the Olney State Forest, and an integral part of the area's European industrial and social heritage, the physical remains are fragmentary and in the absence of further evidence, of limited scientific value. Given all items are of low significance a Management Program is not required.

17.0 Intergenerational Equity

The principles of ecologically sustainable development need to be considered under Section 2A of the NPW Act (1974). Inter-generational equity is part of these principles, which allows future generations to access the cultural and environmental diversity of the present generation.

Inter-generational equity has been considered as part of the assessment of significance. For example, any Aboriginal sites of State significance should be considered for blanket protection for future generations, as these sites have been assessed as having highest significance within NSW.

No Aboriginal sites of state significance were identified in this assessment. It should also be noted that the majority of sites (over 80%) have nil to low risk of impact and that only 28 of the 113 sites have been identified to be at potential risk from impact. Potential impacts are also to be avoided or minimised by the implementation of a rigorous monitoring and management program (Section 8.0) to ensure impacts to sites are minimised and the cultural integrity and significance of sites are maintained as far as practicable.

In addition the establishment of an agreement between Centennial Mandalong, the Local Aboriginal Land Councils and the Registered Aboriginal Parties to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.1 & **Figure 8**) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.

18.0 Conclusion and Recommendations

The desktop study and field surveys recorded 113 Aboriginal cultural heritage sites in the Southern Extension Area. Nine non-Indigenous heritage sites (four Landing Skids and five forestry items [at three locations]) were identified in the Southern Extension Area.

With regard Aboriginal cultural heritage sites, it has been assessed that 13 of the 113 sites (12%) are 'likely' to be impacted by surface cracking and erosion damage, while 15 of the 113 site (13%) may 'possibly' be impacted by surface cracking and erosion damage. The remaining 85 Aboriginal heritage sites are 'unlikely' or 'very unlikely' to be impacted by the extraction of the proposed longwalls. The sites at risk of subsidence impact will be managed in accordance with Centennial's Northern Holdings ACHMP and summary of this is provided in Section 7 of this report.

There is no identified impact to known Aboriginal sites as a result of the construction of the proposed Mandalong South Surface Site. However, there are three areas where archaeological testing is required in the disturbance footprint for this surface facility site due to the archaeological sensitivity of the identified landforms. A combination of silt and protective fencing needs to be installed prior to and during the construction of surface facilities to ensure that Aboriginal sites are not impacted by run-off, vegetation clearing or machinery movement.

With regard non-Indigenous heritage four Landing Skids and five forestry items have been recorded, however none meet the NSW State heritage significance criteria. As such these items do not need to be managed for the proposed works.

No Aboriginal heritage sites have previously been undermined by Mandalong Mine. Recommendations have been made to manage and mitigate impact to Aboriginal heritage sites potentially impacted by the proposed Southern Extension Project based on previous experience from other development sites. It is considered that these recommendations are effective and reliable in minimising and mitigating potential impacts to Aboriginal heritage sites as a result of the Project. These recommendations have been developed in consultation with the Registered Aboriginal Parties. Additional mitigation measures to manage potential impacts to Aboriginal heritage sites will be determined through the monitoring process outlined in the Northern Holdings ACHMP which has been developed in consultation with the Registered Aboriginal Parties. The effectiveness of mitigation measures will be determined on an ongoing basis throughout the Project and in consultation with the Registered Aboriginal Parties. In conclusion the following recommendations are made:

Aboriginal Cultural Heritage

Recommendation 1

Archaeological testing is required in Areas A, B and C prior to the construction of the Mandalong South Surface Site and access road.

Recommendation 2

A combination of silt and protective fencing must be installed prior to or during the construction of the Mandalong South Surface Site to ensure that run-off does not impact Aboriginal sites down slope of this area and that Aboriginal sites upslope are not inadvertently impacted by construction activities.

Recommendation 3

If further Aboriginal site(s) are identified in the Southern Extension Area, any surface works in the area should cease and a suitably qualified archaeologist and representatives from the Registered Aboriginal Parties contacted so that it can be adequately assessed and managed.

Recommendation 4

With regard small areas of land unable to be accessed by RPS for field surveys due to lack of landowner access agreements. Prior to mining activities occurring under those areas Centennial Mandalong should make further attempts to obtain access for field surveys to be undertaken by a suitably qualified archaeologist and representatives from the Registered Aboriginal Parties. Any new sites located should be recorded as required under legislation and monitored and managed in accordance with the protocols detailed in the Aboriginal Cultural Heritage Management Plan (RPS 2012).

Recommendation 5

Prior to the commencement of exploration drilling, Centennial Mandalong must ensure that the OEH Due Diligence Code of Practice is followed prior to the commencement of any onsite works. It is recommended that proposed drilling locations and associated access tracks be inspected according to the protocols in the Centennial's Northern Holdings ACHMP which adheres to the requirements of the OEH Due Diligence Code of Practice and has been developed in consultation with the Registered Aboriginal Parties.

Recommendation 6

If human remains are identified; all works must halt in the immediate area and the NSW Police are to be contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Environment Line on 131555 and representatives of the local Aboriginal community. No work may proceed prior to the proponent having received written notification from OEH.

Non-Indigenous Heritage

Recommendation 7

If it is not possible to avoid impact on Landing Skid (L2) the skid should be archivally recorded by a qualified historical archaeologist prior to impact.

Recommendation 8

In the event that any non-Indigenous cultural heritage material is identified or uncovered during development works, any surface works in the area should cease in the area and a heritage consultant must be contacted to assess the condition of the item. Centennial Mandalong must adopt the appropriate mitigation measures, as provided by the heritage consultant, before work may recommence.

General

Recommendation 9

All relevant Centennial Mandalong employees and contractors working within the Southern Extension Area should be made aware of their statutory obligations for heritage under NSW NPW Act (1974) and the NSW Heritage Act (1977), which may be implemented as a heritage induction.

Recommendation 10

Centennial Mandalong must implement the offset strategy, as detailed in Section 9 of this Heritage Impact Assessment.

Recommendation 11

All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with Centennial's Northern Holdings ACHMP (RPS 2012). The ACHMP should be implemented and updated where required to take into consideration the commitments made in this heritage assessment and any subsequent conditions of approval.

19.0 References

- Attenbrow, V. and K. Bow (2002). Reef Beach Aboriginal Shell Midden, Australian Museum.
- Australia ICOMOS (1999). Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance. Australia International Council of Monuments and Sites (ICOMOS).
- Bellis, M. 2012, *Chainsaws*, retrieved 4 July from;
<http://inventors.about.com/od/cstartinventions/a/Chainsaws.htm>
- Bennett, F. (1969). An Historical Tour of the Wyong District, Historical Monograph 3. Wyong, Brisbane Water Historical Society.
- Bureau of Meteorology (2010). "Climate Average - Newstan." 2010.
- Clouten, K. (1967). Reid's Mistake. Lake Macquarie, Lake Macquarie Shire Council.
- Convict Trail (2006). "Convict Trail Project: Great North Road." Retrieved 4 April 2011, from
<http://convicttrail.org/>.
- DECC (2005). Aboriginal Scarred Trees in New South Wales: A Field Manual
- DECCW (2010). Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.
- DECCW (2010). Watagans National Park and Jilliby State Conservation Area. Plan of Management, Hurstville.
- Department of Lands (2006). Topographic Mapsheet 1:25 000 Dooralong 91311S (Topoview). Sydney, Department of Lands.
- DERM (2009b) Department of Environment and Resource Management Guideline *Establishing draft environmental values and water quality objectives*, Available online at:
<http://www.derm.qld.gov.au/register/p01551aa.pdf>, cited April 2009
- Ditton Geotechnical Services (2013). Subsidence Predictions and General Impact Assessment for the Mandalong Southern Extension Project. Unpublished Report to Centennial Coal.
- Doelman, T., R. Torrence, et al. (2008). "Source selectivity: An assessment of Volcanic Glass Sources in the Southern Primorye Region, Far East Russia." Geoarchaeology: An International Journal **23**: 243-273.
- Dyall, L (1981) Preliminary assessment of Aboriginal Relics on Power Station Site at Olney. Unpublished Report.
- ERM (1995). Morisset Forestry District Environmental Impact Statement Supporting Document 1, State Forests of NSW.

- Haglund, L. (1986). Assessment of the Prehistoric Heritage in the Lake Macquarie Area, Lake Macquarie City Council.
- History Of Mandalong. Retrieved 10 October 2012 from:
<http://www.lakemac.infohunt.nsw.gov.au/library/lhist/suburb/lmp&p/mandalong.htm>
- Long, A (2005) Aboriginal Scarred Trees in New South Wales. A Field Manual. Department of Environment and Conservation. Hurstville.
- Matthei, L. E. (1995). Soil Landscapes of Newcastle 1:100 000 Sheet. Sydney, Department of Land and Water Conservation.
- Minerals Council (2010). NSW Mining Industries Due Diligence Code of Practice for the Protection of Aboriginal Objects New South Wales Minerals Council, New South Wales Minerals Council Ltd Miningenuity.
- Murphy, C. L. (1993). Soil Landscapes of the Gosford-Lake Macquarie 1:100,000 Sheet (Redhead, Wyong, Gosford, Spencer, Laguna), Department of Conservation and Land Management.
- National Parks and Wildlife Service NSW (2003). Bioregions of New South Wales: Their Biodiversity, Conservation and History National Parks and Wildlife Service NSW.
- Newcastle Council (2010). Newcastle History - The short Version.
<http://121.50.208.46/newcastle/Newcastle%20History.pdf>, Newcastle council: 2.
- Nexus Archaeology and Heritage (2007). Archival Recording and Management Plan: Fragment of the Original Brisbane Water - Wallis Plains Road, Centennial Mandalong Pty Ltd.
- NSW Heritage Office (2004) NSW Heritage Manual - Investigating Heritage Significance: Draft Guideline. Heritage Office, Sydney.
- NSW Heritage Office (2001) NSW Heritage Manual – Assessing Heritage Significance . NSW Heritage Office, Sydney.
- NSW Department of Primary Industries, 2008, *Timber harvesting in native State Forests*, in “Prime facts, profitable and sustainable primary industries”, retrieved 5 July from:
http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0006/236409/51-Timber-harvesting-in-native-state-forests-worksheet.pdf
- OEH (2011). Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW, State of NSW and the Office of Environment and Heritage, Department of Premier and Cabinet.
- OEH Cultures and Heritage of NSW – Stone tools – Downloaded 14/8/2012.
<http://www.environment.nsw.gov.au/nswcultureheritage/StoneTools.htm>
- Payne, R. (n.d.). Simpsons Track. Gosford, Gosford District Historical Research and Heritage Association.

RPS (2009-2011). Mandalong Borehole Due Diligence Reports, Centennial Coal. Unpublished Reports to Centennial Coal.

RPS HSO (2009). Aboriginal and European Heritage Impact Assessment for Mandalong South, Centennial Coal Mandalong.

Short (2000). 'Sydney's Dynamic Landscape' in Sydney - Emergence of a World City. Melbourne, Oxford University Press.

Threlkeld in Gunson, N. (1974). Australian Reminiscences and Papers of L.E. Threlkeld Missionary to the Aborigines, 1824 - 1859. Sydney.

Tindale, N. (1974). Aboriginal Tribes of Australia. Their Terrain, Environmental Controls, Distribution, Limits and Proper Names. Canberra, ANU Press.

Umwelt (2006). Statement of Environmental Effects for Mandalong Mine Installation and Operation of Enclosed Methane Gas Flare Units, Centennial Mandalong Pty Limited.

Umwelt Environmental Consultants (2011). Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area: Lake Macquarie Aboriginal Heritage Management Strategy. Part 1 & 2.

Zierer, C. M. (Jan., 1941) Industrial Area of Newcastle, Australia. Economic Geography **17**, 31-49

20.0 Plates

The sites with an asterisk (*) following description are referred to in **Table 20**.



Plate 1 RPS AH01 Grinding grooves – eight grooves



Plate 2 RPS AH02 Grinding grooves – two grooves*



Plate 3 RPS AH06 stone artefact



Plate 4 RPS AH10 Rockshelter with PAD



Plate 5 RPS AH12 scarred tree



Plate 6 RPS AH14 Stone Arrangement



Plate 7 RPS AH15 Stone Arrangement



Plate 8 RPS CYL01 Grinding grooves - 31 grooves*



Plate 9 RPS CYL03 Scarred tree



Plate 10 RPS CYL04a Grinding groove – three grooves*



Plate 11 RPS CYL04b Grinding groove – six grooves*



Plate 12 RPS CYL 04c Grinding grooves – six grooves*



Plate 13 RPS DF03 Grinding grooves – four grooves*



Plate 14 RPS DF04 Grinding grooves – four grooves*



Plate 15 RPS PS06 Rockshelter with art (ochre circle)



Plate 16 RPS PS09 Rockshelter with PAD



Plate 17 RPS PS11 Grinding grooves – two grooves*



Plate 18 RPS PS12a Grinding grooves – two grooves*



Plate 19 RPS TBM08 Grinding grooves – 28 grooves



Plate 20 RPS TBM09 – Water Source



Plate 21 RPS TBM10 Grinding grooves – 29 grooves*



Plate 22 RPS TBM11 – stone artefacts



Plate 23 RPS TBM17 Scarred tree



Plate 24 RPS TBM31 Grinding grooves – three grooves*



Plate 25 RPS TBM35 Rockshelter with PAD



Plate 26 RPS TBM43 Grinding grooves – five grooves*



Plate 27 RPS TBM44 – grinding grooves - three grooves*



Plate 28 RPS TBM45 Grinding groove – one groove*



Plate 29 RPS TBM47 Grinding groove – 21 grooves*



Plate 30 RPS TBM49 Grinding grooves – four grooves*



Plate 31 RPS TBM50 Grinding grooves – one groove*



Plate 32 RPS TBM51 Grinding grooves – 27 grooves*



Plate 33 RPS TBM53 Rockshelter*



Plate 34 RPS TBM54 Grinding groove – one groove*



Plate 35 High visibility fencing and silt– recommended



Plate 36 Landing Skid 1



Plate 37 Landing Skid 1 - split log skid protruding from earthen bank (scale in 20cm sections)



Plate 38 Landing Skid 2 - section view



Plate 39 Landing Skid 2 - elevation from track, note live tree right hand side as support for structure



Plate 40 Note chainsaw marks in end grain of log



Plate 41 Landing skid 3



Plate 42 Landing Skid 3 - close up section view with detail of chain holding logs together



Plate 43 Landing Skid 4 - Chainsaw marks in end grain and stepped cut typical of log felling using a chainsaw.



Plate 44 Landing Skid 4 - From track showing underside of skid which has been sawn flat

Appendix I

Aboriginal Consultation Log and Documents

Date	To/From	Method	Description
28-Jan-10	Darkinjung Local Aboriginal Land Council	Meeting	Meeting to Introduce Project and Project team
28-Jan-10	Bahtabah Local Aboriginal Land Council	Meeting	Meeting to Introduce Project and Project team
7-Jul-10	Department of Environment, Climate Change and Water	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Hunter Central Rivers - Catchment Management Authority	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	NSW Aboriginal Land Council	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Lake Macquarie City Council	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	National Native Title Tribunal	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Native Title Services Corporation Limited	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Department of Aboriginal Affairs	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Darkinjung Local Aboriginal Land Council	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Bahtabah Local Aboriginal Land Council	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
7-Jul-10	Wyong Shire Council	Letter	Identify Aboriginal groups to contact regarding involvement in the consultation process for the Project
29-Jul-10	Lakes Mail	Advert.	To identify interested Aboriginal Stakeholders for the Mandalong Southern Extension Project consultation process
9-Jul-10	Department of Environment, Climate Change and Water	Letter	List of Aboriginal Groups we should contact inviting to participate in consultation process
3-Aug-10	West Lakes Aboriginal Community	Email	Accepting invitation to be involved in community consultation process for the Mandalong Southern Extension Project
7-Aug-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Accepting invitation to be involved in community consultation process for the Mandalong Southern Extension Project
13-Aug-10	Awabakal Newcastle Aboriginal Co-Op	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project
13-Aug-10	Bahtabah Local Aboriginal Land Council	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project
13-Aug-10	Darkinjung Local Aboriginal Land Council	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project
13-Aug-10	Arwarbukal Cultural Resources	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project
13-Aug-10	Cacatua Cultural Consultants	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project
14-Aug-10	Awabakal Traditional Owners Aboriginal	Letter	Invitation to participate in consultation process for the Mandalong Southern Extension Project

Date	To/From	Method	Description
	Corporation		
16-Aug-10	Yula Punnal	Letter	Requesting to be involved in the consultation process for the MLS Project
7-Sep-10	West Lakes Aboriginal Community	Meeting	Meeting to Introduce Project and Project team
24-Sep-10	Darkinjung Local Aboriginal Land Council	Letter	Letter sent out seeking any comments or feedback on the draft Aboriginal Community Consultation Strategy developed for the Project and inviting them to attend a Project update meeting
24-Sep-10	Bahtabah Local Aboriginal Land Council	Letter	Letter sent out seeking any comments or feedback on the draft Aboriginal Community Consultation Strategy developed for the Project and inviting them to attend a Project update meeting
24-Sep-10	West Lakes Aboriginal Community	Letter	Letter sent out seeking any comments or feedback on the draft Aboriginal Community Consultation Strategy developed for the Project and inviting them to attend a Project update meeting
29-Oct-10	Darkinjung Local Aboriginal Land Council	Meeting	Group meeting to provide update on the Project
29-Oct-10	Bahtabah Local Aboriginal Land Council	Meeting	Group meeting to provide update on the Project
10-Nov-10	Bahtabah Local Aboriginal Land Council	Letter	Letter sent inviting a representative to attend drill site inspections
10-Nov-10	Darkinjung Local Aboriginal Land Council	Letter	Letter sent inviting a representative to attend drill site inspections
10-Nov-10	West Lakes Aboriginal Community	Letter	Letter sent inviting a representative to attend drill site inspections
18-Nov-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Invitation to attend a briefing on the Project for 7 December 2006
18-Nov-10	Awabakal Traditional Owners Aboriginal Corporation	Letter	Invitation to attend a briefing on the Project for 7 December 2007
18-Nov-10	Wonn 1 Contracting	Letter	Invitation to attend a briefing on the Project for 7 December 2008
18-Nov-10	Cacatua Culture Consultants	Letter	Invitation to attend a briefing on the Project for 7 December 2009
18-Nov-10	Yula Punnal	Letter	Invitation to attend a briefing on the Project for 7 December 2010
19-Nov-10	Bahtabah Local Aboriginal Land Council	Email	Emailed draft meeting notes for comment before being finalised
19-Nov-10	Darkinjung Local Aboriginal Land Council	Email	Emailed draft meeting notes for comment before being finalised
2-Dec-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Notice of the planned meeting being rescheduled to the 14 December 2006
2-Dec-10	Awabakal Traditional Owners Aboriginal Corporation	Letter	Notice of the planned meeting being rescheduled to the 14 December 2007
2-Dec-10	Wonn 1 Contracting	Letter	Notice of the planned meeting being rescheduled to the 14 December 2008
2-Dec-10	Cacatua Culture Consultants	Letter	Notice of the planned meeting being rescheduled to the 14 December 2009

Date	To/From	Method	Description
2-Dec-10	Yula Punnal	Letter	Notice of the planned meeting being rescheduled to the 14 December 2010
14-Dec-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Emailed meeting notes and requested documentation
14-Dec-10	Wonn 1 Contracting	Email	Emailed meeting notes and requested documentation
14-Dec-10	Awabakal Traditional Owners Aboriginal Corporation	Email	Emailed meeting notes and requested documentation
14-Dec-10	Cacatua Culture Consultants	Email	Emailed meeting notes and requested documentation
14-Dec-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Meeting	Meeting to provide briefing on Project
14-Dec-10	Awabakal Traditional Owners Aboriginal Corporation	Meeting	Meeting to provide briefing on Project
14-Dec-10	Wonn 1 Contracting	Meeting	Meeting to provide briefing on Project
14-Dec-10	Cacatua Culture Consultants	Meeting	Meeting to provide briefing on Project
21-Dec-10	Guringai Tribal Link	Letter	Invitation to be apart of the consultation proces for the Project
21-Dec-10	Guringai Tribal Link	Email	Email response from Guringai Tribal Link accepting invitation to be involved in the consultation process for the Project
23-Dec-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Bahtabah Local Aboriginal Land Council	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	West Lakes Aboriginal Community	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Awabakal Traditional Owners Aboriginal Corporation	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Yula Punnal	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Guringai Tribal Link	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Wonn 1 Contracting	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
23-Dec-10	Cacatua Culture Consultants	Letter	Re-sent updated Stakeholder Engagement Strategy to all Stakeholders for comment in accordance with the ACHRs
29-Jan-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Comments back on Stakeholder Engagement Strategy
1-Feb-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Comments back on Stakeholder Engagement Strategy

Date	To/From	Method	Description
1-Feb-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Email acknowledging comments on Stakeholder Engagement Strategy received
1-Feb-11	Awabakal Traditional Owners Aboriginal Corporation	Email	Email acknowledging comments on Stakeholder Engagement Strategy received
16-Feb-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Letter sent inviting to attend field surveys
16-Feb-11	Bahtabah Local Aboriginal Land Council	Letter	Letter sent inviting to attend field surveys
16-Feb-11	Darkinjung Local Aboriginal Land Council	Letter	Letter sent inviting to attend field surveys
16-Feb-11	West Lakes Aboriginal Community	Letter	Letter sent inviting to attend field surveys
16-Feb-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Letter sent inviting to attend field surveys
7-Apr-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Update on field surveys and survey timing
7-Apr-11	Bahtabah Local Aboriginal Land Council	Letter	Update on field surveys and survey timing
7-Apr-11	Darkinjung Local Aboriginal Land Council	Letter	Update on field surveys and survey timing
7-Apr-11	West Lakes Aboriginal Community	Letter	Update on field surveys and survey timing
7-Apr-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Update on field surveys and survey timing
19-Apr-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Distribution of Project newsletter
19-Apr-11	Bahtabah Local Aboriginal Land Council	Letter	Distribution of Project newsletter
19-Apr-11	West Lakes Aboriginal Community	Letter	Distribution of Project newsletter
19-Apr-11	Darkinjung Local Aboriginal Land Council	Letter	Distribution of Project newsletter
19-Apr-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Distribution of Project newsletter
19-Apr-11	Yula Punna	Letter	Distribution of Project newsletter
19-Apr-11	Guringai Tribal Link	Letter	Distribution of Project newsletter
19-Apr-11	Wonn 1 Contracting	Letter	Distribution of Project newsletter
19-Apr-11	Cacatua Culture Consultants	Letter	Distribution of Project newsletter
28-Apr-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Provision of final consultation strategy
28-Apr-11	Bahtabah Local Aboriginal Land Council	Letter	Provision of final consultation strategy

Date	To/From	Method	Description
28-Apr-11	West Lakes Aboriginal Community	Letter	Provision of final consultation strategy
28-Apr-11	Darkinjung Local Aboriginal Land Council	Letter	Provision of final consultation strategy
28-Apr-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Provision of final consultation strategy
28-Apr-11	Yula Punnaal	Letter	Provision of final consultation strategy
28-Apr-11	Guringai Tribal Link	Letter	Provision of final consultation strategy
28-Apr-11	Wonn 1 Contracting	Letter	Provision of final consultation strategy
28-Apr-11	Cacatua Culture Consultants	Letter	Provision of final consultation strategy
10-Oct-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Bahtabah Local Aboriginal Land Council	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	West Lakes Aboriginal Community	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Darkinjung Local Aboriginal Land Council	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Awabakal Traditional Owners Aboriginal Corporation	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Yula Punnaal	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Guringai Tribal Link	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Wonn 1 Contracting	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
10-Oct-11	Cacatua Culture Consultants	Letter	Invitation to attend site visit to Aboriginal sites identified during surveys and Project update meeting
8-Nov-11	Darkinjung Local Aboriginal Land Council	Meeting	Project update meeting and field visit
8-Nov-11	Awabakal Descendants Traditional Owners Aboriginal Corporation	Meeting	Project update meeting and field visit
8-Nov-11	Awabakal Traditional Owners Aboriginal Corporation	Meeting	Project update meeting and field visit
8-Nov-11	Bahtabah Local Aboriginal Land Council	Meeting	Project update meeting and field visit
8-Nov-11	Yula Punaal	Meeting	Project update meeting and field visit
2-Apr-12	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Bahtabah Local Aboriginal Land Council	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	West Lakes Aboriginal Community	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Darkinjung Local Aboriginal	Email	Meeting request to attend cultural ranking of Aboriginal

Date	To/From	Method	Description
	Land Council		sites within the Mandalong South Project Area
2-Apr-12	Awabakal Traditional Owners Aboriginal Corporation	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Yula Punnal	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Guringai Tribal Link	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Wonn 1 Contracting	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
2-Apr-12	Cacatua Culture Consultants	Email	Meeting request to attend cultural ranking of Aboriginal sites within the Mandalong South Project Area
20-Apr-12	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Awabakal Traditional Owners Aboriginal Corporation	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Wonn 1 Contracting	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Yula Punaal	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Guringai Tribal Link	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Darkinjung Local Aboriginal Land Council	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Bahtabah Local Aboriginal Land Council	Email	Distribution of agenda for cultural ranking workshop
20-Apr-12	Cacatua Culture Consultants	Email	Distribution of agenda for cultural ranking workshop
26-Apr-12	Awabakal Descendants Traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal Corporation, Bahtabah Local Aboriginal Land Council, Darkinjung Local Aboriginal Land Council, Guringai Tribal Link, Yula Punnal	Meeting	Cultural ranking workshop for Mandalong Southern Extension Project
27-Apr-12	Awabakal Descendants Traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal Corporation, Bahtabah Local Aboriginal Land Council, Darkinjung Local Aboriginal Land Council, Guringai Tribal Link, Yula Punnal	Meeting	Cultural ranking workshop for Mandalong Southern Extension Project
30-Apr-12	Awabakal Descendants Traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal Corporation, Bahtabah Local Aboriginal Land	Meeting	Cultural ranking workshop for Mandalong Southern Extension Project

Date	To/From	Method	Description
	Council, Darkinjung Local Aboriginal Land Council, Guringai Tribal Link, Yula Punnaal		
1-May-12	Awabakal Descendants Traditional Owners Aboriginal Corporation, Awabakal Traditional Owners Aboriginal Corporation, Bahtabah Local Aboriginal Land Council, Darkinjung Local Aboriginal Land Council, Guringai Tribal Link, Yula Punnaal	Meeting	Cultural ranking workshop for Mandalong Southern Extension Project
11-Dec-12	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Bahtabah Local Aboriginal Land Council	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	West Lakes Aboriginal Community	Email	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Darkinjung Local Aboriginal Land Council	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Awabakal Traditional Owners Aboriginal Corporation	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Yula Punnaal	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Guringai Tribal Link	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Wonn 1 Contracting	Letter	Distribution of draft Heritage Impact Assessment for comment
11-Dec-12	Cacatua Culture Consultants	Letter	Distribution of draft Heritage Impact Assessment for comment
17-Dec-12	Bahtabah Local Aboriginal Land Council	Letter	Submission regarding the draft Heritage Impact Assessment
17-Dec-12	Awabakal Descendants Traditional Owners Aboriginal Corporation	Email	Distribution of Project newsletter
17-Dec-12	Bahtabah Local Aboriginal Land Council	Email	Distribution of Project newsletter
17-Dec-12	West Lakes Aboriginal Community	Email	Distribution of Project newsletter
17-Dec-12	Darkinjung Local Aboriginal Land Council	Email	Distribution of Project newsletter
17-Dec-12	Awabakal Traditional Owners Aboriginal Corporation	Email	Distribution of Project newsletter
17-Dec-12	Yula Punnaal	Email	Distribution of Project newsletter
17-Dec-12	Guringai Tribal Link	Email	Distribution of Project newsletter
17-Dec-12	Wonn 1 Contracting	Email	Distribution of Project newsletter
17-Dec-12	Cacatua Culture Consultants	Email	Distribution of Project newsletter

Date	To/From	Method	Description
14-Jan-13	Awabakal Descendants Traditional Owners Aboriginal Corporation	Letter	Submission regarding the draft Heritage Impact Assessment
15-Jan-13	Guringai Tribal Link	Email	Requested another copy of the draft Heritage Impact Assessment and an extension to the submission period.
15-Jan-13	Guringai Tribal Link	Email	Emailed a copy of the draft Heritage Impact Assessment and provided a week extension for submission to be provided
16-Jan-13	Darkinjung Local Aboriginal Land Council	Letter	Submission regarding the draft Heritage Impact Assessment
18-Jan-13	Awabakal Traditional Owners Aboriginal Corporation	Letter	Submission regarding the draft Heritage Impact Assessment
24-Jan-13	Guringai Tribal Link	Letter	Submission regarding the draft Heritage Impact Assessment
29-Jan-13	Wonn 1 Contracting	Letter	Submission regarding the draft Heritage Impact Assessment
19-Jul-13	Wonn 1 Contracting	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Wonn 1 Contracting
19-Jul-13	Darkinjung Local Aboriginal Land Council	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Darkinjung Local Aboriginal Land Council
19-Jul-13	Bahtabah Local Aboriginal Land Council	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Bahtabah Local Aboriginal Land Council
19-Jul-13	Awabakal Descendants Traditional Aboriginal Corporation	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Awabakal Descendants Traditional Aboriginal Corporation
19-Jul-13	Guringai Tribal Link	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Guringai Tribal Link
19-Jul-13	Awabakal Traditional Owners Aboriginal Corporation	Letter	Centennial Mandalong provided letter reply in response to feedback collected from Awabakal Traditional Owners Aboriginal Corporation

Appendix 2

AHIMS Report

The attached AHIMS report is for the coordinates E346600 – 357600 to N6323000 – 6333000 that encompass the Southern Extension Area.

One site 45-3-3360 (Former Aberdare Extended Colliery) is located in the Cessnock LGA and is an error in the AHIMS database.

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
45-3-1309	Pourmalong Creek; <u>Contact</u>	AGD	56	357361	6330396	Open site	Artefact	Open Camp Site	
45-3-1228	Moran's Creek; <u>Contact</u>	AGD	56	351800	6328100	Closed site	Art (Pigment or Engraved)	Shelter with Art	294
45-3-2889	Toepfers Road <u>Contact</u>	AGD	56	351930	6327720	Closed site	Art (Pigment or Engraved)	Shelter with Art	1333,101093
45-3-1230	Moran's Creek <u>Contact</u>	AGD	56	351900	6327700	Closed site	Art (Pigment or Engraved)	Shelter with Art	294,101093
45-3-1233	Olney <u>Contact</u>	AGD	56	350200	6328100	Closed site	Art (Pigment or Engraved)	Shelter with Art	294,101093
45-3-1223	Moran's Creek; <u>Contact</u>	AGD	56	351900	6329000	Open site	Artefact	Open Camp Site	294,101093
45-3-1232	Wye Creek <u>Contact</u>	AGD	56	352800	6329300	Closed site	Artefact, Art (Pigment or Engraved)	Shelter with Art, Shelter with Deposit	294,101093
45-3-1224	Wye Creek; <u>Contact</u>	AGD	56	353600	6328900	Open site	Grinding Groove	Axe Grinding Groove	294,101093
45-3-3316	WC-IF1 <u>Contact</u> Searle	GDA	56	355002	6324087	Open site	Artefact		
45-3-3436	RPS Mandalong South 01 <u>Contact</u>	GDA	56	353007	6329206	Closed site	Artefact		
45-3-3042	Myrtle Creek/Maculata Rd #2 Wyong State Forest <u>Contact</u>	AGD	56	346750	6322930	Open site	Grinding Groove	Axe Grinding Groove	101093
45-3-2880	Toepfers road; <u>Contact</u>	AGD	56	351940	6327730	Closed site	Art (Pigment or Engraved)	Shelter with Art	1333,101093
45-3-1311	Pasadena; <u>Contact</u>	AGD	56	356972	6326822	Open site	Artefact	Open Camp Site	100541,100863,101093
45-3-3315	WC-ST1 <u>Contact</u> Searle	GDA	56	355162	6324145	Open site	Modified Tree (Carved or Scarred)		
45-3-3317	WC-OS1 <u>Contact</u>	GDA	56	355185	6324252	Open site	Artefact		
45-3-1225	Wye Creek	AGD	56	353500	6329600	Open site	Grinding Groove	Axe Grinding Groove	294,101093

Report generated by AHIMS Web Service on 7/06/2011 for Tessa Boer-Mah for Datum :GDA, Zone : 56, Eastings : 346600 - 357600, Northings : 6323000 - 6333000 with a Buffer of 50 meters. Additional

Info : Heritage Management. Number of Aboriginal sites and Aboriginal objects found is 28

This information is not guaranteed to be free from error omission. The Department of Environment, Climate Change & Water (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-3437	RPS Mandalong South 02	GDA	56	353075	6329134	Closed site	Artefact		
	<u>Contact</u>	<u>Recorders</u>	Ms.Tessa Boer-Mah					<u>Permits</u>	
45-3-3041	Myrtle Creek/Maculata Rd #1 Wyong State Forest	AGD	56	346600	6323180	Open site	Grinding Groove	Axe Grinding Groove	101093
	<u>Contact</u>	<u>Recorders</u>	Brad Welsh					<u>Permits</u>	
45-3-1229	Olney;	AGD	56	351600	6326900	Closed site	Art (Pigment or Engraved)	Shelter with Art	294,101093
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-1231	Digary Creek	AGD	56	352200	6327300	Closed site	Artefact	Shelter with Deposit	294,101093
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-2970	Olney 105	AGD	56	352190	6326920	Open site	Grinding Groove	Axe Grinding Groove	101093
	<u>Contact</u>	<u>Recorders</u>	Brad Welsh					<u>Permits</u>	
45-3-2881	Toepfers Road;	AGD	56	351950	6327740	Closed site	Art (Pigment or Engraved)	Shelter with Art	1333,101093
	<u>Contact</u>	<u>Recorders</u>						<u>Permits</u>	
45-3-1227	Moran's Creek	AGD	56	352200	6328800	Open site	Grinding Groove	Axe Grinding Groove	294,101093
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-3438	RPS Mandalong South 03	GDA	56	352856	6329404	Closed site	Artefact		
	<u>Contact</u>	<u>Recorders</u>	Ms.Tessa Boer-Mah					<u>Permits</u>	
45-3-1234	Moran's Creek;	AGD	56	350600	6330900	Open site	Grinding Groove	Axe Grinding Groove	294
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-1226	Buttonderry Creek	AGD	56	350900	6327700	Open site	Grinding Groove	Axe Grinding Groove	294,101093
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-1235	Moran's Creek;	AGD	56	355300	6331100	Open site	Grinding Groove	Axe Grinding Groove	294
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>	
45-3-3360	Former Aberdare Extended Colliery	GDA	56	350811	6328379	Open site	Artefact		
	<u>Contact</u>	<u>Recorders</u>	Hunter Land Pty Ltd					<u>Permits</u>	

Report generated by AHIMS Web Service on 7/06/2011 for Tessa Boer-Mah for Datum :GDA, Zone : 56, Eastings : 346600 - 357600, Northings : 6323000 - 6333000 with a Buffer of 50 meters. Additional

Info : Heritage Management. Number of Aboriginal sites and Aboriginal objects found is 28

This information is not guaranteed to be free from error omission. The Department of Environment, Climate Change & Water (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Appendix 3

Aboriginal Sites – Cultural Significance Assessment

Mandalong South - Cultural Significance Assessment

Numerical Value	Ranking	Colour code
1-6	High	
7 – 13	High to V. High	
14 - 20	Very High	
21 - 27	V. High to Extremely High	
28 - 30	Extremely High	

AHIMS	SITE TYPE	Ceremonial/ Spiritual Dreaming	Rarity	Inter- relatedness	Teaching Potential	Aesthetic s of Site	Outlook	Total Points	Overall Rank Summary of Significance
45-3-1223	OPEN CAMP SITE	2	3	4	2	4	4	19	19
45-3-1224	GRINDING GROOVE	3	4	4	3	4	4	22	22
45-3-1225	GRINDING GROOVE	5	5	5	5	5	5	30	30
45-3-1226	GRINDING GROOVE	5	5	5	5	5	5	30	30
45-3-1227	GRINDING GROOVE	3	3	5	3	4	4	22	22
45-3-1228	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-1229	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-1230	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-1231	ROCK SHELTER WITH DEPOSIT	5	5	5	5	5	5	30	30
45-3-1232	ROCK SHELTER WITH ART, DEPOSIT	5	5	5	5	5	5	30	30
45-3-1233	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-1234	GRINDING GROOVE	3	3	4	3	4	4	21	21
45-3-1235	GRINDING GROOVE	5	5	5	5	5	5	30	30
45-3-2880	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-2881	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-2889	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
45-3-2970	GRINDING GROOVE	3	2	4	5	4	4	22	22
45-3-3436	ROCK SHELTER	5	5	5	5	5	5	30	30
45-3-3437	ROCK SHELTER	5	5	5	5	5	5	30	30
45-3-3438	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS AH 1	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS AH 2	GRINDING GROOVE	3	3	4	3	4	4	21	21
RPS AH 3	GRINDING GROOVE	3	3	4	3	4	4	21	21

Mandalong South - Cultural Significance Assessment

RPS AH 4	GRINDING GROOVE	3	3	4	3	4	4	21	21
RPS AH 5	SCARRED TREE	5	5	5	5	5	5	30	30
RPS AH 6	STONE ARTEFACT	3	4	4	3	4	4	22	22
RPS AH 7	GRINDING GROOVE	3	3	4	3	4	4	21	21
RPS AH 8	GRINDING GROOVE	3	3	4	3	4	4	21	21
RPS AH 9	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS AH 10	ROCK SHELTER with PAD	5	5	5	5	5	5	30	30
RPS AH 11	ROCK SHELTER with PAD	5	5	5	5	5	5	30	30
RPS AH 12	SCARRED TREE	5	5	5	5	5	5	30	30
RPS AH 13	SCARRED TREE	5	5	5	5	5	5	30	30
RPS AH 14	STONE ARRANGEMENT	5	5	5	5	5	5	30	30
RPS AH 15	STONE ARRANGEMENT	5	5	5	5	5	5	30	30
RPS AH 16	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS AH 17	SCARRED TREE	5	5	5	5	5	5	30	30
RPS AH 18	ISOLATED FIND	5	5	5	5	5	5	30	30
RPS CYL 01	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 02	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 03	SCARRED TREE	5	5	5	5	5	5	30	30
RPS CYL 04A	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 04B	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 04C	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 05	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS CYL 06	GRINDING GROOVE	3	4	5	4	4	4	24	24
RPS CYL 07	GRINDING GROOVE	3	3	4	3	4	4	21	21
RPS DF 01	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS DF 02	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS DF 03	GRINDING GROOVE	3	4	5	3	4	4	23	23
RPS DF 04	GRINDING GROOVE	3	4	5	3	4	4	23	46
RPS PS 06	ROCK SHELTER WITH ART	5	5	5	5	5	5	30	30
RPS PS 08	ROCK SHELTER WITH PAD	4	5	5	4	4	4	26	26
RPS PS 09	ROCK SHELTER WITH PAD	4	5	5	4	4	4	26	26

Mandalong South - Cultural Significance Assessment

RPS PS 11	GRINDING GROOVE							0	0
RPS PS 12A	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS PS 12B	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS PS 20	ROCK SHELTER with PAD	5	5	5	5	5	5	30	30
RPS PS 22	ROCK SHELTER	3	4	5	3	4	4	23	23
RPS PS 25	ARTEFACT SCATTER	5	5	5	5	5	5	30	30
RPS PS 26	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS PS 28	ROCK SHELTER WITH PAD	5	5	5	5	5	5	30	30
RPS PS 32	ROCK SHELTER WITH PAD	5	5	5	5	5	5	30	30
RPS PS 33	SCARRED TREE	5	5	5	5	5	5	30	30
RPS TBM 01	GRINDING GROOVE	3	3	5	3	4	4	22	22
RPS TBM 02	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS TBM 03	ARTEFACT SCATTER	5	5	5	5	5	5	30	30
RPS TBM 04	ISOLATED FIND	3	4	4	3	4	4	22	22
RPS TBM 05	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS TBM 06	GRINDING GROOVE							0	0
RPS TBM 07	GRINDING GROOVE	3	3	4	3	3	3	19	19
RPS TBM 08	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 09	WATER SOURCE	5	5	5	5	3	4	27	27
RPS TBM 10	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 11	ARTEFACT	3	5	5	5	4	4	26	26
RPS TBM 12	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 13	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 14	GRINDING GROOVE							0	0
RPS TBM 17	SCARRED TREE	5	5	5	5	5	5	30	30
RPS TBM 19	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS TBM 20	SCARRED TREE	5	5	5	5	5	5	30	30
RPS TBM 22	SCARRED TREE	5	5	5	5	5	5	30	30
RPS TBM 26	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 27	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 28	GRINDING GROOVE	3	3	3	3	4	4	20	20

Mandalong South - Cultural Significance Assessment

RPS TBM 29	ARTEFACT SCATTER	2	3	4	2	4	4	19	19
RPS TBM 30 A	ARTEFACT SCATTER	5	5	5	5	5	5	30	30
RPS TBM 30 B	ARTEFACT SCATTER	5	5	5	5	5	5	30	30
RPS TBM 31	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 32	STONE ARRANGEMENT	5	5	5	5	5	5	30	30
RPS TBM 33	SCARRED TREE	5	5	5	5	5	5	30	30
RPS TBM 34	GRINDING GROOVE	3	3	5	5	4	4	24	24
RPS TBM 35	ROCK SHELTER WITH PAD	3	5	5	4	4	4	25	25
RPS TBM 37	ARTEFACT SCATTER	3	5	5	5	4	4	26	26
RPS TBM 38	GRINDING GROOVE	3	4	4	3	3	4	21	21
RPS TBM 40	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 41	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS TBM 42	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS TBM 43	GRINDING GROOVE	3	4	4	4	4	4	23	23
RPS TBM 44	GRINDING GROOVE	3	4	4	4	4	4	23	23
RPS TBM 45	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS TBM 46	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS TBM 47	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 49	GRINDING GROOVE	4	4	4	3	4	4	23	23
RPS TBM 50	GRINDING GROOVE	3	4	4	3	4	4	22	22
RPS TBM 51	GRINDING GROOVE	4	5	4	4	4	4	25	25
RPS TBM 52	SCARRED TREE	4	5	4	5	4	4	26	26
RPS TBM 53	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS TBM 54	GRINDING GROOVE	3	4	4	4	4	4	23	23
RPS TBM 58	ROCK SHELTER	5	5	5	5	5	5	30	30
RPS TBM 60	ISOLATED FIND	3	3	5	3	4	4	22	22
RPS TBM 63	GRINDING GROOVE	5	5	5	5	5	5	30	30
RPS TBM 64	GRINDING GROOVE	3	4	4	3	4	4	22	22

Appendix 4

Aboriginal Sites – Scientific Significance Assessment

Mandalong Southern Extension Project – Scientific Significance Assessment

AHIMS	SITE TYPE	Scope of Assessment	Research Potential	Rarity	Representativeness	Integrity	Educational Potential	Local Significance Rank	Regional Significance Rank
45-3-1223	OPEN CAMP SITE	Local						Sites not observed at recorded location or land access issues	
		Regional							
45-3-1224	GRINDING GROOVE	Local							
		Regional							
45-3-1225	GRINDING GROOVE	Local							
		Regional							
45-3-1226	GRINDING GROOVE	Local							
		Regional							
45-3-1227	GRINDING GROOVE	Local							
		Regional							
45-3-1228	ROCK SHELTER WITH ART	Local							
		Regional							
45-3-1229	ROCK SHELTER WITH ART	Local							
		Regional							
45-3-1230	ROCK SHELTER WITH ART	Local							
		Regional							
45-3-1231	ROCK SHELTER WITH DEPOSIT	Local							
		Regional							
45-3-1232	ROCK SHELTER WITH ART, DEPOSIT	Local							
		Regional							
45-3-1233	ROCK SHELTER WITH ART	Local							
		Regional							
45-3-1234	GRINDING GROOVE	Local							
		Regional							
45-3-1235	GRINDING GROOVE	Local							
		Regional							
45-3-2880	ROCK SHELTER WITH ART	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3	15	15
45-3-2881	ROCK SHELTER WITH ART	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3	15	15
45-3-2889	ROCK SHELTER WITH ART	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3	15	15
45-3-2970	GRINDING GROOVE	Local						Sites not observed at recorded location or land access issues	
		Regional							
45-3-3436	ROCK SHELTER	Local							
		Regional							
45-3-3437	ROCK SHELTER	Local							
		Regional							

Mandalong South Scientific Assessment Table

RPS AH 1	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS AH 2	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 3	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 4	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 5	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 6	STONE ARTEFACT	Local	2	2	1	1	1	7	5
		Regional	1	1	1	1	1		
RPS AH 7	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 8	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 9	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS AH 10	ROCK SHELTER with PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 11	ROCK SHELTER with PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 12	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 13	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 14	STONE ARRANGEMENT	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 15	STONE ARRANGEMENT	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 16	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 17	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS AH 18	ISOLATED FIND	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS CYL 01	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS CYL 02	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS CYL 03	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		

Mandalong South Scientific Assessment Table

RPS CYL 04A	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS CYL 04B	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS CYL 04C	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS CYL 05	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS CYL 06	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS CYL 07	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS DF 01	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS DF 02	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS DF 03	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS DF 04	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS PS 06	ROCK SHELTER WITH ART	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 08	ROCK SHELTER WITH PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 09	ROCK SHELTER WITH PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 11	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS PS 12A	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS PS 12B	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS PS 20	ROCK SHELTER with PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 22	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 25	ARTEFACT SCATTER	Local	2	2	1	1	1	7	5
		Regional	1	1	1	1	1		
RPS PS 26	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS PS 28	ROCK SHELTER WITH PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		

Mandalong South Scientific Assessment Table

RPS PS 32	ROCK SHELTER WITH PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS PS 33	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 01	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 02	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 03	ARTEFACT SCATTER	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 04	ISOLATED FIND	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 05	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 06	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 07	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 08	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 09	WATER SOURCE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 10	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 11	ARTEFACT	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 12	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 13	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 14	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 17	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 19	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 20	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 22	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 26	GRINDING GROOVE	Local	3	2	3	3	3	15	15
		Regional	3	3	3	3	3		

Mandalong South Scientific Assessment Table

RPS TBM 27	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 28	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 29	ARTEFACT SCATTER	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 30 A	ARTEFACT SCATTER	Local	2	2	1	1	1	7	5
		Regional	1	1	1	1	1		
RPS TBM 30 B	ARTEFACT SCATTER	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		

Mandalong South Scientific Assessment Table

RPS TBM 31	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 32	STONE ARRANGEMENT	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 33	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 34	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 35	ROCK SHELTER WITH PAD	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 37	ARTEFACT SCATTER	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 38	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 40	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 41	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 42	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 43	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 44	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 45	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 46	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 47	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 49	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 50	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 51	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 52	SCARRED TREE	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 53	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		
RPS TBM 54	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		
RPS TBM 58	ROCK SHELTER	Local	3	3	3	3	3	15	15
		Regional	3	3	3	3	3		

Mandalong South Scientific Assessment Table

RPS TBM 60	ISOLATED FIND	Local	1	1	1	1	1	5	5
		Regional	1	1	1	1	1		
RPS TBM 63	GRINDING GROOVE	Local	3	2	3	3	3	14	15
		Regional	3	3	3	3	3		
RPS TBM 64	GRINDING GROOVE	Local	2	1	1	3	2	9	8
		Regional	1	1	1	3	2		

Appendix 5

Registered Aboriginal Parties Responses



Toby Whaleboat
<bahtabahproject@hotmail.com>

17/12/12 11:03 AM

To "james.wearne@centennialcoal.com.au"
<james.wearne@centennialcoal.com.au>

cc

bcc

Subject RE: Comments on ACHMP and Statement of Significance for
the Mandalong Southern Extension

1 attachment



Bahtabah Statement for Centennial Mandalong Management Plan.docx

Hi James

Please see attached the statement of significance for the Mandalong Area, can you please include this into the report.

Regards

Toby Whaleboat Project Officer
Bahtabah Local Aboriginal Land Council
Mbl: 0402518008
Ph: (02) 49714800
Fax: (02) 49714671

From: bahtabahproject@hotmail.com
To: james.wearne@centennialcoal.com.au
Subject: RE: Comments on ACHMP and Statement of Significance
Date: Tue, 14 Aug 2012 15:19:41 +1030

Hi James

We have no further comments to add in regards to the management plan, Mick and I are happy with it.

Please see attached the statement of significance from Bahtabah LALC

Regards

Toby Whaleboat Project Officer
Bahtabah Local Aboriginal Land Council
Mbl: 0402518008
Ph: (02) 49714800
Fax: (02) 49714671

To: bahtabahproject@hotmail.com
Subject: Comments on ACHMP and Statement of Significance
From: James.Wearne@centennialcoal.com.au
Date: Tue, 14 Aug 2012 12:26:55 +1000



Mr James Wearne
Centennial Coal
PO Box 1000
Toronto NSW 2283

16 January 2013

Dear James,

RE: Mandalong Southern Extension Project – Draft Heritage Impact Assessment

Thank you for the opportunity to formally respond to the Draft Heritage Impact Assessment as noted above.

Darkinjung LALC has now reviewed the Draft Heritage Impact Assessment and provides the following issues and recommendations that we wish Centennial Coal to consider.

Issues:

- Section 8.0 Aboriginal Site Identification, Monitoring and Management
 - All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with the ACHMP (RPS 2012). This statement has not been specifically referred to within the Recommendations.

Recommendations:

- Agree with all Recommendations with the inclusion of the statement below,
 - All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with the ACHMP (RPS 2012). This should also be included in Section 17. Conclusions and Recommendations and possibly as part of Recommendation 10.

If you wish to discuss these issues or recommendations please do not hesitate to contact me on the numbers listed above.

Thanking you

Suzanne Naden
Operations Manager



PO BOX 86
CLARENCE TOWN
NSW 2321

Date: 14 January 2013

**Attention: James Wearne
Centennial Coal Company
PO Box 1000
Toronto NSW 2283**

Re: Review and Response-Mandalong Southern Extension Project-Draft Heritage Impact Assessment.

ALLA James,

We have reviewed the draft document supplied to us by Centennial Coal Company regarding the above proposed development and herein provide our response regarding any concerns we have with the draft report document.

We would also like to see our comments addressed and added to the final report so that they can be considered in regard to their implementation to provide as much protection as possible to any Cultural Heritage sites that may be put at risk of impact within the proposed development area.

PLEASE NOTE: *There are many issues that we have deliberately not addressed here within this response as we are expecting an outcome, according to our request, to be facilitated by Centennial Coal that will appropriately and unequivocally respond to the apprehension we have regarding the potential impacts to our Cultural Heritage within this Mandalong Southern Extension Project area and the recommended mitigation and management of those sites. It is hoped that our concerns will be taken seriously and in good faith, Centennial support and convene a meeting with all parties as requested (as can be seen at the end of this document) to discuss the gravity of these matters before us.*

The **Mandalong Southern Extension Project-Draft Heritage Impact Assessment** will be hereafter referred to as the 'draft report'. Please find below the issues that we believe need to be urgently addressed by Centennial Mandalong regarding the content of this draft report but more importantly the issues surrounding and leading to our responses regarding this draft report. These concerns relate to what we believe to be matters that may have longstanding and detrimental ramifications that leave a substantial proportion of our Cultural Heritage within this Mandalong South area at risk from impacts from this mining activity. We believe that this can be attributed to the very fact that we have been ignored concerning certain areas that we believe are of Cultural Significance to us and although it was our belief at the time of the survey, that these sites had been recorded, to our dismay we later find out during the Cultural Significance Ranking Workshop that quite a number of these Culturally Significant sites had been removed without any prior discussions with the Aboriginal Stakeholders before the Cultural Significance Ranking Workshops took place. These matters have since been discussed on several occasions by some of the Aboriginal Stakeholders with certain staff of Centennial and to date there has been no course of action taken to address in any way the concerns of the Aboriginal Stakeholders regarding the recording of these areas (other than to let us know, at that time, that if the archaeologist says it is a site, then it is a site and if the archaeologist says it isn't a site, then it isn't). We have, in the following dot points, taken the time to elaborate in regard to several of these areas of concern hoping that we are taken seriously and that these concerns promote, as we have requested, discussions with the appropriate people regarding a fair and equitable approach to addressing these issues as are brought to your attention.

- First we would like to say that we believe our concerns have not been addressed in regard to the adequate protection and subsequent management and mitigation of our Cultural Heritage sites within this Mandalong Southern Extension Project area. During the consultation period we were given the opportunity to rank (Cultural Significance Ranking Workshop) the sites according to Cultural significance to us. It was very disturbing to find out that during this process there were sites that are Culturally significant to us (and of which was indicated to the archaeologists during the assessment and the attending archaeologist and Centennial staff during the Cultural Significance Ranking Workshop) that were originally recorded during the 5 week survey, which had then been removed from the list of recorded sites and were not included into the Cultural Significance Ranking Workshop. When asked where were they (the missing sites), the archaeologist indicated that these sites had been removed from the ranking process and these recorded sites we were now ranking, because the archaeological consultants had "all got together back at work and looked at each one and decided to remove them from the recorded sites because they believed they were not sites"

- a. Why has this happened? Doesn't it matter that the Aboriginal Stakeholders have said that they are Culturally significant to us?
- b. Isn't this suppose to be about Aboriginal Cultural Heritage and what is important and significant to the Aboriginal People?
- c. What is the use of us as Aboriginal People being involved at all if what we say is discounted and no notice taken of it?
- d. Why is it that people who are not Aboriginal (archaeologists) saying what is and what is not Culturally significant to us and this is supposed to be accepted by the community?

This actually goes against what the *Centennial Northern Holdings ACHMP* on page 19 sub-heading **9.1 Aboriginal Cultural Significance** which states;

'Archaeological field investigations are an effective way of determining the location of Aboriginal sites in the landscape. However, the cultural significance of the sites and the landscape can only be assessed by the cultural knowledge holders because they draw on knowledge from their ancestors and their own experiences. Understanding the cultural significance of the landscape is an integral part of undertaking cultural heritage impact assessment because the information can identify areas deemed more culturally significant to the Aboriginal community and assist in the development of appropriate management strategies whilst taking into consideration any cultural sensitivities.'

When it all comes down to it, in reality, we, as Cultural Knowledge holders and Aboriginal Stakeholders, have only been given the opportunity to comment on the Cultural significance of those sites that the archaeologists tell us are sites!! So anything outside of this that we consider to be Culturally significant to us is overlooked and disregarded.

- a. How can this be deemed to be appropriate!! Ultimately and in the end, it's not really us saying what we believe to be Culturally significant, it's someone else telling us what they want us to say is Culturally significant! Again, is this **OUR** Cultural Heritage? Do we really have a say in its management or are people just humouring us and making us look like we have a say in how it is managed and then having a laugh behind our backs??

- On page 35 of the draft report section **6.1 Aboriginal Cultural Significance** it states that;

'Archaeological field investigations are an effective way of determining the location of Aboriginal sites in the landscape. However, the cultural significance and landscape can only be assessed by the cultural knowledge holders, as they draw on knowledge from their ancestors and their own experiences. Understanding the cultural significance of the landscape is an integral part of undertaking a cultural heritage impact assessment in the Project Area'

- a. We think it is ironic that even though it says this in the draft report, in the above statement, we were only given the opportunity to rank and make comment on the sites that the archaeologists said were sites (because the other Culturally significant sites which we had previously indicated were significant, were removed before we could rank them)! What about us being given the opportunity to say as 'Cultural knowledge holders' (as stated above and within the draft report) what is the Cultural significance of the sites and landscape. Some areas may contain sites that have no signs of archaeological evidence, so to those who only look at the scientific aspect and are not Cultural knowledge holders don't see what we see, but to the Aboriginal Stakeholders and the Cultural Knowledge holders there are particular signs that indicate that certain areas are of Cultural significance to our People and should be recorded as such.

- In section **6.0 Aboriginal Cultural Heritage – Significance Assessment** on page 35 of the draft report it says;

'In order to develop appropriate heritage management outcomes, it is necessary for the significance of Aboriginal sites or areas of archaeological sensitivity to be assessed. Aboriginal heritage sites can have a number of values which make them significant. Four values for identification and assessment of significance have been outlined in the Burra charter (Australia ICOMOC 1999) and have been used in this assessment according to the guidelines (OEH 2011). The four values outlined in the Burra charter are: scientific, social, historical and aesthetic. The Aboriginal stakeholders have been provided with the opportunity to identify social, historical and aesthetic values during the consultation process. Scientific value, also referred to as archaeological value, has been assessed by RPS archaeologists'

- a. As far as we are concerned that during this project we were only given the opportunity to provide feedback on what the archaeologists determined to be a site.
- b. What about what we determined to be a site? This has been overlooked and thrown out the door once again. Just because there may be no visible evidence (and in some cases there is, it is just not seen by the archaeologist) it does not mean that we then have to bow to what

the archaeologist says and see our sites that we deem to be Culturally significant damaged, destroyed and lost forever. What is going to be left for those who come after us!!

- Also what about the rock shelter with art that (as far as we were concerned at the time) was recorded on this assessment for Mandalong South and then we (the Aboriginal Stakeholders) found out later (at the Cultural Significance Ranking Workshop), that again the archaeologists had taken it upon themselves to take it out of the site recording (like so many other sites have been) as they believed that it was not art at all but someone drawing some pictures that meant nothing to them. It might mean nothing to them but what about us? This is a shelter that is found within a couple of hundred metre radius of five (5) other rock shelters that have all been recorded with having art!! How can one come to a conclusion to take this one out, in amongst the others with art, this makes no sense at all??
- What about (discovered again during the Cultural Significance Ranking Workshop) the shelter that was shown to be on the wrong side of the creek line at least a couple of hundred metres out (according to the mapping supplied to us by the archaeological consultants), that was brought to the attention of the archaeologist? They indicated to us that this would be corrected but subsequent enquiries had it still in the same wrong location! We were told this would be fixed but as pointed out on the day this would be impossible unless the site was revisited using a GPS that would record it in the right location. It was also brought to the notice of the archaeologist conducting the Cultural Significance Ranking Workshop (that incidentally was not part of the 5 week field survey), that the archaeologists that were on the field survey many times in the first week complained that they could not get the GPS they were using at that time (which, in the right location, is very accurate if able to acquire the satellites) to acquire satellites satisfactorily to record sites accurately because of the thickly forested areas in which we were located. They could not pick up all the satellites needed to pinpoint their location. This is why they ended up buying some new handheld GPS units to continue the assessment with some accuracy. So that whole first week may have given rise to the fact that by using these other units this is why the rock shelter was recorded in the wrong location, out by hundreds of metres, and it was suggested that if this is the case then there may be reason to believe that other sites may not be recorded in the actual correct location they should be. Again we were told this would be investigated and we would be advised of the outcome. To date we have heard nothing at all!!
- The adopted *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan* gives some indication of why this situation has occurred because on page 17 section **8.1 Qualifications Required for Site Recording** it states that;

'The cultural heritage consultant (archaeologist is a specialist in the field of identifying Aboriginal sites and objects from a scientific (archaeological) viewpoint. The skill of identifying sites and objects is built from years of theoretical and practical training at a university level. It is this training which enables the archaeologist to make a determination about what is or is not a site...'

- a. Does this mean that anyone that has not been to university is unable to identify an Aboriginal site or object?
- b. Does it mean that anyone who has not got a degree in archaeology and theoretical training has no credibility in these matters?
- c. If this is the case, then why have any Aboriginal People on site at all? Because, when we are on the assessment and ask for a site to be recorded that is Culturally significant to us it is obviously then later taken off the list if the archaeologist is not satisfied it is a site. In this case there is no need for our input and we must be just along for the ride so that some boxes are ticked to say that consultation with the Aboriginal Stakeholders has taken place and they were part of the assessment.

Further to this it also states in the same section on page 17 section **8.1 Qualifications Required for Site Recording** of the adopted *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan* that;

'In any case, the opinions and values of the Aboriginal stakeholder ought to be considered because cultural input is an equally important process to gaining a better understanding of how the landscape was once exploited in the past.'

- a. We are talking about site recording here! Aren't we? Isn't that in the heading? So in their own ACHMP they indicate that during the assessments in the field (it is presumed) that Aboriginal Stakeholders have a right to add their opinions, and values should *'be considered*

because cultural input is an equally important process to gaining better understanding'. So if 'cultural input is an equally important process to gaining better understanding'

b. Then why is it that our opinions have been overlooked??

We weren't given the opportunity as Aboriginal stakeholders and Cultural Knowledge holders to comment on or to have any say in whether these sites (which we found out at the Cultural Significance Ranking Workshop had been removed/omitted) are Culturally significant /important to us and whether they should or should not be removed from the list of sites recorded. This was done by the archaeologists without any prior consultation whatsoever with the Aboriginal Stakeholders (and if you believe what is written in the *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan*) most probably based on their *'...training at a university level..'* and we are reminded that *'It is this training which enables the archaeologist to make a determination about what is or is not a site...'* There we have it, obviously that is why they can make these omissions and remove what they want and disregard anything we say or request as they obviously have all that is required?? So much for *'In any case, the opinions and values of the Aboriginal stakeholder ought to be considered because cultural input is an equally important process to gaining a better understanding of how the landscape was once exploited in the past.'*

- Under section **8.1 Qualifications Required for Site Recording** of the adopted *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan* on page 17 it states that;

'In the event that there is a disagreement between the Aboriginal stakeholder and archaeologist regarding site determination, attempts should be made by both parties to reach an agreeable medium. If an agreement cannot be derived because the object in question does not meet the archaeological assessment criteria, then the archaeologist may assist the Aboriginal stakeholder in recording the item as an Aboriginal place – if the request is within reason.'

It was during the latter part of the Cultural ranking workshop that we brought to the attention of the archaeologist conducting the workshop that we would like to have these sites that were removed Culturally ranked and reinstated on the list of recorded sites because they were Culturally significant to us. To date we have not had any correspondence or communication to that effect regarding any of these sites. We are no more knowledgeable than Joe Blow off the street of knowing what sites have recently been included and what sites have been removed!! This is supposed to be about **OUR** Cultural Heritage, and trying to get the best outcome for the protection of these sites and actually, all it is, is an absolute joke, because we as Traditional Owners of the Lake Macquarie and Newcastle area, have no idea what has been done in the process to listen to our *'opinions and values'*. Our concerns have been overlooked in the process and not addressed to our satisfaction. Again what has happened to *'In any case, the opinions and values of the Aboriginal stakeholder ought to be considered because cultural input is an equally important process to gaining a better understanding of how the landscape was once exploited in the past.'* And *'In the event that there is a disagreement between the Aboriginal stakeholder and archaeologist regarding site determination, attempts should be made by both parties to reach an agreeable medium.'* All we were told was that sites had been removed because the archaeologists believed they were not sites, end of story!

- This is not acceptable consultation in regard to **Mandalong Southern Extension Project** and does not even reach the standards set out on page 17 section **8.1 Qualifications Required for Site Recording** in the *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan*. Our concerns need to be addressed before we will agree to this **Mandalong Southern Extension Project-Draft Heritage Impact Assessment** in its current format.

Impacts and Offset Measures and Intergenerational Equity

- On page 73 heading **16.0 Intergenerational Equity** it states in the last paragraph that;

'In addition the establishment of an agreement between Centennial Mandalong and the Local Aboriginal Land Councils to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.0) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.'

- a. If one then reads section **9.0 Offset Measures** sub-heading **9.1 Access** they will see that there has been omitted part of the sentence which has left out of this above statement what we believe to be a crucial part of the content which needs to be corrected in the above statement from section 16.0 Intergenerational Equity. This is highlighted below in section 9.1 which reads;

*'Centennial Mandalong will enter into an agreement with the Local Aboriginal Land Councils **and registered groups** relevant to the Study Area to provide the Aboriginal community access to the Aboriginal sites located on Centennial owned land.'*

- b. This is hopefully just an oversight and the highlighted (in green) content from Section 9.1 needs to be added to the statement in Section 16.0 which then should read;

'In addition the establishment of an agreement between Centennial Mandalong and the Local Aboriginal Land Councils and registered groups to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.0) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.'

- Also formal consultation between Centennial Mandalong and the Aboriginal Stakeholders regarding suitable Offset Measures and Intergenerational Equity were never discussed which we believe should have taken place. How can it be established that these strategies were arrived at through consultation with the Aboriginal Stakeholders?? All the Offset Measures have somehow been settled on without any consideration given to ask what we as Aboriginal Stakeholders would see as reasonable for any loss to our Cultural Heritage.
- There is the simple fact that there should be Offset Measures offered due to the proposed Mining activity taking place underneath our Cultural Heritage sites and at a minimum this is what we see the current Offset Measures as. But there needs to be additional Offsets far above what is offered here when it is 'likely' we could be seeing the destruction of 12% of our sites not to mention the probability of another 13% being impacted which could also bring about the total destruction of those sites and again not to mention the sites that may be impacted that are not expected results (which in our experience has happened before).
- Where has there been any attempt to take into consideration what offsets are intended by Centennial Mandalong in regard to the issue of damage being the result of any impact that may occur to our Cultural Heritage sites that have not been considered within this draft report and may still suffer damage in some way from the proposed mining within the Mandalong South Extension Project area. This has not been addressed and as can be seen by the results from Table 21 that indicate as shown on page 48 of the draft report that there is 'likely' and 'possibly' impacts to these sites;

'Overall, it is assessed that thirteen sites (12% of known sites) are 'likely' to be impacted by cracking and erosion damage and fifteen (13%) may possibly be impacted by the proposed longwalls'

- a. How can this be when there are amongst these;
- i. Ten (10) Grinding Groove sites 'likely' to be impacted by cracking and twelve (12) may 'possibly' be impacted
 - ii. One (1) Rock Shelter with PAD is 'likely' to be impacted by cracking and erosion damage
 - iii. One (1) Rock Shelter with art may 'possibly' be impacted by cracking and erosion damage
 - iv. One (1) Scarred Tree site is 'likely' to be impacted by surface cracking and one site may 'possibly' be impacted
 - v. One Artefact Scatter site is 'likely' to be impacted or lost into surface cracking by erosional processes and one site may be 'possibly' impacted.

- b. What about the impacts not expected how are they going to being addressed if realised??

- All of these sites are significant to us and even when assessed under the scientific/archaeological significance process we can see that the Rock Shelter with art, Rock Shelter with PAD rate as high on both a local and regional level. The Grinding Grooves and Culturally Modified Trees are rated as moderate to high on a local and regional level. These are all predicted to be impacted in some way and the outcome of these impacts is not known fully at this time but they are more than 'likely' to be impacted. They may be totally destroyed they may not but they will suffer damage in some way. If this is the case why have we not been consulted with by Centennial Mandalong to see where we stand and what we would like to see as an outcome of the Offset Measure and Intergenerational Equity Strategy?
- It has been our experience, dealing with other mining companies previously, that the expected results and the end results don't always coincide and align themselves with the results of the preceding theoretical studies. It has been played out many times in the past for us that there is usually some drastic effect that is not expected, resulting in the loss of more than is expected of our Cultural Heritage sites and it is us and our Cultural heritage once again who loses out. Therefore we need some assurance that under these circumstances these issues will be addressed appropriately and given full consideration beforehand by Centennial Mandalong and to reiterate that discussions with the Aboriginal Stakeholders need to be forthcoming so as to settle on an outcome that is favourable.
- One must admit this is a very poor example for an Offset Measure and Intergenerational Equity Strategy (when considering other examples). It can be seen that there has not been any real effort

made to come up with a package that is suitable for the expected outcome from the proposed mining. This is what could be called very basic and a meagre and very minimal outlook regarding what the 'likely' and 'possible' outcome will be!!

ACHMP

- We disagree with the implementation/use of *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan* as recommended on page **xi** of the **Mandalong Southern Extension Project-Draft Heritage Impact Assessment** under the heading of **Recommendation 10**. This is a vastly different situation with this project area to others in the northern holdings and the sites contained here are at an increased risk from this mining operation due to the nature of the area being made up of sites that are reliant on the rock/sandstone platforms and ridgelines that contain so many Rock Shelters and Grinding Groove sites. This then puts this area into a different category and therefore there is a very real need for a new Aboriginal Cultural Heritage Management Plan to be formulated **(in consultation and collaboration with the Aboriginal Stakeholders this time)** because the current ACHMP contrary to belief and as stated on page 12 of the **Mandalong Southern Extension Project-Draft Heritage Impact Assessment** was not a collaboration between Centennial and the Aboriginal Stakeholders but the only consultation was, we received a draft copy to comment on and that was the sum of it. This is not like other mining groups which we have worked together with to see an outcome that is very reasonable in regard to the ongoing management and mitigation of our Cultural Heritage sites. We do stress here the fact of the chosen words '**worked together**'. Unfortunately this ACHMP has not been a result of working together with the Aboriginal Stakeholders to see an outcome that one can say is leading the way; this is basically a set of recommendations that have overlooked many of our concerns and comments to implement a policy to get the work done.

Easting and Northing Co-ordinates

- On pages 40, 41, 42 and 43 of the draft report which entail **Table 19** we believe that the inclusion of the GPS co-ordinates which represent the Easting and Northing in MGA should be withdrawn and omitted from the table in the draft report. We believe it shows a lack of regard for the significance of our Cultural Heritage by supplying these co-ordinates for anyone to have and subsequently giving information out that could possibly have a detrimental effect on certain sites and allowing access to people who should not necessarily have access to these sites.
 - a. This information needs to be removed immediately.

Statement of Significance of this area to Awabakal and Guringai Traditional Descendants

This area is part of the Traditional Awabakal and Guringai Country and is considered by our People to be of great importance within our Cultural Heritage. There are a variety of reasons our People have benefited from using this location over thousands of years. Early accounts of the importance of this area around Lake Macquarie are attributed to the Rev. L.E. Threlkeld and Jonathon Warner.

As has been conveyed many times before, this area has not just a physical presence within the Cultural Heritage of the Awabakal People but it is part of our oral history and a place of spiritual significance. The landforms and resources of this locale fulfilled not just the basic needs that underpinned our Peoples subsistence but also satisfied the many other aspects that made up what can be described here as being part of the very Cultural foundations of our People. Our people have had a long history within this area which is unsurpassed. Our apical Ancestor Mahrakah, an Awabakal woman, and her two daughters, were recorded by Threlkeld and Warner as living in and around these areas which all formed part of their Traditional Country. This apart from everything else makes it a very important location for our family, knowing that Mahrakah walked these areas before any white man was ever seen in the Newcastle and Lake Macquarie areas. She was intrinsically acquainted with her Land and she has left a legacy for us to carry on in this day and age and to pass onto our Descendants. As already stated, this area is of very high significance to our People and therefore it would be expected that after the many generations of our People that have walked the pathways of their Ancestors, it is obvious that there are many areas that contain evidence of this connection, resulting from occupation on varying levels by our People. Traditionally these areas were the supply of rich resources especially around Lake Macquarie, of which our people have depended on for thousands of years. There are physical reminders as can be seen by the many Cultural Heritage sites left by our Ancestors which provide us as Descendants of the Awabakal People with an opportunity to make a physical connection through time with our Ancestors. This connection is one of those avenues that produce in us a sense of perception, appreciation, familiarity and recognition of who we are and where we belong as Awabakal People.

Conclusion

This has been such a disappointing result reading through this draft report and seeing the absolute disregard for such a Culturally Significant and important area as this. One only has to look at what was recorded (and what was not recorded) to see that this area stands out among others and should be considered as such. It looks like much of what was conveyed by us when out in the field and within the Cultural Significance Ranking Workshop has been overlooked so as to accommodate an approach that allows for the easiest path to be taken to get the job done. It is hard enough for us to compromise our Cultural Heritage (of which we seem to do all the time) when dealing with these issues and try to see it from the other side, but unfortunately, it seems to always be us that compromise the most and the result is losing more of our precious Cultural Heritage.

For those who spend many hours reading and responding (as requested) to these reports, it is becoming quite disconcerting that a lot of what we believe to be important issues that are relevant to the protection, management and mitigation of our Cultural Heritage and a chance to see some genuine discussions and outcomes generated through our responses are once again passed over and addressed in the most generic and sometimes flippant manner. It is most often a very disappointing outcome that reinforces the very nature of all of what has gone before for our Ancestors, and is being perpetrated on us as once again we are fobbed off or given some standard response or quoted legalistic terminology that is thrown in our faces time and time again to justify the degradation and destruction of what is Culturally significant to us. Many times we take hold of this opportunity to comment and respond and for those of us that take that time we are doing it as a genuine way of trying to work with others to see an outcome that is suitable for all. It has crossed our minds previously to not take the opportunity to respond because people can only get knocked down so many times! You get sick and tired of saying the same things over and over again. No one seems to really understand, care or listen until it is too late. But this is not for us, we have been given a legacy to carry on looking after our Cultural Heritage as best we can, with what we have, for future generations depend on what we do now and this is what we will do regardless. We are given this chance to speak (at least we have this) and we will speak. Our Cultural Heritage, if you have not noticed by now, is extremely important to us and all of these sites within the Mandalong South Extension Project area are only in existence because they are the creation of our People. They have been here long before mining, long before white occupation and legislation and therefore it was once the exclusive responsibility of our People to care for them. Well whether people like it or not, we are still here and so are these sites and we will do all in our power to carry on looking after what has been left as a legacy for us and now that white people are here and they have introduced their legislation and so forth, it is now also partly the responsibility of these new comers to help protect and care for what is left! What difference will you make??

Please Note:

As a matter of urgency, we request a meeting and a workshop to be convened between the Aboriginal Stakeholders, archaeological consultants, Centennial representative/s and an OEH representative/s on site to discuss and address in detail our concerns before we will make any attempt to accept this draft report in its current format!!

We thank you for the opportunity to provide our response/comments relating to this draft report and would ask for these comments in the previous dot points and content and any resulting outcomes from the requested meeting, to be added to a final report once all of these concerns have been appropriately addressed.

We look forward to your reply and if you need further clarification regarding the information we have provided please don't hesitate to contact us at your earliest convenience. Our contact details are as follows.

NGI NOA

Shane Frost-Managing Director: Awabakal Descendants Traditional Owners Aboriginal Corporation

Email: shanefrost@bigpond.com Phone: 49964325 Fax: 49964325 Mobile: 0428320671

Cultural Heritage Sites - Physical reminders of our Ancestors; once they are gone, they are gone forever and impossible to bring back!! THINK first and make WISE decisions last.



18 January 2013

James Wearne
Centennial Coal Company
PO Box 1000
Toronto NSW 2283

Dear James,

Re: Comments Regarding the Mandalong Southern Extension Project-Draft Heritage Impact Assessment.

The Awabakal Traditional Owners (peoples) of the Mandalong area are deeply concerned at the **complete absence of our voice** in the Draft Heritage Impact Assessment Report (DHIAR).

We believe both the process of consultation and the assessment reporting is **fundamentally flawed** and inconsistent with the intent of the:

- Burra Charter
- OEH Guidelines for investigating and assessing Aboriginal cultural heritage (the guide)
- And both the National Parks and Wildlife Act and OEH consultation guidelines

We note that the project is being assessed under Part 4. Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) yet we have been **excluded from the broader Part 4.1 consultation program and Social impact assessment process**. Therefore the only mechanism available to us to provide comment on the proposed development to inform its EIS assessment and articulate our cultural connection, our concerns relating to proposed project and alert OEH to its adverse impacts on our cultural heritage and custodial care and management obligations and make comment regarding the irreversible impact to our cultural and spiritual landscape, our access and values of the area is through this commentary feedback.

We also note that the draft archaeological assessment is exactly that—an archaeological assessment not a cultural assessment as required under the **DGR requirements to demonstrate both archaeological and cultural values assessment**.

In keeping with the Office of Environment and Heritage NSW (OEH) Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW that recognises Aboriginal people need to determine and provide information to inform assessment. Key elements of the DHIAR must demonstrate and Aboriginal people comment on:

- Social/cultural values—refers to the spiritual, traditional, historical or contemporary associations the attachment to the object of place has for Aboriginal people
- Cultural values is how people express the value of an area
- Places of social value have associations with contemporary community identity

The Awabakal traditional peoples understand that it is important to recognise that there is not always consensus regarding the social or cultural value of a place because people experience places or experiences differently—however process must be in place to record and report these differences.

What is of greatest concern is that these values can only be identified through consultation and applying a range of methodologies including (but not limited to) recording and reporting specific information provided by the Aboriginal community and synthesising this information with archival and archaeological empirical evidence and assessment.

We assert that this Draft Heritage Impact Assessment Report fails to demonstrate this synthesis requirement for assessment

Part 6 of the National Parks and Wildlife Act 1974 (NPW Act), administered by OEH, provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. Harm is defined to mean destroying, defacing or damaging an Aboriginal object or declared Aboriginal place, or moving an object from the land. Anyone proposing to carry out an activity that may harm an Aboriginal object or a declared Aboriginal place must investigate, assess and report on the harm that may be caused by the activity they propose.

The investigation and assessment of Aboriginal cultural heritage is supposed to be undertaken to explore the harm of a proposed activity on Aboriginal objects and declared Aboriginal places and to clearly set out which impacts are avoidable and which are not.

The voice of traditional people is paramount to be able to undertake such an investigation and assessment.

On the basis of the DHIAR we would like to raise our concerns that there has been minimal communication and consultation regarding several issues and concerns regarding recorded sites that have been omitted by the Archaeologist without consultation with the Registered Aboriginal Parties. Although these concerns have been raised, we have not yet to-date been consulted to satisfactory resolve any and/or all of our concerns.

We therefore as a matter of urgency request a meeting and a workshop to be organized between the Registered Aboriginal Parties, Centennial representative/s, an OEH

representative/s and the archaeological consultants to discuss and address in detail the matters at hand.

At this juncture the Mandalong Southern Extension Project Draft Heritage Impact Assessment Report clearly shows that the proposed document needs further editing, clarification and information before a finalized Report is accepted, as we consider that the Draft Heritage Impact Assessment is unsatisfactory in its current form.

Because of the factors detailed in this feedback report, we believe we have no other cause of action than to in the strongest forms possible that the Draft Heritage Impact Assessment:

- **Should not be accepted as adequate**
- **Should not be accepted as providing enough evidence to inform**
- **Should not be accepted as compliant with the OEH Requirements to adequately and to confidently undertake and inform an approvals or non - approvals outcome**

We are greatly concerned that relate to what we consider to be matters that may have lasting impacts and detrimental ramifications that places a significant proportion of our Cultural Heritage at risk within the Mandalong South area proposed mining activity.

As Registered Aboriginal Stakeholders, we believe that we have been ignored concerning certain areas that we consider to be of Cultural Significance, and although at the time of the survey it was our understanding that what we considered to be Cultural sites, would be recorded for the OEH AHIMS Database. However to our disbelief we were advised during the Cultural Significance Ranking Workshop that quite a number of what we considered to be Cultural sites had been removed without any prior discussions with the Registered Aboriginal Parties.

To date some of the Registered Aboriginal Parties have requested on many occasions to discuss the matters raised with RPS and the Representative from Centennial, and thus far there has been no course of action taken to address in any way the concerns of the Registered Aboriginal Parties regarding the recording of these areas (other than to affirm that if the archaeologist declares that it is a site, then it is a site, and if the archaeologist declares it isn't a site, then it isn't).

In the following points we would like to reiterate and elaborate on the areas of concern, which were brought to the attention of the Representative from Centennial, in the hope that our concerns will be taken seriously and that the requested discussions will be resolved with a fair and reasonable approach.

- we believe our concerns have not been addressed in regard to the adequate protection and subsequent management and mitigation of our Cultural Heritage sites within the Mandalong Southern Extension Project area

- It was very disturbing to find out that during the Cultural Significance Ranking Workshop that there were sites that are Culturally significant to the Awabakal and Guringai Traditional Descendants which had been removed from the list of recorded sites without prior consultation with the Registered Aboriginal Parties which were therefore not included within the Cultural Significance Ranking.
- We hold great concerns that when asked why the sites had been removed from the list of recorded Aboriginal sites, the archaeologist informed the Registered Aboriginal Parties that these sites had been removed, because the archaeological consultants had ... 'got together back at work and decided to remove some sites because they believed the sites that were removed were not Aboriginal sites'

Important note: On the basis that the purpose of an Aboriginal Assessment is for recording and determining Aboriginal sites by us as Registered Aboriginal Parties and Cultural Knowledge holders within the Mandalong Southern Extension Project area, then why have Registered Aboriginal Parties and Cultural Knowledge holders attend an Aboriginal Assessment if '*at the end of the day*' archaeologists are determining what is and isn't Aboriginal sites.

To inform the assessment it is our assertion that the consultation approach was inadequate, with minimal involvement and development of mechanisms in which we are able to input into and influence the DHIAR (contrary to the acknowledgement on page 10). Of greatest concern is that at no time in the DHIAR does it reflect the cultural interpretation and cultural values of place and the meaning of the artefacts and features relating to our sacred stories and our cultural values as Awabakal and Guringai peoples.

We strongly assert that the process to date have not been adequate nor undertaken in a way in which we are able to fully contribute against the required assessment processes i.e. we have not been able to inform and consider various facets of Aboriginal cultural heritage including (but not limited to):

1. Our spiritual and social association with the area
2. Historical associations and information passed down through our families
3. Flora and Fauna and ecosystem considerations
4. Spatial ethnography and use of the land and ecosystems over time; and
5. Cultural interpretation of the scientific or archaeological evidence to inform the Aboriginal cultural heritage assessment

It instead provides a 'limited amount' of historical referencing and interpretation of our people, our sacred places and stories and our cultural landscape features and of our societal lores that shape our contemporary identities. It focuses on a dominated and purely scientific, archaeological perspective based on individual impact assumptions and is devoid of the consideration of cumulative impact and landscape impacts from a cultural context.

We believe that the process regarding Aboriginal consultation needs improving to provide an informative outline in the early stages of a proposed project. This can be achieved by meeting with the Registered Aboriginal parties to inform and discuss any concerns

regarding the proposed project to ensure compliance with the Burra Charter and OEH guidelines requirements concerning the project assessment and consultation process.

Fundamental documentation such as the DGR's and subsidence control plans should be shared as a standard approach to assessments. Similarly, we should be provided with and referred to assessment requirements such as the OEH guides in order that we are able to influence the statements and reporting of our cultural heritage.

The objective of community consultation is to ensure that Aboriginal people have the opportunity to improve assessment outcomes by:

- Providing relevant information about the cultural significance and values of the Aboriginal object(s) and/or place(s)
- Actively contributing to the development of cultural heritage management options and recommendations for any Aboriginal object(s) and/or place(s) within the proposed project area
- Commenting on Draft assessment reports before they are submitted by the proponent to OEH

To date we cannot see how the Burra Charter nor the consultation guidelines are adequately demonstrated **against all the required criteria** nor how the report details how consultation has been used to assist in the assessment process. Integral to the development of any Aboriginal Cultural Heritage Assessment Report should be the principles of the Burra Charter (Australian ICOMOS 1999).

Furthermore, in trying to stress the level of distress a document of this nature causes our community particularly as Awabakal Traditional Peoples, we make the following inter-related comments:

In order to understand the lived experiences and historic values of the Mandalong Mine/Southern Extension Project and surrounding area—one must understand the context in which it relates to the adverse impacts of invasion of the continent (by the British and other settlers). Some of these adverse impacts include:

- The policies and legislative frameworks in which dispossession, mistreatment and violence occurred
- The impacts to land use, and the cultural way of life for Aboriginal peoples and impacting language; cultural and religious practices, socialisation; and family and community structures; lores

The psychological impacts of these actions that have had enduring legacy Aboriginal peoples are struggling with still today. The impact of post contact culture and change influencing Registered Aboriginal Parties cultural and historic and aesthetic values, **we need a voice to ensure that our values are understood when assessment and approvals are being sought by mining and other development projects due to their cumulative and profound impact on the remnants of our cultural footprint.**

Historical events form part of the landscape of Aboriginal communities and influence how Aboriginal people respond to the mining companies that seek to develop relationships with them. A shared history forms part of the social value set of every Aboriginal community and influences the community's attitudes, concerns and interests.

The development of any present-day relationship will depend on the ability of mining companies to address these interests and concerns:

- It is important to Aboriginal people—especially traditional people such as the Awabakal and Guringai people that there is an acknowledgement of this history and its impact on our lives. For instance, the loss of known ancestry and other dislocations to family lines has frequently led to a loss of family cohesion. Similarly, when Aboriginal people lost wages and property through discriminatory treatment, or suffered the removal of our children, our future generations lost valuable social and financial capital we may otherwise have inherited. As a consequence, it has become very difficult for some Aboriginal communities to engage effectively with contemporary issues that impact on our communities, such as resource development proposals.
- 'Country' can be described as the lands with which Indigenous people have a traditional attachment or relationship (Stephen Garnett and Bev Sithole, 2007). The phrase 'connection to country' is more complex, and has been described by Garnett and Sithole as follows:

Connection to land is achieved through very specific localised knowledge of a region's natural history that is coupled with complex layers of past personal and family experiences, and deeper connection to the past and therefore to Aboriginal identity via traditional stories and beliefs. This nexus between land and people is ongoing through hunting and gathering and simply being on 'Country' [references omitted].

We assert that Awabakal Traditional peoples' relationship with our Country is complex and multifaceted. It has also been well documented, despite the relatively recent incorporation of connection to Country into health literature (Morrissey, 2003). The studies demonstrate that Country and connection to Country is intricately linked to caring for Country, maintaining cultural life, identity, individual autonomy and Indigenous sovereignty (Rodney Morice, 1976; Paul Burgess, F.H. Johnston, D.M.J.S Bowman, and P.J Whitehead, 2005).

It needs to also be recognised that while there have been advances since the referendum of 1967, the struggle for recognition and the acknowledgement of Australia's history, struggle over land rights land access and self-determination, struggle for reconnection to families, clans and land, constitutional change, social and economic participation continue (Delaney-John, J, 2011).

The Aboriginal and Torres Strait Islander social and emotional wellbeing (SEWB) determinants of wellbeing are multiple, interconnected, and develop and act across the life course from conception to late life, all of which influence the expression of positive or negative wellbeing (Stephen R. Zubrick, Pat Dudgeon, Graham Gee, Belle Glaskin, Kerrie Kelly, Yin Paradies, Clair Scrine and Roz Walker, 2007).

Our comments Regarding the contents of the Draft Heritage Impact Assessment are as follows:

The Mandalong Southern Extension Project-Draft Heritage Impact Assessment will be henceforth be referred to as the '**Draft Report**'.

It has come to our attention that within the **Draft Report** that no acknowledgement and/or an indication to the rights of the development of our Cultural Significance Ranking of Aboriginal sites has been identified within the document, and believe that this oversight needs to be rectified immediately.

The Awabakal Traditional Owners Aboriginal Corporation and Awabakal Descendants Traditional Owners Aboriginal Corporation would like to inform RPS and Centennial that the process for ranking the Cultural Significance of Aboriginal sites has been developed by the Awabakal Traditional Owners Aboriginal Corporation (ATOAC) and the Awabakal Descendants Traditional Owners Aboriginal Corporation (ADTOAC).

The ranking of the Cultural Significance of Aboriginal sites process is not to be undertaken without the prior consent of ATOAC and ADTOAC, as the Cultural Significance Ranking is the Intellectual Cultural Property of ATOAC and ADTOAC which was developed in 2011. The process for identifying the Cultural Significance Ranking of an Aboriginal Site has been developed to incorporate an equal evaluation against the Scientific Significance rating, and to assist in understanding the significance ranking of our Awabakal Cultural Heritage sites.

With regard to Section 6.0 - Aboriginal Cultural Heritage - Significance Assessment on page 35 of the **Draft Report**, which states that;

'In order to develop appropriate heritage management outcomes, it is necessary for the significance of Aboriginal sites or areas of archaeological sensitivity to be assessed. Aboriginal heritage sites can have a number of values which make them significant. Four values for identification and assessment of significance have been outlined in the Burra charter (Australia ICOMOC 1999) and have been used in this assessment according to the guidelines (OEH 2011). The four values outlined in the Burra charter are: scientific, social, historical and aesthetic. The Aboriginal stakeholders have been provided with the opportunity to identify social, historical and aesthetic values during the consultation process. Scientific value, also referred to as archaeological value, has been assessed by RPS archaeologists'

From our perspective we have only been given the opportunity to provide feedback on what the archaeologists have determined to be an Aboriginal site, and the Cultural sites that we thought had been indeed recorded for the OEH AHIMS Database, have been omitted by the Archaeologist without consultation with the Registered Aboriginal Parties. Therefore we believe that this statement will need further clarity.

With regard to Section 6.1 - Aboriginal Cultural Significance on page 35 of the **Draft Report**, which states that;

'Archaeological field investigations are an effective way of determining the location of Aboriginal sites in the landscape. However, the cultural significance and landscape can only be assessed by the cultural knowledge holders, as they draw on knowledge from their ancestors and their own experiences. Understanding the cultural significance of the landscape is an integral part of undertaking a cultural heritage impact assessment in the Project Area'

We believe that this statement is rather derisive, as again, Aboriginal sites that we thought had been indeed recorded for the OEH AHIMS Database, have been omitted by the Archaeologist without consultation with the Registered Aboriginal Parties. Therefore we believe that this statement will also need further clarification.

At this juncture we are greatly concerned that as number of Cultural sites that have been omitted by the Archaeologist without consultation with the Registered Aboriginal Parties, and in addition the anomalies with site card recordings during the Cultural Significance Ranking Workshop, and furthermore we are unsure (and also have no way of knowing) if the correct information is indeed reaching the OEH AHIMS Database.

Therefore we would like to reiterate a need for an urgent meeting and a workshop to discuss and address in detail the matters at hand.

With regard to Table 19 on pages 40, 41, 42 and 43 of the **Draft Report** that discloses the inclusion of the GPS co-ordinates which represent the Easting and Northing in MGA, we persevere that this information should be removed from the **Draft Report** immediately, as we believe that this lack of regard for Aboriginal Cultural Heritage by providing GPS co-ordinates and consequently supplying Culturally Sensitive information on the list of sites within Table 19 to people who should not necessarily have the right of entry to these significant sites, could possibly have detrimental ramifications.

With regard to Section 16.0 - Intergenerational Equity on page 73 of the **Draft Report** which states that;

'In addition the establishment of an agreement between Centennial Mandalong and the Local Aboriginal Land Councils to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.0) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.'

We would like to bring to the attention of RPS and Centennial that this statement is inconsistent with the statement within Section 9.1 Access on page 54 of the **Draft Report** which states that;

'Centennial Mandalong will enter into an agreement with the Local Aboriginal Land Councils and registered groups relevant to the Study Area to provide the Aboriginal community access to the Aboriginal sites located on Centennial owned land.'

And ask the question why has the 'Local Aboriginal Land Councils' and the 'registered group' been referred to as separate entities, as we are all Registered Aboriginal parties, and believe

that both statement should read: ..."an agreement between Centennial Mandalong **and all Registered Aboriginal parties** ...". Therefore we believe that this statement also needs to be changed. **Please Note:** As Registered Native Title Claimants within the Local Government Area, we are greatly concerned what these types of sentences are trying to generate between 'Local Aboriginal Land Councils' 'Registered Aboriginal Parties' and 'community'.

We are greatly concerned regarding the proposed issue of destruction and/or damage being the result of any impact that may occur to the Cultural Heritage sites that are outlined within Table 21 of the **Draft Report**, as we believe have not been considered within this document. We are also concerned that no unforeseen impacts have not been taken into consideration and/or addressed within the **Draft Report**.

Therefore if the proposed prediction that;

'Overall, it is assessed that thirteen sites (12% of known sites) are 'likely' to be impacted by cracking and erosion damage and fifteen (13%) may possibly be impacted by the proposed longwalls'

We are mystified that no formal consultation between Centennial Mandalong and the Registered Aboriginal Parties regarding suitable Offset Measures and Intergenerational Equity have never been discussed, as these discussions would have indeed informed and supported any decision Offset Measures making process regarding any reasonable loss to our Cultural Heritage.

We are also greatly concerned with the statement that reads;

'All other sites are 'unlikely 'or very unlikely' to be affected by cracking'

And ask what kind of evidence is this ambiguous statement is being based on, as the impact likelihood of cracking can be such an unpredicted and unknown paradigm, as we believe and it has been our experience with other Mining Groups, that statements concerning surface cracking such as these are basically ineffectual without the documentation to support it.

With regard to Section 17.0 - Conclusion and Recommendations on page 74 of the Draft Report, we reject the proposed Recommendations within the **Draft Report** as we believe that they seem to be incoherent and ambiguous and therefore inadequate considering the 'likely' and 'possibly' impacts to the Aboriginal heritage sites due to the proposed Centennial Longwall Mining.

We also believe that references within the Conclusion and Recommendations should at least be consistent, For example: Within Recommendation 5 it refers to the 'representatives of the local Aboriginal community', when it should be referring to 'the Registered Aboriginal parties', as stated in Recommendation 3.

We disagree with the proposed ACHMP **Recommendation 10** with the implementation and/or use of *Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan* as recommended on page **xi** of the **Draft Report**.

We believe that the proposed Recommendations are an ad hoc approach which limits the intention of the implementation of the requirements for an ACHMP to protect and to provide best practice in the enactment of the Cultural Heritage aspects within the Mandalong Southern Extension Project area.

It is with great disappointment that we have no other cause of action than to respond in the strongest forms possible for the protection of our Cultural Heritage, which is the very essence of who we are as Awabakal Peoples.

We had encouraged and hoped that the Mandalong Southern Extension Project Heritage Impact Assessment and ACHMP would have been modeled on an existing Report and ACHMP (to be used to Centennials advantage), that has been incorporated by another Mining Group which is within close proximity and contains cultural related sites, hence as a result to-date, is regarded as unsurpassed.

At this juncture the Mandalong Southern Extension Project Draft Heritage Impact Assessment Report clearly shows that the proposed document needs further editing, clarification and information before a finalized Report is accepted, as we consider that the Draft Heritage Impact Assessment is unsatisfactory in its current form.

Please Note: We would like to reiterate, as a matter of urgency we request a meeting and a workshop to be organized between the Registered Aboriginal Parties, Centennial representative/s, an OEH representative/s and the archaeological consultants to discuss and address in detail the matters at hand.

We will be confirming directly with OEH in relation to this matter given the high levels of distress and concern that the Draft Heritage Impact Assessment Report is causing us and the long term intergenerational adverse impacts will have on our families and our culture.

In the spirit of a greater understanding of Aboriginal Culture and Heritage,

Yours sincerely,



Kerrie Brauer
Director | Administration



Guringai Tribal Link

Aboriginal Corporation

ABN 18 351 198 069. ICN 4270

(Traditional Owners of the NSW Central Coast)

PO Box 4061,
Wyongah NSW 2259

Phone: (02) 4396 8743

Fax: (02) 4396 9525

Mobile: 0404 182 049

Email: tracey@guringai.com.au

24th January, 2013

James Wearne
Environment and Community
Coordinator - Projects.
Centennial Coal
Mandalong Southern Extension Project

Emailed to: James.Wearne@centennialcoal.com.au
Cc: rosalie.neve@environment.nsw.gov.au

Re: Comments on Draft Aboriginal Cultural Heritage Impact Assessment Report by RPS Australia East P/L (RPS) and Aboriginal Cultural Heritage Management Plan for Mandalong Southern Extension Project.

Dear James,

Guringai Tribal Link Aboriginal Corporation (GTLAC) have reviewed and discussed the Draft Aboriginal Cultural Heritage Impact Assessment Report (DACHIAR) by RPS for the Mandalong Southern Extension Project (MSEP).

First and foremost, it must be stated that GTLAC were excluded from attending the 5 week Aboriginal Cultural Heritage Impact Assessment, despite registering within the specified timeframe allocated, as an interested Aboriginal Stakeholder Group for the area and being identified as a registered Aboriginal Stakeholder Group for that area by the Office of Environment and Heritage (OEH).

It also must be stated that, the RPS Archaeologist whom which conducted the Cultural Heritage Significance Ranking Workshops for the Mandalong and Myuna Bay Projects, did NOT attend any of the field assessments for those areas.

Discussions held during the Cultural Heritage Significance Ranking Workshops (CHSRW) conducted by Centennial Mandalong and RPS at Mandalong and Myuna Bay, resulted in the exposure of the inconsistent and inconclusive recording methods adopted during the 5 week field assessment by RPS archaeologists.

It was noted during the CHSRW that several rock shelters/sand stone overhangs (some containing art), assessed during the 5 week study and identified as being significant to the Aboriginal community by Mr. Shane Frost, Awabakal Descendants Traditional Owners Corporation (ADTOAC), had been omitted from the DACHIAR on the recommendation of RPS archaeologists and therefore not included in the Aboriginal Cultural Heritage Management Plan (ACHMP) or considered during the CHSRW.

This action is not only extremely disrespectful to our cultural and spiritual beliefs and Mr. Frost's ability to identify *his* cultural heritage, it is detrimental to the Centennial Northern Holdings ACHMP, page 19, under sub-heading, **9.1 Aboriginal Cultural Significance** and page 35 of DHIAR, section **6.1 Aboriginal Cultural Significance**, that,

"Archaeological field investigations are an effective way of determining the location of Aboriginal sites in the landscape. However, the cultural significance of the sites and the landscape can only be assessed by the cultural knowledge holders because they draw on knowledge from their ancestors and their own experiences. Understanding the cultural significance of the landscape as an integral part of undertaking cultural heritage impact assessments because the information can identify areas deemed more culturally significant to the Aboriginal community and assist in the development of appropriate management strategies whilst taking into consideration any cultural sensitivities."

It was also noted at the Mandalong CHSRW, that several sites had been recorded in the wrong locations. It appeared apparent that the global positioning system (GPS) utilised by RPS in the initial week of the 5 week study, was defective and producing incorrect data. The incorrections were not rectified by RPS.

GTLAC take strong offence to page 17 of DHIAR- section **8.1 Qualifications Required for Site Recording**;

“ The cultural heritage consultant (archaeologist) is a specialist in the field of identifying Aboriginal sites and objects from a scientific (archaeological) viewpoint. The skill of identifying sites and objects is built from years of theoretical and practical training at a university level. It is this training which enables the archaeologist to make a determination about what is or is not a site. ”

This statement is primitive and racist. It does not cater for a highly significant site occurrence such as an Aboriginal Place (as defined in NPW Act. 1974).

Places of cultural and spiritual significance to the Aboriginal community. These areas are identified by those persons descending from the original inhabitants and knowledge holders of that area and a vast amount of the ‘Places’ do not contain physical (scientific) evidence. These ‘Places’ are often areas connected to traditional story/song lines and/or associated with landscape formations and the stories attached to them. In our opinion, no amount of university training, be it theoretical or practical, can equate to a life long journey within *your own* traditional Country and having the knowledge of that Country passed to you, from those who had walked that journey before you, from those who had walked that journey before them and so on, and so on... The spiritual connection and attachment to Country, that Aboriginal people have, will **never** be taught in a university.

Also stated within section **8.1 Qualifications Required for Site Recording** and found very offensive to GTLAC and it’s members;

“ in any case, the opinions and values of the Aboriginal stakeholders ought to be considered because cultural input is an equally important process to gaining a better understanding of how the landscape was once exploited in the past. ”

Our ancestors **never** ‘exploited’ the landscape. This country and it’s sensitive eco-system, sustained itself and the Aboriginal population for hundreds of thousands of years before European settlement. Seasonal migration and techniques such as fire stick farming, were an everyday part of their existence and the rewards were plentiful.

Several attempts by the registered Aboriginal stakeholders, at the Mandalong CSRW, expressed their desire to discuss further, the omitted sites from the DHIAR. To Date, this process has NOT occurred and therefore this issue remains **unresolved**.

It is stated in section **8.1 Qualifications Required for Site Recording**, that;

“ In the event that there is disagreement between the Aboriginal stakeholders and the archaeologist regarding site determination, attempts should be made by both parties to reach an agreeable medium. If an agreement cannot be derived because the object in question does not meet the archaeological assessment criteria, then the archaeologist may assist the Aboriginal stakeholder recording the item as an Aboriginal Place - if the request is within reason. ”

It is apparent to GTLAC that every ‘attempt’ was made by Mr. Shane Frost and other Aboriginal representatives at the Mandalong CSRW, to discuss ‘reaching an agreeable medium’ in relation to the sites omitted from the ACHMP and DHIAR, yet to date, this extremely important issue has NOT been addressed by RPS or Centennial Mandalong and it remains **unresolved**.

Page 73 - **16.0 Intergenerational Equity** is also alarming to GTLAC. Please correct this statement to read;

“ In addition to the establishment of an agreement between Centennial Coal Mandalong, the Aboriginal stakeholder groups and the Local Aboriginal Land Councils to provide access to Aboriginal sites on Centennial owned land (section 9.0) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained. ”

Recommendations and Requests by GTLAC:

* Amend statement to read ‘ *In addition to the establishment of an agreement between Centennial Mandalong, the registered Aboriginal stakeholders and the Local Aboriginal Land Councils.....* ’

* Minuted discussions with the registered Aboriginal stakeholder groups and Centennial Coal, with documented agreeable outcomes in regards to the ‘Offset measures.’ **A process yet to occur. As estimated by Centennial Coal Mandalong and RPS in the DHIAR, 12% of sites within the study area are ‘likely’ to be impacted or destroyed and 13% have the ‘potential’ to be impacted or destroyed by the proposed mining activities of Centennial Coal Mandalong.**

* An additional due diligence assessment (with a representative of OEH and the Aboriginal stakeholder groups), of the Aboriginal sites identified by Mr. Shane Frost in the 5 week field assessment of the Mandalong Extension Area, as being significant to the Aboriginal community, yet omitted from the recording process and subsequent DHIAR and ACHMP.

* ACHMP to be constructed in conjunction and consultation with the Aboriginal stakeholder groups, to ensure transparency, and allow for the inclusion of justifiable recommendations set out by the registered Aboriginal stakeholder groups, as previously recommended and requested but not contained within the ACHMP in it’s current form.

Without these issues and processes being addressed, GTLAC have no alternative but to **reject** the Draft Heritage Impact Assessment Report and Aboriginal Cultural Heritage Management Plan for the Mandalong and Myuna Bay areas.

Yours sincerely,

Tracey Howie
Senior Female Cultural
Heritage Officer
Guringai Tribal Link
Aboriginal Corporation



Wonn1
Entity of Kauwul Pty Ltd

619 Main Road Glendale, 2285

PHONE: 0249547751 Mobile: 0402146193

ABN: 27 153 953 363

29 January 2013

Mr J Wearne
Environment and Community Coordinator
Centennial Coal
PO Box 1000
TORONTO NSW 2283
Email: james.wearne@centennialcoal.com.au

Dear James

Re: MANDALONG SOUTHERN EXTENSION PROJECT – DRAFT HERITAGE IMPACT ASSESSMENT

Thank you for this opportunity to comment on the above report.

Although Wonn1 was not included in the fieldwork or workshop phases of this project, we have reviewed the contents of the Draft Heritage Impact Assessment and advise that we find the recommendations and proposed monitoring protocols to be acceptable. It is agreed however, that the monitoring phases of the mine project (being scarred trees and grinding grooves), must include representatives of the Aboriginal stakeholders and not only Centennial Coal's environmental team.

Should additional stakeholders (other than those named in the draft report) be invited or accepted to participate in any new work undertaken at this mine site, Wonn1 Contracting would appreciate the opportunity to also be advised and included with the new starters.

We look forward to continuing the consultation process and participation in future cultural heritage work.

Kind regards

Suzie Worth
For Arthur Fletcher
Wonn1 Contracting (Kauwul Pty Ltd)



Centennial Coal
Mandalong

12 Kerry Anderson Drive
Mandalong NSW 2264
PO Box 1000
Toronto NSW 2283 Australia

T: 61 2 4973 0900
F: 61 2 4973 0999
E: info@centennialcoal.com.au
W: www.centennialcoal.com.au

19 July 2013

Mr A. Fletcher
Wonn1
619 Main Road
Glendale NSW 2285

Dear Mr Fletcher

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 29 January 2013 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. The Cultural Heritage Impact Assessment has now been updated to take into consideration feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD

Peter Cook
Project Manager



19 July 2013

Ms S. Naden
Darkinjung Local Aboriginal Land Council
PO Box 401
Wyong NSW 2259

Dear Ms Naden

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 16 January 2013 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. The Cultural Heritage Impact Assessment has now been updated to take into consideration feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure. A response to the issues raised in your submission is provided below.

Summary of issue: Update recommendation 10 to reflect wording from Section 8.0

Recommendation 10 has been updated to the following:

All sites subject to subsidence as a result of the proposed Mandalong Southern Extension Project must be monitored in accordance with Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan (ACHMP) (RPS 2012). The ACHMP should be implemented and updated where required to take into consideration the commitments made in this heritage assessment and any subsequent conditions of approval.

If you need to discuss this further, do not hesitate to contact James Wearne on 0407 207 530.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD

Peter Cook
Project Manager



Centennial Coal
Mandalong

12 Kerry Anderson Drive
Mandalong NSW 2264
PO Box 1000
Toronto NSW 2283 Australia

T: 61 2 4973 0900
F: 61 2 4973 0999
E: info@centennialcoal.com.au
W: www.centennialcoal.com.au

19 July 2013

Mr M. Green
Bahtabah Local Aboriginal Land Council
PO Box 3018
Blacksmiths NSW 2281

Dear Mr Green

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 17 December 2012 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. The Cultural Heritage Impact Assessment has now been updated to take into consideration feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD

Peter Cook
Project Manager



19 July 2013

Mr S. Frost
Awabakal Descendants Traditional Owners Aboriginal Corporation
PO BOX 86
Clarence Town NSW 2321

Dear Mr Frost

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 14 January 2013 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. Where appropriate, the Cultural Heritage Impact Assessment has been updated to take into consideration the feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure. A response to the issues raised in your submission is provided below.

Summary of issue: Inadequate protection and subsequent management and mitigation of cultural heritage sites.

Within the Southern Extension Area a total of 113 registered sites of Aboriginal cultural heritage significance have been identified. These sites are scattered across the area and therefore it is not possible to avoid undermining them entirely. The proposed mine plan has been adjusted or refined, where practical, to avoid or minimise the potential for impact on Aboriginal cultural heritage sites. This included, where possible, adjusting the widths of the proposed longwalls and locating the Aboriginal sites over gateroad pillars to minimise subsidence effects.

Monitoring and management of all Aboriginal heritage sites will be undertaken in accordance with the approved Northern Holdings Aboriginal Cultural Heritage Management Plan. The Northern Holdings Aboriginal Cultural Heritage Management Plan provides a consistent Approach to how Aboriginal heritage sites are monitoring and managed. The Northern Holdings Aboriginal Cultural Heritage Management Plan has been developed in consultation with all interested registered Aboriginal Parties across Centennial Coal's northern operations as well as relevant government agencies. The Northern Holdings Aboriginal Cultural Heritage Management Plan was approved by the NSW Department of Planning and Infrastructure on 26 November 2012.

Centennial Mandalong has committed to adopt additional measures to offset potential impacts to the Aboriginal heritage sites within the Southern Extension Area. These additional offset measures include a commitment to formalise an agreement with the Aboriginal community to provide access to suitable areas within Centennial Coal's landholdings within the Southern Extension Area. This is to allow for cultural preservation, development, education and management of those sites contained within the landholdings and provides an opportunity that would not have been otherwise possible.

Centennial Mandalong has committed to undertaking research activities on sites within the Southern Extension Area which have the potential to improve the cultural knowledge and understanding of how the hinterland of Lake Macquarie was utilised by Aboriginal people. It is proposed to undertake subsidence monitoring and trial mitigation works for a grinding groove site that is located on Centennial owned land and over the proposed longwall mining area. The research programme will be developed in consultation with OEH and the registered Aboriginal Parties.

Summary of issue: Some sites originally recorded during field surveys were omitted from the assessment and not included in the Cultural risk ranking workshop.

Aboriginal site determinations are based on a holistic approach where the diagnostic attributes of the object, type of resource exploited, the object's relationship to the landscape and context are considered. In NSW, cultural heritage consultants are guided by the professional standards according to the OEH Guide to Investigating, Assessing and Reporting of Aboriginal Cultural Heritage (2011) and the Australian Archaeological Association Code of Ethics (2004).

As is identified in Section 5.3.2 of the draft Cultural Heritage Impact Assessment, it is acknowledged that during the archaeological field surveys, 38 rock cavities and overhangs were observed and that it has been suggested by representatives from the registered Aboriginal Parties that these rock cavities and overhangs may have been used by Aboriginal people in the past. These cavities and overhangs had no material evidence for Aboriginal occupation and did not have any archaeological features such as art, artefacts, or potential archaeological deposits (PADs) either inside or outside the cavities and overhangs. RPS' Tessa Boer-Mah discussed these rock cavities and overhangs with a representative from the Office of Environment and Heritage on 7 May 2012 and was advised that:

"Any Aboriginal site to be registered with AHIMS must have a feature from the OEH AHIMS Registrations and Features List associated with the site. In the case of rockshelters it must have art and/or it must have PAD (inside or immediately outside) the shelter and/or associated with another feature which demonstrates occupation nearby e.g. artefact scatter. In short, a rockshelter needs to have features associated with it."

Following this advice 38 rock cavities and overhangs were not registered with AHIMS; and justifications for why they haven't been submitted for registration has been submitted to the Office of Environment and Heritage. Subsequently, the cultural risk ranking workshop conducted on 26, 27 and 30 April 2012 ranked only those sites to be considered Aboriginal heritage sites by the Office of Environment and Heritage.

Summary of issue: One rockshelter site has been mapped in the wrong location to where it was identified in the landscape.

It is acknowledged that during the cultural risk ranking workshop conducted on 26, 27 and 30 April 2012 that it was identified that a potential rockshelter site had been mapped in a different location to where it was identified in the landscape. Following this issue being identified, a review of all survey data was undertaken. The location of each Aboriginal site was recorded by differential GPS with a tracking device. Following a review of the data from the survey, Centennial Mandalong and RPS are confident that all sites are mapped in the correct location to where it was identified in the landscape.

Summary of issue: A sentence in Section 9.1 of the draft Cultural Heritage Impact Assessment omits "and registered Aboriginal groups" which is included in the same sentence in section of 16.0 of the draft Cultural Heritage Impact Assessment.

The wording in Section 9.1 has been amended to incorporate access to the wider Aboriginal community. The sentence in Section 16.0 now reads:

In addition the establishment of an agreement between Centennial Mandalong, the Local Aboriginal Land Councils and the registered Aboriginal Parties to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.1 & Figure 8) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.

Summary of issue: Offsets proposed are unsuitable and were not discussed with the registered Aboriginal Parties.

Centennial Mandalong has proposed offset measures to offset the potential impacts to Aboriginal heritage sites within the Southern Extension Area as a result of the Project as discussed above. Centennial Mandalong believes that these measures proposed adequately offset the potential impacts to individual Aboriginal heritage sites within the Southern Extension Area. An opportunity for the registered Aboriginal Parties to provide feedback on the offset measures proposed was during the review of the draft Cultural Heritage Impact Assessment. No alternative suggestions have been provided to Centennial Mandalong by any of the registered Aboriginal Parties on the proposed offset measures that could have been taken into consideration during the finalisation of the report.

Summary of issue: GPS Coordinates for sites in Table 19 of the draft Cultural Heritage Impact Assessment should be removed.

Table 19 of the draft Aboriginal Heritage Impact Assessment has been amended to remove the GPS coordinates of Aboriginal heritage sites from the table.

Summary of issue: disagree with the implementation and use of Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan.

The Northern Holdings Aboriginal Cultural Heritage Management Plan has been developed to provide a consistent approach to how Centennial Coal consults with the Aboriginal community regarding Aboriginal heritage matters as well as a consistent Approach to how Aboriginal heritage sites are monitoring and managed. As is committed to in the draft Cultural Heritage Impact Assessment, the Northern Holdings Aboriginal Cultural Heritage Management Plan will be updated following Project Approval to take into consideration the recommendations of the Cultural Heritage Impact Assessment and any additional conditions of consent.

Representatives of the Project team would be happy to meet with you to discuss the matters raised in your submission in more detail. If you would like to participate in a meeting please contact James Wearne on 0407 207 530 to arrange a suitable time.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD



Peter Cook
Project Manager



19 July 2013

Ms T. Howie
Guringai Tribal Link
PO Box 4061
Wyongah NSW 2259

Dear Ms Howie

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 24 January 2013 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. Where appropriate, the Cultural Heritage Impact Assessment has been updated to take into consideration the feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure. A response to the issues raised in your submission is provided below.

Summary of issue: Some sites originally recorded during field surveys were omitted from the assessment and not included in the Cultural risk ranking workshop.

Aboriginal site determinations are based on a holistic approach where the diagnostic attributes of the object, type of resource exploited, the object's relationship to the landscape and context are considered. In NSW, cultural heritage consultants are guided by the professional standards according to the OEH Guide to Investigating, Assessing and Reporting of Aboriginal Cultural Heritage (2011) and the Australian Archaeological Association Code of Ethics (2004).

As is identified in Section 5.3.2 of the draft Cultural Heritage Impact Assessment, it is acknowledged that during the archaeological field surveys, 38 rock cavities and overhangs were observed and that it has been suggested by representatives from the registered Aboriginal Parties that these rock cavities and overhangs may have been used by Aboriginal people in the past. These cavities and overhangs had no material evidence for Aboriginal occupation and did not have any archaeological features such as art, artefacts, or potential archaeological deposits (PADs) either inside or outside the cavities and overhangs. RPS' Tessa Boer-Mah discussed these rock cavities and overhangs with a representative from the Office of Environment and Heritage on 7 May 2012 and was advised that:

"Any Aboriginal site to be registered with AHIMS must have a feature from the OEH AHIMS Registrations and Features List associated with the site. In the case of rockshelters it must have art and/or it must have PAD (inside or immediately outside) the shelter and/or associated with another feature which demonstrates occupation nearby e.g. artefact scatter. In short, a rockshelter needs to have features associated with it."

Following this advice 38 rock cavities and overhangs were not registered with AHIMS; and justifications for why they haven't been submitted for registration has been submitted to the Office of Environment and Heritage. Subsequently, the cultural risk ranking workshop conducted on 26, 27 and 30 April 2012 ranked only those sites to be considered Aboriginal heritage sites by the Office of Environment and Heritage.

Summary of issue: Several sites had been recorded in the wrong locations.

It is acknowledged that during the cultural risk ranking workshop conducted on 26, 27 and 30 April 2012 that it was identified that a potential rockshelter site had been mapped in a different location to where it was identified in the landscape. Following this issue being identified, a review of all

survey data was undertaken. The location of each Aboriginal site was recorded by differential GPS with a tracking device. Following a review of the data from the survey, Centennial Mandalong and RPS are confident that all sites are mapped in the correct location to where it was identified in the landscape.

Summary of issue: Qualifications of a cultural heritage consultant are not adequate to determine what an Aboriginal site is and should also consider Aboriginal knowledge.

In NSW, cultural heritage consultants are guided by the professional standards according to the OEH Guide to Investigating, Assessing and Reporting of Aboriginal Cultural Heritage (2011) and the Australian Archaeological Association Code of Ethics (2004). The opinions and values of the Aboriginal stakeholders are considered in this process. As is detailed in the Northern Holdings Aboriginal Cultural Heritage Management Plan; *"If an agreement on a site determination cannot be derived because the object in question does not meet the archaeological assessment criteria, then the archaeologist may assist the Aboriginal stakeholder recording the item as an Aboriginal Place - if the request is within reason."* No request has been made by representatives of the Aboriginal community to have any of the sites registered as an Aboriginal Place.

Summary of issue: Correction of a paragraph in section of 16.0 of the draft Cultural Heritage Impact Assessment.

The wording in Section 16.0 has been amended and now reads:

In addition the establishment of an agreement between Centennial Mandalong, the Local Aboriginal Land Councils and the registered Aboriginal Parties to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.1 & Figure 8) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.

Summary of issue: Offsets proposed are unsuitable and were not discussed with the registered Aboriginal Parties.

Centennial Mandalong has proposed offset measures to offset the potential impacts to Aboriginal heritage sites within the Southern Extension Area as a result of the Project. The offset measures include the provision of access to the Aboriginal community to Centennial Coal's landholdings that contain a number of Aboriginal heritage sites and for which access would not normally be afforded as well as research on Aboriginal heritage sites to improve the cultural knowledge and understanding of how the hinterland of Lake Macquarie was utilised by Aboriginal people. Centennial believes that these measures proposed adequately offset the potential impacts to individual Aboriginal heritage sites within the Southern Extension Area. An opportunity for the registered Aboriginal Parties to provide feedback on the offset measures proposed was during the review by the registered Aboriginal Parties of the draft Cultural Heritage Impact Assessment. No alternative suggestions have been provided to Centennial Mandalong by any of the registered Aboriginal Parties on the proposed offset measures that could have been taken into consideration during the finalisation of the report.

Summary of issue: disagree with the implementation and use of Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan.

The Northern Holdings Aboriginal Cultural Heritage Management Plan has been developed to provide a consistent approach to how Centennial Coal consults with the Aboriginal community regarding Aboriginal heritage matters as well as a consistent Approach to how Aboriginal heritage sites are monitoring and managed. As is committed to in the draft Cultural Heritage Impact Assessment, the Northern Holdings Aboriginal Cultural Heritage Management Plan will be updated following Project Approval to take into consideration the recommendations of the Cultural Heritage Impact Assessment and any additional conditions of consent.

Representatives of the Project team would be happy to meet with you to discuss the matters raised in your submission in more detail. If you would like to participate in a meeting please contact James Wearne on 0407 207 530 to arrange a suitable time.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD

A handwritten signature in black ink, appearing to read 'Peter Cook', with a stylized flourish underneath.

Peter Cook
Project Manager



19 July 2013

Ms K. Brauer
Awabakal Traditional Owners Aboriginal Corporation
PO Box 253
Jesmond NSW 2299

Dear Ms Brauer

Re: Mandalong Southern Extension Project – Cultural Heritage Impact Assessment

Thank you for your submission dated 18 January 2013 on the draft Cultural Heritage Impact Assessment for the Mandalong Southern Extension Project. Where appropriate, the Cultural Heritage Impact Assessment has been updated to take into consideration the feedback received from the registered Aboriginal Parties and will be incorporated into the Environmental Impact Statement currently being finalised for submission to the NSW Department of Planning and Infrastructure. A response to the issues raised in your submission is provided below.

Summary of issue: Inadequate consultation undertaken for the Project with the registered Aboriginal Parties.

Centennial Mandalong has conducted consultation with the Aboriginal community for the Mandalong Southern Extension Project since 2010. In July 2010, formal consultation processes were initiated in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010). As a minimum, these guidelines have been followed throughout the Project. In addition to the implementation of the Aboriginal Cultural Heritage Consultation Requirements for Proponents, an Aboriginal Community Consultation Strategy for the Project was developed in consultation with the registered Aboriginal Parties and distributed to all registered Aboriginal Parties early in the consultation process for the Project. This Strategy has been followed throughout the Project to date.

Centennial Mandalong also provided a number of opportunities for the registered Aboriginal Parties to be informed of the progress of the Project throughout the development of the Project through the provision of all Project newsletters, and invitations to attend regular Project meetings, Project information sessions and open days.

In order to provide an opportunity to the registered Aboriginal Parties to have an input into the cultural significance of the area, registered Aboriginal Parties were invited to provide a Cultural Significance Statement which was incorporated into the Cultural Heritage Assessment. Registered Aboriginal Parties were also invited to attend a three day workshop to collectively discuss and rank the cultural significance of Aboriginal sites within the Southern Extension Area identified during the field surveys.

The consultation undertaken for the Project with the registered Aboriginal Parties exceeds the minimum requirements of the Aboriginal Cultural Heritage Consultation Requirements for Proponents and meets the objectives of the Burra Charter.

Summary of issue: Inadequate protection and subsequent management and mitigation of cultural heritage sites.

Within the Southern Extension Area a total of 113 registered sites of Aboriginal cultural heritage significance have been identified. These sites are scattered across the area and therefore it is not possible to avoid undermining them entirely. The proposed mine plan has been adjusted or refined, where practical, to avoid or minimise the potential for impact on Aboriginal cultural heritage sites.

This included, where possible, adjusting the widths of the proposed longwalls and locating the Aboriginal sites over gateroad pillars to minimise subsidence effects.

Monitoring and management of all Aboriginal heritage sites will be undertaken in accordance with the approved Northern Holdings Aboriginal Cultural Heritage Management Plan. The Northern Holdings Aboriginal Cultural Heritage Management Plan provides a consistent Approach to how Aboriginal heritage sites are monitored and managed. The Northern Holdings Aboriginal Cultural Heritage Management Plan has been developed in consultation with all interested registered Aboriginal Parties across Centennial Coal's northern operations as well as relevant government agencies. The Northern Holdings Aboriginal Cultural Heritage Management Plan was approved by the NSW Department of Planning and Infrastructure on 26 November 2012.

Centennial Mandalong has committed to adopt additional measures to offset potential impacts to the Aboriginal heritage sites within the Southern Extension Area. These additional offset measures include a commitment to formalise an agreement with the Aboriginal community to provide access to suitable areas within Centennial Coal's landholdings within the Southern Extension Area. This is to allow for cultural preservation, development, education and management of those sites contained within the landholdings and provides an opportunity that would not have been otherwise possible.

Centennial Mandalong has committed to undertaking research activities on sites within the Southern Extension Area which have the potential to improve the cultural knowledge and understanding of how the hinterland of Lake Macquarie was utilised by Aboriginal people. It is proposed to undertake subsidence monitoring and trial mitigation works for a grinding groove site that is located on Centennial owned land and over the proposed longwall mining area. The research programme will be developed in consultation with OEH and the registered Aboriginal Parties.

Summary of issue: Some sites originally recorded during field surveys were omitted from the assessment and not included in the Cultural risk ranking workshop.

Aboriginal site determinations are based on a holistic approach where the diagnostic attributes of the object, type of resource exploited, the object's relationship to the landscape and context are considered. In NSW, cultural heritage consultants are guided by the professional standards according to the OEH Guide to Investigating, Assessing and Reporting of Aboriginal Cultural Heritage (2011) and the Australian Archaeological Association Code of Ethics (2004).

As is identified in Section 5.3.2 of the draft Cultural Heritage Impact Assessment, it is acknowledged that during the archaeological field surveys, 38 rock cavities and overhangs were observed and that it has been suggested by representatives from the registered Aboriginal Parties that these rock cavities and overhangs may have been used by Aboriginal people in the past. These cavities and overhangs had no material evidence for Aboriginal occupation and did not have any archaeological features such as art, artefacts, or potential archaeological deposits (PADs) either inside or outside the cavities and overhangs. RPS' Tessa Boer-Mah discussed these rock cavities and overhangs with a representative from the Office of Environment and Heritage on 7 May 2012 and was advised that:

"Any Aboriginal site to be registered with AHIMS must have a feature from the OEH AHIMS Registrations and Features List associated with the site. In the case of rockshelters it must have art and/or it must have PAD (inside or immediately outside) the shelter and/or associated with another feature which demonstrates occupation nearby e.g. artefact scatter. In short, a rockshelter needs to have features associated with it."

Following this advice 38 rock cavities and overhangs were not registered with AHIMS; and justifications for why they haven't been submitted for registration has been submitted to the Office of Environment and Heritage. Subsequently, the cultural risk ranking workshop conducted on 26, 27 and 30 April 2012 ranked only those sites to be considered Aboriginal heritage sites by the Office of Environment and Heritage.

Summary of issue: The Cultural Heritage Impact Assessment does not acknowledge the contribution of ADTOAC and ATOAC to the development of the Cultural Significance Ranking method used as part of the assessment.

Section 6.1.1 of the Cultural Heritage Assessment has been updated to include an acknowledgement to the Awabakal Descendants Traditional Owners Aboriginal Corporation and the Awabakal Traditional Owners Aboriginal Corporation to the development of the Cultural Significance Ranking methodology.

Summary of issue: A sentence in Section 9.1 of the draft Cultural Heritage Impact Assessment omits “and registered Aboriginal groups” which is included in the same sentence in section of 16.0 of the draft Cultural Heritage Impact Assessment.

The wording in Section 9.1 has been amended to incorporate access to the wider Aboriginal community. The sentence in Section 16.0 now reads:

In addition the establishment of an agreement between Centennial Mandalong, the Local Aboriginal Land Councils and the registered Aboriginal Parties to provide access to Aboriginal sites on Centennial Mandalong owned land (Section 9.1 & Figure 8) will ensure the community is given the opportunity to pass on the cultural knowledge and ensure intergenerational equity is maintained.

Summary of issue: Offsets proposed are unsuitable and were not discussed with the registered Aboriginal Parties.

Centennial Mandalong has proposed offset measures to offset the potential impacts to Aboriginal heritage sites within the Southern Extension Area as a result of the Project as discussed above. Centennial Mandalong believes that these measures proposed adequately offset the potential impacts to individual Aboriginal heritage sites within the Southern Extension Area. An opportunity for the registered Aboriginal Parties to provide feedback on the offset measures proposed was during the review of the draft Cultural Heritage Impact Assessment. No alternative suggestions have been provided to Centennial Mandalong by any of the registered Aboriginal Parties on the proposed offset measures that could have been taken into consideration during the finalisation of the report.

Summary of issue: GPS Coordinates for sites in Table 19 of the draft Cultural Heritage Impact Assessment should be removed.

Table 19 of the draft Aboriginal Heritage Impact Assessment has been amended to remove the GPS coordinates of Aboriginal heritage sites from the table.

Summary of issue: Inconsistent reference to local Aboriginal community and registered Aboriginal Parties throughout the Cultural Heritage Impact Assessment.

The Cultural Heritage Impact Assessment has been updated to ensure consistent use of the registered Aboriginal Party terminology.

Summary of issue: disagree with the implementation and use of Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan.

The Northern Holdings Aboriginal Cultural Heritage Management Plan has been developed to provide a consistent approach to how Centennial Coal consults with the Aboriginal community regarding Aboriginal heritage matters as well as a consistent Approach to how Aboriginal heritage sites are monitoring and managed. As is committed to in the draft Cultural Heritage Impact Assessment, the Northern Holdings Aboriginal Cultural Heritage Management Plan will be updated following Project Approval to take into consideration the recommendations of the Cultural Heritage Impact Assessment and any additional conditions of consent.

Representatives of the Project team would be happy to meet with you to discuss the matters raised in your submission in more detail. If you would like to participate in a meeting please contact James Wearne on 0407 207 530 to arrange a suitable time.

Yours sincerely
CENTENNIAL MANDALONG PTY LTD

A handwritten signature in black ink, appearing to read 'Peter Cook', with a stylized flourish underneath.

Peter Cook
Project Manager

