

# Narrabri Mine Modification 5

# Environmental Assessment

## APPENDIX F

### Aboriginal Cultural Heritage Assessment



# Narrabri Mine Modification 5

## Aboriginal Cultural Heritage Assessment

September 2015

Local Government Area: Narrabri Shire

Nearest Town: Baan Baa

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*Cover photograph: Upper reach of Pine Creek.*

## Executive summary

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This report presents the results of an Aboriginal cultural heritage and archaeological assessment of the proposed Narrabri Mine Modification 5 (the Modification) at the Narrabri Mine, approximately 28 kilometres (km) south-east of Narrabri and approximately 65 km north-west of Gunnedah in the Gunnedah Basin, New South Wales. The Modification would involve the following activities:

- An increase in longwall panel widths for Longwall Panels 107 to 120 from 295 metres to 400 metres (Longwall Panels 101 to 106 unchanged).
- A reduction in the number of longwall panels from 26 to 20.
- A western extension of underground mine footprint relative to the existing/approved underground mine footprint of approximately 60 metres within ML 1609.
- An increase in the ROM coal production from 8 million tonnes per annum up to 11 million tonnes per annum.
- The continuation of pre-conditioning of the Digby Conglomerate to prevent or minimise the impact of wind blast in the underground workings.
- Minor amendments to the site water management system.
- An increase in the average number of trains from 3 trains/day to 4 trains/day (peak would remain unchanged).

A targeted survey for the Modification was conducted over two days, focussing on areas with the highest potential for retaining Aboriginal cultural heritage evidence, and low intensity survey transects across a representative portion of the area. The Modification surveys identified no Aboriginal heritage sites or Aboriginal cultural heritage values.

### ***Impact Assessment on Aboriginal Cultural Heritage***

The Modification is unlikely to have an impact on Aboriginal cultural heritage sites that may exist within the Survey Area.

The Modification Subsidence Area is predicted to change the potential subsidence effects in other portions of the approved underground mining area at the Narrabri Mine. However, these changes are not expected to be material and no additional impacts on Aboriginal cultural heritage sites are anticipated.

### ***Recommendations for Aboriginal Cultural Heritage***

The existing management strategies and procedures contained within the currently approved Aboriginal Cultural Heritage Management Plan should continue be followed for all proposed ground surface disturbance activities within the Modification Subsidence Area.

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## 1. Introduction

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### 1.1 Background and need for the Modification

The Narrabri Mine (NM) is located approximately 28 kilometres (km) south-east of Narrabri and approximately 65 km north-west of Gunnedah in the Gunnedah Basin, New South Wales (NSW) (Figure 1).

The NM is operated by Narrabri Coal Operations Pty Ltd (NCOPL) on behalf of the Narrabri Joint Venture.

Stage 1 of the NM was originally approved under Part 3A of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act) in 2007 and involved initial site establishment activities and continuous miner mining operations.

Project Approval (08\_0144) for Stage 2 of the NM was issued in 2010 and allowed the mine to convert to a longwall mining operation.

Project Approval (08\_0144) allows for the production and processing of up to 8 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal for a period of 21 years. ROM coal is processed at the NM to produce thermal and PCI coal products. Product coal is transported from the NM by rail to Newcastle.

In 2011, NCOPL submitted two minor applications to modify Project Approval (08\_0144) under Section 75W of the EP&A Act to update subsidence management conditions in Project Approval 08\_0144 and to allow for the one-off road transport of coal to the Tarrawonga Coal Mine. A third application to modify Project Approval (08\_0144) under Section 75W of the EP&A Act submitted in 2012 was withdrawn.

In April 2015, NCOPL submitted an application to modify Project Approval (08\_0144) under Section 75W of the EP&A Act to increase the capacity of the existing ROM and product coal stockpiles.

NCOPL is proposing to seek a modification to Project Approval (08\_0144) under Section 75W of the EP&A Act to reconfigure the approved underground mine geometry and to increase the ROM coal production rate (Modification 5 [the Modification]).

Large portions of the Modification Subsidence Area (Figure 2) have previously been approved and/or assessed for disturbance, and the management of Aboriginal heritage in these areas is guided by the currently approved Aboriginal Cultural Heritage Management Plan (ACHMP) for the NM (NCOPL 2011).

Niche Environment and Heritage Pty Ltd (Niche) was commissioned by NCOPL to prepare the Aboriginal Cultural Heritage Assessment (ACHA) for the areas not previously assessed for Aboriginal cultural heritage in the proposed Modification Subsidence Area at the NM (the Survey Area – Figure 3).

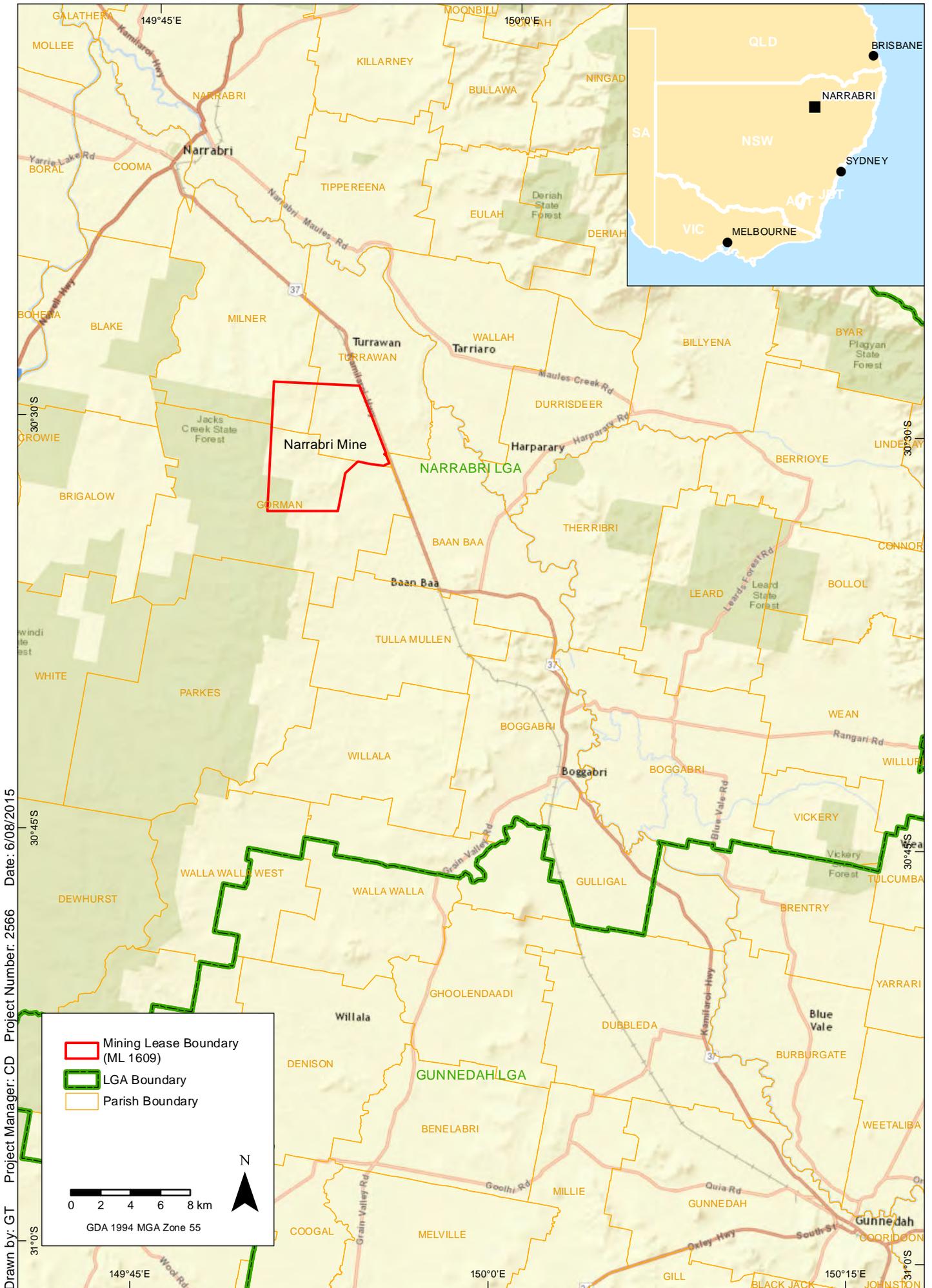
This report presents the results of the ACHA, including background research, survey and consultation with the representatives of the Gomeroi Narrabri Aboriginal Corporation (GNAC) and the Narrabri Local Aboriginal Land Council (NLALC), i.e. the Registered Aboriginal Parties (RAPs).

The ACHA has been prepared in consideration of the following guidelines and documents:

- The currently approved ACHMP (NCOPL 2011).
- The *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRs) (NSW Department of Environment, Climate Change and Water [DECCW] 2010a).
- The *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b).

- The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (NSW Office of Environment and Heritage [OEH] 2011).

The objectives of this report were to assess the Survey Area for Aboriginal heritage values, to identify whether Aboriginal sites, objects or places would be impacted by the Modification, and provide appropriate mitigation and management recommendations, where required.

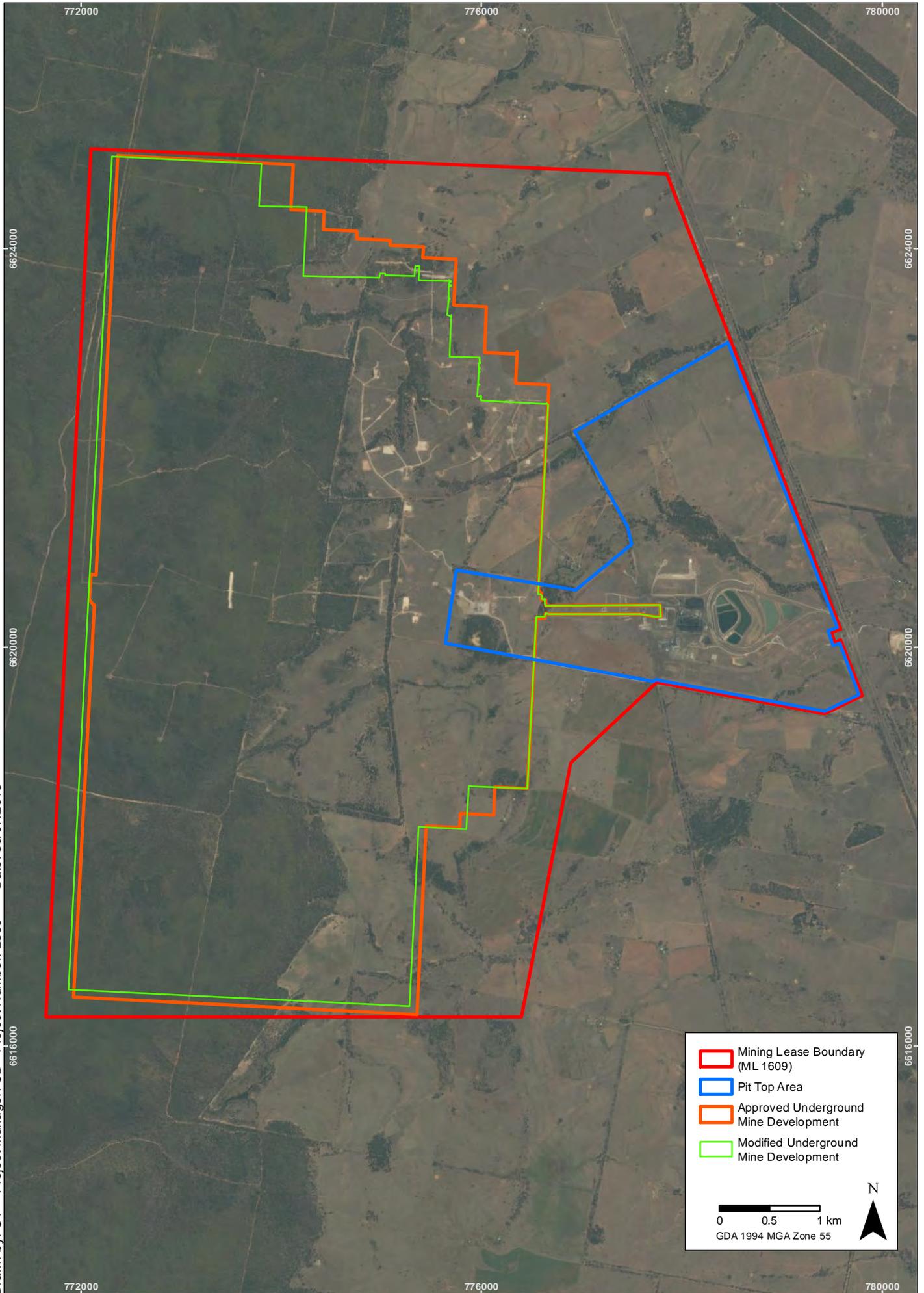


Drawn by: GT Project Manager: CD Project Number: 2566 Date: 6/08/2015

Regional Context  
Narrabri Mine Modification ACHA

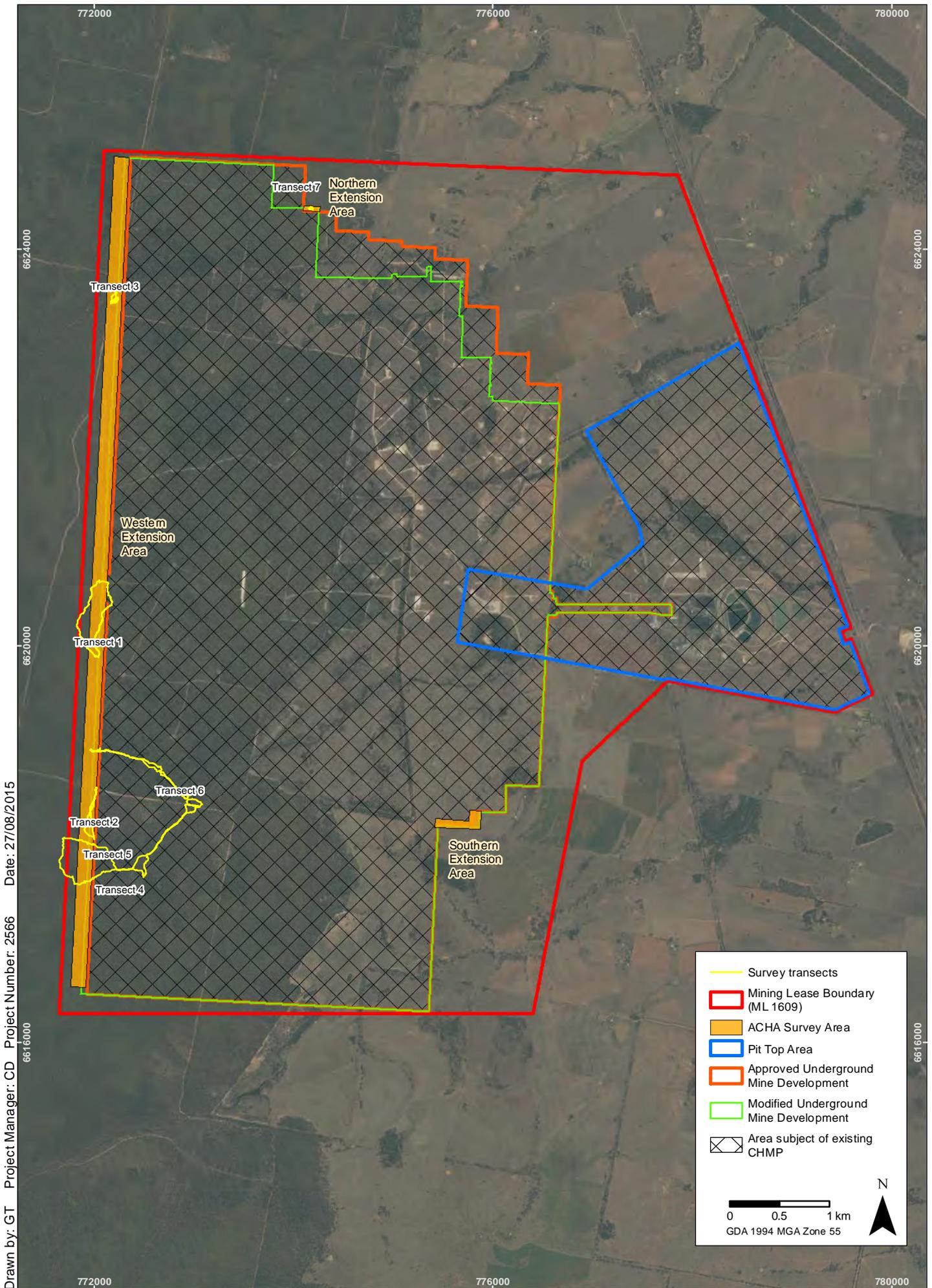
FIGURE 1

Drawn by: GT Project Manager: CD Project Number: 2566 Date: 30/07/2015



Modification Area  
Narrabri Mine Modification ACHA

**FIGURE 2**



Survey Area  
Narrabri Mine Modification ACHA

**FIGURE 3**

## 1.2 Site location and Survey Area

The Modification Subsidence Area and Survey Area for the Modification are located at the NM.

The Modification Subsidence Area includes areas which may be directly subject to potential subsidence impacts as a result of the Modification (including areas already approved for subsidence impacts associated with the currently approved Longwall Panels 107 to 120 at the NM). The Modification Subsidence Area is located within the modified underground mine development area presented on Figure 2.

The Survey Area (Figure 3) incorporates three locations within Mining Lease (ML) 1609, including only those areas that have the potential to experience additional impacts to those impacts already approved for the NM. The proposed longwall layout (approximately 8 km in length) will extend approximately 60 m from the existing approved area of mining operations in the western portion of the Modification Subsidence Area (Western Extension area). In addition, two areas – one to the north (Northern Extension area) and one to the south (Southern Extension area), also marginally extend beyond the approved area of underground mining operations but remain within ML 1609.

Note that there may also be some minor incremental changes in the subsidence predictions for some sites located outside of the Modification Subsidence Area and above Longwalls 101 to 106. Notwithstanding, an extraction plan for Longwall Panels 101 to 105 has been prepared including detailed subsidence predictions for associated sites.

## 2. Investigators and contributors

This investigation was undertaken by Clair Davey, archaeologist of Niche. This report was written by Clair Davey and reviewed by Balazs Hansel (Niche) (Table 1).

A targeted survey for the Modification was conducted over two days focussing on areas with the highest probability of containing Aboriginal cultural heritage and including low intensity transects across a representative portion of the Survey Area. The survey commenced on 15 July 2015 by an experienced and qualified archaeologist and Joe Trindall and Tanetha Trindall, representatives of GNAC and the NLALC respectively. The survey continued on 21 July 2015 with an experienced and qualified archaeologist and Joe Trindall and Raymond Smith, representatives of GNAC and the NLALC, respectively.

**Table 1. Contributors – Affiliations and Roles**

Contributor	Affiliation	Role
Clair Davey	Niche	Project Manager and Archaeologist Report Author
Jamie Reeves	Niche	Project Leader
Balazs Hansel	Niche	Niche Internal Reviewer
Joe Trindall	Gomeri Narrabri Aboriginal Corporation	Survey Participant
Tanetha Trindall	Narrabri Local Aboriginal Land Council	Survey Participant
Raymond Smith	Narrabri Local Aboriginal Land Council	Survey Participant

### 3. Description of development proposal

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The Modification would involve the following activities:

- An increase in longwall panel widths for Longwall Panels 107 to 120 from 295 metres (m) to 400 m (Longwall Panels 101 to 106 unchanged).
- A reduction in the number of longwall panels from 26 to 20.
- A western extension of underground mine footprint relative to the existing/approved underground mine footprint of approximately 60 m within ML 1609.
- An increase in the ROM coal production from 8 Mtpa up to 11 Mtpa.
- The continuation of pre-conditioning of the Digby Conglomerate to prevent or minimise the impact of wind blast in the underground workings.
- Minor amendments to the site water management system.
- An increase in the average number of trains from 3 trains/day to 4 trains/day (peak would remain unchanged).

## 4. Consultation

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In administering its statutory functions under Part 6 of the NSW *National Parks and Wildlife Act, 1974*, the OEH requires that proponents consult with Aboriginal people about the Aboriginal cultural heritage values (cultural significance) of Aboriginal objects and/or places within any given development area in accordance with Clause 80C of the NSW *National Parks and Wildlife Regulation, 2009*.

The OEH maintains that the objective of consultation with Aboriginal communities about the cultural heritage values of Aboriginal objects and places is to ensure that Aboriginal people have the opportunity to improve ACHA outcomes by (DECCW 2010a):

- Providing relevant information about the cultural significance and values of Aboriginal objects and/or places.
- Influencing the design of the method to assess cultural and scientific significance of Aboriginal objects and/or places.
- Actively contributing to the development of cultural heritage management options and recommendations for any Aboriginal objects and/or places within the Modification Subsidence Area.
- Commenting on draft assessment reports before they are submitted by the proponent to the OEH.

Consultation in the form outlined in the ACHCRs is a formal requirement where a proponent is aware that his/her development activity has the potential to harm Aboriginal objects or places. The OEH also recommends that these requirements be used when the certainty of harm is not yet established but a proponent has, through some formal development mechanism, been required to undertake a cultural heritage assessment to establish the potential harm their proposal may have on Aboriginal objects and places.

Consultation for this Modification has been undertaken in accordance with the ACHCRs as these meet the fundamental tenants of the 2004 consultation requirements (NSW Department of Environment and Conservation 2004), while meeting current industry standards for community consultation.

The ACHCRs outline a four stage consultation process that includes detailed step-wise guidance as to the aim of the stage, how it is to proceed and what actions are necessary for it to be successfully completed. The four stages are:

- Stage 1 – Notification of project proposal and registration of interest.
- Stage 2 – Presentation of information about the proposed project.
- Stage 3 – Gathering information about the cultural significance.
- Stage 4 – Review of draft cultural heritage assessment report.

The document also outlines the roles and responsibilities of the OEH, Aboriginal parties including Local and State Aboriginal Land Councils, and proponents throughout the consultation process.

To meet the requirements of consultation it is expected that proponents will (DECCW 2010a):

- Bring the RAPs or their nominated representatives together and be responsible for ensuring appropriate administration and management of the consultation process.
- Consider the cultural perspectives, views, knowledge and advice of the RAPs involved in the consultation process in assessing cultural significance and developing any heritage management outcomes for Aboriginal objects(s) and/or places(s).

- Provide evidence to the OEH of consultation by including information relevant to the cultural perspectives, views, knowledge and advice provided by the RAPs.
- Accurately record and clearly articulate all consultation findings in the final cultural heritage assessment report.
- Provide copies of their cultural heritage assessment report to the RAPs who have been consulted.

The consultation process undertaken to seek active involvement from relevant Aboriginal people followed the current NSW statutory guideline, namely, the ACHCRs. Section 1.3 of the ACHCRs describes the guiding principles of the document. The principles have been derived directly from the Australian Heritage Commission's *Ask First: A guide to respecting Indigenous heritage places and values* (Australian Heritage Commission 2002). Both documents share the aim of creating a system where informed advice can be sought from the Aboriginal community.

The following outlines the process and results of the consultation conducted during this assessment to ascertain and reflect the Aboriginal cultural heritage values of the Modification Subsidence Area.

## 4.1 The consultation process

### 4.1.1 Stage 1 – notification and registration of interest

This stage of the consultation process is used to identify any Aboriginal people or groups who may have a cultural interest and possess cultural knowledge in the Modification Subsidence Area. Aboriginal stakeholder groups with an interest in the NM have previously been identified (including through the publication of a public notice requesting expressions of interest in the NM) and NCOPL has maintained ongoing consultation and engagement with these groups (e.g. through the ACHMP).

For the Modification, the existing RAPs were contacted and consulted, in accordance with the ACHCRs and consistent with the ACHMP.

A consultation log detailing all Aboriginal community consultation undertaken for the Modification is provided in Appendix 1. A copy of relevant written correspondence received from the RAPs is also provided in Appendix 2.

### 4.1.2 Stages 2 and 3 – presentation of project information and gathering information about cultural significance

#### Proposed Methodology

All of the RAPs were provided with a letter (via email and post) on 15 June 2015 outlining information about the Modification, and the Proposed Methodology for the ACHA for their review and comment in accordance with the ACHCRs (DECCW 2010a) (Appendix 2). A 28 day review period was allowed for RAPs to:

- Suggest any protocols to be adopted into the information gathering process and assessment methodology.
- Highlight any other matters such as issues or areas of cultural significance that might affect, inform or refine the methodology.

The period for commenting on the Proposed Methodology was open between 15 June 2014 and 13 July 2015. No comments or feedback from the RAPs on the Proposed Methodology were received during this time.

## **Field surveys**

The survey work for the Modification took place over two days on 15 July 2015 and 21 July 2015.

Representatives from the RAPs attended the field survey of the Survey Area on 15 and 21 July 2015.

### **4.1.3 Stage 4 – review of draft report**

A draft of this report (i.e. the draft ACHA) was provided to the RAPs for their review and comment in accordance with the ACHCRs (DECCW 2010a) on 6 August 2015. A minimum of 28 days were provided to each of the RAPs with a request for comments to be provided by 3 September 2015.

Attempts were made to contact each of the RAPs on 27 and 28 August 2015, to provide a reminder of the close of the period for comment on the draft ACHA, and to request any comments or feedback (Appendix 1). As at 7 September 2015 no comments had been received from the RAPs.

A copy of the final ACHA report will be made available to all RAPs during the public exhibition period for the Environmental Assessment. During this exhibition period all RAPs will have the opportunity to review and provide additional comment on the final ACHA report.

## 5. Register searches

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### 5.1 Commonwealth registers

Under the EPBC Act Amendments (No. 88, 2003), two mechanisms have been created for the protection of heritage places of National or Commonwealth significance (<http://www.environment.gov.au/heritage/places/national/index.html>) – the National Heritage List (NHL) and the Commonwealth Heritage List (CHL). The NHL provides protection to places of cultural significance to the nation of Australia, while the CHL comprises natural, Aboriginal and historic heritage places owned and controlled by the Commonwealth. There are no management constraints associated with listing on the Register of the National Estate (RNE) unless the listed place is owned by a Commonwealth agency.

A search of the online Australian Heritage Database, which includes items from the CHL and RNE, was conducted on 13 July 2015. Search terms used were: Narrabri and Pilliga. No heritage items were identified within or in close proximity to the Modification Subsidence Area.

### 5.2 State registers

The State Heritage Register (SHR) holds items that have been assessed as being of State Significance to NSW. The State Heritage Inventory (SHI) contains items that are listed on Local Environmental Plans (LEPs) and/or on a State Government Agency's Section 170 registers (OEH Website – [www.heritage.nsw.gov.au/index.html](http://www.heritage.nsw.gov.au/index.html)). Items appearing on either the SHR or SHI have been granted a defined level of statutory protection under NSW legislation.

Searches of the SHR and SHI were completed on the 13 July 2015. No heritage items were listed within or in close proximity to the Modification Subsidence Area.

#### 5.2.1 Environmental Planning and Assessment Act 1979 registers

Each Local Government Area is required to create and maintain a LEP that identifies and conserves Aboriginal and Historic heritage items. These items are protected under the EP&A Act and the NSW *Heritage Act 1977*.

A search of the *Narrabri Local Environmental Plan 2012* (Narrabri LEP) was undertaken on the 13 July 2015. No Aboriginal heritage items were listed in the Narrabri LEP that are located within or in close proximity to the Modification Subsidence Area.

#### 5.2.2 National Parks and Wildlife Act 1974 Registers (AHIMS)

Basic and extensive searches of the Aboriginal Heritage Information Management System (AHIMS) database for an area between the Pilliga East State Forest/Jacks Creek State Forest and the Kamilaroi Highway surrounding ML 1609 were undertaken on 30 July 2015. The search results are shown in Table 2 and in Appendix 3.

The AHIMS search identified a total of 141 Aboriginal heritage sites located at the NM, however no sites were identified within the Survey Area. The Aboriginal heritage sites listed on the AHIMS database in proximity to the Survey Area include isolated finds and artefact scatters, grinding grooves, a hearth, a culturally modified tree and a shell midden (Table 2) (Figure 4).

Within the Modification Subsidence Area, 66 sites exist at or near areas subject to expected subsidence and surface cracking associated with the approved longwall layout at the NM (Ditton 2015). Of those sites, all were previously assessed as being of low archaeological significance. An assessment was undertaken of subsidence and surface cracking and their potential impacts to Aboriginal cultural heritage. The potential impacts of the Modification on these sites are discussed in Section 13.

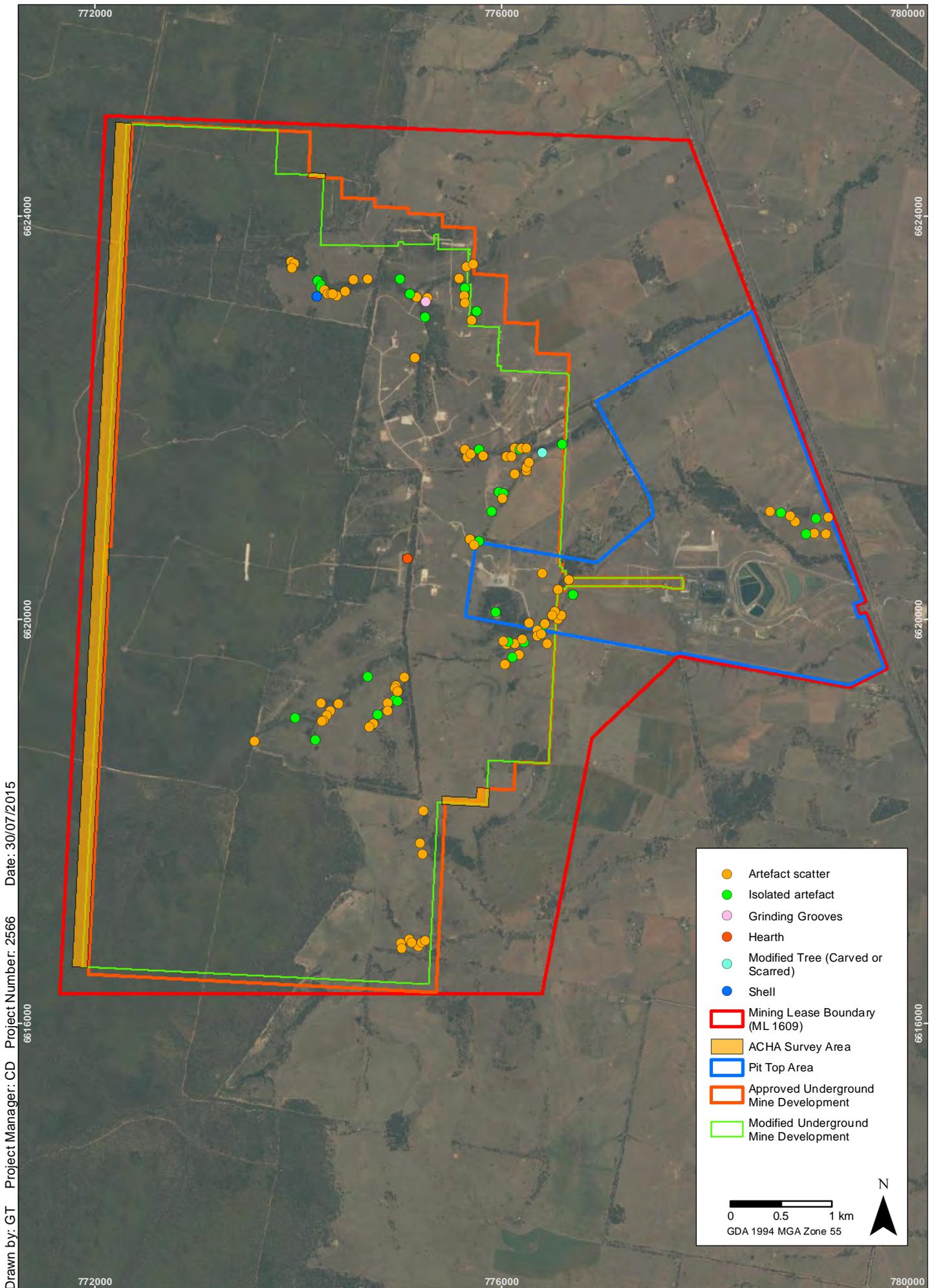
**Table 2. AHIMS Extensive Search Results**

Site ID	Site Name	Site Features
19-3-0084	Pine Creek T2/OS 1	Artefact : 15
19-3-0085	Pine Creek T2/IOS 1	Artefact : -
19-3-0086	Pine Creek T2/OS 2	Artefact : -
19-3-0087	Pine Creek T2/OS 3	Artefact : 6
19-3-0088	Pine Creek T2/OS 4	Artefact : 3
19-3-0089	Pine Creek T2/OS 5	Artefact : 1
19-3-0090	Pine Creek T2/OS 6	Artefact : -
19-3-0091	Pine Creek T2/ISO 2	Artefact : 1
19-3-0092	Pine Creek T2/ISO 3	Artefact : 1
19-3-0093	Pine Creek T2/OS 7	Artefact : 2
19-3-0094	Pine Creek T2/AGG 1	Grinding Groove : 3
19-6-0069	Pine Creek T1/OS 8	Artefact : 11
19-6-0070	Pine Creek T1/OS 9	Artefact : 3
19-6-0071	Pine Creek T1/OS 10	Artefact : 4
19-6-0072	Pine Creek T1/ISO 4	Artefact : 1
19-6-0073	Pine Creek T1/OS 11	Artefact : 2
19-6-0074	Pine Creek T1/OS 12	Artefact : 7
19-6-0075	Pine Creek T1/ISO 5	Artefact : 1
19-6-0076	Pine Creek T1/OS 13	Artefact : 4
19-6-0077	Pine Creek T1/OS 14	Artefact : 18
19-6-0078	Pine Creek T1/ST 1	Modified Tree (Carved or Scarred) : -
19-6-0079	Pine Creek T1/ISO 6	Artefact : 1
19-6-0080	Pine Creek T1/OS 15	Artefact : 5
19-6-0081	Pine Creek T1/OS 16	Artefact : 3
19-6-0082	Pine Creek T1/OS 17	Artefact : 2
19-6-0083	Pine Creek T1/ISO 7	Artefact : 1
19-6-0084	Pine Creek T1/ISO 8	Artefact : 1
19-6-0085	Pine Creek T1/OS 18	Artefact : 2
19-6-0086	Pine Creek T1/ISO 9	Artefact : 1

Site ID	Site Name	Site Features
19-6-0087	Pine Creek T1/ISO 10	Artefact : 1
19-6-0088	Pine Creek T1/OS 19	Artefact : 2
19-6-0089	Pine Creek T1/OS 20	Artefact : 3
19-6-0090	Pine Creek T1/OS 21	Artefact : 2
19-6-0091	Pine Creek T1/OS 22	Artefact : 2
19-6-0092	Pine Creek T1/OS 23	Artefact : 4
19-3-0095	Pine Creek T2/OS 24	Artefact : 2
19-3-0096	Pine Creek T2/ISO 11	Artefact : 1
19-3-0097	Pine Creek T2/ISO 12	Artefact : 1
19-3-0098	Pine Creek T2/OS 25	Artefact : 13
19-3-0099	Pine Creek T2/OS 26	Artefact : 5
19-3-0100	Pine Creek T2/OS 27	Artefact : 4
19-3-0101	Pine Creek T2/OS 27	Artefact : 7
19-3-0102	Pine Creek T2/OS 28	Artefact : 2
19-6-0093	Pine Creek T1/FP1	Hearth : -
19-3-0103	Pine Creek ISO 44	Artefact : 1
19-3-0104	Pine Creek ISO 45	Artefact : 1
19-3-0105	Pine Creek ISO 46	Artefact : 1
19-3-0106	Pine Creek OS 47	Artefact : 5
19-3-0107	Pine Creek OS 48	Artefact : 5
19-3-0108	Pine creek OS 49	Artefact : 5
19-3-0109	Pine Creek OS 50	Artefact : 2
19-3-0110	Pine Creek OS 51	Artefact : 2
19-3-0111	Pine Creek OS 52	Artefact : 2
19-3-0112	Pine Creek OS 53	Artefact : 6
19-3-0113	Pine Creek OS 54	Shell : 2
19-6-0095	Kurrajong T1/OS 55	Artefact : 2
19-6-0096	Kurrajong T1/OS 56	Artefact : 2
19-6-0097	Kurrajong T1/ISO 57	Artefact : 1
19-6-0098	Kurrajong T1/OS 58	Artefact : 4
19-6-0099	Kurrajong T1/OS 59	Artefact : 6
19-6-0100	Kurrajong T1/OS 60	Artefact : 4
19-6-0101	Kurrajong T1/OS 61	Artefact : 7
19-6-0102	Kurrajong T1/OS 62	Artefact : 3
19-6-0106	Kurrajong T1/OS 67	Artefact : 2
19-6-0107	Kurrajong T1/ISO 68	Artefact : 1
19-6-0152	Kurrajong T1/OS 113	Artefact : 3
19-6-0153	Kurrajong T1/OS 114	Artefact : 5
19-6-0154	Kurrajong T1/ISO 115	Artefact : 1

Site ID	Site Name	Site Features
19-6-0155	Kurrajong T1/OS 116	Artefact : 2
19-6-0156	Kurrajong T1/ISO 117	Artefact : 1
19-6-0157	Kurrajong T1/OS 118	Artefact : 3
19-6-0158	Kurrajong T1/OS 119	Artefact : 3
19-6-0159	Kurrajong T1/ISO 120	Artefact : 1
19-6-0160	Kurrajong T1/OS 121	Artefact : 5
19-6-0161	Kurrajong T1/OS 63	Artefact : 7
19-6-0087	Pine Creek T1/ISO 10	Artefact : 1
19-6-0088	Pine Creek T1/OS 19	Artefact : 2
19-6-0089	Pine Creek T1/OS 20	Artefact : 3
19-6-0093	Pine Creek T1/FP1	Hearth : -
19-6-0095	Kurrajong T1/OS 55	Artefact : 2
19-6-0096	Kurrajong T1/OS 56	Artefact : 2
19-6-0097	Kurrajong T1/ISO 57	Artefact : 1
19-6-0098	Kurrajong T1/OS 58	Artefact : 4
19-6-0099	Kurrajong T1/OS 59	Artefact : 6
19-6-0100	Kurrajong T1/OS 60	Artefact : 4
19-6-0101	Kurrajong T1/OS 61	Artefact : 7
19-6-0102	Kurrajong T1/OS 62	Artefact : 3
19-6-0103	Kurrajong T1/ISO 64	Artefact : 1
19-6-0104	Kurrajong T1/OS 65	Artefact : 2
19-6-0105	Kurrajong T1/OS 66	Artefact : 4
19-6-0106	Kurrajong T1/OS 67	Artefact : 2
19-6-0107	Kurrajong T1/ISO 68	Artefact : 1
19-6-0108	Kurrajong T1/OS 69	Artefact : 3
19-6-0109	Kurrajong T1/OS 70	Artefact : 4
19-6-0110	Kurrajong T1/OS 71	Artefact : 2
19-6-0111	Kurrajong T1/OS 72	Artefact : 9
19-6-0112	Kurrajong T1/ISO 73	Artefact : 1
19-6-0113	Kurrajong T1/OS 74	Artefact : 2
19-6-0114	Kurrajong T1/OS 75	Artefact : 3
19-6-0115	Kurrajong T1/OS 76	Artefact : 2
19-6-0116	Kurrajong T1/ISO 77	Artefact : 1
19-6-0117	Kurrajong T1/OS 78	Artefact : 3
19-6-0118	Kurrajong T1/ISO 79	Artefact : 1
19-6-0119	Kurrajong T1/OS 80	Artefact : 5
19-6-0120	Kurrajong T1/ISO 81	Artefact : 1
19-6-0121	Kurrajong T1/OS 82	Artefact : 9
19-6-0122	Kurrajong T1/OS 83	Artefact : 7

Site ID	Site Name	Site Features
19-6-0123	Kurrajong T1/OS 84	Artefact : 5
19-6-0124	Kurrajong T1/OS 85	Artefact : 3
19-6-0125	Kurrajong T1/OS 86	Artefact : 2
19-6-0126	Kurrajong T1/ISO 87	Artefact : 1
19-6-0127	Kurrajong T1/OS 88	Artefact : 2
19-6-0128	Kurrajong T1/ISO 89	Artefact : 1
19-6-0129	Kurrajong T1/OS 90	Artefact : 5
19-6-0130	Kurrajong T1/OS 91	Artefact : 2
19-6-0131	Kurrajong T1/ISO 92	Artefact : 1
19-6-0132	Kurrajong T1/OS 93	Artefact : 2
19-6-0133	Kurrajong T1/OS 94	Artefact : 6
19-6-0134	Kurrajong T1/OS 95	Artefact : 7
19-6-0135	Kurrajong T1/OS 96	Artefact : 3
19-6-0136	Kurrajong T1/ISO 97	Artefact : 1
19-6-0137	Kurrajong T1/OS 98	Artefact : 2
19-6-0138	Kurrajong T1/OS 99	Artefact : 2
19-6-0139	Kurrajong T1/OS 100	Artefact : 4
19-6-0140	Kurrajong T1/ISO 101	Artefact : 1
19-6-0141	Kurrajong T1/OS 102	Artefact : 3
19-6-0142	Kurrajong CR/OS 103	Artefact : 3
19-6-0143	Kurrajong CR/OS 104	Artefact : 3
19-6-0144	Kurrajong CR/OS 105	Artefact : 2
19-6-0145	Kurrajong CR/OS 106	Artefact : 3
19-6-0146	Kurrajong CR/OS 107	Artefact : 34
19-6-0147	Kurrajong CR/OS 108	Artefact : 12
19-6-0148	Kurrajong CR/OS 109	Artefact : 4
19-6-0149	Kurrajong CR/OS 110	Artefact : 3
19-6-0150	Kurrajong CR/OS 111	Artefact : 36
19-6-0151	Kurrajong CR/OS 112	Artefact : 50
19-6-0152	Kurrajong T1/OS 113	Artefact : 3
19-6-0153	Kurrajong T1/OS 114	Artefact : 5
19-6-0156	Kurrajong T1/ISO 117	Artefact : 1
19-6-0157	Kurrajong T1/OS 118	Artefact : 3
19-6-0161	Kurrajong T1/OS 63	Artefact : 7



AHIMS search results  
Narrabri Mine Modification ACHA

FIGURE 4

## 6. Landscape context

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### 6.1 Geology

The NM is located in the northern part of the Gunnedah Basin in the Mullalley sub-basin to the west of the Boggabri Ridge, which is a north-south trending anticlinal ridge of Early Permian volcanic rock. The Mullalley sub basin is comprised of Permian and Triassic sedimentary and volcanic rocks. The strike of the rocks is north-south and dips to the west at an angle of less than 10 degrees. An angular unconformity between the Late Permian Black Jack Group and the overlying Triassic Digby Formation exists in the area of ML 1609. The western part of ML 1609 is unconformably overlain by Jurassic sedimentary and volcanic rocks (Figure 5) (R.W. Corkery and Co Pty Ltd 2008).

The Jurassic rocks include Pilliga sandstone features up to 60 m thick outcrops along the western margin of the Modification Subsidence Area. The sandstone is medium bedded, cross bedded, well sorted fine to coarse grained quartz sandstone. In the western half of the Modification Subsidence Area, the Purlawaugh formation consists of thinly bedded, generally fine grained silty lithic sandstone, siltstone and minor claystone. Coal seams are present in the lower part of this unit (R.W. Corkery and Co Pty Ltd 2008). When present, Garrawilla Volcanics unconformably overlay the Triassic Napperby Formation or the Deriah Formation. The volcanics are mainly of alkali basalt flows with very minor intervening mudstone and clastic rocks up to 40 m thick (R.W. Corkery and Co Pty Ltd 2008).

The Gunnedah Basin Sequence is of the Permian to Triassic era. This contains the Napperby Formation which is up to 140 m thick coarsening up sequence of siltstone, sandstone, siltstone laminae and fine to medium grained quartz-lithic sandstone. An intrusive Basalt Sill exists in the lower part (i.e. 30 – 35 m above the base) of the Napperby Formation, varying in thickness between 0 – 30 m (typically 15 – 20 m thick). It does not continue into the surrounding rocks and is likely a result of cooling shrinkage. Within the basalt, strongly developed sub vertical fractures have been infilled with secondary chlorite and zeolite minerals (R.W. Corkery and Co Pty Ltd 2008).

The Digby Formation consists of two units, the lower Digby Conglomerate and the overlying Ulinda Sandstone (which does not occur in the Modification Subsidence Area). The Digby Conglomerate consists of thickly bedded, polymictic, lithic, pebble conglomerate with clasts of volcanic, meta sediment, and jasper in a lithic thick matrix which unconformably overlies the coal bearing Black Jack Group. Towards the top of the unit, sandstone beds are found. Within the Modification Subsidence Area, the Digby Conglomerate is between 15 – 20 m thick (R.W. Corkery and Co Pty Ltd 2008).

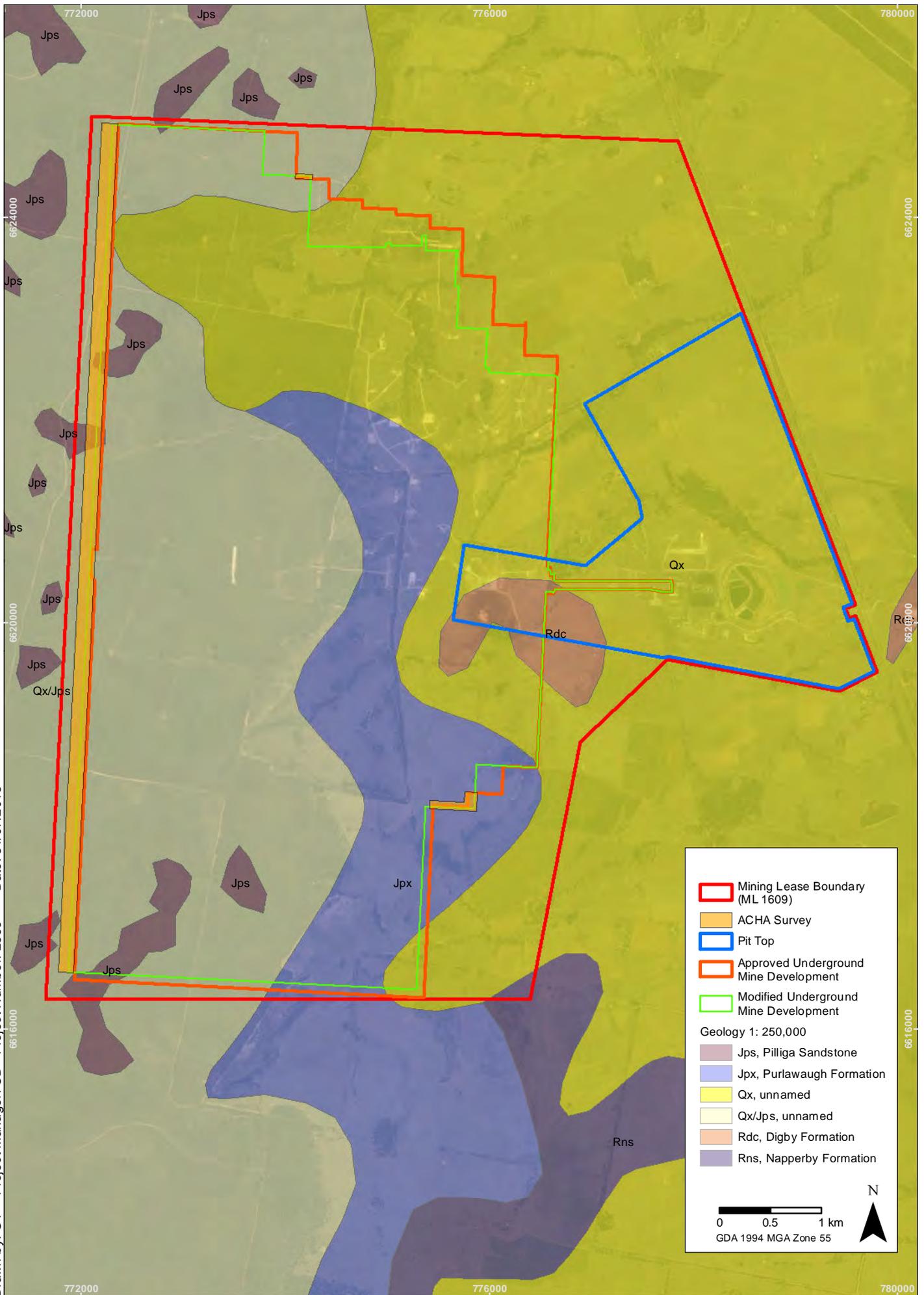
The Black Jack Group contains coal bearing formations, includes the Hoskissons Coal Seam. The Hoskissons Coal seam is a dull lustrous coal consisting of low ash working section (Basal 4.2 m) and a high ash coal with claystone bands (Upper 5.2 m) (R.W. Corkery and Co Pty Ltd 2008).

Quaternary sediments consisting of alluvial gravel, sand silt and clay overlay the Jurassic and Triassic rocks primarily in the east and northeast of the site associated with the Namoi River (R.W. Corkery and Co Pty Ltd 2008).

### 6.2 Topography

The Modification Subsidence Area comprises areas of low undulating hills with creek gullies and low lying marsh areas. The western area contains sandstone hills of low elevation. Soils are mostly thin sandy loams overlaying clay (Australian Archaeological Survey Consultants Pty Ltd 2007).

Drawn by: GT Project Manager: CD Project Number: 2566 Date: 31/07/2015



Geology of Modification Area  
Narrabri Mine Modification ACHA

FIGURE 5

### 6.3 Water resources

The Namoi River is situated approximately 6 km east of the Modification Subsidence Area. Pine Creek and Kurrajong Creek and their tributaries exist within the Modification Subsidence Area. Both creeks drain in a north-easterly direction towards the Namoi River. The upper reach of Pine Creek is located within the Survey Area.

### 6.4 Vegetation

Three natural vegetation communities were identified in the Modification Subsidence Area by Ecotone Ecological Consultants (2009). They include:

- **Sandstone Slopes Woodland** with Brown Bloodwood, Pilliga Grey Box and Red Ironbark as dominant species exists in the undulating western section of the Modification Subsidence Area (including the Survey Area).
- **Lower Flats and Floodplain Woodland** with Inland Grey Box, Bimble Box and Blakelys Red Gum as dominant species exists in the low lying areas in the eastern section of the Modification Subsidence Area.
- **Riparian Forest** with River Oak, Belah and Inland Grey Box as dominant species exists in thin riparian environments.
- The **Cleared Open Grasslands** exists mostly in the low lying eastern area of the Modification Subsidence Area. This artificial community contains croplands, weeded areas and cultivated gardens.

The Pilliga East State Forest in the Survey Area has been extensively logged. Disturbance to the ground surface in this area consists of tracks, disturbed tree trunks and ramps for loading timber for transportation. The Pilliga East State Forest has also been subjected to significant bush fire damage as observed during the 2013 survey of the Modification Subsidence Area by Advitech (2013).

## 7. Previous archaeological work

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Archaeological studies provide material evidence of Aboriginal use of the landscape at times both before and after written history, and complement the oral histories and cultural knowledge held by the Aboriginal community.

Several previous assessments of Aboriginal cultural heritage have been undertaken at the NM, in the immediate surrounds and the wider region. The following summary provides a brief description of the previous archaeological assessments.

### 7.1 Previous archaeological investigations in the adjoining State Forests

Aboriginal and historical cultural heritage surveys were undertaken by RPS in 2013 within sections of the Bibblewindi State Forest and the Pilliga East State Forest for the Dewhurst Northern Water and Gas Flow Line Project and the Dewhurst Southern Water and Gas Flow Line Project. A search of the AHIMS database and other relevant databases identified no sites of Aboriginal or historical origin within the Modification Subsidence Area (RPS 2013a; RPS 2013b).

### 7.2 Previous archaeological investigations within the Narrabri Mine area

In 2007, Australian Archaeological Survey Consultants Pty Ltd undertook a survey of the NM as part of an ACHA. At that time, a search of the AHIMS database returned no results for Aboriginal cultural heritage within and surrounding the relevant search area. The initial survey was constrained to the NM pit top, the ventilation shaft and the western edge of Mining Area A near the western boundary of the current Modification Subsidence Area. Seven sites were identified during the survey; two isolated finds, two artefact scatters, two scarred trees and one resource site (Wild Orange Trees). All of these Aboriginal heritage sites are located outside of the current Survey area.

In 2009, Archaeological Surveys & Reports Pty Ltd undertook further survey of the areas above the underground footprint of Longwall Panels 1 – 7 as part of an ACHA. A survey over the area above the underground footprint of the Longwall Panels 8 – 26 was conducted as reconnaissance. A detailed survey was also undertaken of the brine storage pond area and the proposed water pipeline route between the NM and the Namoi River. The survey of the Longwall Panels 1 – 7 footprint area identified 43 Aboriginal heritage sites, including one scarred tree and one hearth. The other sites consisted of stone artefact scatters ranging in size from five or less artefacts up to more than 100 artefacts. One site containing over 200 artefacts was interpreted to be a camp site along Pine Creek 2 (Archaeological Surveys & Reports Pty Ltd 2009). All of these Aboriginal heritage sites are located outside of the current Survey area.

Two further surveys were undertaken to define the spatial parameters of the sites identified between Longwall Panels 101 – 113 (NCOPL 2011).

An ACHA was undertaken by Advitech for Longwall Panels 8 – 13 in 2013. The assessment consisted of surveys to relocate previously identified sites and to identify new sites within the proposed activity area. A total of 12 sites were relocated. Two sites were situated underwater (in dams) and could not be relocated, and a further nine sites were identified during the survey. The newly identified sites consisted of six isolated artefacts and three artefact scatters. One of the sites (Pine Creek T3 OS 130) contained a large number of artefacts and an area identified as a Potential Archaeological Deposit (Advitech 2013). All of these Aboriginal heritage sites are located outside of the current Survey Area.

A total of 142<sup>1</sup> Aboriginal heritage sites have been previously recorded at the NM. Site types include artefact scatters, isolated stone artefacts, grinding grooves, scarred trees and resource plants. These sites are summarised in Table 3.

**Table 3. Summary of Sites Previously Recorded at the NM**

Aboriginal Site Feature	Number of Aboriginal Sites
Artefact Scatter	95
Axe Grinding Grooves	1
Grinding Grooves	1
Isolated Finds	40
Open Camp Site	1
Resource Site	1
Scarred Tree	3
<b>Total</b>	<b>142</b>

### 7.3 Aboriginal Cultural Heritage Management Plan

An ACHMP is currently being reviewed and was revised for the Stage 2 Project, in consultation with the RAPs, which describes the procedures to be undertaken to avoid harming Aboriginal cultural heritage within the mining operations areas at the NM. The objectives of the ACHMP are to:

- Provide a precise set of procedures to enable the identification and conservation of physical and cultural heritage sites and artefacts at the NM.
- Provide management strategies for those parts of the NM not affected by mining or mining related activities.
- Ensure all personnel are aware of their obligations, responsibilities and the procedures under the *National Parks and Wildlife Act 1974* and *Heritage Act 1977*.
- Establish a consultation protocol with the RAPs who are representatives of the local Aboriginal community.

<sup>1</sup> Minor discrepancies between the number of sites identified in the AHIMS search results and the number of sites previously recorded at the NM have been identified.

## 8. Regional character

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Ethnographic accounts have shown the area surrounding NM is likely to have supported pre contact Aboriginal populations of 10,000 people, who exploited a range of resources within the region. Annual fluctuations in population size were related to seasonal use of the land and infrequent gatherings for ceremonial purposes. The seasonal round saw summers spent exploiting riparian environments, which consistently provided freshwater fish and shellfish and marsupials who were attracted to the water. Large and small birds were preyed upon as well as snakes and lizards. A wide range of plants were utilised for food and medicinal purposes. Winter was spent away from rivers where hunters would trap terrestrial game (AECOM 2010).

Pre contact Aboriginal material culture included a wide array of objects including a range of stone artefact types including ground edge axes, spears (up to five different types have been reported), boomerangs, digging sticks and nets (AECOM 2010).

Previous archaeological surveys and research in the region has supported early observations of Aboriginal people using the landscape for a wide range of tasks and resources. Stone artefact scatters located nearby watercourses are the most dominant form of cultural heritage identified in the region. The reliability of potable water consistently correlates with the use of creek banks and nearby land for campsites. Campsites can be small and discrete which may indicate a brief stopover, or be large and have been in use over many generations. Depending on the duration of their use and the tasks undertaken, campsites can often contain food remains including midden material, cooking ovens, stone artefacts (including the debris from manufacturing and maintaining stone artefacts) and other traces of material culture.

The high proportion of stone artefacts in the region is largely due to the durable nature of stone and does not accurately reflect the wider range of Aboriginal material culture that likely existed. Wooden artefacts were produced in the region as evidenced by scarred trees, however wooden artefacts are perishable and rarely survive for a long period. No wooden implements have been recorded during any archaeological survey within the region.

Axe grinding grooves are indicative of the production and maintenance of stone axes, long known to indicate staged processes of manufacture. Both axe grinding grooves and axes have been identified in the region (AECOM 2010; Advitech 2013). The staged nature of axe production implies craft specialisation in that the work involved in producing axe blanks and axe grinding requires skilled craftsmen or women to produce reliably consistent results. The maintenance of stone axes includes flaking of the bevelled edge to re-establish the correct edge morphology of the working part of the axe, followed by grinding to bevel the edge.

The archaeological signature within the region attests to the duration of Aboriginal occupation and the wide range of activities that existed prior to European occupation.

## 9. Predictive model and survey sampling strategy

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### 9.1 Predictive model

The range of Aboriginal material culture that exists within the NM can provide a useful basis from which to predict the likelihood of locating further finds. Previous assessments have identified stone artefacts as isolates and small to large scatters, axe grinding grooves, scarred trees and plant resources.

The geological and soil landscapes of the Survey Area transect sandstone boulders and outcrops within the Pilliga Scrub. Similar sandstone formations have been utilised in the region by past Aboriginal people and preserve evidence of past Aboriginal occupation in the form of grinding grooves and archaeological deposits of stone artefacts. The likelihood of encountering grinding grooves in the Survey Area will be dependent on the distribution of stone surfaces suitable for axe grinding, and is predicted to be low.

Water is considered one of the primary factors in the prediction of the location of Aboriginal sites in the landscape. The Survey Area transects the upper reaches of Pine Creek which is not a permanent water source. Rather, drainage depressions which can be considered first or second order drainage lines exist and are unlikely to act as permanent sources of potable water (i.e. after rain, water may have temporarily collected in depressions in sandstone outcrops within the Survey Area). The nearest permanent water sources exist downstream, to the east and northeast of the Survey Area.

Given the lack of permanent water sources, the most likely class of artefacts to be identified in the Survey Area would be stone artefacts. The presence of stone artefact isolates and scatters downstream on Pine Creek suggests a moderate probability of encountering stone artefacts along well defined creek banks, should they exist, although the sloped and erosional sections of the landscape reduces the likelihood of encountering large in situ scatters or isolated finds to a low probability.

Depending on the degree of logging, mature trees of specimens known to have been culturally modified within the region may also exist within the Survey Area. In addition to being a resource, scarred trees in the region have been culturally marked to indicate the location of burials. The probability of encountering scarred trees is low due to the recorded logging activities that have taken place in the Pilliga East State Forest.

No rock art or rock shelters are likely to exist within the Survey Area due to the lack of geological formations where rock shelters exist.

Shell middens or other evidence of camping activities may exist in areas where water pools for an extended period, however the probability is very low.

Wooden artefacts are unlikely to have survived in the Survey Area due to their perishable nature.

Human burials cannot be ruled out however the lack of other recorded human burials within the region and the NM indicates a low probability of encountering burials.

## 9.2 Survey sampling strategy

Due to the relatively small size of the Survey Area, and because the Survey Area included some areas that were previously subject to systematic survey, a detailed landscape or landform sampling strategy was not warranted. Rather the approach taken was to use a low intensity transect survey across a representative portion of the Survey Area, including those landforms with the highest potential to retain Aboriginal heritage evidence. This approach is consistent with the methods outlined in the Proposed Methodology, which was provided to all RAPs for their review and comment

Due to the presence of dense vegetation, a subsequent survey day was considered warranted. Consistent with the approach described above, creek lines were targeted during this survey as they represented the landforms with the highest potential to retain Aboriginal heritage evidence.

This approach was considered appropriate given that previous survey efforts in the Survey Area, and in the immediate vicinity, had identified very few Aboriginal objects or areas of cultural value. The approach was discussed with the RAP representatives on site prior to and during the 15 July 2015 survey, and it was agreed that the method employed was appropriate given the low likelihood of Aboriginal objects or areas of cultural value being present.

## 10. Field methods and results

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### 10.1 Survey methods

The Survey Area exists in an elevated terrain comprised of simple slopes, and first order drainage paths with low slopes. Occasional vehicle tracks exist and evidence of prior logging activities was present in the Survey Area.

During both the 15 and 21 July 2015 surveys, the survey team consisted of three team members (i.e. two representatives of the RAPs and one archaeologist), walking pedestrian transects through the Survey Area. Because of the thickness of the vegetation, a low intensity survey was conducted with team member spacing being flexible dependant on terrain conditions and visibility.

Once the Survey Area was reached, the spacing was generally 10 m – 20 m apart. This method retains the potential for discovering large sites on the ground surface through inspection of areas where exposure exists, and allows conspicuous sites such as scarred trees to be readily inspected by the team. During both the 15 and 21 July 2015 survey days all areas of relatively higher exposure were inspected for artefacts, all potential sandstone outcrops were inspected for possible grinding grooves and all mature trees were inspected for cultural modification.

The location of survey units were recorded using a hand-held Differential Global Positioning System, and uploaded directly to a Geographic Information System for presentation on maps and figures. All positional recording used Map Grid of Australia (MGA) coordinates (zone 55) based on the Geocentric Datum of Australia (GDA94). Details such as landform, visibility and exposure for each survey unit were recorded on standard survey unit recording forms. Exposure and visibility were estimated in accordance with the requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b). A compact digital camera was used for all photography.

### 10.2 Survey results

On 15 July 2015 the survey was initiated at the eastern border of the Western Extension on Mains Road (Transect 1) (Figure 6) and a second transect originated from the eastern border of the Western Extension on Scratch Road (Transect 2) (Figure 7). At these two locations the survey was halted after a short distance due to encountering very thick vegetation. A third transect within the Western Extension (Transect 3) (Figure 8) was constrained to an area of less dense vegetation towards the north.

The survey team regrouped on 21 July 2015 to inspect the creek lines in the southern corner of the Western Extension. Pedestrian survey was then initiated at the junction of Scratch Road and Pine Creek and headed westwards towards the Western Extension (Transect 4) (Figure 9). The survey team encountered a recently used access track that traced the Pine Creek trajectory towards the upper reach of the most southern creek line in the Survey Area. The survey team then headed west and traversed from the border of the Western Extension into a second upper reach of Pine Creek (Transect 5) (Figure 10). A further transect was initiated from the junction of Scratch Road along the route of a drainage line located immediately north of Scratch Road in the Western Extension (Transect 6) (Figure 11).

A survey of the Northern Extension (Transect 7) (Figure 12) finalised the survey effort on 21 July 2015. This location is situated on North Road.

No Aboriginal objects or areas of Aboriginal cultural heritage value were identified in either the 15 or 21 July 2015 surveys. Plates 1 to 31 provide photos taken during both surveys at all transects.

### 10.2.1 Simple slopes

Transects 1, 2 and 7 were undertaken in terrain that was slightly elevated from the surrounding alluvial plains, sloping upwards towards the south, with limited ground surface visibility at transect 1 and 2 (0 – 10%) due to leaf litter (Plate 5, Plate 10). The soils in Transect 1 and 2 were moderately compacted and intermixed with a dense leaf litter. Vegetation consisted mainly of Broombush (*Melaleuca uncinata*) interspersed with ironbark and some cypress pine trees (Plate 1, Plate 2, Plate 3, Plate 4, Plate 6, Plate 7, Plate 8, Plate 9). The Broombush was thickly interwoven and restricted movement.

The terrain in Transect 7 was almost flat, with trees including immature ironbark, pine and Broombush (Plate 27, Plate 28, Plate 29, Plate 30). Native grasses and leaf litter on the loosely compacted soil reduced Ground Survey Visibility (GSV) to between 0 – 10% (Plate 31).

### 10.2.2 Drainage features

Transect 3, 4, 5 and 6 exist in areas where drainage features are present. In Transect 3, clear evidence of logging activity existed in the form of stumps and sawn timber. A row of disused fence posts were identified (Plate 11). Vegetation included ironbark, pine and native grasses. Although no clearly demarcated creek banks were identified, the sloping terrain suggests that during heavy or sustained rainfall, water would accumulate and drain through the area.

The landform in Transect 4 was elevated and situated on the eastern side of a small ridge. Trees included ironbark and Broombush, and there was evidence of logging activities with felled timber and tree stumps (Plate 12, Plate 13, Plate 14, Plate 15). Native grasses and leaf litter reduced GSV to between 0 – 10% (Plate 16). No visible banks of the drainage feature were identified within the surveyed area, and it was concluded that water was not permanently available in this location.

The landform in Transect 5 sloped downwards towards the east from a small hill, and a more clearly defined drainage depression was observed at the junction of the slopes with evidence of pooling in several locations along the depression. Vegetation included mature ironbark, Wilga (*Geijera parviflora*), Broombush, wattle, box trees, supplejack and Kurrajong (*Brachychiton populneus*) (Plate 12, Plate 13, Plate 14, Plate 15). Native grasses and leaf litter meant GSV was approximately 20 – 30% (Plate 16). No visible banks of the drainage feature were identified within the surveyed area, and it was concluded that water was not permanently available in this location.

The drainage feature in Transect 6 was well defined in places and a track had been established by animals along its route. Vegetation was thicker as the terrain became more elevated towards the west. As the team reached the Survey Area, the vegetation became very thick which limited movement (Plate 22, Plate 23, Plate 24, Plate 25). Trees included ironbark, pine and thick Broombush. Native grasses and leaf litter meant GSV was approximately 10 – 20% (Plate 26).

Survey coverage data and landform summary data from the July 2015 surveys is provided in Tables 4 and 5. Waypoint data for each survey location is provided in Table 6.

**Table 4. Survey Coverage Data**

Survey Unit	Landform	Survey Unit Area (m <sup>2</sup> )	Visibility %	Exposure %	Effective Coverage (m <sup>2</sup> )	Effective Coverage %
Transect 1	Simple slopes	123,700	0-10%	0-10%	65,000	50%
Transect 2	Simple slopes	22,900	0-10%	0-10%	11,500	50%
Transect 3	Drainage Feature	5,000	10-20%	0-10%	5,000	100%
Transect 4	Drainage Feature	150,000	0-10%	0-10%	150,000	100%
Transect 5	Drainage Feature	160,000	0-10%	0-10%	160,000	100%
Transect 6	Drainage Feature	80,000	0-10%	0-10%	80,000	100%
Transect 7	Simple slopes	5,000	0-10%	0-10%	500	100%

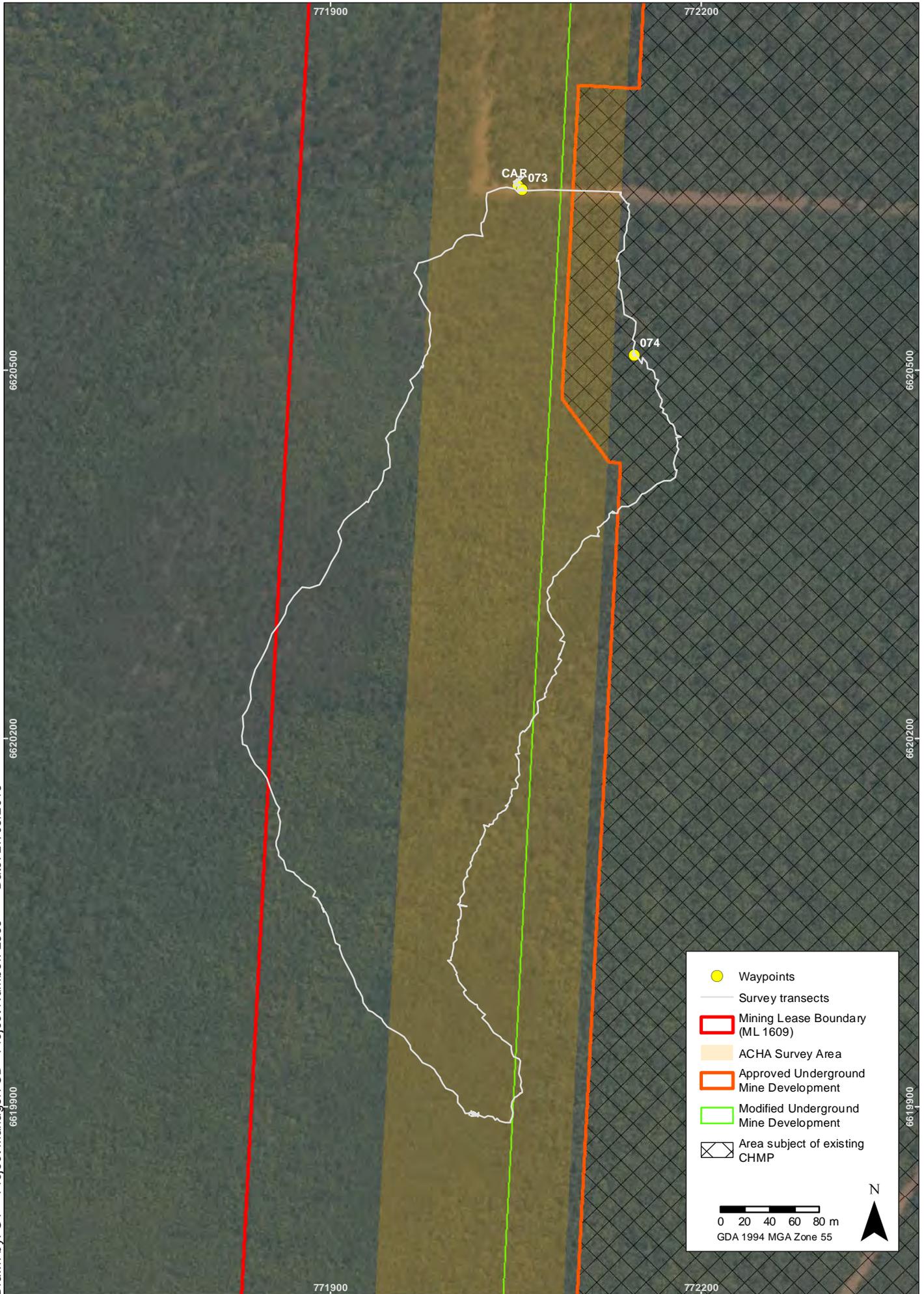
m<sup>2</sup> – square metres.

**Table 5. Landform Summary Data**

Landform	Landform Area (m <sup>2</sup> )	Area Effectively Surveyed (m <sup>2</sup> )	% of Landform Effectively Surveyed	Number of Sites	Number of Features
Simple slopes	151,600	60,500	39%	0	0
Drainage Feature	395,000	395,000	100%	0	0
<i>Total:</i>	576,600	475,500	87%	0	0

**Table 6. Waypoint Data**

Waypoint ID	Corresponding Figure	Description
Car	Figure 6	Location of Car on Main Road
073	Figure 6	Start of Transect 1
074	Figure 6	Location of Photographs (Plates 1 – 5)
075	Figure 7	Start of Transect 2
076	Figure 7	Location of Photographs (Plates 6 – 10)
077	Figure 8	End of Transect 2
078	Figure 8	Start of Transect 3
086	Figure 8	Centre of Transect 3
Car	Figure 9	Location of Car on Scratch Road
088	Figure 9	Location of Photographs (Plates 12 – 16)
Car	Figure 10	Location of Car on Scratch Road
089	Figure 10	Location of Photographs (Plates 17 – 21)
Car	Figure 11	Location of Car on Scratch Road
090	Figure 11	Location of Photographs (Plates 22 – 26)
091	Figure 12	Location of Photographs (Plates 27 – 31)

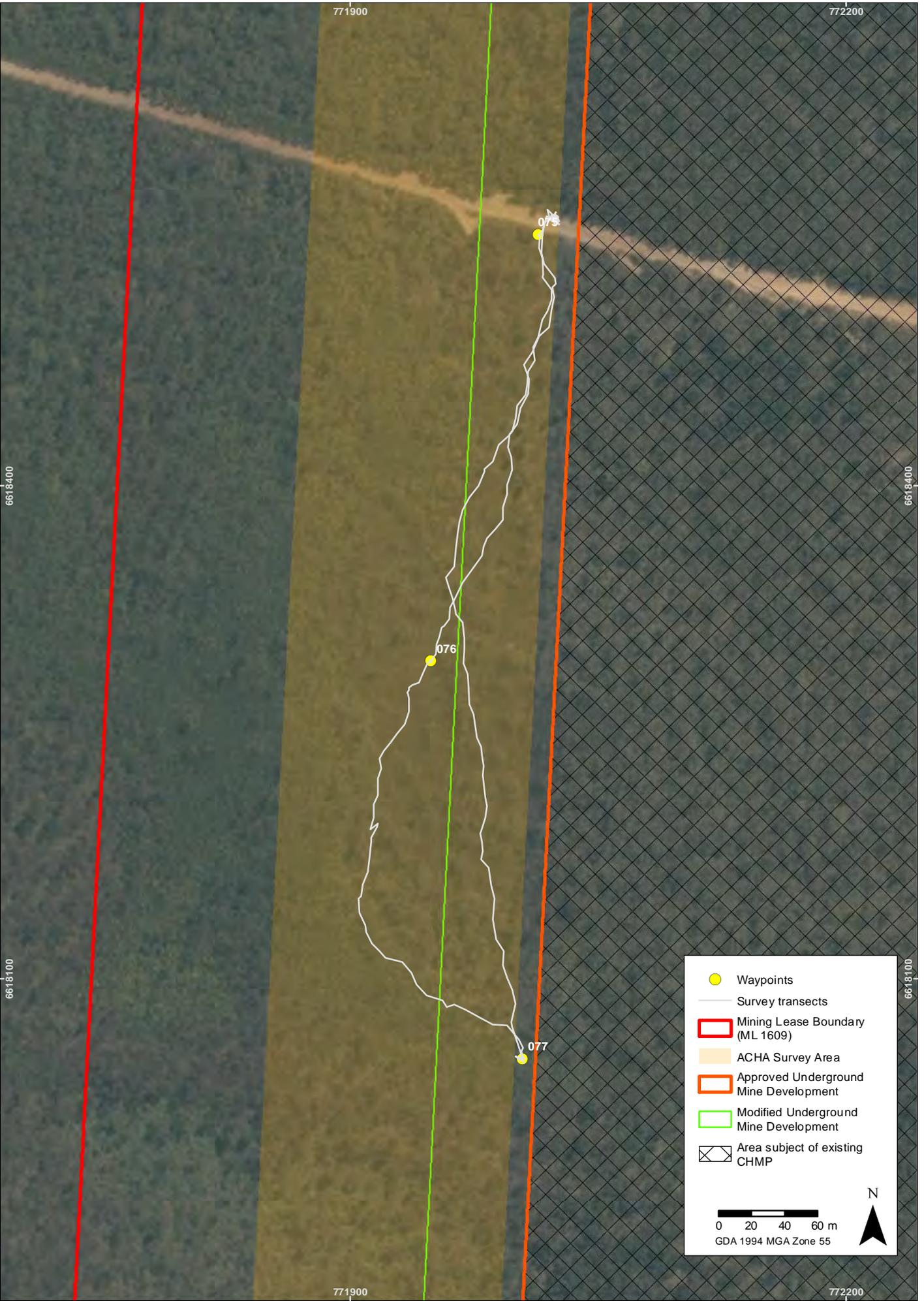


Transect 1

Narrabri Mine Modification ACHA

FIGURE 6

Drawn by: GT Project Manager: CD Project Number: 2566 Date: 27/08/2015



Transect 2

Narrabri Mine Modification ACHA

FIGURE 7

6623600

6623400

772200

772200

6623600

6623400

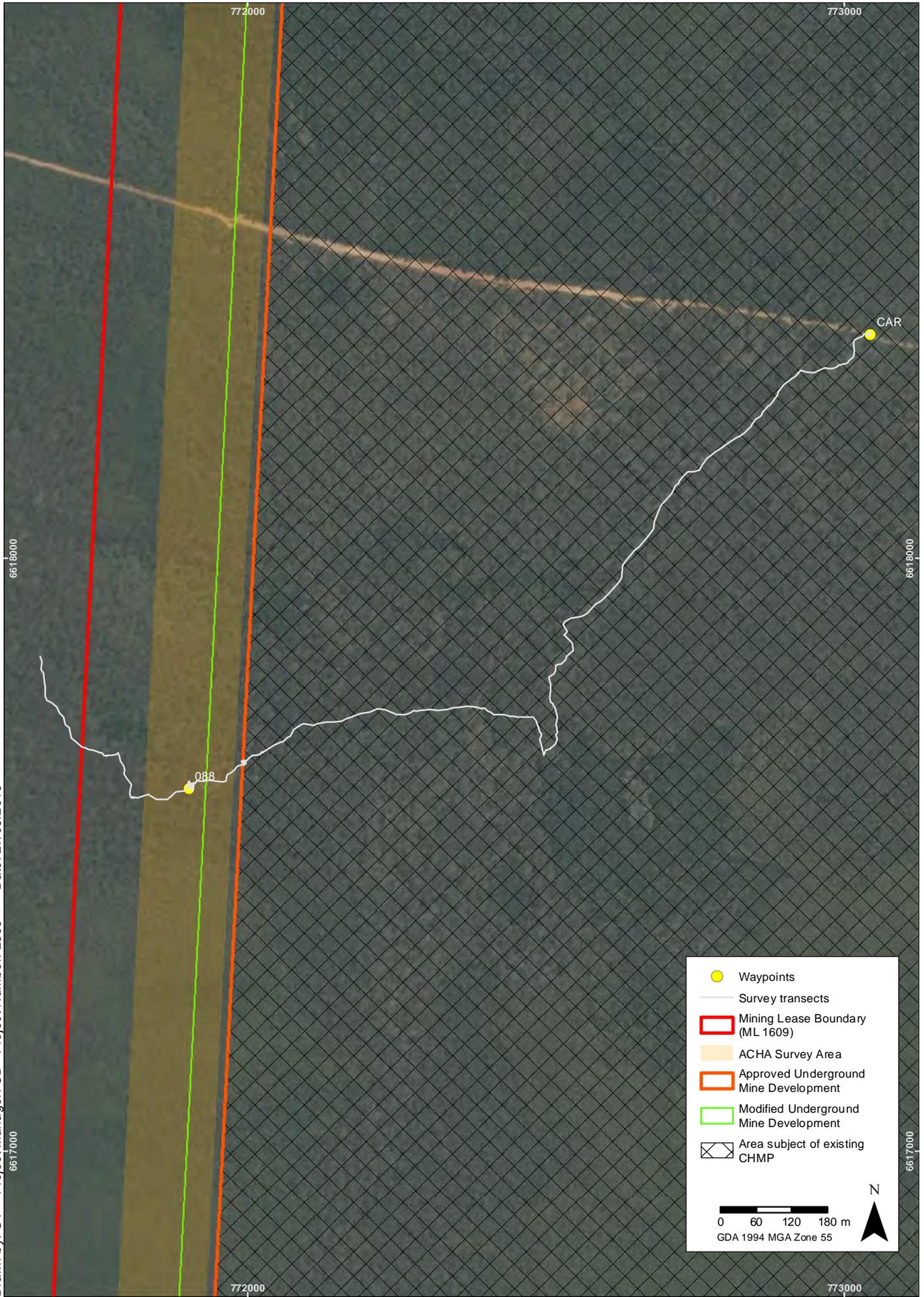
- Waypoints
- Survey transects
- Mining Lease Boundary (ML 1609)
- ACHA Survey Area
- Approved Underground Mine Development
- Modified Underground Mine Development
- Area subject of existing CHMP

0 10 20 30 m  
GDA 1994 MGA Zone 55

Transect 3

Narrabri Mine Modification ACHA

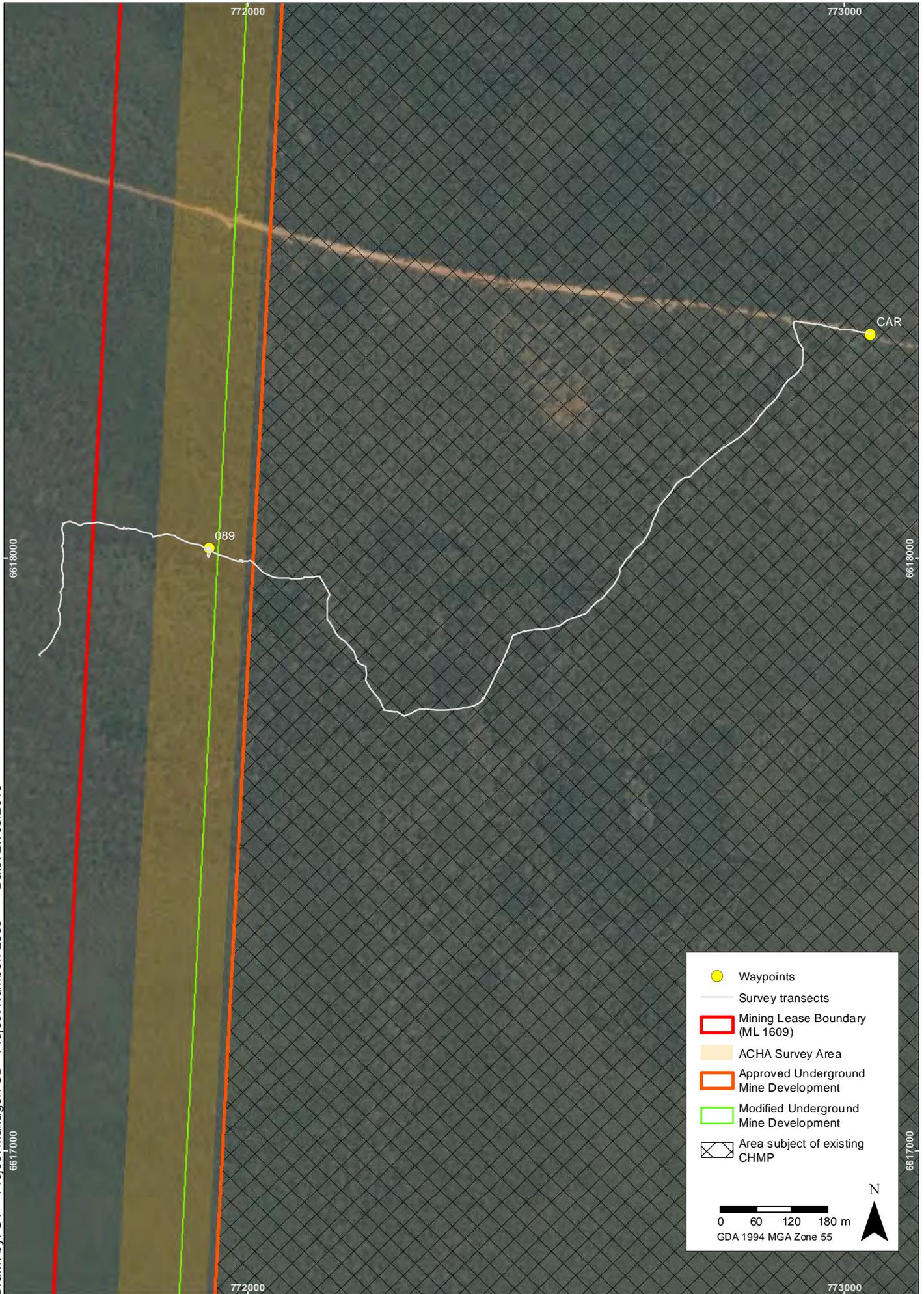
FIGURE 8



Transect 4

Narrabri Mine Modification ACHA

FIGURE 9



Transect 5

Narrabri Mine Modification ACHA

FIGURE 10



Transect 6

Narrabri Mine Modification ACHA

FIGURE 11

Drawn by: GT Project Manager: CD Project Number: 2566 Date: 27/08/2015



Transect 7

Narrabri Mine Modification ACHA

FIGURE 12



Plate 1. Transect 1 facing north.



Plate 2. Transect 1 facing east.



**Plate 3. Transect 1 facing south.**



**Plate 4. Transect 1 facing west.**



Plate 5. Transect 1 GSV.



Plate 6. Transect 2 facing north.



Plate 7. Transect 2 facing east.



Plate 8. Transect 2 facing south.



**Plate 9. Transect 2 facing west.**



**Plate 10. Transect 2 GSV.**



Plate 11. Transect 3 facing north - fence posts visible in shot.



Plate 12. Transect 4 facing north.



Plate 13. Transect 4 facing east.



Plate 14. Transect 4 facing south.



Plate 15. Transect 4 facing west.



Plate 16. Transect 4 GSV.



Plate 17. Transect 5 facing north.



Plate 18. Transect 5 facing east.



Plate 19. Transect 5 facing south.



Plate 20. Transect 5 facing west.



Plate 21. Transect 5 GSV.



Plate 22. Transect 6 facing north.



Plate 23. Transect 6 facing east.



Plate 24. Transect 6 facing south.



Plate 25. Transect 6 facing west.



Plate 26. Transect 6 GSV.



Plate 27. Transect 7 facing north.



Plate 28. Transect 7 facing east.



Plate 29. Transect 7 facing south.



Plate 30. Transect 7 facing west.



Plate 31. Transect 7 GSV.

## 11. Analysis and discussion

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The Modification Subsidence Area was characterised by the predictive model as being likely to contain few archaeological traces of transient movement through the area by Aboriginal people in the past, due to:

- Unreliable water sources.
- The absence of geological formations suitable for rockshelters.
- Logging activities that had decreased the numbers of mature trees.

A targeted survey of the Survey Area was undertaken in July 2015, including the Western and Northern Extension areas. The Southern Extension area and portions of the Western and Northern Extension areas that had previously been subject to systematic survey were not re-surveyed. This is not considered a notable constraint as the current survey and previous surveys have concluded the Southern Extension area is of low archaeological potential and cultural value.

Given the low archaeological potential of the Western and Northern Extension, the surveyed areas provide an adequate sample from which to confidently extrapolate their results to the small portions of land not directly surveyed. The survey achieved a good level of effective survey coverage, and inspected all features, such as drainage depressions, mature trees and exposed areas of ground surface that were present within the Survey Area for evidence of past Aboriginal land use.

The survey results are consistent with the expectations of the predictive model, and are commensurate with the results of previous surveys that have overlapped with the Survey Area, and previous surveys in areas adjacent to the Survey Area. These previous surveys have generally found no Aboriginal objects or areas of Aboriginal cultural heritage value, or have found low numbers of Aboriginal objects.

## 12. Cultural heritage values and statement of significance

### 12.1 Identifying cultural heritage values

The identification and assessment of cultural heritage values associated with the Modification Subsidence Area and surrounds has been carried out using the following sources:

- Information and statements provided by the RAPs.
- Information collected during the archaeological assessment.
- Review of previous assessments and investigations.

The physical assessment of the Survey Area by Niche and representatives of the RAPs in July 2015 did not identify any Aboriginal objects or areas of Aboriginal cultural heritage value.

This section will be finalised once comments from the RAPs have been received.

### 12.2 Significance assessment framework

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) defines the framework for assessing significance in NSW. The framework requires assessment of significance against four key criteria:

1. Does the subject area have a strong special association with a particular community or cultural group for social, cultural or spiritual reasons? – **social value**
2. Is the subject area important to the cultural or natural history of the local area and/or region and/or State? – **historic value**
3. Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or State? – **scientific (archaeological) value**
4. Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or State? – **aesthetic value**

It is also a requirement that the above criteria are graded, to allow the significance to be described and compared e.g. by using gradations such as low, medium or high. The following questions should also be considered when grading the level of significance for any values identified:

**Research Potential:** does the identified site suggest any potential to contribute to or add to the understanding of the area's cultural history?

**Representativeness:** how much variability within or outside the subject area exists, what is already known and/or conserved and what is the context of the identified site within the wider region?

**Rarity:** is the identified site important in demonstrating a distinctive process of previous land use by Aboriginal people? Are the features of the site a rare example in the wider context of the region's Aboriginal archaeological resources?

**Educational potential:** does the identified site contain features or values that might have educational potential?

## 12.3 Significance assessment

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) requires that a “clear description of the heritage values present across the area of the proposed activity” be presented, and be linked back to the information collected during the assessment process, in particular to any submissions received from RAPs. The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) advises that “the assessment of values is a discussion of *what* is significant and *why*”. The purpose of the statement of significance is to create a comprehensive assessment of values and significance by considering and stating the values identified under each of the value categories defined by the *Burra Charter*, namely, social values, historic values, scientific values, and aesthetic values. The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) states:

*The assessment and justification in the statement of significance must discuss whether any value meets the following criteria (NSW Heritage Office 2001):*

- *does the subject area have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons? – social value*
- *is the subject area important to the cultural or natural history of the local area and/or region and/or state? – historic value*
- *does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state? – scientific (archaeological) value*
- *is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state? – aesthetic value.*

Statements of significance for the Survey Area and Modification Subsidence Area are presented in the following sub-sections.

### 12.3.1 Social or cultural value

No specific areas or places of social or cultural value were identified within the Survey Area.

The sites located within the Modification Subsidence Area have been assessed as having low significance to the RAPs.

### 12.3.2 Historic value

The Survey Area has not been demonstrated to contribute to the cultural or natural history of the local area and/or region and/or State.

The sites located within the Modification Subsidence Area have contributed to the cultural history of the local area.

### 12.3.3 Aesthetic value

The Survey and Modification Subsidence Area has not been demonstrated to be important in demonstrating aesthetic characteristics in the local area and/or region and/or State.

### 12.3.4 Scientific (archaeological) value

The Survey Area has limited potential to yield information that would contribute to a further understanding of the cultural or natural history of the local area and/or region and/or State.

The sites located within the Modification Subsidence Area have been assessed as having low archaeological significance.

#### **12.3.5 Statement of significance**

The cultural heritage significance of the Survey Area is assessed as low. The area does not have significant social, historical or aesthetic values at the local, regional or State level. The area has limited scientific (archaeological) significance due to the absence of sites containing Aboriginal cultural heritage. The Survey Area has limited research or educational potential.

The cultural heritage significance of the Modification Subsidence Area is assessed as low. The area contains no significant Aboriginal objects of high or moderate archaeological significance.

## 13. Impact assessment

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A systematic survey was undertaken within the Survey Area, using low intensity transect survey methods and focussing on those landforms with the highest potential to retain Aboriginal heritage evidence, including areas of visibility and areas of potential sensitivity (such as ground surface exposures and drainage lines). No Aboriginal objects were identified, and the Survey Area is deemed to have low archaeological potential.

Possible impacts associated with the Modification includes potential mine subsidence or subsidence remediation works associated with the increased longwall panel widths for Longwall Panels 107 to 120.

As described in Section 2, this report focuses on the assessment of those areas that have the potential to experience impacts as a result of the Modification which are not already approved for impact (i.e. the Western, Northern and Southern Extension areas which comprise the Survey Area). Notwithstanding, those sites which are already approved for subsidence impacts (i.e. associated with the currently approved Longwall Panels 107 to 120 at the NM) are also considered in terms of the incremental impacts or change in impacts that may occur as a result of the revised longwall panel widths associated with the Modification.

### **Potential Impacts on Aboriginal Cultural Heritage in the Modification Subsidence Area**

Subsidence estimates for the wider Modification Subsidence Area (including specific predictions for the previously identified Aboriginal cultural heritage sites) have been provided by Ditton Geotechnical Services (2015). Appendix 4 presents the subsidence predictions for the sites located within the Modification Subsidence Area. Ditton Geotechnical Services (2015) has concluded that although the Modification would result in some increases in subsidence effect predictions, these would not change the level of impact or environmental consequences.

During preparation of the Environmental Assessment for the Narrabri Coal Mine Stage 2 Longwall Project (R.W. Corkery & Co Pty Limited 2008), Ditton Geotechnical Services (2009) provided general subsidence predictions for the mining area, rather than specific subsidence predictions for each individual Aboriginal heritage site. A commitment was made by NCOPL to undertake detailed surveys and prepare specific subsidence predictions for each site identified as a component of the preparation of the relevant extraction plans for the NM.

In this regard, Ditton Geotechnical Services (2012) prepared subsidence predictions and an impact assessment for the NM Extraction Plan for Longwall Panels 101 to 105. Ditton Geotechnical Services (2015) concluded that there had been no subsidence impacts to the Aboriginal heritage sites located above Longwall Panels 101 to 104.

Open sites containing artefact scatters and/or isolated finds have the potential to be adversely affected by mine subsidence through the cracking of surface soils or erosion. Whilst it is unlikely that the stone artefacts themselves would be impacted by mine subsidence, it is possible that, if remediation works to the surface areas around the sites was required after mining, these works could potentially impact on the sites. Remediation works in areas adjacent to these sites should be supervised by an archaeologist and representatives of the RAPs should any works be required.

Ditton Geotechnical Services (2015) has also predicted that there may be a minor increase in ponding across the Modification Subsidence Area as a result of the Modification. While some artefact scatters and isolated finds may occur coincident with the areas of increased ponding, these areas would be managed in accordance with the currently approved NM Land Management Plan (Eco Logical, 2012).

On the basis of the above, no sites are anticipated to be significantly impacted as a result of incremental changes in subsidence effects associated with the Modification.

### **Potential Impacts on Aboriginal Cultural Heritage in the Survey Area**

Because no Aboriginal objects or areas of cultural heritage value have been identified within the Survey Area it is concluded that the Modification is unlikely to have an impact on known Aboriginal cultural heritage values within the Survey Area.

Notwithstanding, the Modification may have the potential to harm previously unidentified items of Aboriginal cultural heritage that may exist within the Survey Area, although the archaeological potential of the area is considered to be low. Direct harm to any previously unidentified Aboriginal cultural heritage that may be located within the Survey Area can be avoided through adherence to the protocols developed in the ACHMP (NCOPL 2011).

### **Summary of Potential Impacts on Aboriginal Cultural Heritage**

As described above, no sites are anticipated to be significantly impacted as a result of subsidence associated with the Modification.

As required by the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b), the likely impacts (and loss of value) to Aboriginal heritage sites associated with the Modification have been considered. The incremental potential impacts on sites located within the Modification Subsidence Area, as a result of the Modification, are considered to be negligible and therefore have been classified as having no impact.

The proposed Modification is located in an area of moderate to high Aboriginal archaeological potential that has been subject to extensive previous systematic survey. Unanticipated impacts and harm to cultural values associated with the Modification Subsidence Area are unlikely.

Taken within the context of the 142 known Aboriginal heritage sites previously identified at the NM, the sites discussed in this report are all of low archaeological value, and harm to some of the sites of low potential represents a low level of harm and loss of cultural value. Such levels of harm are not significant in terms of the principles of *ecological sustainable development* and *inter-generational equity* described and recommended in the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011).

## 14. Recommendations

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In order to manage direct harm to any previously unidentified Aboriginal cultural heritage within the Modification Subsidence Area in accordance with best practice, the following management and mitigation measures are proposed:

- Consultation with the RAPs to inform of any ground disturbance works.
- Monitoring of any topsoil stripping activities.
- Following established protocols for any unexpected finds during monitoring activities.
- Collation of the evidence of monitoring activities in appropriate reporting avenues.

### 14.1 Recommendation 1

Section 4.1 of the ACHMP should be followed for any future ground disturbance works within the Modification Subsidence Area. The Consultation Protocol described in Section 4.1 of the ACHMP (NCOPL 2011) includes the following:

- Prior to any topsoil stripping, excluding the areas identified in Section 3.3 of the ACHMP, the Environmental Officer, or authorised delegate, will notify the respective RAPs of the extent, location, timing and expected duration of the planned campaign and inviting a representative of the RAPs to monitor the topsoil stripping activities.
- In the event that any possible archaeological sites are identified in the absence of a RAP representative, the Environmental Officer, or authorised delegate, will notify the RAPs of the initiation of the procedures identified in Section 3.3 of the ACHMP.

### 14.2 Recommendation 2

Specific reference is made to the management of other Aboriginal sites not contained within Section 3.3 of the ACHMP (NCOPL 2011) (i.e. those discovered during surveys that post date the creation of the ACHMP or those discovered during ground disturbance works).

All surface disturbance works other than the maintenance of previously disturbed areas should be undertaken with representatives of the RAPs to monitor areas subject to soil stripping activities. Protocols for the discovery of the potential site or artefact should be implemented consistent with the approach outlined in Section 3.3 of the ACHMP.

### 14.3 Recommendation 3

The procedure outlined in Section 4.2 of the ACHMP (NCOPL 2011) should be followed for monitoring activities during ground disturbance works. The monitoring and reporting protocols relevant to the discovery of Aboriginal cultural heritage during ground surface disturbance works include:

- Monitoring undertaken by the RAPs will be documented.
- In the event that an Aboriginal artefact or site is identified and in accordance with the procedure documented in Section 3.3 of the ACHMP, a site register card will be completed and forwarded to the OEH for entry into the AHIMS database.

#### **14.3.1 Recommendation 4**

If subsidence, surface cracking or erosion is identified at or near places where Aboriginal sites or objects are located, the procedure outlined in Section 3.4 of the ACHMP (NCOPL 2011) should be followed. If subsidence, surface cracking or erosion is identified at or near places where potential Aboriginal sites or objects are located, the procedure outlined in Section 3.3 of the ACHMP should be followed.

## References

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- Advitech (2013) *Aboriginal Cultural Heritage Assessment – Narrabri Mine Panel 8 – 13*. Report prepared for Narrabri Coal Operations Pty Ltd.
- Archaeological Surveys & Reports Pty Ltd (2009) *Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment*.
- Australian Heritage Commission (2002) *Ask First: A guide to respecting Indigenous heritage places and values*.
- Australia International Council on Monuments and Sites (2013) *Burra Charter*.
- Australian Archaeological Survey Consultants Pty Ltd (2007) *Narrabri Coal Project Aboriginal Heritage Assessment*.
- Department of Environment and Conservation (2004) *Interim Community Consultation Requirements for Applicants*.
- Department of Environment, Climate Change and Water (2010a) *Aboriginal cultural heritage consultation requirements for proponents 2010*.
- Department of Environment, Climate Change and Water (2010b) *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
- Ditton Geotechnical Services Pty Ltd (2009) *Narrabri Coal Mine Stage 2 Longwall Project Mine Subsidence Predictions and Impact Assessment*. November 2009.
- Ditton Geotechnical Services Pty Ltd (2012) *Mine Subsidence Effect Predictions and Impact Assessment for the Proposed Longwalls 101 to 105 at the Narrabri Coal Mine, Narrabri*.
- Ditton Geotechnical Services Pty Ltd (2015) *Mine Subsidence Assessment on the Proposed 75W Modification to the Stage 2 Mining Layout at the Narrabri Mine, Narrabri*.
- Eco Logical Australia (2012) *Narrabri Mine Land Management Plan*. February 2012.
- Ecotone Ecological Consultants Pty Ltd (2009) *Narrabri Coal Mine Stage 2 Longwall Project Flora and Fauna Impact Assessment*. November 2009.
- Narrabri Coal Operations Pty Ltd (2011) *Aboriginal Cultural Heritage Management Plan*. Edition 1, Revision 1. November 2011.
- Office of Environment and Heritage (2011) *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*.
- RPS (2013a) Dewhurst Northern Water and Gas Flow Lines Review of Environmental Factors Appendix 2 Aboriginal and Historic Heritage Due Diligence Report.
- RPS (2013b) Dewhurst Southern Water and Gas Flow Lines Review of Environmental Factors Appendix 3 Aboriginal and Historic Heritage Due Diligence Report.

R. W. Corkery and Co Pty Ltd (2008) *Preliminary Environmental Assessment*. Report prepared for Narrabri Coal Operations Pty Ltd Narrabri Coal Mine Stage 2 Longwall Proposal.

## Glossary

Term	Definition
Aboriginal Cultural Heritage	The tangible (objects) and intangible (dreaming stories, legends and places) cultural practices and traditions associated with past and present day Aboriginal communities.
Aboriginal Object(s)	The legal definition for material Aboriginal cultural heritage under the NSW <i>National Parks and Wildlife Act 1974</i> .
Registered Aboriginal Party	Members of a local Aboriginal land council, registered holders of Native Title, Aboriginal groups or other Aboriginal people who may have an interest in the project.
Archaeology	The scientific study of human history, particularly the relics and cultural remains of the distant past.
Archaeological Deposit	A layer of soil material containing archaeological remains.
Archaeological Investigation	The process of assessing the archaeological potential of an impact area by a qualified archaeologist.
Archaeological Site	A site with material evidence of past Aboriginal or non-Aboriginal activity in which material evidence (artefacts) of past activity is preserved.
Artefact	An object made by human agency (e.g. stone artefacts).
Development	The operations involved in preparing a mine for extraction, including cutting roadways and headings. Also includes tunnelling, sinking, crosscutting, drifting, and raising.
Drainage	Natural or artificial means for the interception and removal of surface or subsurface water.
Harm	With regard to Aboriginal objects this has the same meaning as the NSW <i>National Parks and Wildlife Act 1974</i> .
Impact	Influence or effect exerted by a project or other activity on the natural, built and community environment.
Impact Area	An area that requires archaeological investigation and management assessment.
<i>In situ</i>	Latin words meaning 'on the spot, undisturbed'.
Isolated Find	A single artefact found in an isolated context.
Landform	Any one of the various features that make up the surface of the earth.
Management Plans	Conservation plans which identify short and long term management strategies for all known sites recorded within a (usually approved) project area.
Methodology	The procedures used to undertake an archaeological investigation.
Mitigation	To address the problem of conflict between land use and site conservation.
Potential Archaeological Deposit	A location considered to have a potential for subsurface archaeological material.
Site	A place where past human activity is identifiable.
Spatial Significance	A site which may contain potential sub-surface deposits or in situ material useful in the analysis of human use of land and site formation process.
Survey Coverage	A graphic and statistical representation of how much of an impact area was actually surveyed and therefore assessed.

## Appendix 1 – Consultation Log

Date	Organisation/Person Contacted	Method of Contact	Contacted By	Nature of Consultation
15/06/2015	Gomeri Narrabri Aboriginal Corporation	Email and Post	NCOPL	A copy of the Proposed Methodology for the Modification was emailed and posted to the Gomeri Narrabri Aboriginal Corporation.
15/06/2015	Narrabri Local Aboriginal Land Council	Email and Post	NCOPL	A copy of the Proposed Methodology for the Modification was emailed and posted to the Narrabri Local Aboriginal Land Council.
25/06/2015	Gomeri Narrabri Aboriginal Corporation	Telephone	NCOPL	Call to remind the Gomeri Narrabri Aboriginal Corporation about the close of the Proposed Methodology comment period.
25/06/2015	Narrabri Local Aboriginal Land Council	Telephone	NCOPL	Call to remind the Narrabri Local Aboriginal Land Council about the close of the Proposed Methodology comment period.
29/06/2015	Gomeri Narrabri Aboriginal Corporation	Email	NCOPL	A field survey invitation letter was provided to the Gomeri Narrabri Aboriginal Corporation.
29/06/2015	Narrabri Local Aboriginal Land Council	Email	NCOPL	A field survey invitation letter was provided to the Narrabri Local Aboriginal Land Council.
09/07/2015	Narrabri Local Aboriginal Land Council	Telephone	NCOPL	Called to confirm correct postal address for the Narrabri Local Aboriginal Land Council.
6/08/2015	Gomeri Narrabri Aboriginal Corporation	Post	NCOPL	A copy of the draft ACHA was provided for review and comment.
6/08/2015	Narrabri Local Aboriginal Land Council	Post	NCOPL	A copy of the draft ACHA was provided for review and comment.
6/08/2015	Gomeri Narrabri Aboriginal Corporation	Email	NCOPL	A copy of the draft ACHA was provided for review and comment.
6/08/2015	Narrabri Local Aboriginal Land Council	Email	NCOPL	A copy of the draft ACHA was provided for review and comment.
27/08/2015	Gomeri Narrabri Aboriginal Corporation	Email	NCOPL	Email to provide reminder of the close of the comment period on the draft ACHA.
27/08/2015	Narrabri Local Aboriginal Land Council	Email	NCOPL	Email to provide reminder of the close of the comment period on the draft ACHA.
28/08/2015	Gomeri Narrabri Aboriginal Corporation	Telephone	NCOPL	Called to provide reminder of the close of the comment period on the draft ACHA and to request comments/feedback. Craig confirmed that he would review the draft ACHA.
28/08/2015	Narrabri Local Aboriginal Land Council	Telephone	NCOPL	Called to provide reminder of the close of the comment period on the draft ACHA and to request comments/feedback. Left message.

## Appendix 2 – Written Correspondence

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**Subject:** Narrabri Mine - Modification 5 Proposed Methodology  
**Attachments:** sf20150615\_itr - RAPs (Narrabri Mine Modification 5 Proposed Methodology)\_NLALC.pdf; Narrabri Modification 5 - Proposed Methodology.pdf

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**From:** Steven Farrar [<mailto:SFarrar@whitehavencoal.com.au>]  
**Sent:** Monday, June 15, 2015 3:56 PM  
**To:** Lynn Trindall  
**Cc:** David Ellwood  
**Subject:** Narrabri Mine - Modification 5 Proposed Methodology

Hi Lynn,

Please find attached some information on a proposed modification to the Narrabri Mine including a proposed methodology for some additional survey work to be undertaken. A copy has been forwarded in the post. Please also note the timeframe for responses in the cover letter.

If you have any questions or require to meet to discuss the attached please don't hesitate to contact myself on the numbers below.

Regards,

**Steve Farrar**  
Environmental Superintendent – Narrabri Mine

**Whitehaven Coal Limited**  
10 Kurrajong Creek Road, Baan Baa NSW 2390  
**Tel:** +61 2 6794 4167 **Mobile:** +61 488 002 205  
**Email:** [sfarrar@whitehavencoal.com.au](mailto:sfarrar@whitehavencoal.com.au) [www.whitehavencoal.com.au](http://www.whitehavencoal.com.au)





15<sup>th</sup> June 2015

Lynn Trindall  
Chief Executive Officer  
Narrabri Local Aboriginal Land Council  
PO Box 37  
NARRABRI NSW 2390

Via email: [admin@narrabrilalc.com.au](mailto:admin@narrabrilalc.com.au)

Dear Lynn,

**Narrabri Mine Longwall Panel Width Modification – Aboriginal Cultural Heritage Assessment Proposed Methodology**

The Narrabri Mine is located approximately 28 kilometres (km) south-east of Narrabri and approximately 65 km north-west of Gunnedah in the Gunnedah Basin, New South Wales (NSW). The Narrabri Mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL).

NCOPL is proposing to increase the width of the longwall panels at the Narrabri Mine. This will require an Aboriginal Cultural Heritage Assessment to be undertaken for the additional underground mining areas and changes to subsidence impacts.

NCOPL is seeking to engage with the Registered Aboriginal Parties (RAPs) in preparation for lodgement of a Modification under Section 75W of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act).

Due to your previous involvement and/or interest in Aboriginal heritage at the Narrabri Mine, the Narrabri Local Aboriginal Land Council has been registered for the consultation process associated with the Modification.

This letter provides relevant information regarding the Modification and also a Proposed Methodology for the Aboriginal Cultural Heritage Assessment which will be prepared by Niche Environment and Heritage Pty Ltd (Niche).

**The Modification**

Stage 1 of the Narrabri Mine was originally approved under Part 3A of the EP&A Act in 2007 and involved initial site establishment activities and continuous miner mining operations. Project Approval 08\_0144 for Stage 2 of the Narrabri Mine was issued in 2010 and allowed the mine to convert to a longwall mining operation.

NCOPL is proposing to increase the width of the longwall panels from the currently approved panel width of approximately 295 metres (m) up to 400 m for Longwalls 107 to 120.

The run-of-mine (ROM) coal production would also increase from 8 million tonnes per annum (Mtpa) to up to 11 Mtpa. The Narrabri Mine Longwall Panel Width Modification (the Modification) would not include any other significant changes to the existing/approved Narrabri Mine.



Of relevance to the Aboriginal Cultural Heritage Assessment, the Modification (Modification 5) would involve the following activities:

- An increase in longwall panel widths for LW107 to LW120 from 295 m to 400 m (LW101 to LW106 unchanged).
- A reduction in the number of longwall panels from 26 to 20.
- An increase in the ROM coal production from 8 Mtpa to up to 11 Mtpa.
- Western extension of underground mining area relative to the existing/approved underground mining area of approximately 60 m, but remaining within the approved NCOPL mining lease boundary.
- An increase in the average number of trains from 3 trains/day to 4 trains/day (peak would remain unchanged).
- Continuation of hydraulic fracturing of the Digby Conglomerate to prevent or minimise the impact of wind blast in the underground workings.
- No significant changes to other Narrabri Mine components.

The Aboriginal Cultural Heritage Assessment for the Modification would be prepared by consultant archaeologists from Niche.

### **Proposed Methodology**

Please find enclosed for your review, a copy of the Proposed Methodology for the Modification, prepared in consultation with Niche.

In accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water, 2010) issued by the NSW Office of Environment and Heritage (OEH), we have provided the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may be used to affect, inform or refine the Proposed Methodology.

If you wish to provide input on the following, please provide comments to NCOPL (via the contact details provided at the end of this letter) regarding:

- The nature of the Proposed Methodology.
- Any Aboriginal objects or places of cultural value within the investigation area, or issues of cultural significance, that you are aware of.
- Any restrictions or protocols you may consider necessary in relation to any information of sensitivity that you may provide.
- Any other factors you consider to be relevant to the heritage assessment.

All comments received will be taken into consideration as the Methodology is finalised.

As described in the Proposed Methodology, a site survey is proposed to be undertaken during the week commencing 13 July 2015. NCOPL will contact you regarding your participation in this field survey separately. Consequently, any feedback with respect to the Proposed Methodology is to be provided prior to the commencement of the survey or no later than **5.00pm Monday 13 July 2015**. Please provide your feedback to NCOPL via the following contact details:



**WHITEHAVEN COAL**

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Whitehaven Coal Limited  
10 Kurrajong Creek Road, Baan Baa NSW 2390  
Phone: 02 6794 4167  
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Please do not hesitate to contact me if you have any queries.

Yours sincerely

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
sf20150615\_itr RAPs (Narrabri Mine Modification 5 Proposed Methodology)\_NLALC

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**Subject:** Narrabri Mine - Modification 5 Proposed Methodology  
**Attachments:** sf20150615\_ltr - RAPs (Narrabri Mine Modification 5 Proposed Methodology)\_GNAC.pdf;  
Narrabri Modification 5 - Proposed Methodology.pdf

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**From:** Steven Farrar [<mailto:SFarrar@whitehavencoal.com.au>]  
**Sent:** Monday, June 15, 2015 3:54 PM  
**To:** Craig Trindall  
**Cc:** David Ellwood  
**Subject:** Narrabri Mine - Modification 5 Proposed Methodology

Hi Craig,

Please find attached some information on a proposed modification to the Narrabri Mine including a proposed methodology for some additional survey work to be undertaken. A copy has been forwarded in the post. Please also note the timeframe for responses in the cover letter.

If you have any questions or require to meet to discuss the attached please don't hesitate to contact myself on the numbers below.

Regards,

**Steve Farrar**  
Environmental Superintendent – Narrabri Mine

**Whitehaven Coal Limited**  
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15<sup>th</sup> June 2015

Craig Trindall  
Chair  
Gomeri Narrabri Aboriginal Corporation  
29 Doyle Street  
NARRABRI NSW 2390

Via email: [trigupnorth@yahoo.com.au](mailto:trigupnorth@yahoo.com.au)

Dear Craig,

### **Narrabri Mine Longwall Panel Width Modification – Aboriginal Cultural Heritage Assessment Proposed Methodology**

The Narrabri Mine is located approximately 28 kilometres (km) south-east of Narrabri and approximately 65 km north-west of Gunnedah in the Gunnedah Basin, New South Wales (NSW). The Narrabri Mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL).

NCOPL is proposing to increase the width of the longwall panels at the Narrabri Mine. This will require an Aboriginal Cultural Heritage Assessment to be undertaken for the additional underground mining areas and changes to subsidence impacts.

NCOPL is seeking to engage with the Registered Aboriginal Parties (RAPs) in preparation for lodgement of a Modification under Section 75W of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act).

Due to your previous involvement and/or interest in Aboriginal heritage at the Narrabri Mine, the Gomeri Narrabri Aboriginal Corporation has been registered for the consultation process associated with the Modification.

This letter provides relevant information regarding the Modification and also a Proposed Methodology for the Aboriginal Cultural Heritage Assessment which will be prepared by Niche Environment and Heritage Pty Ltd (Niche).

#### **The Modification**

Stage 1 of the Narrabri Mine was originally approved under Part 3A of the EP&A Act in 2007 and involved initial site establishment activities and continuous miner mining operations. Project Approval 08\_0144 for Stage 2 of the Narrabri Mine was issued in 2010 and allowed the mine to convert to a longwall mining operation.

NCOPL is proposing to increase the width of the longwall panels from the currently approved panel width of approximately 295 metres (m) up to 400 m for Longwalls 107 to 120.

The run-of-mine (ROM) coal production would also increase from 8 million tonnes per annum (Mtpa) to up to 11 Mtpa. The Narrabri Mine Longwall Panel Width Modification (the Modification) would not include any other significant changes to the existing/approved Narrabri Mine.



Of relevance to the Aboriginal Cultural Heritage Assessment, the Modification (Modification 5) would involve the following activities:

- An increase in longwall panel widths for LW107 to LW120 from 295 m to 400 m (LW101 to LW106 unchanged).
- A reduction in the number of longwall panels from 26 to 20.
- An increase in the ROM coal production from 8 Mtpa to up to 11 Mtpa.
- Western extension of underground mining area relative to the existing/approved underground mining area of approximately 60 m, but remaining within the approved NCOPL mining lease boundary.
- An increase in the average number of trains from 3 trains/day to 4 trains/day (peak would remain unchanged).
- Continuation of hydraulic fracturing of the Digby Conglomerate to prevent or minimise the impact of wind blast in the underground workings.
- No significant changes to other Narrabri Mine components.

The Aboriginal Cultural Heritage Assessment for the Modification would be prepared by consultant archaeologists from Niche.

### **Proposed Methodology**

Please find enclosed for your review, a copy of the Proposed Methodology for the Modification, prepared in consultation with Niche.

In accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water, 2010) issued by the NSW Office of Environment and Heritage (OEH), we have provided the Proposed Methodology for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may be used to affect, inform or refine the Proposed Methodology.

If you wish to provide input on the following, please provide comments to NCOPL (via the contact details provided at the end of this letter) regarding:

- The nature of the Proposed Methodology.
- Any Aboriginal objects or places of cultural value within the investigation area, or issues of cultural significance, that you are aware of.
- Any restrictions or protocols you may consider necessary in relation to any information of sensitivity that you may provide.
- Any other factors you consider to be relevant to the heritage assessment.

All comments received will be taken into consideration as the Methodology is finalised.

As described in the Proposed Methodology, a site survey is proposed to be undertaken during the week commencing 13 July 2015. NCOPL will contact you regarding your participation in this field survey separately. Consequently, any feedback with respect to the Proposed Methodology is to be provided prior to the commencement of the survey or no later than **5.00pm Monday 13 July 2015**. Please provide your feedback to NCOPL via the following contact details:



**WHITEHAVEN COAL**

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Whitehaven Coal Limited  
10 Kurrajong Creek Road, Baan Baa NSW 2390  
Phone: 02 6794 4167  
Email: [sfarrar@whitehavencoal.com.au](mailto:sfarrar@whitehavencoal.com.au)

Please do not hesitate to contact me if you have any queries.

Yours sincerely

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
sf20150615\_itr RAPs (Narrabri Mine Modification 5 Proposed Methodology)\_GNAC

# PROPOSED METHODOLOGY FOR THE NARRABRI MINE LONGWALL PANEL WIDTH MODIFICATION ABORIGINAL CULTURAL HERITAGE ASSESSMENT

15 June 2015

## 1. Background

The Narrabri Mine is located approximately 28 kilometres (km) south-east of Narrabri and approximately 65 km north-west of Gunnedah in the Gunnedah Basin, New South Wales (NSW) (Figure 1).

Narrabri Coal Operations Pty Ltd (NCOPL) is proposing to increase the width of the longwall panels from the currently approved panel width of approximately 295 metres (m) up to 400 m for Longwalls 107 to 120. The run-of-mine coal production would also increase from 8 million tonnes per annum (Mtpa) to up to 11 Mtpa. The Longwall Panel Width Modification (the Modification) is being sought under Section 75W of the NSW *Environmental Planning and Assessment Act, 1979*. The Modification would not include any other significant changes to the existing/approved Narrabri Mine.

The areas of land that the Modification activities relate to are shown on Figures 1 and 2 (at the back of this document). Of note, large portions of the Modification area have previously been approved and/or assessed for disturbance, and the management of Aboriginal heritage in these areas is guided by the currently approved *Aboriginal Cultural Heritage Management Plan* for the Narrabri Mine (Whitehaven Coal Limited, 2011).

Areas that overlap with previously assessed and/or approved areas would not be re-surveyed during the Modification, however would be re-assessed during preparation of the Aboriginal Cultural Heritage Assessment for potential changes in the level of subsidence impacts.

The field surveys for the Modification would be focused on the western extension (i.e. by approximately 60 m) of the underground mining areas only. This area is referred to as the survey area. Please note that the western extension is within the approved NCOPL mining lease boundary.

An Environmental Assessment would be prepared for the Modification and it is expected to include the following key specialist assessments:

- Aboriginal Cultural Heritage Assessment.
- Subsidence Assessment.
- Groundwater Assessment.
- Surface Water Assessment.
- Noise Assessment.
- Air Quality and Greenhouse Gas Assessment.

The Proposed Methodology for the Aboriginal Cultural Heritage Assessment for the Modification is outlined below. NCOPL invites the Gomeroi Narrabri Aboriginal Corporation (GNAC) and Narrabri Local Aboriginal Land Council (NLALC), herein referred to as the Registered Aboriginal Parties (RAPs) to provide comments (either verbally or in writing) on the Proposed Methodology.

## 2. Previous Archaeological Investigations

Various Aboriginal cultural heritage surveys and assessment have been previously undertaken at the Narrabri Mine, including (but not limited to):

- Narrabri Coal Project, Aboriginal Cultural Heritage Assessment (Australian Archaeological Survey Consultants Pty Ltd, 2007).
- Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment (Archaeological Surveys & Reports Pty Ltd, 2009).

In addition to the assessments described above, a further survey of Longwall Panels 1 to 5 was undertaken to define the spatial parameters of the 51 sites identified during the Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment (Archaeological Surveys & Reports Pty Ltd, 2009).

All assessments and surveys were undertaken in consultation with representatives of the RAPs.

Based on the results of these previous investigations, Figure 2 presents the location of known Aboriginal heritage sites in proximity to the Modification area. Attachment 1 provides further information on the existing Aboriginal heritage sites. Sites within and in proximity to the Modification area are labelled on Figure 2 and correspond to the information provided in Attachment 1.

Aboriginal heritage at the Narrabri Mine is currently managed in accordance with the approved *Aboriginal Cultural Heritage Management Plan* (Whitehaven, 2011).

## 3. Proposed Methodology

The Proposed Methodology for the Modification Aboriginal Cultural Heritage Assessment is as follows:

- Provision of information regarding the proposed Modification (provided as part of the associated covering letter).
- Provision of existing information on Aboriginal heritage sites within the Modification area and surrounds to the RAPs (provided as part of this Proposed Methodology and associated covering letter).
- Representative field survey of the survey area (i.e. the area associated with the western extension of the underground longwall areas) consistent with the approach outlined in the Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment (Archaeological Surveys & Reports Pty Ltd, 2009).

- Conduct an archaeological assessment (including an archaeological significance assessment) of any known or potential Aboriginal heritage sites identified within the Modification area (which may include the use of existing information).
- A request by NCOPL to the RAPs for comments regarding the cultural significance of Aboriginal heritage sites and/or areas within the Modification area.
- In consultation with the RAPs, identification of recommended management and mitigation measures for Aboriginal heritage sites/areas within the Modification area.
- Provide a copy of the draft Aboriginal Cultural Heritage Assessment to the RAPs for their review and feedback.
- Documentation of feedback received as part of the cultural assessment from the RAPs for presentation in the final Aboriginal Cultural Heritage Assessment report.

Consistent with the approach outlined in the Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment (Archaeological Surveys & Reports Pty Ltd, 2009), the survey within those areas of potential subsidence associated with the Modification would be designed to target sensitive locations and/or environments with the highest potential to contain Aboriginal heritage sites. Surveys within areas subject to potential surface disturbance impacts (e.g. gas drainage infrastructure) as a result of the Modification would be undertaken at a higher intensity.

In accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water, 2010), NCOPL requests that the RAPs provide, where relevant, during the conduct of the Aboriginal Cultural Heritage Assessment, cultural information regarding:

- whether there are any Aboriginal sites/objects of cultural value to Aboriginal people in Modification area or surrounds; and
- whether there are any places of cultural value to Aboriginal people in the Modification area or surrounds.

This may include places of social, spiritual and cultural value, historic places with cultural significance, and potential places/areas of historic, social, spiritual and/or cultural significance.

#### **4. Sensitive Cultural Information**

All RAPs should be aware of the NSW Office of Environment and Heritage (OEH) requirement that all feedback provided must be documented in the final Aboriginal Cultural Heritage Assessment report, including copies of any submissions received and the proponents response to the issues raised.

In the event that the RAPs have sensitive or restricted public access information, it is proposed that NCOPL would manage this information in consultation with the relevant stakeholder(s).

## 5. Aboriginal Cultural Heritage Assessment Report

Following consultation on the Proposed Methodology and the undertaking of the required field components, a draft Aboriginal Cultural Heritage Assessment report will be prepared. The draft Aboriginal Cultural Heritage Assessment report will be provided to the RAPs for comment and will include:

- Details of the sites/objects and/or places and their precise locations within the Modification area and an assessment of potential impacts from the Modification.
- Detailed records of the consultation conducted with the RAPs and how any comments received throughout the assessment process were considered.
- Management and mitigation recommendations drawing on information provided by the RAPs and the results of the Aboriginal Cultural Heritage Assessment.

## 6. Critical Timelines

Critical timelines for the Modification Aboriginal Cultural Heritage Assessment are outlined below:

1. Collation of cultural significant information – ongoing throughout process until the end of the draft Aboriginal Cultural Heritage Assessment review period.
2. Field survey – to be held in the week commencing Monday 13 July 2015 with representatives from the RAPs.
3. Provision of comments on the Proposed Methodology to NCOPL – prior to the commencement of the field survey or no later than 13 July 2015.
4. Provision of a draft Aboriginal Cultural Heritage Assessment (including proposed management and mitigation measures) to the RAPs for review and comment – July/August 2015 (following field survey).
5. Provision of comments from the RAPs on draft Aboriginal Cultural Heritage Assessment to NCOPL – August 2015.
6. Finalise Aboriginal Cultural Heritage Assessment in consideration of comments received – August 2015.

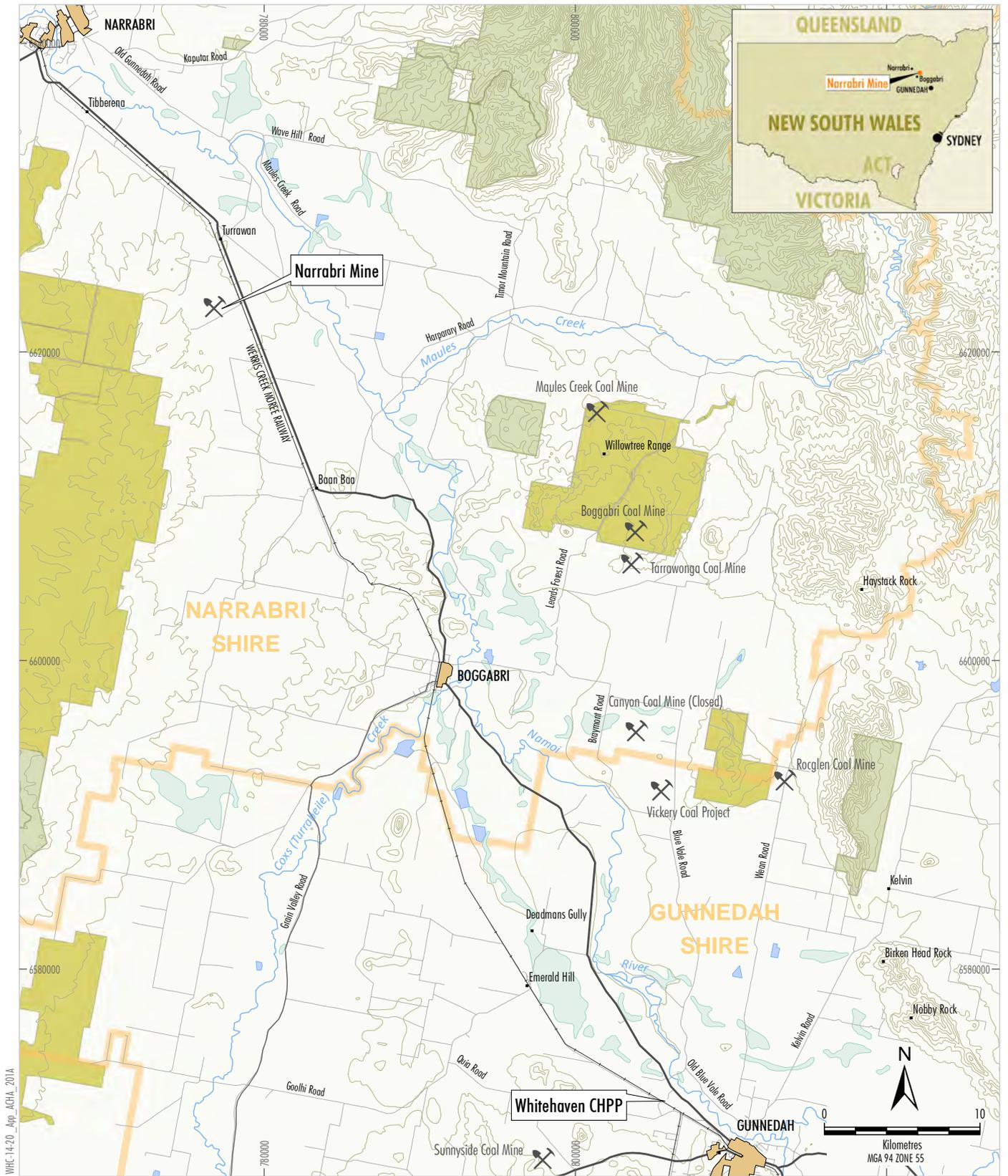
## 7. References

Australian Archaeological Survey Consultants Pty Ltd (2007) *Narrabri Coal Project, Aboriginal Cultural Heritage Assessment*.

Archaeological Surveys & Reports Pty Ltd (2009) *Narrabri Coal Mine Stage 2 Longwall Project Aboriginal Heritage Assessment*. Prepared for R.W. Corkery & Co. Pty. Limited, November 2009.

Department of Environment, Climate Change and Water (2010) *Aboriginal cultural heritage consultation requirements for proponents 2010*.

## FIGURES



WHC-14-20\_Apr\_ACHA\_201A

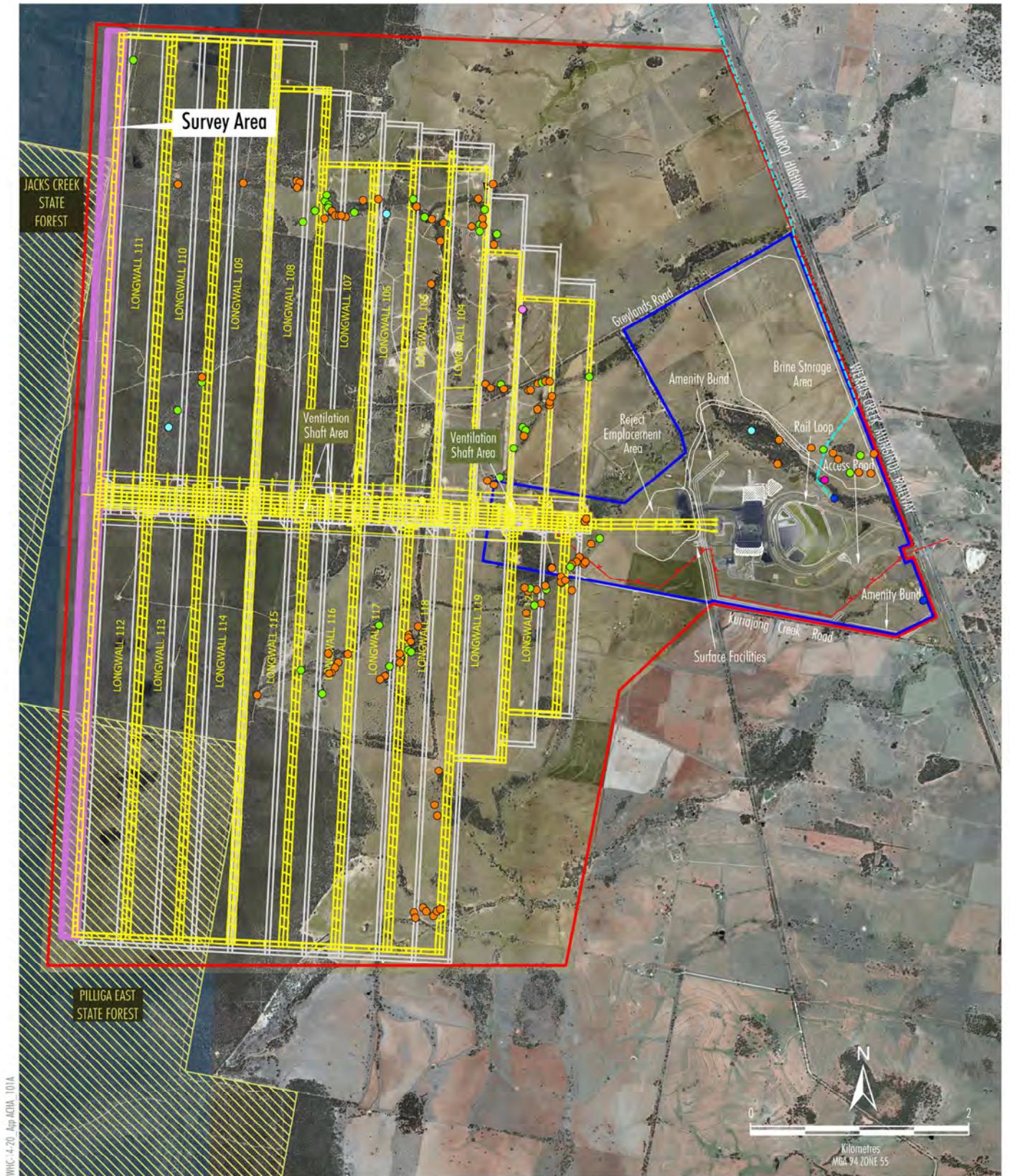
**LEGEND**  
 Local Government Boundary  
 NSW State Forest  
 National Park, Nature Reserve or State Conservation Area  
 Mining Operation

Source: Geoscience Australia, 2006 and NSW Trade & Investment, 2013

WHITEHAVEN COAL

NARRABRI MINE  
 Regional Location

Figure 1



WMC-4-20\_App ACRH 101A

- | LEGEND |  |
|--------|--|
|        | State Forest   |
|        | Mining Lease Boundary (ML 1609)                              |
|        | Pit Top Area   |
|        | Approved Underground Mine Development                        |
|        | Modified Underground Mine Development                        |
|        | Approved Surface Development (Not Constructed)               |
|        | Modified Surface Development (Subject to Separate Approvals) |
|        | Water Pipeline   |
|        | Electricity Transmission Line                                |
|        | Aboriginal Cultural Heritage Sites                           |
|        | Artefact Scatter   |
|        | Axe Grinding Grooves   |
|        | Grinding Grooves   |
|        | Isolated Artefacts   |
|        | Isolated Find  |
|        | Open Camp Site   |
|        | Resource Site  |
|        | Scarred Tree   |

  
**NARRABRI MINE**  
 Aboriginal Cultural Heritage Sites  
 at the Narrabri Coal Mine

Source: R.W. Corkery & Co Pty Ltd (2009), NSW Trade & Investment (2015) and NCOPL (2015)

**Figure 2**

## ATTACHMENT 1

**Table A-1. Existing Aboriginal Heritage Sites within and in Proximity to the Modification Area**

Site No.	Easting	Northing	Site Type	Comments
<i>Narrabri Coal Mine Stage 1 Assessment (Pit Top Area)</i>				
1 (Stage 1)	778770	6620785	Resource Site	Wild Orange Trees, a native food resource
2 (Stage 1)	778351	6621156	Artefact Scatter	Low density scatter located on the edge of the creek terrace. 12 flakes were identified within a 10m radius
3 (Stage 1)	778098	6621242	Scarred Tree	Dead tree, with upper half broken off and lying on the ground. The cultural scar is approximately 104cm x 30cm and is located on the standing section
4 (Stage 1)	778338	6620931	Artefact Scatter	Low density scatter exposed by the erosion of the creek terrace. >10 artefacts within a 20m radius, including flakes and cores
5 (Stage 1)	778859	6620615	Isolated Find	3 Chert flakes exposed by small gully erosion joining the creek
6 (Stage 1)	779673	6619677	Isolated Find	1 Silcrete flake located in agricultural paddock
7 (Stage 1)	772759	6621273	Scarred Tree	A cultural scar on a fallen tree
<i>Narrabri Coal Mine Stage 2 Assessment (Longwall Panels 1 to 7)</i>				
1	774380	6623220	Artefact Scatter	10-15 Artefacts in 8m*8m on eroding creek bank of Pine Creek plus additional artefact 30m to east. Site and multiple artefacts identified
2	774460	6623260	Isolated Artefact	Isolated find within 30m of creek bank. Site located but no artefacts found
3	774680	6623380	Artefact Scatter	4 Artefacts in 3m*3m area plus additional 3 artefact 10m to the west. Site and multiple artefacts found
4	774540	6623370	Artefact Scatter	6 Artefacts over 8m*5m area of actively eroding creek bank plus ground edged axe 10 metres west. Site and multiple artefacts found
5	775164	6622598	Artefact Scatter	3 Artefacts over 5m*5m area adjacent to Pine Creek
6	775249	6622997	Artefact Scatter	3 Artefacts over 10m*10m area adjacent to track at creek crossing
7	775170	6623199	Artefact Scatter	6 Artefacts over 30m*30m area within horseshoe bend of creek. Site located but artefacts not found
8	775103	6623218	Isolated Artefact	Chert Flaked Piece within 10m of creek.
9	775000	6623380	Isolated Artefact	Quartz trimming flake within 20m of creek. Site located but artefact not found
10a	775278	6623164	Artefact Scatter	2 Artefacts (Chert Flakes) 2m apart 20m from creek
10b	775299	6623157	Axe Grinding Grooves	3 grooves on 2 floaters of sandstone within 50m of creek
11	775030	6623313	Artefact Scatter	11 Artefacts over 12m*4m area within 20m of creek
12	775661	6621674	Artefact Scatter	3 Artefacts over 10m*10m area being 3 cores of Chert
13	775710	6621638	Artefact Scatter	4 Artefacts over 30m*30m area comprising Core and Flakes
14	775804	6621671	Isolated Artefact	Flaked Piece of Chert within 20m of creek
15	775829	6621628	Artefact Scatter	2 Artefacts 3m apart, Core and Flake

16	776142	6621679	Artefact Scatter	7 Artefacts over 30m*30m area within 20m of creek
17	776180	6621690	Isolated Artefact	Chert Flake 10m from creek
18	776211	6621702	Artefact Scatter	4 Artefacts over 30m*30m area within 20m of creek comprising Core and Flakes
19	776250	6621700	Artefact Scatter	18 Artefacts over 20m*20m area including collapsed wall of dam
21	776612	6621742	Isolated Artefact	Chert Flake within 30m of creek
22	776056	6621614	Artefact Scatter	5 Artefacts over 20m*20m area south of the wall of a dam
23	776075	6621617	Artefact Scatter	3 Artefacts over 25m*20m area – all flakes, 30-40m from creek
24	776138	6621443	Artefact Scatter	2 Artefacts over 10m*10m area in vehicle track crossing creek comprising Core and Flake
25	776003	6621272	Isolated Artefact	Chert flake at junction of drainage line with Creek
26	776030	6621245	Isolated Artefact	Chert flake at junction of drainage line with Creek
27	776014	6621192	Artefact Scatter	2 Artefacts 3m apart, 2 Flakes
28	775920	6621077	Isolated Artefact	Flake at junction of drainage channel and creek
29	775793	6620809	Isolated Artefact	Core at junction of drainage channel and creek
30	775679	6620778	Artefact Scatter	2 Artefacts 4m apart on gully bank
31	775740	6620739	Artefact Scatter	3 Artefacts in 5m*5m area. Core and flakes within gully bank
32	776250	6621480	Artefact Scatter	2 Artefacts 10m apart. Core and Flake 40m from creek
33	776250	6621510	Artefact Scatter	2 Artefacts 15m apart. Flakes 12m from creek
34	776270	6621560	Artefact Scatter	4 Artefacts 15m apart. Flakes 10m from creek
35	775738	6622965	Artefact Scatter	2 Artefacts 20m apart. Flakes 30m from creek
36	775766	6623058	Isolated Artefact	Chert flake 35m from creek
37	775654	6623286	Isolated Artefact	Chert flake in road 15m from drainage line and 50m from creek.
38	775596	6623383	Artefact Scatter	13 Artefacts in 30m*30m area over low rise 30m from creek
39	775660, 775680, 775680, 775650	6623460, 6623480, 6623520, 6623530	Artefact Scatter	>100 Artefacts contained within these coordinates, 30m from the creek, comprising flakes and flake pieces
40	775731	6623521	Artefact Scatter	4 Artefacts over 10m*10m area 10m from creek comprising flakes and flake pieces
41	775635	6623206	Artefact Scatter	7 Artefacts over 10m*10m area 15m from creek comprising scrapers and flakes
42	775640	6623140	Artefact Scatter	10 Artefacts 5m apart comprising flakes 15m from creek
43	775080	6620603	Open Camp Site	3 fireplaces in washout beside road 40m from drainage line

Narrabri Coal Mine Stage 2 Assessment (Longwall Panels 8 to 26)				
44	774191	6623362	Isolated Artefact	1 silcrete flake, 60m from creek. Site located but artefact could not be found
45	774225	6623326	Isolated Artefact	1 mudstone flake, 60m from creek. Site was located and an additional 4 artefacts were found
46	774223	6623302	Isolated Artefact	1 mudstone flake, 70m from creek. Site was located, artefact could not be found but 3 additional artefacts found
47	774254	6623273	Artefact Scatter	2 artefacts 3m apart - all flakes, 30m from creek. Site was located and 1 of the artefacts was found and 3 additional artefacts were found
48	774286	6623232	Artefact Scatter	3 artefacts in 3m*3m area - all flakes, 40m from creek. Site was located, previous artefacts not found but 3 additional artefacts found
49	774321	6623231	Artefact Scatter	5 artefacts in 10m*5m area - all flakes, 30m from creek. Site was located, previous artefacts not found but 3 additional artefacts found
50	774341	6623233	Artefact Scatter	3 artefacts in and beside gully - all flakes, 20m from creek. Site was located, previous artefacts not found but 3 additional artefacts found
51	773932	6623550	Artefact Scatter	3 artefacts in 10m*5m area - all flakes, dam wall. Site originally on dam wall in dam and was not located as it is now underwater
52	773960	6623535	Artefact Scatter	2 artefacts 2m apart - all flakes, dam wall. Site was located, previous artefacts not found but 2 additional artefacts found
53	773936	6623490	Artefact Scatter	6 artefacts in 20m*5m area, dam wall, includes flakes and core. Site originally on dam wall in dam and was not located as it is now underwater
54	774187	6623206	Artefact Scatter	2 artefacts 5m apart - all flakes, dam wall. Site originally on dam wall in dam and was not located as it is now underwater
55	776564	6620013	Artefact Scatter	2 artefacts 15m apart, 30m from creek, includes flakes and core
56	776577	6620029	Artefact Scatter	2 artefacts 15m apart, 25m from creek, includes flake and core
57	776708	6620248	Isolated Artefact	1 metasedimentary flake, 20m from creek
58	776629	6620197	Artefact Scatter	4 artefacts in 15m*15m area, 15m from creek, includes flakes and core
59	776571	6620401	Artefact Scatter	6 artefacts in 20m*15m area, 25m from creek, includes cores and flakes
60	776584	6620427	Artefact Scatter	4 artefacts in 30m*3m area, 20m from creek, includes core, flakes and potential hammer stone
61	776522	6620074	Artefact Scatter	7 artefacts in 20m*15m area, 20m from creek, includes cores and flakes
62	776495	6620031	Artefact Scatter	3 artefacts in 20m*5m area, 15m from creek, includes cores and flake

63	776452	6620007	Artefact Scatter	7 artefacts in 30m*5m area - all flakes, 15m from creek
64	776439	6619986	Isolated Artefact	1 metasedimentary flake, 15m from creek
65	776354	6619896	Artefact Scatter	2 artefacts 2m apart - all flakes, 50m from creek
66	776268	6619979	Artefact Scatter	4 artefacts in 20m*20m area - all flakes, 100m from creek
67	776269	6619975	Artefact Scatter	2 artefacts 15m apart - all flakes, 200m from creek (top of knoll)
68	776360	6619836	Isolated Artefact	1 metasedimentary flake piece, dam wall. Incorrect GPS coordinates. Site located but artefact not found
69	776353	6619843	Artefact Scatter	3 artefacts in 15m*2m strip - all flakes, edge of paddock
70	776393	6619862	Artefact Scatter	4 artefacts - all flakes, edge of dam
71	776453	6619769	Artefact Scatter	2 artefacts 3m apart - all flakes, edge of dam
72	776174	6619651	Artefact Scatter	9 artefacts - all flakes, 70m from creek
73	776111	6619633	Isolated Artefact	1 chert flake, 100m from creek
74	776035	6619560	Artefact Scatter	2 artefacts 5m apart - all flakes, 100m from creek
75	776054	6619757	Artefact Scatter	3 artefacts 5m*3m area - all flakes, 50m from creek
76	776129	6619772	Artefact Scatter	2 artefacts 10m apart - all flakes, 60m from creek
77	776069	6619787	Isolated Artefact	1 chert flake, 80m from creek
78	776021	6619792	Artefact Scatter	3 artefacts in 15m*10m area - all flakes, 100m from creek
79	776219	6619775	Isolated Artefact	1 chert flake, 50m from creek
80	776210	6619810	Artefact Scatter	5 artefacts along 15m narrow track - all flakes, 80m from creek
81	774687	6619444	Isolated Artefact	1 metasedimentary flake, 30m from creek
82	774400	6619174	Artefact Scatter	9 artefacts in 30m*20m area - all flakes, 30m from creek
83	774312	6619099	Artefact Scatter	7 artefacts in 30m*20m area - all flakes, 30m from creek
84	774282	6619053	Artefact Scatter	5 artefacts in 10m*5m area - all flakes, 40m from creek
85	774250	6619003	Artefact Scatter	3 artefacts in 10m*5m area, 30m from creek, flakes and core
86	774230	6618998	Artefact Scatter	2 artefacts 5m apart comprising flakes 20m from creek
87	774166	6618811	Isolated Artefact	1 flake piece, 40m from drainage line
88	773570	6618800	Artefact Scatter	2 artefacts 10m apart - all flakes, 20m from creek
89	773971	6619030	Isolated Artefact	1 metasedimentary flake, 25m from creek
90	774221	6619181	Artefact Scatter	5 artefacts in 40m*3m strip, inner dam face, includes cores and flakes
91	774975	6619298	Artefact Scatter	2 artefacts 10m apart, 40m from creek, includes core and flake
92	774954	6619212	Isolated Artefact	1 metasedimentary flake, 75m from creek
93	774958	6619354	Artefact Scatter	2 artefacts in 40m*3m strip - all flakes, inner dam face

94	774955	6619330	Artefact Scatter	6 artefacts in 25m*25m area - all flakes, 30m from creek
95	774977	6619291	Artefact Scatter	7 artefacts in 20m*20m area, 40m from creek, includes flakes and cores
96	774877	6619178	Artefact Scatter	3 artefacts in 15m*15m area, inner dam face, includes flakes and core
97	774783	6619064	Isolated Artefact	1 metasedimentary flake, 20m from creek
98	774742	6618977	Artefact Scatter	2 artefacts 10m apart, 40m from creek, includes core and flake
99	774697	6618941	Artefact Scatter	2 artefacts 15m apart, 40m from creek, includes core and flake
100	774878	6619099	Artefact Scatter	4 artefacts in 15m*15m area - all flakes, 20m from creek
101	774980	6619194	Isolated Artefact	1 quartz flake, 30m from creek
102	775044	6619434	Artefact Scatter	3 artefacts in 20m*20m area - all flakes, 50m from creek
103	775195	6617782	Artefact Scatter	3 artefacts in 30m*30m area - all cores, 80m from creek
104	775220	6617682	Artefact Scatter	3 artefacts in 30m*30m area, 150m from creek, included cores and flake
105	775233	6618102	Artefact Scatter	2 artefacts in 20m*20m area - all flakes, 150m from creek
106	775007	6616792	Artefact Scatter	3 artefacts in 40m*15m strip - all flakes, 30m from creek
107	775020	6616744	Artefact Scatter	34 artefacts in 40m*40m area, 150m from creek, included flakes and cores
108	775185	6616760	Artefact Scatter	12 artefacts in 40m*20m area, 40m from creek, included flakes and cores
109	775089	6616834	Artefact Scatter	4 artefacts in 40m of track, included flakes and core
110	775119	6616801	Artefact Scatter	3 artefacts in 10m*10m area, 150m from creek, chert and metasedimentary
111	775217	6616803	Artefact Scatter	36 artefacts in 40m*20m area, 60, from creek, metasedimentary horseshoe core
112	775248	6616821	Artefact Scatter	50+ artefacts in track, 1-30m track across creek, includes Chert Bondi Point
<b>Narrabri Coal Mine Stage 2 Assessment (Brine Storage Area)</b>				
113	779082	6620856	Artefact Scatter	3 artefacts in 10m*10m area - all flakes, 140m from creek
114	779193	6620847	Artefact Scatter	5 artefacts in 20m*20m area 100m from creek, including flakes and cores
115	779096	6621008	Isolated Artefact	1 metasedimentary flake, 200m from creek
116	779220	6621024	Artefact Scatter	2 artefacts in 10m*10m area - all flakes, 200m from creek
117	779002	6620852	Isolated Artefact	1 chert flake piece 100m from creek

118	778892	6620972	Artefact Scatter	3 artefacts 120m from creek, flakes and igneous 'chopper'
119	778845	6621031	Artefact Scatter	3 artefacts in 10m*10m area - all flakes, 220m from creek
120	778757	6621065	Isolated Artefact	1 metasedimentary flake, 230m from creek
121	778646	6621082	Artefact Scatter	5 artefacts in 30m*20m area 200m from creek, including flakes and cores
<i>Archaeological Survey Report Site "Pine Creek T1/AGG 1"</i>				
122	776000	6622361	Grinding Grooves	6 grinding grooves located on 3 sandstone platforms
<i>Archaeological Survey Aboriginal Sites within Panels 6 and 7</i>				
123	774755	6623246	Scarred Tree	Genuine looking scar with modern markings
<i>Aboriginal Cultural Heritage Assessment Narrabri Mine Panels 8 to 13</i>				
124	774207	6623420	Isolated Artefact	Isolated artefact on existing vehicle track, 25m from creek
125	774100	6623275	Isolated Artefact	Isolated artefact on existing vehicle track, 100m from creek
126	773989	6623174	Isolated Artefact	Isolated artefact on existing vehicle track, 160m from creek. Artefact could not be relocated.
127	773442	6623531	Artefact Scatter	5 artefacts in 10m*5m area, 20m from creek
128	772435	6624670	Isolated Artefact	Isolated artefact on existing vehicle track, 20m from creek
129	772831	6623540	Artefact Scatter	4 artefacts in 15m*10m area, Pine Creek directly north
130	773065	6621721	Artefact Scatter	20 artefacts in 50m*15m area, Pine Creek tributary directly east
131	772841	6621434	Isolated Artefact	Isolated artefact on creek terrace, 20m from creek
132	773063	6621692	Isolated Artefact	Isolated artefact on creek terrace, 20m from creek
<i>Narrabri Mine – Verification of Newly Identified Aboriginal Cultural Heritage Objects</i>				
133	775535	6623132	Artefact Scatter	5 stone artefacts located in Pine Tree grove
134	775608	6623085	Isolated Artefact	Isolated broken flake artefact on elevated area north-east of Site 133
135	775608	6623150	Isolated Artefacts	Isolated stone artefact on elevated area south of creek line

Source: Narrabri Mine Draft Aboriginal Cultural Heritage Management Plan.  
AHIMS – Aboriginal Heritage Information Management System.



6 August 2015

Craig Trindall  
Chair  
Gomeri Narrabri Aboriginal Corporation  
29 Doyle Street  
NARRABRI NSW 2390

Via email: [trigupnorth@yahoo.com.au](mailto:trigupnorth@yahoo.com.au)

Dear Craig,

**Narrabri Mine Longwall Panel Width Modification – Draft Aboriginal Cultural Heritage Assessment**

Please find enclosed for your review, a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the Narrabri Mine Longwall Panel Width Modification (the Modification).

**Review of Draft ACHA**

In accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (New South Wales [NSW] Department of Environment, Climate Change and Water, 2010) issued by the NSW Office of Environment and Heritage (OEH), we have provided the draft ACHA for your review and feedback. Your feedback may include the identification of issues or areas of cultural significance that may be used to affect, inform or refine the draft ACHA.

If you wish to provide input on the following, please provide comments to Narrabri Coal Operations Pty Ltd (NCOPL) (via the contact details provided at the end of this letter) regarding:

- Identification of issues.
- Any Aboriginal objects or places of cultural value within the investigation area, or issues of cultural significance, that you are aware of.
- Any restrictions or protocols you may consider necessary in relation to any information of sensitivity that you may provide.
- Any other factors you consider to be relevant to the heritage assessment.

All comments received will be taken into consideration as the ACHA is finalised. Any feedback with respect to the draft ACHA is to be provided by **5.00pm Thursday 3 September 2015**. Please provide your feedback to NCOPL via the following contact details:



**WHITEHAVEN COAL**

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Whitehaven Coal Limited  
10 Kurralong Creek Road, Baan Baa NSW 2390  
Phone: 02 6794 4167  
Email: [sfarrar@whitehavencoal.com.au](mailto:sfarrar@whitehavencoal.com.au)

Please do not hesitate to contact me if you have any queries.

Yours sincerely

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Sf20150806\_itr RAPs (Narrabri Mine Modification 5 Draft ACHA)\_GNAC



6 August 2015

Lynn Trindall  
Chief Executive Officer  
Narrabri Local Aboriginal Land Council  
96 Barwan Street  
NARRABRI NSW 2390

Via email: [admin@narrabrilalc.com.au](mailto:admin@narrabrilalc.com.au)

Dear Lynn,

**Narrabri Mine Longwall Panel Width Modification – Draft Aboriginal Cultural Heritage Assessment**

Please find enclosed for your review, a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the Narrabri Mine Longwall Panel Width Modification (the Modification).

**Review of Draft ACHA**

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- Identification of issues.
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**WHITEHAVEN COAL**

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Whitehaven Coal Limited  
10 Kurrajong Creek Road, Baan Baa NSW 2390  
Phone: 02 6794 4167  
Email: [sfarrar@whitehavencoal.com.au](mailto:sfarrar@whitehavencoal.com.au)

Please do not hesitate to contact me if you have any queries.

Yours sincerely

Steve Farrar  
Environmental Superintendent – Narrabri Mine  
Sf20150806\_itr RAPs (Narrabri Mine Modification 5 Draft ACHA)\_NLALC

## Appendix 3 – AHIMS Search Results

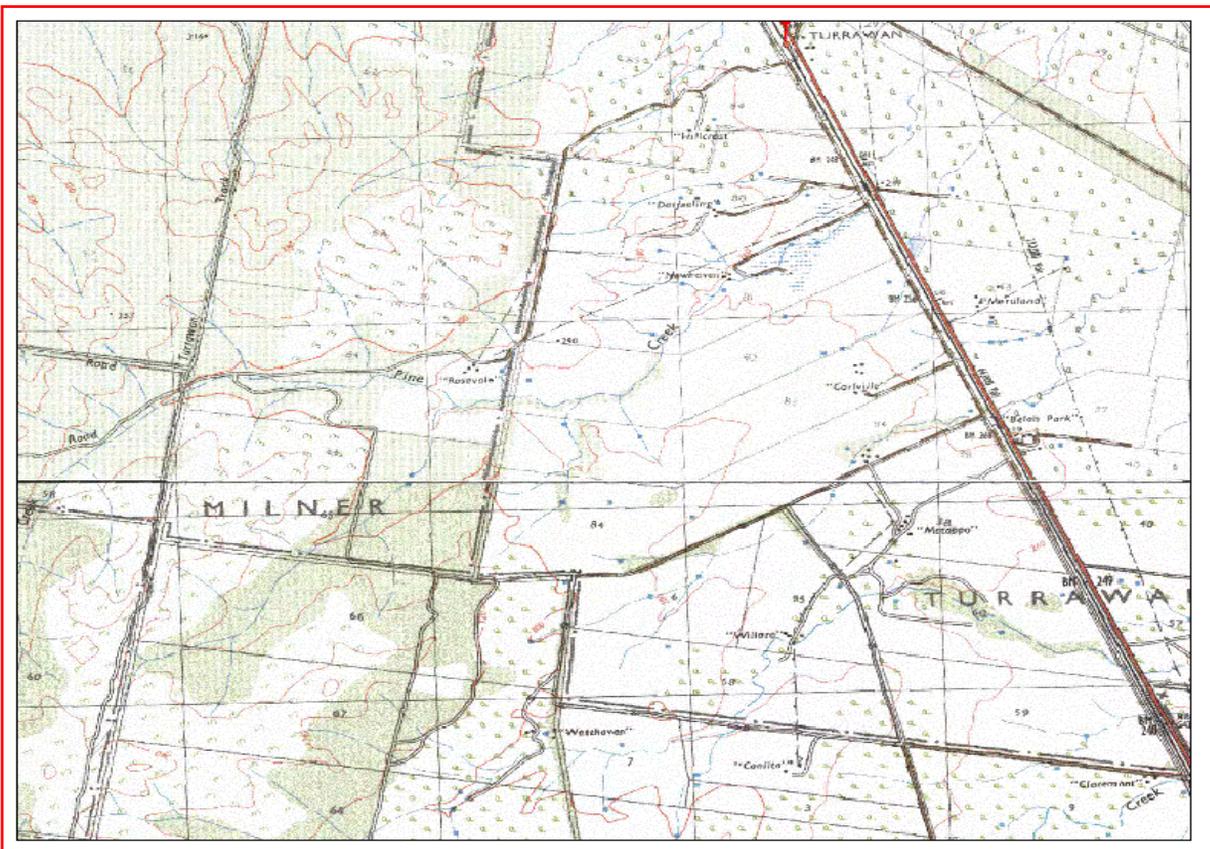
Niche Environment and Heritage  
PO Box 3104  
Umina Beach New South Wales 2257  
Attention: Clair Davey  
Email: cdavey@niche-eh.com

Date: 30 July 2015

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6620000 - 6626000 with a Buffer of 50 meters, conducted by Clair Davey on 30 July 2015.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

<b>75</b>	<b>Aboriginal sites are recorded in or near the above location.</b>
<b>0</b>	<b>Aboriginal places have been declared in or near the above location. *</b>

### **If your search shows Aboriginal sites or places what should you do?**

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

### **Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.



SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
19-3-0084	Pine Creek T2/OS 1	GDA	55	774380	6623220	Open site	Valid	Artefact : 15		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0085	Pine Creek T2/IOS 1	GDA	55	774460	6623260	Open site	Valid	Artefact : -		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0086	Pine Creek T2/OS 2	GDA	55	774680	6623380	Open site	Valid	Artefact : -		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0087	Pine Creek T2/OS 3	GDA	55	774540	6623370	Open site	Valid	Artefact : 6		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0088	Pine Creek T2/OS 4	GDA	55	775150	6622600	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0089	Pine Creek T2/OS 5	GDA	55	775250	6623000	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0090	Pine Creek T2/OS 6	GDA	55	775170	6623200	Open site	Valid	Artefact : -		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0091	Pine Creek T2/ISO 2	GDA	55	775100	6623230	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0092	Pine Creek T2/ISO 3	GDA	55	775000	6623380	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0093	Pine Creek T2/OS 7	GDA	55	775270	6623190	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-3-0094	Pine Creek T2/AGG 1	GDA	55	775260	6623160	Open site	Valid	Grinding Groove : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0069	Pine Creek T1/OS 8	GDA	55	775670	6621610	Open site	Valid	Artefact : 11		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0070	Pine Creek T1/OS 9	GDA	55	775640	6621690	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0071	Pine Creek T1/OS 10	GDA	55	775700	6621640	Open site	Valid	Artefact : 4		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0072	Pine Creek T1/ISO 4	GDA	55	775780	6621690	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0073	Pine Creek T1/OS 11	GDA	55	775820	6621630	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0074	Pine Creek T1/OS 12	GDA	55	776130	6621700	Open site	Valid	Artefact : 7		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>

Report generated by AHIMS Web Service on 30/07/2015 for Clair Davey for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6620000 - 6626000 with a Buffer of 50 meters. Additional Info : Aboriginal Cultural Heritage Assessment Report. Number of Aboriginal sites and Aboriginal objects found is 75

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
19-6-0075	Pine Creek T1/ISO 5	GDA	55	776180	6621690	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0076	Pine Creek T1/OS 13	GDA	55	776200	6621700	Open site	Valid	Artefact : 4		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0077	Pine Creek T1/OS 14	GDA	55	776250	6621700	Open site	Valid	Artefact : 18		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0078	Pine Creek T1/ST 1	GDA	55	776400	6621660	Open site	Valid	Modified Tree (Carved or Scarred) :		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton					-	<b>Permits</b>	
19-6-0079	Pine Creek T1/ISO 6	GDA	55	776600	6621740	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0080	Pine Creek T1/OS 15	GDA	55	776050	6621620	Open site	Valid	Artefact : 5		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0081	Pine Creek T1/OS 16	GDA	55	776100	6621620	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0082	Pine Creek T1/OS 17	GDA	55	776130	6621450	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0083	Pine Creek T1/ISO 7	GDA	55	775980	6621270	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0084	Pine Creek T1/ISO 8	GDA	55	776020	6621260	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0085	Pine Creek T1/OS 18	GDA	55	776010	6621200	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0086	Pine Creek T1/ISO 9	GDA	55	775900	6621080	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0087	Pine Creek T1/ISO 10	GDA	55	775780	6620780	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0088	Pine Creek T1/OS 19	GDA	55	775690	6620800	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0089	Pine Creek T1/OS 20	GDA	55	775730	6620740	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0090	Pine Creek T1/OS 21	GDA	55	776250	6621480	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton						<b>Permits</b>	
19-6-0091	Pine Creek T1/OS 22	GDA	55	776250	6621510	Open site	Valid	Artefact : 2		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-6-0092	Pine Creek T1/OS 23	GDA	55	776270	6621560	Open site	Valid	Artefact : 4		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0095	Pine Creek T2/OS 24	GDA	55	775710	6622970	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0096	Pine Creek T2/ISO 11	GDA	55	775760	6623060	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0097	Pine Creek T2/ISO 12	GDA	55	775640	6623290	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0098	Pine Creek T2/OS 25	GDA	55	775580	6623390	Open site	Valid	Artefact : 13		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0099	Pine Creek T2/OS 26	GDA	55	775660	6623500	Open site	Valid	Artefact : 5		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0100	Pine Creek T2/OS 27	GDA	55	775720	6623530	Open site	Valid	Artefact : 4		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0101	Pine Creek T2/OS 27.	GDA	55	775630	6623220	Open site	Valid	Artefact : 7		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0102	Pine Creek T2/OS 28	GDA	55	775640	6623140	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-6-0093	Pine Creek T1/FP1	GDA	55	775080	6620610	Open site	Valid	Hearth : -		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0103	Pine Creek ISO 44	GDA	55	774191	6623362	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0104	Pine Creek ISO 45	GDA	55	774225	6623326	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0105	Pine Creek ISO 46	GDA	55	774223	6623302	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0106	Pine Creek OS 47	GDA	55	774254	6623273	Open site	Valid	Artefact : 5		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0107	Pine Creek OS 48	GDA	55	774286	6623232	Open site	Valid	Artefact : 5		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0108	Pine creek OS 49	GDA	55	774321	6623231	Open site	Valid	Artefact : 5		
	<a href="#">Contact</a>	<a href="#">Recorders</a>		Mr.John Appleton				<a href="#">Permits</a>		
19-3-0109	Pine Creek OS 50	GDA	55	774341	6623233	Open site	Valid	Artefact : 2		

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-3-0110	Pine Creek OS 51	GDA	55	773932	6623550	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-3-0111	Pine Creek OS 52	GDA	55	773960	6623535	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-3-0112	Pine Creek OS 53	GDA	55	773936	6623490	Open site	Valid	Artefact : 6		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-3-0113	Pine Creek OS 54	GDA	55	774187	6623206	Open site	Valid	Shell : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0095	Kurrajong T1/OS 55	GDA	55	776560	6620006	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0096	Kurrajong T1/OS 56	GDA	55	776590	6620043	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0097	Kurrajong T1/ISO 57	GDA	55	776708	6620248	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0098	Kurrajong T1/OS 58	GDA	55	776558	6620297	Open site	Valid	Artefact : 4		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0099	Kurrajong T1/OS 59	GDA	55	776665	6620401	Open site	Valid	Artefact : 6		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0100	Kurrajong T1/OS 60	GDA	55	776400	6620467	Open site	Valid	Artefact : 4		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0101	Kurrajong T1/OS 61	GDA	55	776529	6620088	Open site	Valid	Artefact : 7		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0102	Kurrajong T1/OS 62	GDA	55	776503	6620048	Open site	Valid	Artefact : 3		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0106	Kurrajong T1/OS 67	GDA	55	776269	6619975	Open site	Valid	Artefact : 2		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0107	Kurrajong T1/ISO 68	GDA	55	775946	6620079	Open site	Valid	Artefact : 1		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0152	Kurrajong T1/OS 113	GDA	55	779082	6620856	Open site	Valid	Artefact : 3		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0153	Kurrajong T1/OS 114	GDA	55	779193	6620847	Open site	Valid	Artefact : 5		
	<a href="#">Contact</a>	<a href="#">Recorders</a>						<a href="#">Permits</a>		
19-6-0154	Kurrajong T1/ISO 115	GDA	55	779096	6621008	Open site	Valid	Artefact : 1		

Report generated by AHIMS Web Service on 30/07/2015 for Clair Davey for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6620000 - 6626000 with a Buffer of 50 meters. Additional Info : Aboriginal Cultural Heritage Assessment Report. Number of Aboriginal sites and Aboriginal objects found is 75

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0155	Kurrajong T1/OS 116	GDA	55	779220	6621024	Open site	Valid	Artefact : 2		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0156	Kurrajong T1/ISO 117	GDA	55	779002	6620852	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0157	Kurrajong T1/OS 118	GDA	55	778892	6620972	Open site	Valid	Artefact : 3		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0158	Kurrajong T1/OS 119	GDA	55	778845	6621031	Open site	Valid	Artefact : 3		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0159	Kurrajong T1/ISO 120	GDA	55	778757	6621065	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0160	Kurrajong T1/OS 121	GDA	55	778646	6621082	Open site	Valid	Artefact : 5		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		
19-6-0161	Kurrajong T1/OS 63	GDA	55	776430	6619968	Open site	Valid	Artefact : 7		
	<u>Contact</u>	<u>Recorders</u>	Mr.John Appleton					<u>Permits</u>		

Report generated by AHIMS Web Service on 30/07/2015 for Clair Davey for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6620000 - 6626000 with a Buffer of 50 meters. Additional Info : Aboriginal Cultural Heritage Assessment Report. Number of Aboriginal sites and Aboriginal objects found is 75

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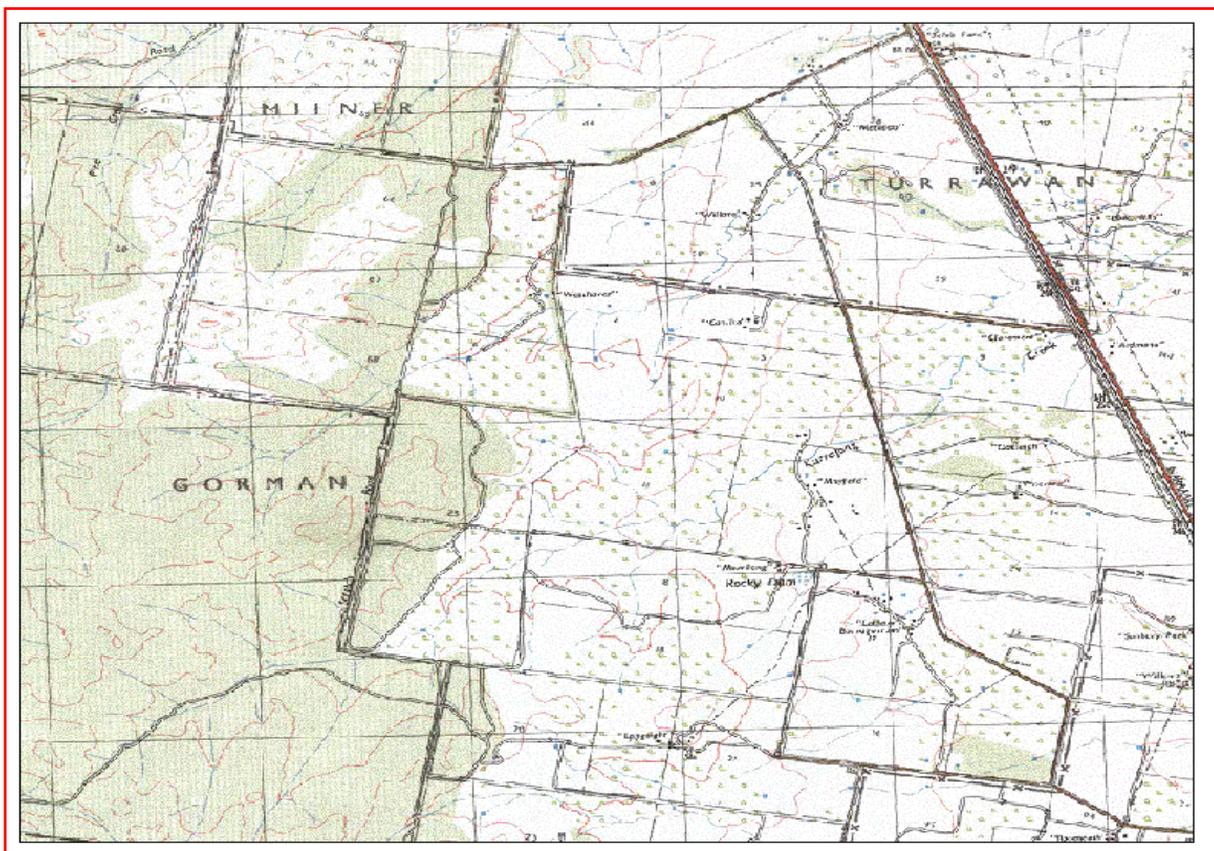
Niche Environment and Heritage  
PO Box 3104  
Umina Beach New South Wales 2257  
Attention: Clair Davey  
Email: cdavey@niche-eh.com

Date: 30 July 2015

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6616000 - 6620000 with a Buffer of 1000 meters, conducted by Clair Davey on 30 July 2015.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

<b>66</b>	<b>Aboriginal sites are recorded in or near the above location.</b>
<b>0</b>	<b>Aboriginal places have been declared in or near the above location. *</b>

### **If your search shows Aboriginal sites or places what should you do?**

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

### **Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports	
19-6-0087	Pine Creek T1/ISO 10	GDA	55	775780	6620780	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0088	Pine Creek T1/OS 19	GDA	55	775690	6620800	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0089	Pine Creek T1/OS 20	GDA	55	775730	6620740	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0093	Pine Creek T1/FP1	GDA	55	775080	6620610	Open site	Valid	Hearth : -			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0095	Kurrajong T1/OS 55	GDA	55	776560	6620006	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0096	Kurrajong T1/OS 56	GDA	55	776590	6620043	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0097	Kurrajong T1/ISO 57	GDA	55	776708	6620248	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0098	Kurrajong T1/OS 58	GDA	55	776558	6620297	Open site	Valid	Artefact : 4			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0099	Kurrajong T1/OS 59	GDA	55	776665	6620401	Open site	Valid	Artefact : 6			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0100	Kurrajong T1/OS 60	GDA	55	776400	6620467	Open site	Valid	Artefact : 4			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0101	Kurrajong T1/OS 61	GDA	55	776529	6620088	Open site	Valid	Artefact : 7			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0102	Kurrajong T1/OS 62	GDA	55	776503	6620048	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0103	Kurrajong T1/ISO 64	GDA	55	776419	6619946	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0104	Kurrajong T1/OS 65	GDA	55	776354	6619896	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0105	Kurrajong T1/OS 66	GDA	55	776046	6619560	Open site	Valid	Artefact : 4			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0106	Kurrajong T1/OS 67	GDA	55	776269	6619975	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0107	Kurrajong T1/ISO 68	GDA	55	775946	6620079	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>

Report generated by AHIMS Web Service on 30/07/2015 for Clair Davey for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6616000 - 6620000 with a Buffer of 1000 meters. Additional Info : Aboriginal Cultural Heritage Assessment Report. Number of Aboriginal sites and Aboriginal objects found is 66

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# AHIMS Web Services (AWS)

## Extensive search - Site list report

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports	
19-6-0108	Kurrajong T1/OS 69	GDA	55	776353	6619843	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0109	Kurrajong T1/OS 70	GDA	55	776393	6619862	Open site	Valid	Artefact : 4			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0110	Kurrajong T1/OS 71	GDA	55	776453	6619769	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0111	Kurrajong T1/OS 72	GDA	55	776174	6619651	Open site	Valid	Artefact : 9			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0112	Kurrajong T1/ISO 73	GDA	55	776111	6619633	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0113	Kurrajong T1/OS 74	GDA	55	776035	6619560	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0114	Kurrajong T1/OS 75	GDA	55	776054	6619757	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0115	Kurrajong T1/OS 76	GDA	55	776129	6619772	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0116	Kurrajong T1/ISO 77	GDA	55	776069	6619787	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0117	Kurrajong T1/OS 78	GDA	55	776021	6619792	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0118	Kurrajong T1/ISO 79	GDA	55	776219	6619775	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0119	Kurrajong T1/OS 80	GDA	55	776210	6619810	Open site	Valid	Artefact : 5			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0120	Kurrajong T1/ISO 81	GDA	55	774687	6619444	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0121	Kurrajong T1/OS 82	GDA	55	774400	6619174	Open site	Valid	Artefact : 9			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0122	Kurrajong T1/OS 83	GDA	55	774312	6619099	Open site	Valid	Artefact : 7			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0123	Kurrajong T1/OS 84	GDA	55	774282	6619053	Open site	Valid	Artefact : 5			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0124	Kurrajong T1/OS 85	GDA	55	774250	6619003	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
19-6-0125	Kurrajong T1/OS 86	GDA	55	774230	6618998	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0126	Kurrajong T1/ISO 87	GDA	55	774166	6618811	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0127	Kurrajong T1/OS 88	GDA	55	773570	6618800	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0128	Kurrajong T1/ISO 89	GDA	55	773971	6619030	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0129	Kurrajong T1/OS 90	GDA	55	774221	6619181	Open site	Valid	Artefact : 5		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0130	Kurrajong T1/OS 91	GDA	55	774975	6619298	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0131	Kurrajong T1/ISO 92	GDA	55	774954	6619212	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0132	Kurrajong T1/OS 93	GDA	55	774958	6619354	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0133	Kurrajong T1/OS 94	GDA	55	774955	6619330	Open site	Valid	Artefact : 6		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0134	Kurrajong T1/OS 95	GDA	55	774977	6619291	Open site	Valid	Artefact : 7		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0135	Kurrajong T1/OS 96	GDA	55	774877	6619178	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0136	Kurrajong T1/ISO 97	GDA	55	774783	6619064	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0137	Kurrajong T1/OS 98	GDA	55	774742	6618977	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0138	Kurrajong T1/OS 99	GDA	55	774697	6618941	Open site	Valid	Artefact : 2		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0139	Kurrajong T1/OS 100	GDA	55	774878	6619099	Open site	Valid	Artefact : 4		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0140	Kurrajong T1/ISO 101	GDA	55	774980	6619194	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>
19-6-0141	Kurrajong T1/OS 102	GDA	55	775044	6619434	Open site	Valid	Artefact : 3		
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton							<b>Permits</b>

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports	
19-6-0142	Kurrajong CR/OS 103	GDA	55	775195	6617782	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0143	Kurrajong CR/OS 104	GDA	55	775220	6617682	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0144	Kurrajong CR/OS 105	GDA	55	775233	6618102	Open site	Valid	Artefact : 2			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0145	Kurrajong CR/OS 106	GDA	55	775007	6616792	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0146	Kurrajong CR/OS 107	GDA	55	775020	6616744	Open site	Valid	Artefact : 34			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0147	Kurrajong CR/OS 108	GDA	55	775185	6616760	Open site	Valid	Artefact : 12			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0148	Kurrajong CR/OS 109	GDA	55	775089	6616834	Open site	Valid	Artefact : 4			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0149	Kurrajong CR/OS 110	GDA	55	775119	6616801	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0150	Kurrajong CR/OS 111	GDA	55	775217	6616803	Open site	Valid	Artefact : 36			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0151	Kurrajong CR/OS 112	GDA	55	775248	6616821	Open site	Valid	Artefact : 50			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0152	Kurrajong T1/OS 113	GDA	55	779082	6620856	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0153	Kurrajong T1/OS 114	GDA	55	779193	6620847	Open site	Valid	Artefact : 5			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0156	Kurrajong T1/ISO 117	GDA	55	779002	6620852	Open site	Valid	Artefact : 1			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0157	Kurrajong T1/OS 118	GDA	55	778892	6620972	Open site	Valid	Artefact : 3			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>
19-6-0161	Kurrajong T1/OS 63	GDA	55	776430	6619968	Open site	Valid	Artefact : 7			
	<b>Contact</b>	<b>Recorders</b>	Mr.John Appleton								<b>Permits</b>

Report generated by AHIMS Web Service on 30/07/2015 for Clair Davey for the following area at Datum :GDA, Zone : 55, Eastings : 771000 - 780000, Northings : 6616000 - 6620000 with a Buffer of 1000 meters. Additional Info : Aboriginal Cultural Heritage Assessment Report. Number of Aboriginal sites and Aboriginal objects found is 66

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

## Appendix 4 – Subsidence Assessment Extract

Note that the information presented in the Subsidence Assessment extract is relevant to Longwall Panels 107 to 120 only.

**Table 13 - Predicted Worst-case Subsidence Effects at Aboriginal Cultural Heritage Sites**

Site No	Type	Easting (MGA) (m)	Northing (MGA) (m)	LW #	Archaeological Significance	Final Subsidence (m)	Final Tilt (mm/m)	Final Gradient Change (%)	Horizontal Strain (mm/m)*	
									Final	Transient
1	AS	774380	6623220	107	Low	-2.773	2	-0.1	-5	3
2	IA	774460	6623260	107	Low	-2.393	18	0.5	-7	4
5	AS	775150	6622600	107	Low	-2.652	16	-1.0	-16	8
44	IA	774191	6623362	107	Low	-0.338	11	0.4	8	4
45	IA	774225	6623326	107	Low	-0.729	21	1.4	7	3
46	IA	774223	6623302	107	Low	-0.720	21	1.4	7	3
47	AS	774254	6623273	107	Low	-1.257	27	1.7	2	1
48	AS	774286	6623232	107	Low	-1.881	26	-0.2	-4	2
49	AS	774321	6623231	107	Low	-2.398	18	0.3	-7	4
50	AS	774341	6623233	107	Low	-2.593	12	0.0	-7	3
51	AS	773932	6623550	108	Low	-2.778	1	0.0	-3	2
52	AS	773960	6623535	108	Low	-2.706	8	0.5	-7	4
53	AS	773936	6623490	108	Low	-2.786	2	0.1	-7	4
54	AS	774187	6623206	107	Low	-0.375	12	0.3	8	4
66	AS	776268	6619979	120	Low	-1.812	36	-2.3	-10	5
67	AS	776269	6619975	120	Low	-1.784	36	-2.4	-10	5
72	AS	776174	6619651	120	Low	-2.689	2	-0.1	-3	2
73	IA	776111	6619633	120	Low	-2.709	0	0.0	-1	0
74	AS	776035	6619560	120	Low	-2.553	12	0.2	-11	6
75	AS	776054	6619757	120	Low	-2.584	10	0.3	-10	5
76	AS	776129	6619772	120	Low	-2.710	0	0.0	0	0
77	IA	776069	6619787	120	Low	-2.647	6	0.1	-7	3
78	AS	776021	6619792	120	Low	-2.144	28	0.8	-13	7
79	IA	776219	6619775	120	Low	-2.497	15	-0.9	-13	7
80	AS	776210	6619810	120	Low	-2.583	10	-0.6	-10	5
81	IA	774687	6619444	117	Low	-2.759	2	0.1	-4	2
82	AS	774400	6619174	116	Low	-0.275	7	0.1	9	4
83	AS	774312	6619099	116	Low	-1.381	27	1.7	1	0
84	AS	774282	6619053	116	Low	-1.878	25	1.4	-4	2
85	AS	774250	6619003	116	Low	-2.318	19	0.9	-6	3
86	AS	774230	6618998	116	Low	-2.531	13	0.5	-6	3
87	IA	774166	6618811	116	Low	-2.756	1	0.0	-6	3
88	AS	773570	6618800	115	Low	-1.566	25	-0.9	1	0
89	IA	773971	6619030	116	Low	-0.397	11	0.5	7	4
90	AS	774221	6619181	116	Low	-2.659	9	-0.1	-7	3
91	AS	774975	6619298	118	Low	-0.749	27	1.8	10	5
92	IA	774954	6619212	118	Low	-0.482	21	1.3	12	6
93	AS	774958	6619354	118	Low	-0.445	19	1.2	11	6
94	AS	774955	6619330	118	Low	-0.423	18	1.2	11	6
95	AS	774977	6619291	118	Low	-0.793	28	1.8	9	5
96	AS	774877	6619178	117	Low	-0.249	10	-0.5	9	5
97	IA	774783	6619064	117	Low	-1.617	29	-1.9	-3	2
98	AS	774742	6618977	117	Low	-2.242	21	-1.4	-8	4
99	AS	774697	6618941	117	Low	-2.643	8	-0.5	-6	3
100	AS	774878	6619099	117	Low	-0.214	8	0.4	9	5
101	IA	774980	6619194	118	Low	-0.965	32	-1.0	7	3

Site No	Type	Easting (MGA) (m)	Northing (MGA) (m)	LW #	Archaeological Significance	Final Subsidence (m)	Final Tilt (mm/m)	Final Gradient Change (%)	Horizontal Strain (mm/m)*	
									Final	Transient
102	AS	775044	6619434	118	Low	-2.068	28	1.9	-9	5
103	AS	775195	6617782	118	Low	-1.855	36	-0.9	-11	6
104	AS	775220	6617682	118	Low	-1.062	39	-1.6	6	3
105	AS	775233	6618102	118	Low	-1.298	39	0.6	0	0
106	AS	775007	6616792	118	Low	-2.754	0	0.0	0	0
107	AS	775020	6616744	118	Low	-2.755	0	0.0	0	0
108	AS	775185	6616760	118	Low	-0.762	38	0.3	15	7
109	AS	775089	6616834	118	Low	-2.699	5	-0.2	-7	3
110	AS	775119	6616801	118	Low	-2.456	20	0.3	-17	8
111	AS	775217	6616803	118	Low	-0.211	17	-1.1	17	8
112	AS	775248	6616821	118	Low	-0.030	4	-0.2	6	3
124	IA	774207	6623420	107	Low	-0.442	15	0.6	8	4
125	IA	774100	6623275	108	Low	-0.510	17	0.0	8	4
126	IA	773989	6623174	108	Low	-2.218	21	-1.2	-6	3
127	AS	773442	6623531	109	Low	-2.786	3	0.0	-9	4
128	IA	772435	6624670	111	Low	-1.515	23	-0.4	0	0
129	AS	772831	6623540	109	Low	-1.199	23	0.6	3	1
130	AS	773065	6621721	110	Low	-0.559	13	-0.9	6	3
131	IA	772841	6621434	110	Low	-2.753	7	0.0	-8	4
132	IA	773063	6621692	110	Low	-0.563	13	0.3	6	3

AS - Artefact Scatter; IA- Individual Artefact; GG - Grinding Groove; OCS - Open Camp Site; ST – Scar Tree.

\* - The sites may also be subject to transient phases of tensile and compressive strains of lower or higher magnitude than the final strains.

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