



Cultural Heritage Due Diligence Report

Airly Borehole ARP04

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Executive Summary

Centennial Airly proposes to undertake a drilling program at the foot of Airly Mountain at a single potential borehole site within the existing mining lease. The purpose of drilling at this site is for exploration purposes in order to provide geological information for inclusion in the mines geological model.

RPS has been engaged by Centennial Airly to prepare a due diligence report for the proposed borehole ARP 04. The proposed borehole site has been selected for its ability to avoid harm to Aboriginal objects and places and as such is located in previously disturbed areas. The site visit was undertaken by RPS archaeologist, Darrell Rigby in fine sunny conditions on October 18, 2010.

The proposed borehole location ARP04 is located on land wholly owned by Centennial Airly situated on gently sloping previously disturbed and cleared ground. An area of 25m x 25m was surveyed to ensure that an adequate area was covered for the footprint of the drill rig and associated equipment. Proposed access to the boreholes was also surveyed. The site co-ordinates were taken at the mid-point or centre of the proposed borehole area and photographed (Section 7 - Plates).

There was no evidence of any Aboriginal artefacts or archaeological material at ARP04.

It should be noted by Centennial Airly, that the greatest threat from the proposed drilling activity at ARP 04 is to European historic heritage items because of its proximity to Airly Village.

No historic relics or heritage items were identified.

Therefore, work for the proposed drilling programme may proceed at the proposed borehole location investigated as part of this report with attention to the below recommendations;

Recommendation 1

Vehicle access is to remain within existing tracks where possible in order to minimise potential impacts on surrounding vegetation and reduce erosion.

Recommendation 2

In the event that any vegetation clearing is required to allow large machinery access to a given area, soil disturbance should be kept to a minimum. Subject to ecological constraints it is preferable for vegetation to be cut with a chain saw rather than bulldozed and trees and bushes should be cut at their base just above ground level where possible.

Recommendation 3

In the unlikely event that construction pads are required for heavy machinery, it would be considered best practice to limit soil disturbance by bringing in topsoil to create a construction pad.

Recommendation 4

If proposed drill locations fall outside of the areas inspected as part of this project Centennial Airly are advised to have them investigated by a qualified archaeologist.

Recommendation 5

If Centennial Airly is uncertain of the potential risk of impact to archaeological and cultural heritage sites, they should contact a suitably qualified archaeologist to investigate the area prior to impact.

Recommendation 6

If Aboriginal site/s are identified in the study area during works, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

Recommendation 7

If an historical European site/s is identified in the study area during works, then all works in the area should cease, the area cordoned off and contact made with the NSW Heritage Office, and a suitably qualified archaeologist so that it can be adequately assessed and managed according to the NSW Heritage Act (1977).

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APPENDIX 1

AHIMS Search Results

I Introduction

Airly Coal Mine (Airly) is an underground coal mine located on the northern fringe of the western coal fields of New South Wales, approximately 40km northwest of Lithgow. Airly is owned and operated by Airly Coal Pty Ltd (Centennial Airly), a fully owned subsidiary of Centennial Coal Company Limited.

Centennial Airly proposes to undertake a drilling program at the foot of Airly Mountain at a single potential borehole site within the existing mining lease on land wholly owned by Centennial Airly. The purpose of drilling at this site is for exploration purposes in order to provide geological information for inclusion in the mines geological model. The purpose of a due diligence report is to demonstrate that reasonable and practicable measures have been taken to prevent harm to any Aboriginal object or place. This report has considered the relevant environmental and archaeological information, the land condition and nature of the proposed activity, as well as, formulating appropriate recommendations.

1.1 The Study Area

The study area (Figure 1-1) is located at Airly in the Lithgow Local Government Area (LGA). Centennial Airly proposes to undertake a drilling program at the foot of Airly Mountain at a single potential borehole site within the existing mining lease. The purpose of drilling at this site is for exploration purposes in order to provide geological information for inclusion in the mines geological model.

1.2 Legislative Context

The following overview of the legal framework is provided solely for information purposes for the client, it should not be interpreted as legal advice. RPS will not be liable for any actions taken by any person, body or group as a result of this general overview, and recommend that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the summary below.

Aboriginal heritage (places, sites and objects) within NSW are protected by *National Parks and Wildlife Act (1974, as amended)*. In some cases, Aboriginal heritage may also be protected under the *Heritage Act (1977)*. The *Environmental Planning and Assessment Act (1979)*, along with other environmental planning instruments, trigger the requirement for the investigation and assessment of Aboriginal heritage as part of the development approval process. For crown land, provisions under the *Native Title Act (1993)* may also apply.

1.2.1 National Parks and Wildlife Act (1974, as amended)

The primary state legislation relating to Aboriginal cultural heritage in NSW is the *National Parks and Wildlife Act (1974)*, as amended. The legislation is overseen by the

Department of Environment, Climate Change and Water (DECCW), and specifically the Director-General of the DECCW.

The archaeological work conducted and the subject of this report has been carried out in compliance with the NSW DECCW 2010 Due Diligence Code of Practice for the protection of Aboriginal Objects in NSW, as well as the NSW Minerals Industry Due Diligence Code of Practice for the protection of Aboriginal Objects (13 September, 2010) which is a recognised industry specific code of practice adopted under the National Parks and Wildlife Regulation 2009.

Changes to the NPWS legislation made effective on 1 October 2010 include:

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

Along with the new offences summarised above there are new defences that have been introduced which will apply where a person harms an Aboriginal object without knowing what it was and without a permit from DECCW, these include:

- A 'due diligence' defence will be available if a person follows the process steps to determine if an Aboriginal site exists and/or;
- A 'low impact' defence will be available if a person was performing a designated low impact activity listed in the Regulations.

1.2.2 Heritage Act 1977

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

1.2.3 Environmental Planning & Assessment Act 1979 (EP&A Act)

This Act regulates a system of environmental planning and assessment for NSW. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage. Assessment documents prepared to meet the requirements of the EP&A Act including: Review of Environmental Factors (REF), Environmental Impact Statements (EIS) and Environmental Impact Assessments (EIA), should address Aboriginal heritage, and planning documents such as Local

Environment Plans (LEP) and Regional Environmental Plans (REP) typically contain provisions for Aboriginal heritage where relevant.

1.3 Aboriginal Community Consultation

A due diligence inspection relates to the physical identification of Aboriginal objects. Community consultation is only required once Aboriginal objects have been detected and an Aboriginal Heritage Impact Permit (AHIP) is deemed necessary. Section 5.2 of the 2010 Due Diligence Code of Practice for the protection of Aboriginal Objects in NSW specifically states that;

‘consultation with the Aboriginal community is not a formal requirement of the due diligence process’ (2010:8).

1.4 Authorship and Acknowledgements

This report was prepared by Darrell Rigby, with assistance from Gillian Goode and reviewed accordingly.

1.5 Terms and Abbreviations

Abbreviation	Description
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
cal. years BP	Calibrated years before present, indicates a radiocarbon date has been calibrated using the dendochronology curves, making the date more accurate than an uncalibrated date
DECCW	Department of Environment, Climate Change and Water
GIS	Geographic Information System
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
PAD	Potential Archaeological Deposit
REP	Regional Environment Plan
REF	Review of Environmental Factors

WARNING
No part of this plan should be used
for critical design dimensions.
Confirmation of critical positions
should be obtained from RPS Newcastle.

Legend

- Old Workings
- RIB
- Design Workings

N



TITLE: FIGURE 1-1 LOCALITY

LOCATION: AIRLY

DATUM: N/A
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 28/10/2010
PURPOSE: ARCHAEOLOGY

J:\JOBS\Centennial\All Jobs\105601 Airlyltural Heritage\10- Drafting\
LAYOUT REF: Arch... Drafting\MapInfo Work...105601 Figure 1-1 Locality A A3
VERSION (PLAN BY): A A3 (NW-AN-GG)

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CLIENT: AIRLY COAL
JOB REF: 105601



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2 Environmental and Heritage Context

Aboriginal heritage due diligence requires that available knowledge and information is considered. The purpose of reviewing the relevant environmental and heritage information is to assist in identifying whether Aboriginal sites or places are present within the study area.

2.1 Local Environment

Centennial Airly proposes to undertake a drilling program at the foot of Airly Mountain at a single potential borehole site within the existing mining lease on land wholly owned by Centennial Airly. The site has been selected for its ability to avoid harm to Aboriginal and European objects and places and as such it is located in a cleared open paddock.

- The nearest permanent watercourse is Gap Creek which is 30 metres from the proposed borehole location. There are several other small creeks and gullies that occur associated with patches of typical riparian vegetation surrounding Airly Mountain.
- There are no obvious resources in proximity to the proposed borehole as it is cleared open paddock.
- There are no obvious land features near to ARP 04 such as rockshelters and ridges.
- The study area for the borehole has been previously disturbed as it is situated on cleared open pasture land.

2.2 Aboriginal Heritage Information Management System (AHIMS)

A search was undertaken on October 5th 2010 of the DECCW Aboriginal Heritage Information Management System (AHIMS) (Table 2-1 and Figure 2-1). The search results (Appendix 1) indicated that there are fourteen (14) previously recorded Aboriginal sites near the study area. There are no Aboriginal Places that have been declared in or near the study area search location.

However, closer examination of the DECCW AHIMS search results reveals that the sites 44-3-0029 (Capertee Shelter with art and deposit) and site 44-3-0056 (Capertee Bora-ceremonial/carved tree) has the exact same co-ordinates listed, indicating it could be the one site recorded twice, or, that one of the sites has incorrect co-ordinates. In addition, the 44-3-0044 (running stream; Kadisha an axe grinding groove site) has the exact same co-ordinates for 44-3-0085 (Jack Halls Creek; Kadisha; Sofola an axe grinding groove site), indicating these are also duplicate site recordings, or, that one of the sites has incorrect co-ordinates. The Site 44-3-0147 which was recorded as a scarred tree in an earlier AHIMS search (24 September 2008) conducted by RPS listed it as 'deleted', which means it is no longer considered to be a site protected under the NPW Act. The site may have been incorrectly recorded as a site, then later reassessed as not being a site, or the

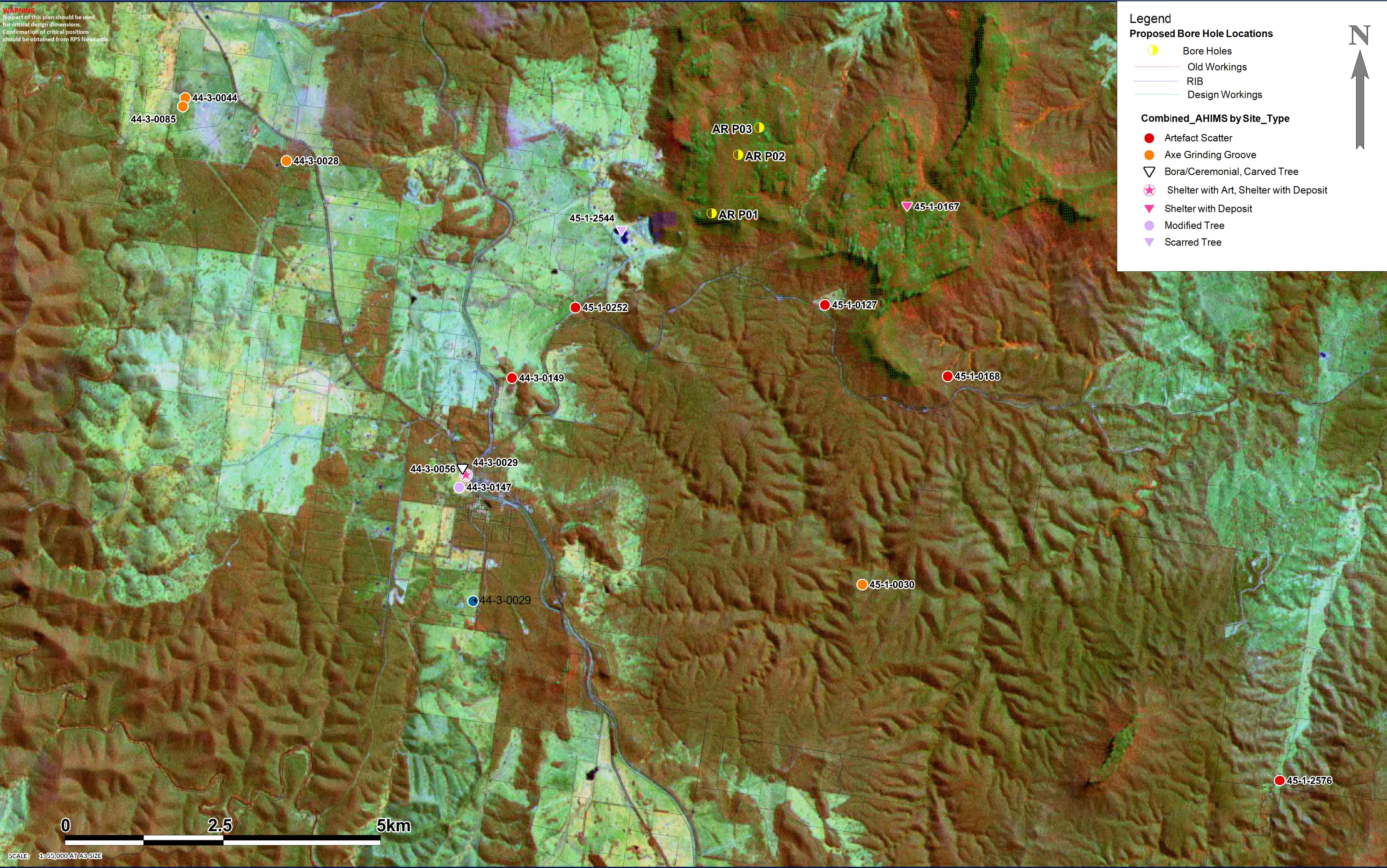
tree has been removed. Whatever the case it is still on the AHIMS database and probably should not be.

There are no sites registered within the study area relevant to this REF.

Table 2-1: Summary of AHIMS Results

Site Type	Frequency	Percent
Open Camp Site	5	36%
Axe Grinding Groove	4	29%
Shelter with deposit	1	7%
Shelter with art & deposit	1	7%
Bora/Ceremonial/Carved tree	1	7%
Scar tree	2	14%
SUBTOTAL	14	100%
Minus sites that are potentially duplicated or no longer valid	3	
TOTAL	11	
NB: AHIMS Web Service search for the following area at Datum: GDA, Zone : 56, Eastings: 214000-234000, Northings: 6323200-6343200 with a buffer of 50 metres. Additional information: conducted by Tessa Boer-Mah on 5 October 2010		

Consequently, in relation to the above identified discrepancies there may be 3 less sites than is shown on AHIMS. Irrespective of this finding it should be noted that no sites are in or near to ARP 04.



2.3 Regional Archaeological Literature Review

Brayshaw, 1990, Airly EIS

Brayshaw conducted an archaeological assessment in 1990 over the Airly Coal Mine (Authorisation Area A232) as part of an Environmental Impact Statement (EIS). The survey targeted areas that were likely to be impacted by subsidence and areas likely to be disturbed by ground surface infrastructure.

The survey was conducted over a period of three days with no Aboriginal representatives present. The survey was conducted by two archaeologists who started at Mount Airly and concluded there were no suitable rock falls or formations suitable for shelters. The survey included sections of Mount Airly, Genowlan Mountain and the parts of the associated floodplains. From this survey only one site was located, an artefact scatter site located on a spur on an east-west axis. Brayshaw also reports on a possible rock shelter 'site' identified by an environmental consultant, and does state that it could have potential deposits with art. Brayshaw, however, did not investigate the 'site' herself, but did include it in the EIS.

Brayshaw concluded, that the mountains would have been too steep to be occupied, and that the area is most likely to have been used to travel through for 'short-term sporadic hunting' (Brayshaw 1990:11). The contents of Brayshaw's Airly Mountain site, provides a solid indication of the raw material expected in sites of this area; the raw material is predominantly comprised of very fine grained white quartz, with chert the next most common raw material. The most common tool type included flakes with minor frequencies of microliths (including Bondi points) blade flakes and cores. Brayshaw surmised that the present Glen Davis Road, was the main travelling route for past populations.

Brayshaw, 1991, Airly EIS

A survey was conducted by Brayshaw the following year to investigate areas of potential impact as changes had been made to the mine plan since her previous survey. The possible rockshelter site identified the previous year was also to be investigated with the surface infrastructure changes too.

When Brayshaw surveyed the rockshelter site, she identified artefacts on the surface, but no art (but there was modern graffiti). This was recorded as Genowlan Creek 1. Brayshaw identified another shelter area nearby that was classified as a PAD (Dog Trap Creek).

Mills, 1998, Airly Mine

Mills was engaged to conduct an archaeological survey for the realignment of the access road to the Airly Mine in 1998. The field component involved representatives from the Local Aboriginal community. Within this survey work Mills located two sites; one artefact scatter which had a small density (AC-OS-1) and one scarred tree (C-ST_01). The artefact scatter was located within the road realignment, however, the scarred tree was not within any areas to be impacted. Mills concluded that there was no reason for the

project realignment not to proceed, providing that the relevant NPWS permits were obtained prior to any ground disturbance works.

Mills, 1998, Airly Shale Oil Mining Complex

Mills was engaged by International Environmental Consultants on behalf of Centennial Coal to conduct a heritage assessment of the historic shale oil workings at Airly. The study was a sample survey only and not an attempt to record all sites present in the area. 18 sites/site complexes were identified and the opinion of the author was that the remnant village remains was of State heritage significance. However, the report found no archaeological reason for stopping the proposed Airly mine development from proceeding if recommendations contained in the report were followed.

Hiscock & Attenbrow, 2004

Peter Hiscock and Val Attenbrow re-analysed an artefact assemblage from a site called Capertee 3 that was originally excavated by F.D. McCarthy in the 1950's and 60's. The aim was to write a paper that presented a re-examination of backed artefacts at Capertee 3 and consequently their chronological sequence. The paper established that although high rates of backed artefact production occurred between 1500 and 3500 b.p. these same tool types were made in low numbers prior to that date in the middle to early Holocene period, supporting a model of fluctuating production rates throughout the Holocene.

2.4 Synthesis of Environmental and Archaeological Context

Aboriginal Archaeological Context

The site density in the broader area is not considered high, but this is in part limited by the small numbers of archaeological surveys in the area. The site types located in the areas appear to be either small occupation densities or sites that were associated with more secular activities. The broader landform assessments also show there to be limited water sources in the area providing a strong indication that the area is not suitable for large numbers of people for extended periods of time. It is also contended that where sites do occur in situ that they will most likely not pre-date the Holocene period.

Relating specifically to the study area for this single borehole assessment, the level of clearing and historic use of the area as a shale oil mine site and community substantially limits the potential for Aboriginal sites to be located near to the borehole or in fact be impacted by it.

European Archaeological Context

Given the proximity of the historical location of Airly Village and its associated remnant shale oil workings and various built heritage items, there is a low potential for ARP 04 to encounter historic archaeological items subsurface.

3 Managing Potential Archaeological Sensitivity

Drill site selection procedures, management and mitigation strategies for Aboriginal cultural heritage and archaeological sites were considered by Centennial Airly.

Potential borehole locations were chosen in order to avoid any areas with potential archaeological and cultural heritage value. Archaeological sensitivity ratings were based on the results of previous regional and local archaeological surveys in the Lithgow Area and the information presented in Section 2. Landforms were identified and divided into areas of potential archaeological sensitivity. Ridge lines, valley floors and perennial creek or drainage lines were accorded a high sensitivity rating as were sandstone cliff faces that illustrated a capacity for rock shelters to occur, slopes and ephemeral creek or drainage lines were rated as moderately sensitive, whilst modified land forms or areas that had been subjected to extensive disturbances were considered as being low in sensitivity (Refer Table 1).

Table 3-1: Landforms and Sensitivity Ratings for Potential Borehole Locations

Landform	Potential Archaeological Sensitivity
Ridges, valleys and perennial creek drainage lines	High Sensitivity
Valley bottom/Creek flat	High Sensitivity
Ephemeral creek lines natural slope	Moderate to Low Sensitivity
Modified or disturbed landform	Low to Nil Sensitivity

Centennial Airly utilises these sensitivity ratings when choosing proposed borehole locations in order to avoid areas of potential archaeological and cultural heritage value.

3.1 Potential Disturbance by the Proposed Works

Proposed drill locations are strategically placed to allow Centennial Airly to provide basic geological information and to ascertain the location, depth and quality of the coal seam inside the exploration lease areas. Drill locations are positioned in areas that have either not had previous exploratory cores or cores were at insufficient depth to determine an appropriate extraction technique. The impact from drilling operations is minimal. Drill hole depth varies and will depend on the depth of the coal seam at any given location.

In the case of this project a light tracked vehicle with a small drill rig will be used and is to be brought into the area via existing fire trail access tracks. In some locations it may be necessary to clear overhead vegetation to allow suitable access to the area. Centennial Airly has placed the drill locations in highly disturbed contexts to minimise the impact from

drilling operations. The area of impact from the drill and ancillary equipment does not usually exceed an area measuring 25 by 25 metres.

The total extent of the drill rig site area is approximately 625 square metres and includes the drill rig construction area, the mixing tank, the rod and blow out racks, the above ground sump and vehicle parking and turning areas. A section of tarpaulin is placed under the drill rig truck. The machine may be stabilised by adjustable legs and/or with additional material (such as wooden planks) brought to the drill location by vehicle.

Very occasionally the drill rigs may require the placement of 'construction pads' which levels the ground surface and stabilises the machinery during operation. In the unlikely event that a construction pad is required for this project, preparation work associated with a construction pad will require the grading of the surface and/or placement of topsoil over the ground surface to create a level area. Both are accepted procedures for creating construction pads by the NSW Environment Protection Agency (EPA), but placement of soil over the surface is considered best practice for archaeological reasons as it limits the potential for soil disturbance.

A sediment and water sump may be required at each location. The sump will have minimal impact as it will be placed on the surface. It is always considered best practice for archaeological mitigation that sumps are built above ground level to minimise soil disturbance.

3.2 Assessment Criteria for Placement of Proposed Borehole Locations

3.2.1 Low Impact Activity

In relation to Aboriginal cultural heritage the NPW Regulation removes the need to follow the due diligence process if carrying out a specifically defined low impact activity. As a result, proponents are not required to follow the code or any other due diligence process if the activity is listed in the regulation. The 2009 NPW Regulation (s86⁽²⁾ NPW Act) provides a list of low impact activities that are generally considered to represent a low risk of harm to Aboriginal objects, these include;

- Certain maintenance work on disturbed land
- Certain farming and land management work on disturbed land
- Grazing of animals
- Exempt and complying development work (within the meaning of the Environmental Planning Assessment Act 1979) on disturbed land
- Certain work that relates to surveying on any land, and;
- Certain environmental rehabilitation on disturbed land.

The definition of disturbed land as it appears in the regulation states that land is disturbed if it has been the subject of human activity that has changed the land's surface, being

changes that remain clear and observable and cites the following examples of activities that would be deemed to constitute disturbed land:

- (a) soil ploughing,
- (b) construction of rural infrastructure (such as dams and fences),
- (c) construction of roads, trails and tracks (including fire trails and tracks and walking tracks),
- (d) clearing of vegetation,
- (e) construction of buildings and the erection of other structures,
- (f) construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure),
- (g) substantial grazing involving the construction of rural infrastructure,
- (h) construction of earthworks associated with anything referred to in paragraphs (a)-(g).

A key risk minimisation strategy when seeking locations for borehole drilling is to situate the activity in a previously disturbed environment.

3.2.2 Determining Suitable Areas for Boreholes

In addition to above documented code of practice, the following criteria have been developed by RPS to assist in determining areas suitable for placement of proposed boreholes and associated infrastructure, and the areas that are deemed unsuitable for borehole locations. It is recommended that these criteria be applied during the inspection and assessment of proposed drilling sites. In opposition to an archaeological survey, where archaeologists actively seek areas of potential archaeological deposits (PAD) and Aboriginal sites, these criteria identify areas of high disturbance where potential heritage impact is least likely to occur. The criteria developed are outlined in Table 2 overleaf.

In order for an area to be considered to have PAD, it must meet each criterion to some extent and subsequently a site card will have to be created and submitted to the Department of Environment, Climate Change and Water (DECCW) for inclusion on the AHIMS register. As such, the area would be considered an Aboriginal site and protected under the NPW Act (1974). If the proposed area meets two or more of the criteria for PAD, an alternative location is recommended that meets the criteria for a borehole instead.

Table 3-2: Assessment Criteria for Placement of Proposed Borehole Locations

Criteria	Features required for borehole locations	Potential Archaeological Deposit
Soil depth and profile (horizon exposure) in the immediate and surrounding areas of the proposed borehole location.	Little or no soil depth – exposed B horizon.	Soil depth, preferably with A1 and A2 horizon intact.
Presence, frequency and density of known sites in the general locality.	Area where no/ small/ sparse/ low significant sites are located.	High distribution in area, high artefact density, highly significant sites.

Criteria	Features required for borehole locations	Potential Archaeological Deposit
Evidence of disturbances that may have caused a large degree of subsurface disturbances.	High subsurface disturbances.	Little evidence of disturbances.
Evidence of any geomorphological processes that would have affected the environmental context (e.g. creek channel migration).	Significant geomorphological changes.	Easily recognisable changes.
Potential resources to support occupation of the area.	Zero or low level of resources.	High fauna and flora resources.
Landform element.	Poor aspect, steep slope, great distance from water source, uneven terrain.	Area with good aspect, close to fresh water source, sheltered, gentle slopes, easy terrain to navigate, well drained soils.

4 Site Visit and Field Results

The site visit was undertaken to comply with due diligence requirement that a visual inspection of the study area is conducted. The archaeological pedestrian survey of the ARP 04 borehole location was undertaken by RPS archaeologist, Darrell Rigby in fine sunny conditions on October 18, 2010. A light breeze from the south east was blowing at around 5 – 8 knots. Access to the study area was gained via an existing four wheel drive fire trail.

The vegetation across the entire study area was cleared open pasture, entirely grassed by non native species.

An area in excess of 25m x 25m was assessed at ARP 04 for the purposes of due diligence. Access to the borehole location was also assessed with provision made to include potential parking and turning circle areas. The specific site location and landform was taken into account when assessing the extent of the area likely to be disturbed. In the event that the proposed borehole location did not meet the necessary criteria, then alternative borehole site locations were to be identified.

4.1 Field Results

The condition of the study area at ARP 04 as observed during the site visit is best described as disturbed (Plate 1 and Plate 2).

The proposed borehole location is situated on a gently undulating valley bottom or creek flat with an existing access track leading to it. The borehole location was assessed for sensitivity (Table 4-1). An area of 25m x 25m was surveyed to ensure that an adequate area was covered for the footprint of the drill rig and associated equipment. Proposed access to each of the boreholes was also surveyed. The site co-ordinates were taken at the mid-point or centre of the proposed borehole area (Table 4-2), and the site area was recorded and photographed (Section 7 - Plates).

Table 4-1: Landforms and sensitivity ratings of actual borehole locations

Drill Site	Sensitivity	Landform
ARP04	Low (due to clearing and past use disturbances)	Valley bottom/creek flat

Table 4-2: Borehole coordinates (MGA 56/GDA94)

Drill Site	GDA Easting	GDA Northing
ARP04	56 22408	6333365

4.1.1 ARP 04

This borehole is situated on in cleared open paddock on a toe slope landform running down to Gap Creek (Plate 3) which is approximately 30 metres distant. Being a modified landform, under the NPW regulations any borehole work in this location meets the low impact activity criteria (Section 3.2.1 Visibility was poor with 100% grass cover). No stone present at all. The location has been subject to vegetation clearing activities in the past and is likely connected in some way with Airly Village as the old school site is not too far away. Given this is a creek flat there is potential for good soil depth. Sandstone slabs were evident in Gap Creek which were checked for engravings or grinding grooves, however none were identified. Despite recent rainfall Gap Creek was dry.

No Aboriginal cultural heritage material items and no historic European items were identified during the field survey of ARP 04.

4.2 Conclusion of Field Results

The proposed borehole location ARP04 is located on land wholly owned by Centennial Airly situated on gently sloping previously disturbed, cleared ground. An area of 25m x 25m was surveyed to ensure that an adequate area was covered for the footprint of the drill rig and associated equipment. Proposed access to the boreholes was also surveyed.

There was no evidence of any Aboriginal artefacts or archaeological material at ARP04.

It should be noted by Centennial Airly, that the greatest threat from the proposed drilling activity at ARP 04 is to European historic heritage items because of its proximity to Airly Village.

No historic relics or heritage items were identified.

Therefore, work for the proposed drilling programme may proceed at the proposed borehole location investigated as part of this report with attention to the below recommendations;

5 Recommendations

This report has considered the available environmental and archaeological information for the study area, the land condition, as well as, the nature of the proposed activities. The following management recommendations have been formulated with consideration to all available information.

Recommendation 1

Vehicle access is to remain within existing tracks where possible in order to minimise potential impacts on surrounding vegetation and reduce erosion.

Recommendation 2

In the event that any vegetation clearing is required to allow large machinery access to a given area, soil disturbance should be kept to a minimum. Subject to ecological constraints it is preferable for vegetation to be cut with a chain saw rather than bulldozed and trees and bushes should be cut at their base just above ground level where possible.

Recommendation 3

In the unlikely event that construction pads are required for heavy machinery, it would be considered best practice to limit soil disturbance by bringing in topsoil to create a construction pad.

Recommendation 4

If proposed drill locations fall outside of the areas inspected as part of this project Centennial Airly are advised to have them investigated by a qualified archaeologist.

Recommendation 5

If Centennial Airly is uncertain of the potential risk of impact to archaeological and cultural heritage sites, they should contact a suitably qualified archaeologist to investigate the area prior to impact.

Recommendation 6

If Aboriginal site/s are identified in the study area during works, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

Recommendation 7

If an historical European site/s is identified in the study area during works, then all works in the area should cease, the area cordoned off and contact made with the NSW Heritage Office, and a suitably qualified archaeologist so that it can be adequately assessed and managed according to the NSW Heritage Act (1977).

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7 Plates



Plate 1: Condition of the Study Area. Dumped tyres.



Plate 2: Condition of the Study Area.



Plate 3: ARP 04.

Appendix I

AHIMS Search Results