



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

# ***Russell Vale Colliery Russel Vale East - Revised Underground Expansion Project***

## ***Heritage Management Plan Inclusive of Cultural and Historical Heritage Management Plan***

### ***RVC EC PLN 016***



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D5	15/7/2021	Robert Faddy-Vrouwe Warwick Lidbury Samantha Keats	Update Project Description to be consistent with all other management plans and incorporate DPIE feedback dated 13 June 2021
D6	17/8/2021	Robert Faddy-Vrouwe Samantha Keats	Update to incorporate feedback following further consultation with WCC, and incorporate DPIE feedback dated 3 August 2021.

## Author/s

NAME	QUALIFICATIONS	POSITION
Dr Amanda Markham	BA Hons., PhD, Grad. Cert Archaeology MA	Senior Archaeologist
Samantha Keats	BA Hons	Team Leader /Senior Archaeologist
Taryn Gooley	BASc, Hons. Archaeology	Team Manager /Senior Archaeologist





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## Table of Contents

1. INTRODUCTION .....	8
1.1 Overview.....	8
1.2 Project Background.....	8
1.3 Purpose and Scope .....	12
1.4 Report Structure .....	13
2. PROJECT DESCRIPTION .....	15
2.1 Project Overview – Surface Infrastructure.....	15
2.2 Project Staging .....	15
2.2.1 Coal Handling and Processing.....	17
2.2.2 Reject Material Handling.....	17
2.2.3 Coal Stockpiling .....	17
2.3 Bellambi Gully Creek .....	17
2.4 Rehabilitation.....	18
2.5 Environmental Duty of Care .....	18
2.6 Extraction Plan Staging .....	18
3. STATUTORY REQUIREMENTS .....	24
3.1 Overview.....	24
3.2 Regulatory Requirements .....	24
3.3 Development Consent .....	24
3.3.1 Aboriginal Heritage Requirements .....	24
3.3.2 Historic Heritage Requirements .....	27
3.3.3 Management Plan Requirements .....	29
3.4 Statement of Commitments .....	35
3.5 Relevant Legislation and Guidelines.....	36
4. CONSULTATION .....	38
4.1 Consultation During the Environmental Assessment Process .....	38
4.2 Consultation During the Preparation of the HMP- Agency .....	38
4.3 Consultation During the Preparation of the HMP- RAP's.....	38
4.4 Ongoing RAP Consultation Procedures .....	48
4.5 Participation in the monitoring of Aboriginal heritage sites .....	48
4.6 Managing Reasonable Access.....	49
5. BASELINE - ABORIGINAL HERITAGE.....	50

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

5.1	Description of Aboriginal Heritage Sites .....	50
5.1.1	Wonga East 1 (AHIMS 52-2-3939) .....	55
5.1.2	Wonga East 2 (AHIMS 52-2-3940) .....	55
5.1.3	Wonga East 3 (AHIMS 52-2-3941) .....	55
5.1.4	Bulli Mine Shaft 7 (AHIMS 52-2-0083) .....	55
5.1.5	Bulli Mine Shaft 8 (AHIMS 52-2-0099) .....	56
5.1.6	Bulli Mine Shaft 18 (AHIMS 52-3-0310) .....	56
5.1.7	Bulli Mine Shaft 19 (AHIMS 52-2-0603) .....	56
5.1.8	Bulli Mine Shaft 20 (AHIMS 52-3-0311) .....	56
5.1.9	Bulli Mine Shaft 21 (AHIMS 52-3-0314) .....	57
5.1.10	Bulli Mine Shaft 22 (AHIMS 52-3-0317) .....	57
5.1.11	Bulli Mine Shaft 23 (AHIMS 52-3-0312) .....	57
5.1.12	Bulli Mine Shaft 24 (AHIMS 52-3-0319) .....	58
5.1.13	Bulli Mine Shaft 25 (AHIMS 52-3-0320) .....	58
5.1.14	Bulli Mine Shaft 26 (AHIMS 52-3-0323) .....	58
5.1.15	Bulli Mine Shaft 27 (AHIMS 52-3-0325) .....	59
5.1.16	Bulli Mine Shaft 29 (AHIMS 52-3-0313) .....	60
5.1.17	Bulli Mine Shaft 30 (AHIMS 52-3-0318) .....	60
5.1.18	Bulli Mine Shaft 31 (AHIMS 52-3-0322) .....	60
5.2	Updated AHIMS Extensive Search .....	60
5.2.1	Wonga East 4 (AHIMS 52-2-4170) .....	64
5.2.2	Wonga East 5 (AHIMS 52-2-4171) .....	64
5.2.3	Bulli Mine Shaft 12 (AHIMS 52-2-0229) .....	64
5.2.4	Bulli Mine Shaft 13 (AHIMS 52-2-0233) .....	64
5.2.5	Bulli Mine Shaft 36 (AHIMS 52-2-4617) .....	65
5.2.6	Wallandoola Site 30 (AHIMS 52-2-1265) .....	65
6.	IMPACT ASSESSMENT - ABORIGINAL HERITAGE SITES .....	67
6.1	Russell Vale Pit Top .....	67
6.2	Underground Extraction .....	67
6.2.1	Risk Assessment .....	69
6.2.2	First and Second Workings .....	70
7.	BASELINE - NON-ABORIGINAL HERITAGE .....	78
7.1	Description of Non-Aboriginal Heritage Sites .....	78
7.1.1	South Bulli Colliery .....	78



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

7.1.2	Cataract Dam .....	84
8.	IMPACT ASSESSMENT – NON-ABORIGINAL HERITAGE SITES .....	87
8.1	Russell Vale Surface Facilities .....	87
8.1.1	South Bulli Colliery .....	87
8.2	Cataract Dam .....	87
9.	PERFORMANCE MEASURES AND CRITERIA .....	91
10.	MITIGATION AND MANAGEMENT STRATEGIES .....	93
10.1	Aboriginal Cultural Heritage .....	93
10.1.1	Baseline Assessment and Recording Process .....	93
10.1.2	Aboriginal Heritage Project Monitoring .....	95
10.1.3	Actions If Harm Occurs .....	99
10.1.4	AHIMS Site Cards .....	99
10.2	Non-Aboriginal Heritage .....	101
10.2.1	Monitoring and Inspections .....	101
10.2.2	CMP Statement of Conservation Policy .....	101
10.2.3	Management Policies .....	101
10.2.4	General Policies .....	102
10.2.5	Policies for Managing Change .....	104
10.2.6	Mine Rehabilitation .....	105
10.2.7	Protecting non-Aboriginal heritage sites .....	105
10.3	Trigger Action Response Plans (TARPs) .....	111
10.3.1	Adaptive Management .....	112
10.4	Contingency Plan .....	115
10.4.1	Discovery of Unanticipated Aboriginal Cultural Material .....	115
10.4.2	Discovery of Unanticipated Human Remains .....	116
10.4.3	Discovery of Unanticipated Historic Relics .....	116
10.4.4	Unexpected Find/Contingency Salvage .....	117
10.4.5	Contingency Consultation .....	117
11.	INCIDENTS, COMPLAINTS AND NON-COMPLIANCE .....	119
11.1	Incidents .....	119
11.2	Non-Compliance Protocol .....	119
11.3	Complaints Handling .....	120
12.	PLAN ADMINISTRATION AND TRAINING .....	121
12.1	Roles and Responsibilities .....	121

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

12.2	Resources Required .....	121
12.3	Training and Awareness.....	121
12.3.1	Staff Training .....	122
12.3.2	Inductions .....	122
13.	AUDIT AND REVIEW .....	123
13.1	Annual Review.....	123
13.2	Auditing.....	123
13.3	Plan revision.....	123
14.	RECORDS AND DOCUMENT REVIEW .....	125
14.1	Document control .....	125
14.2	Record Keeping and Control .....	125
14.3	Information Access .....	125
14.4	Public sources of Information .....	125
15.	REFERENCES.....	126
16.	GLOSSARY OF ABBREVIATIONS AND TERMS .....	127
	APPENDIX A –TRIGGER ACTION RESPONSE PLANS.....	129
	Aboriginal Cultural Heritage Trigger Action Response Plan .....	129
	Non-Aboriginal Trigger Action Response Plan – Non Subsidence .....	131
	Non-Aboriginal Trigger Action Response Plan –Subsidence .....	132
	APPENDIX B – RAP CONSULTATION.....	133
	APPENDIX C - AGENCY CONSULTATION.....	137
	APPENDIX D - BASELINE RECORDING OF ABORIGINAL HERITAGE SITES .....	138
	APPENDIX E – CONSERVATION MANAGEMENT PLAN .....	139
	APPENDIX F – ARCHIVAL RECORDING .....	140

## Figures

Figure 1 – Location of the Russell Vale Colliery, NSW .....	10
Figure 2 – Russell Vale Colliery Extraction Project Area .....	11
Figure 3 – WCL Environmental Management Structure .....	14
Figure 4 – Existing Russell Vale Colliery Pit Top .....	20
Figure 5 - Proposed Stage 1 without surface infrastructure .....	21
Figure 6 - Proposed Stage 2A surface infrastructure components without coal processing plant .....	22
Figure 7 - Proposed Stage 2B surface infrastructure components with coal processing plant .....	23
Figure 8 – Aboriginal Heritage Sites .....	66
Figure 9 – Heritage Items within the Project Area .....	86



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Figure 10 – Heritage Precinct Plan of the Russell Vale Pit Top .....	89
Figure 11 – Site Element Detail .....	90
Figure 12 – Management process .....	92
Figure 13 – Monitoring Program for Aboriginal Heritage Sites .....	100
Figure 14 – Flow Chart Covering Performance Measures TARP Process .....	114

## Tables

Table 1 – Project Timeframes .....	19
Table 2 – Aboriginal Heritage Requirements .....	25
Table 3 – Historic Heritage Requirements .....	28
Table 4 – Management Plan Requirements .....	29
Table 5 – Statement of Commitments .....	36
Table 6 – Other Relevant Heritage Assessments .....	37
Table 7 – Consultation Undertaken as part of the Preparation of this HMP .....	40
Table 8 – RAP Consultation for Trigger Points and Timeframes .....	48
Table 9 – Aboriginal heritage sites within the Project Area .....	51
Table 10 – Additional Aboriginal sites within the Project Area .....	62
Table 11 – Subsidence Effect Risk Categories and Criteria .....	70
Table 12 – Summary of Predicted Risk of Impact to Aboriginal Sites .....	72
Table 13 – Aboriginal Heritage Subsidence Risk Assessment for the Extraction Panels .....	76
Table 14 – South Bulli Colliery Elements .....	82
Table 15 – Subsidence Performance Measures .....	91
Table 16 – Project Monitoring .....	97
Table 17 – Proposed Monitoring Framework .....	99
Table 18 – Conservation Policy Implications for Historic Heritage Elements .....	107
Table 19 – HMP Trigger Levels .....	111
Table 20 – Contingency Consultation .....	117
Table 21 – Aboriginal Trigger Action Response Plan .....	129
Table 22 – Historical Heritage Trigger Action Response Plan - Non Subsidence .....	131
Table 23 – Historical Heritage Trigger Action Response Plan - Subsidence .....	132
Table 24 – RAP Consultation Outcomes and Response .....	133

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 1. INTRODUCTION

### 1.1 Overview

This Heritage Management Plan (HMP) comprised of both a Historical Heritage and Aboriginal Heritage Plan as has been prepared by BIOSIS Dr Amanda Markham (BA Hons, PhD, Grad. Cert (Archaeology MA), Samantha Keats (BA Hons) and Taryn Gooley BA Sc (Hons – Archaeology) on behalf of Wollongong Coal Pty Limited (WCL). The plan details the measures to be implemented to prevent any direct or indirect impact on any identified Aboriginal items and describe the process to record and preserve any heritage items at the surface facilities site for the underground expansion of the Russell Vale Colliery (the Colliery) in accordance with relevant conditions of consent. The duration of the project consent for the operations is 5 years from the date of commencement of operations in March 2021.

### 1.2 Project Background

Wollongong Coal Limited (WCL) operates the Russell Vale Colliery (RVC) in the Southern Coalfield of New South Wales (NSW). The mine is located at Russell Vale approximately 8 km north of Wollongong and 70 km south of Sydney, within the local government areas (LGAs) of Wollongong and Wollondilly in the Illawarra region of NSW. RVC is within the Sydney Catchment Authority (Water NSW) controlled Metropolitan Catchment area, which is used to provide drinking water to Sydney and Wollongong. It also occurs within the Dam Safety Committee (DSC) Notification Area for Cataract Reservoir.

The most recent modification to the project approval for the RVE UEP Revised Underground Expansion Project (UEP) Development Consent (MP09\_0013) for the UEP Revised Underground Expansion Project (UEP). MP09\_0013 was granted by the NSW Independent Planning Commission (IPC) on 8 December 2020 to allow:

- Mining using first working mining techniques within the Russell Vale East (RVE UEP) area, with the workings targeting the Wongawilli Seam designed to be long-term stable with imperceptible subsidence impacts. No longwall mining is proposed.
- Extraction of approximately 3.7 Million tonnes (Mt) of run-of-mine (ROM) coal over a period of five years at a rate not exceeding 1.2 Mt of ROM coal per year and a production rate not exceeding 1 Mt of product coal per year.

MP09\_0013 also covers development previously approved under project approval (10\_0046) granted by the Planning Assessment Commission (PAC) which included:

- operation of pit top facilities;
- extraction of coal using longwall mining techniques in the Wongawilli Seam for Longwall 4 (LW 4) and Longwall 5 (LW 5) and Longwall 6 (LW6).

LW4, Lw5 and most of L6 have been extracted. The removal of the longwall miner will require the extraction of the remaining 35m of LW6 originally approved under Project Approval 10\_0046. The extraction of this remaining 35m and associated subsidence impacts is managed under the Extraction Plan developed and approved for LW 6.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

The proposed Bord and Pillar mine plan approved under MP 09\_0013 has been designed to be long term stable, to address potential subsidence-related mining impacts on surface cracking within the Cataract Reservoir catchment.

No direct impacts to surface features are expected to result from the Proposed Action, with the exception of the Pit Top works. The Proposed Action will not result in the direct removal of heritage values. The only potential impacts to heritage values are limited to potential indirect impacts associated with subsidence (such as surface cracking). The location and layout of historical and future mine operations for the RVE UEP Extraction Plan are shown in **Figure 1** and **Figure 2**, and **Figure 10** and **Figure 11** which shows the surface operations.

This Heritage Management Plan (HMP) has been prepared to satisfy Condition B24 and B26 of the project approval MP09\_0013 (the consent) which specifies that WCL are to prepare and implement an HMP and a CHMP, in addition to C10g (vii) which requires the development of a Heritage Management Plan which has been prepared in consultation with BCD and the Heritage Branch and relevant stakeholders for both Aboriginal and non-Aboriginal heritage; which provide for the management of potential environmental consequences of the proposed second workings on Aboriginal and Non Aboriginal Heritage.

This HMP covers the proposed alterations to the Russell Vale Colliery Pit Top area, its continued operations and the area relevant to the mine plan detailing the location of the underground mining comprising both first and second workings as shown in **Figure 2** (Extraction Plan Project Area).

The HMP does not cover the management of impacts from the mining of LW6 and the removal of the longwall miner which reregulated under the LW6 Extraction Plan.



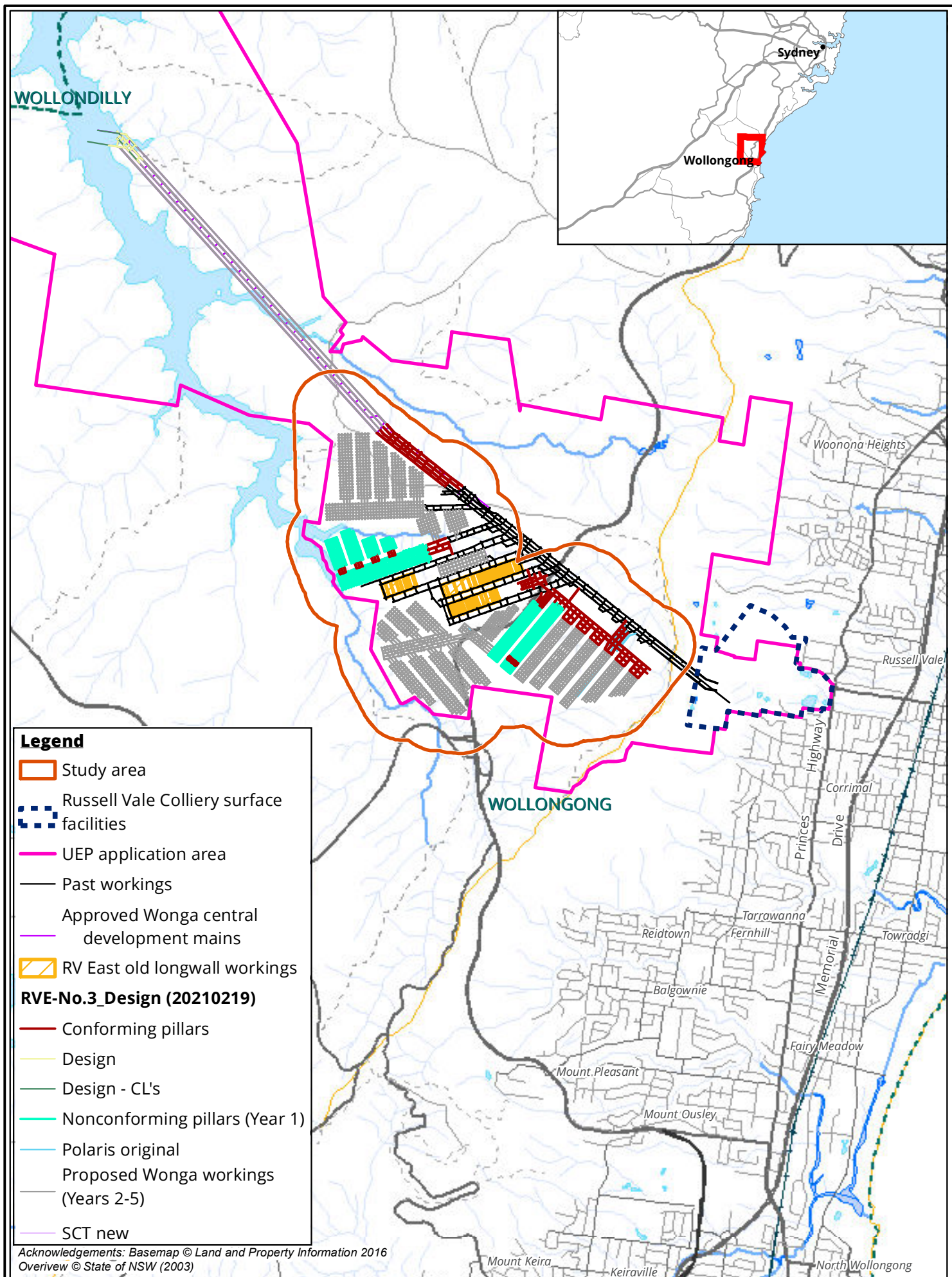
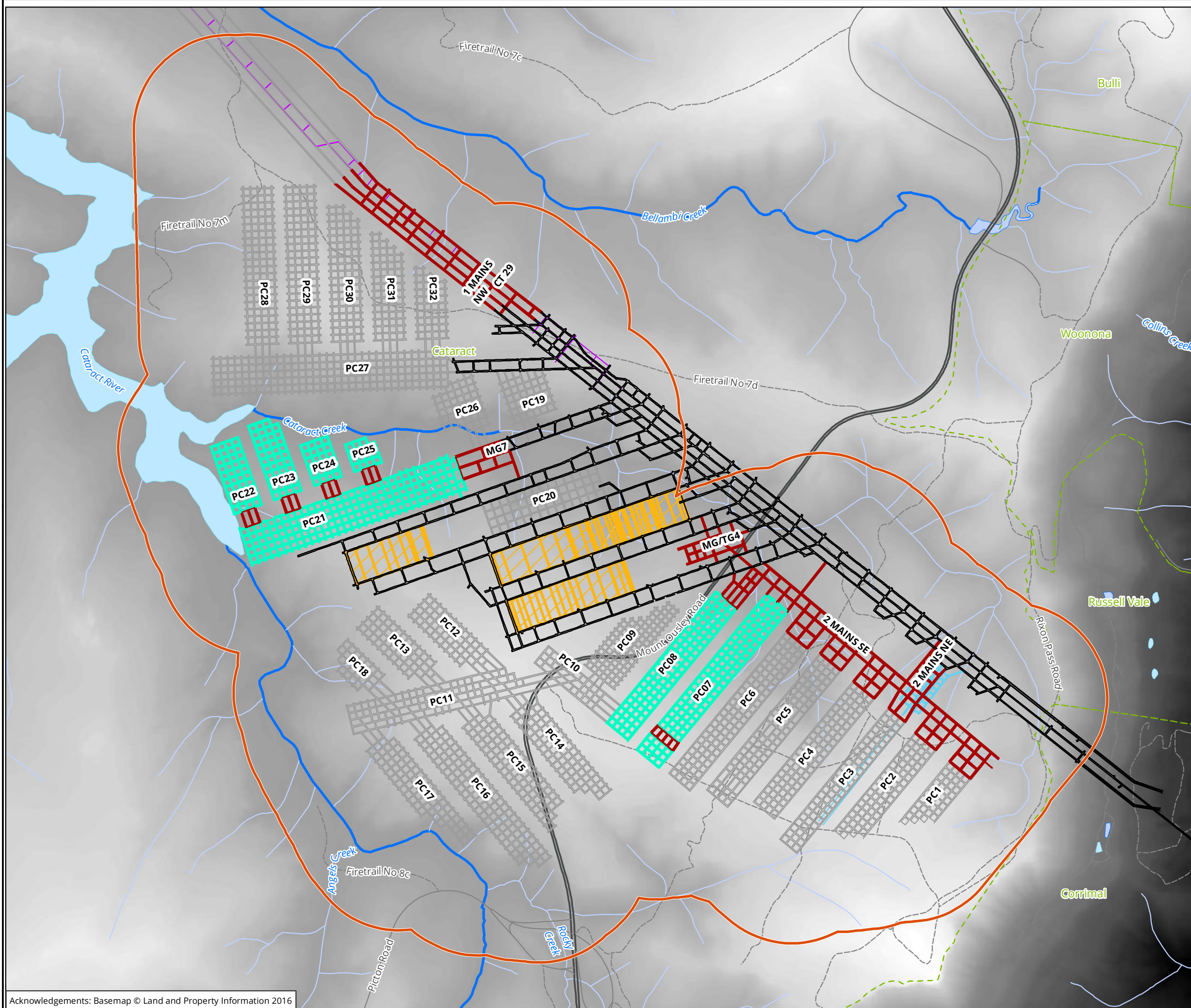


Figure 1 Location of the study area





### Legend

- Study area
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings
- RVE-No.3\_Design (20210219)**
  - Conforming pillars
  - Nonconforming pillars (Year 1)
  - Polaris original
  - Proposed Wonga workings (Years 2-5)
  - SCT new

**Figure 2 Extraction Project Area**

0 200 400 600 800  
Metres

Scale: 1:15,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Albury, Ballarat, Melbourne,  
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 34553  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharry  
Location: P:\34500s\34553\Mapping\34553\_F2\_StudyArea

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

### 1.3 Purpose and Scope

The purpose and scope of this HMP, as required by Condition B24 and B26 of the Consent is to:

#### Aboriginal heritage:

- Outline statutory requirements, including any performance measures to be achieved;
- Provide updated baseline recording and mapping of Aboriginal heritage sites previously identified in the vicinity of the first-workings mine panels;
- Provide updated assessment of risk of impact from the development to Aboriginal heritage sites previously identified above the Bulli Seam goaf areas yet to be confirmed as subsided;
- Describe management measures that will be implemented to ensure compliance with any statutory requirements or performance measures;
- Outline heritage induction procedures for construction personnel, including procedures for keeping records of inductions;
- Describe procedures for the ongoing monitoring of identified Aboriginal objects and Aboriginal places identified in the vicinity of the first-workings mine panels across the life of the Project;
- Provide protocols to manage the discovery of suspected human remains, burials and the unexpected discovery of Aboriginal objects, Aboriginal places over the life of the Project;
- Outline protocols for affording reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places within the Project Area;
- Provide protocols for ongoing consultation with registered Aboriginal parties (RAPs);
- Provide a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term.

Updated baseline recording and mapping of Aboriginal heritage sites previously identified in the Project Area was also undertaken and can be found in **APPENDIX E**.

#### Historical heritage:

- Outline statutory requirements, including any performance measures to be achieved;
- Provide updated baseline recording and mapping of historic heritage sites previously identified in the Project Area including statements of significance for each item;
- Describe how historic heritage values at the site will be recorded, preserved and protected;
- Provide protocols for the archival recording of any historic heritage items prior to any impacts by development;
- Outline heritage induction procedures for construction personnel, including procedures for keeping records of inductions;
- Provide protocols for protecting heritage items from unpredicted impact of the development;
- Provide a strategy for managing any newly identified heritage items discovered during the life of the development;
- Provide a strategy for the care, control and storage of historic relics salvaged on the site, both during the life of the development and in the long term.

Updated baseline recording and mapping of historic heritage sites previously identified in the Project Area was also undertaken and can be found in **APPENDIX F**.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

This Heritage Management plan has been developed to cover the pit top area and first workings only. This HMP in specific reference to Condition C10(g)(vii) will be a sub plan of the extraction plan required under Condition C10. Second workings will only be commenced after approval of the Extraction Plan and associated sub plans, including the HMP required under Condition C10(g)(vii). This provides for the management of potential environmental consequences of the proposed second workings on Aboriginal and Non Aboriginal Heritage.

## 1.4 Report Structure

The remainder of this HMP is structured as follows:

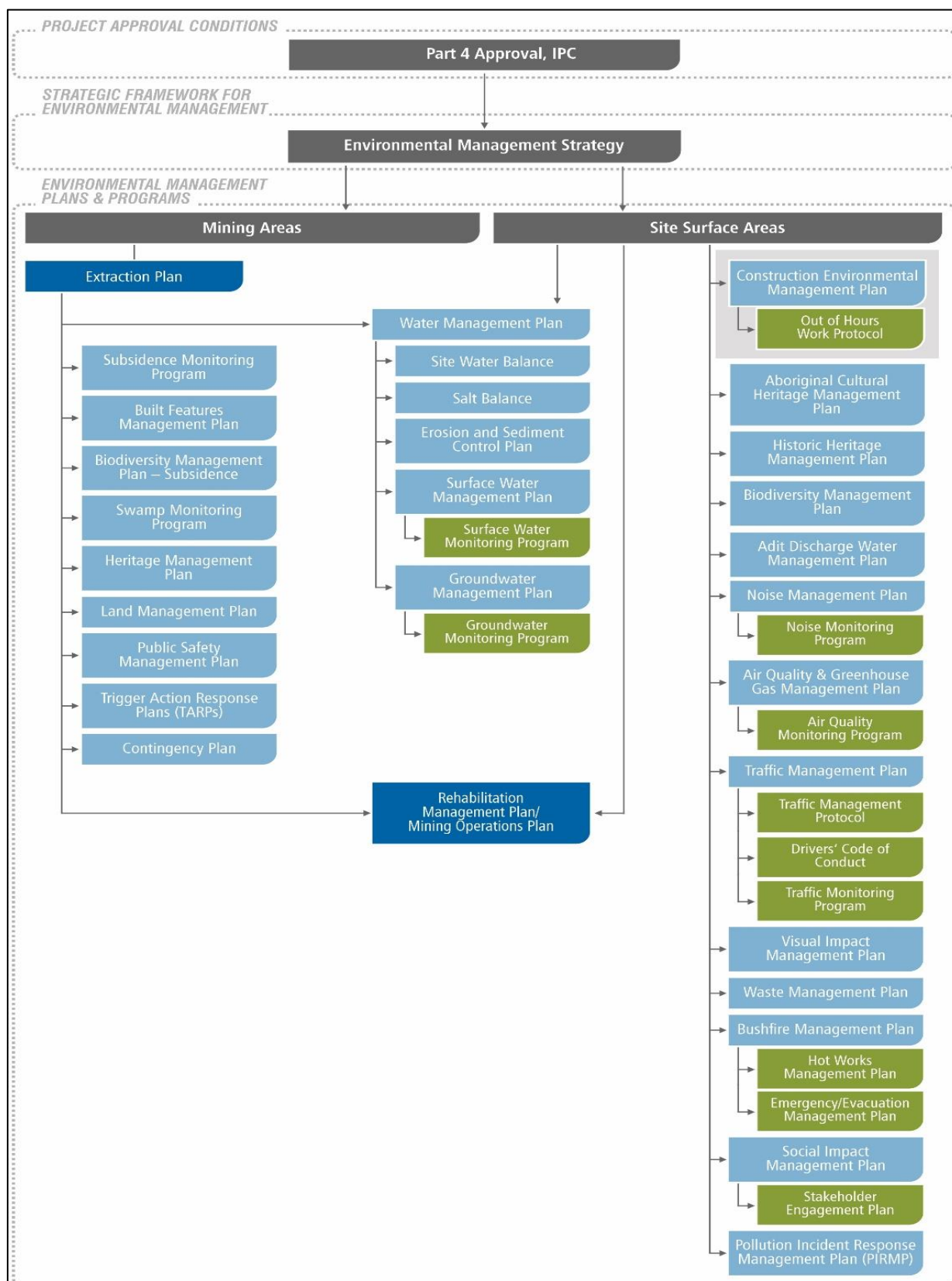
- **Section 2:** Outlines the project description applicable to the HMP.
- **Section 3:** Outlines the statutory requirements applicable to the HMP.
- **Section 4:** Outlines the consultation undertaken with relevant stakeholders to develop the Plan baseline data and impact assessments undertaken which support this Plan.
- **Section 5:** Describes the Aboriginal heritage sites within the Project Area.
- **Section 6:** Details the impact assessment for Aboriginal heritage sites within the Project Area.
- **Section 7:** Describes the non-Aboriginal heritage sites within the Project Area.
- **Section 8:** Details the impact assessment for non-Aboriginal heritage sites within the Project Area.
- **Section 9:** Details the performance measures and indicators that will be used to assess the Project.
- **Section 10:** Describes the management, remediation and mitigation measures that will be implemented to reduce potential impacts as well as the Contingency Plan to manage any unpredicted impacts and their consequences.
- **Section 11:** Describes the protocols for the handling of incidents, complaints and non-conformances.
- **Section 12:** Details how the Plan will be implemented, managed, reviewed and updated and managed.
- **Section 13:** Details the Annual Review of the environmental performance of the Proposed Action.
- **Section 14:** Details document review procedures.
- **Appendix A –** Trigger Action Response Plans for both historical heritage and aboriginal cultural heritage
- **Appendix B –** RAP consultation logs.
- **Appendix C –** Outcomes of the consultation with the RAPs', council and other statutory agencies such as NSW Heritage.
- **Appendix D –** Baseline recording of Aboriginal heritage.
- **Appendix E –** Conservation Management Plan for historical heritage.
- **Appendix F –** Archival recording of historical heritage.

**Figure 3** shows this Plan's position within WCL's Environmental Management Structure.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Figure 3 – WCL Environmental Management Structure**





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Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 2. PROJECT DESCRIPTION

### 2.1 Project Overview – Surface Infrastructure

The project involves a revised mine plan that has been designed to have negligible subsidence to address potential subsidence-related mining impacts on groundwater, surface water and biodiversity within the Cataract Reservoir catchment.

The project also involves changes to the Russell Vale Pit Top (the Pit Top), which includes key project components (i.e. surface infrastructure) requiring construction.

The current and proposed surface infrastructure are presented in **Figure 4** and **Figure 5** to **Figure 7** respectively.

The key elements of the project are:

- mining by bord and pillar mining techniques only with the workings designed to be long-term stable with minimal subsidence impacts.
- extraction of approximately 3.7 million tonnes of Run-of-Mine (ROM) coal at a reduced production rate of up to 1 million tonnes of product coal per year (equivalent to approximately 1.2 million tonnes of ROM coal per year).
- redesign of the Pit Top layout to relocate infrastructure to more shielded locations to reduce amenity impacts.
- operation of surface facilities and product transport, typically limited to daytime hours (7.00am to 6.00pm Mondays to Friday, 8.00am to 6.00pm Saturday, no Sundays and Public Holidays), with provision for occasional operation until 10.00pm Monday to Friday to cater for unexpected port closures or interruptions.
- reduced product trucking rates relative to the previous UEP mine plan with a maximum of 17 trucks permitted per hour.
- extension to the height of existing bunds, construction of new bunds and noise walls within the existing surface infrastructure area for improved noise mitigation.
- construction of a new truck loading facility and associated conveyors.
- construction of a suitable dry coal processing plant to improve the quality of product coal removing reject rock material via use of dry separation methods will also be evaluated at this stage and if required to be installed, will be commissioned to align with the ramp up of production to 1.2Mtpa ROM.

### 2.2 Project Staging

The project will be implemented in stages as per below with the scope of this Plan covering all stages:

- **Stage 1**

Installation of environmental monitoring controls and mitigation measures, truck access roads, construction of new noise walls, noise bunds and new primary sizer.

Commencement of mining operations ramping up to approximately 0.5 Mtpa with crushed coal transferred to ROM stockpile and coal loading via front-end loader to trucks to be transported to PKCT.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Evaluation of the feasibility of a coal processing plant (CPP) to be installed as part of the new Stage 2 surface infrastructure.

Key elements included in Stage 1 Works include (See **Figure 5**):

- Development and mining by bord and pillar mining
- Up to 500,000 tonnes of product coal per year
- Installation of new primary sizer inline
- Front end loading ROM coal onto trucks
- ROM Stockpile 30,000 tonnes
- Construction of surface infrastructure works, including construction of new noise walls, noise bunds, truck access roads, and commissioning the design and construction of the truck loading bin and associated conveyers.

A copy of the Stage 1 surface infrastructure is provided in **Figure 5**.

## • Stage 2

Finalise the construction and commissioning of new surface infrastructure, comprising truck loading bins and associated conveyors.

The coal will be transferred from the ROM stockpile through a series of conveyors to the truck loading bin to be loaded onto the trucks for transportation to PKCT or transferred to a new stockpile area for temporary stockpiling.

Coal from temporary stockpile will be loaded onto trucks by front-end loader for transportation to PKCT (Stage 2A – see **Figure 6**).

If the outcome of the evaluation in Stage 1 is to construct a CPP, the coal from the ROM stockpile will transferred by a series of conveyors to the CPP (Stage 2B – see **Figure 7**).

The product from the CPP will transferred to the truck loading bin to be loaded onto the trucks for transportation to PKCT or transferred to a new stockpile area for temporary stockpiling.

Coal from temporary stockpile will be loaded onto trucks by front-end loader for transportation to PKCT. The rejects conveyor will transfer the rejects from the CPP to the rejects stockpile (Stage 2B).

Commencement of full mining operations ramping up to 1.2 Mtpa to align when the new coal handling facilities and associated infrastructure is fully operational.

Key elements included in Stage 2 Works include:

- Mining by bord and pillar mining
- Up to 1 Million tonnes of product coal per year
- Up to 1.2 Million tonnes ROM coal per year
- Loading product coal onto trucks via bins
- Construction of new CPP
- Construction new surge bin
- ROM Stockpile 30,000 tonnes
- Product Stockpile 14,000 tonnes

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- Emergency Stockpile
- Rejects stockpile 1,500 tonnes
- Waste rock from CPP used in rehabilitation
- Waste Rock from CPP emplaced underground

### 2.2.1 Coal Handling and Processing

The proposed coal handling facilities and surface infrastructure upgrades proposed as part of the Revised Preferred Project will be undertaken in accordance with the UEP Project Consent under the NSW EP&A Act to improve the quality of ROM coal in order to meet market demands and to minimise impacts on the environment and local community.

Works associated with the planned upgrade are all located within the existing disturbance footprint of the study area. The planned upgrades to the existing surface infrastructure within the study area (**Figure 4**) are shown on **Figure 5** to **Figure 7**.

### 2.2.2 Reject Material Handling

Following commissioning of a suitable CPP, it is anticipated that approximately 0.2 Mtpa of reject material will be produced at full production. Reject material consisting of rock material from the CPP will be transferred via the rejects conveyor to the reject stockpile (see **Figure 7**).

Beneficial reuse would be dependent on further application and or approval, whilst Underground emplacement would only be carried out if testing determines the material to be suitable – see RVC Waste Management Plan.

Reject material that after suitable testing meets the specifications (see Waste Management Plan RVC ENV PLN 033) are hauled back to the mine portal via the internal haul road (see **Figure 4**) for emplacement underground.

### 2.2.3 Coal Stockpiling

Three main coal stockpiles will operate within the Pit Top operational area, these being the main ROM stockpile (30,000 tonne (t) capacity), product stockpile (14,000 t capacity) and proposed temporary rejects stockpile (1,500 t capacity).

## 2.3 Bellambi Gully Creek

The RPPR describes proposed Bellambi Gully Creek realignment works as being a part of a modification to the previous project consent MP10\_0046, i.e., MOD 4. The Modification was subsequently withdrawn, and the project was included in the UEP major project application. Subsequent to the issue of the RPPR in July 2019, and the UEP Additional Information Response Report in June 2020, on 23 July 2020 WCL was issued with an enforcement order by DPIE in relation to the replacement of the underground section of Bellambi Gully pipe. Generally the order requires WCL to engage a suitably qualified independent licensed engineer to develop detailed plans for the replacement of the underground pipe section of Bellambi Gully Creek with a suitably designed and engineered open channel, generally in accordance with the design parameters outlined in *Cardno 2020 Phase 1 and 2 Bellambi Gully Flood Assessment Proposed Stormwater Diversion Drain*.

As a result of and in compliance with this order the detailed design for Bellambi Gully Diversion and associated site water management system improvements was completed in late 2020 with works commencing onsite post approval of the Construction Management Plan (CMP) by DPIE in



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

April 2021. The construction works associated with the construction of the new diversion channel and associated site water management system improvements are reasonably expected to be completed by November 2021 are addressed in the Bellambi Gully Creek Diversion CMP. The operation of this new channel once completed in accordance with the DPIE order will be detailed in a specific maintenance plan inclusive of an implementation plan which would be included as appropriate in the RV Surface Operations Water Management Plan. This is shown in the context of the site EMS in **Figure 3**.

## 2.4 Rehabilitation

WCL intends to continue use of the site post the 5-year term of this MP09\_0013 Consent. As a result, decommissioning and closure of the Russell Vale Colliery Pit Top facilities are not proposed following the completion of the UEP project.

Rather, if required pending the completion of the 5-year term of the current approval if there are delays to expected future planning assessment process such that mining operations are required to cease the site would be maintained until such time as a planning consent for mining operations is obtained. If consent for continuing use of the site is at the times not anticipated to be forthcoming, WCL will prepare and implement a detailed mine closure and rehabilitation plan in consultation with the Resources Regulator and other relevant government agencies and stakeholders.

For this project term of 5 years from the date of commencement of mining operations, the existing rehabilitation and mine closure strategy outlined in the current Russell Vale Colliery Rehabilitation Management Plan or its equivalent Mine Operations Plan, and generally in accordance with the Rehabilitation Objectives detailed in Table 5 of the Development Consent.

WCL will continue to progressively rehabilitate and decommission non-critical infrastructure as they are phased out of operations or become non-critical to potential future land use options at the Colliery. This will be further detailed in the Rehabilitation Management Plan or combined with the Mining Operations Plan as detailed in the RVC EMS (see **Figure 3**) and in accordance with **Condition B44**.

## 2.5 Environmental Duty of Care

WCL will implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the project, and any rehabilitation required under the consent.

## 2.6 Extraction Plan Staging

In accordance with Consent Condition A21 and A22, the Extraction Plan (developed under **Condition C10**) are intended to be staged as outlined in **Table 1**. Timeframes for monitoring of Aboriginal heritage sites are discussed in **Section 10.1** and **Table 16**.





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 1 – Project Timeframes**

<b>Stage</b>	<b>Year</b>	<b>Description</b>	<b>Extraction plan relevance</b>
Stage 1	Year 1	Mining of PC7, PC8 and PC21 to PC25.	Entirely covered by the EP and its associated Key Component Management Plans.
Future Stages	Years 2 to 5	Further mining within the approved UEP. Panel configuration and schedule to be included within subsequent extraction plans.	Pre-mining monitoring referenced within the EP and its associated Key Component Management Plans.

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Figure 4 – Existing Russell Vale Colliery Pit Top

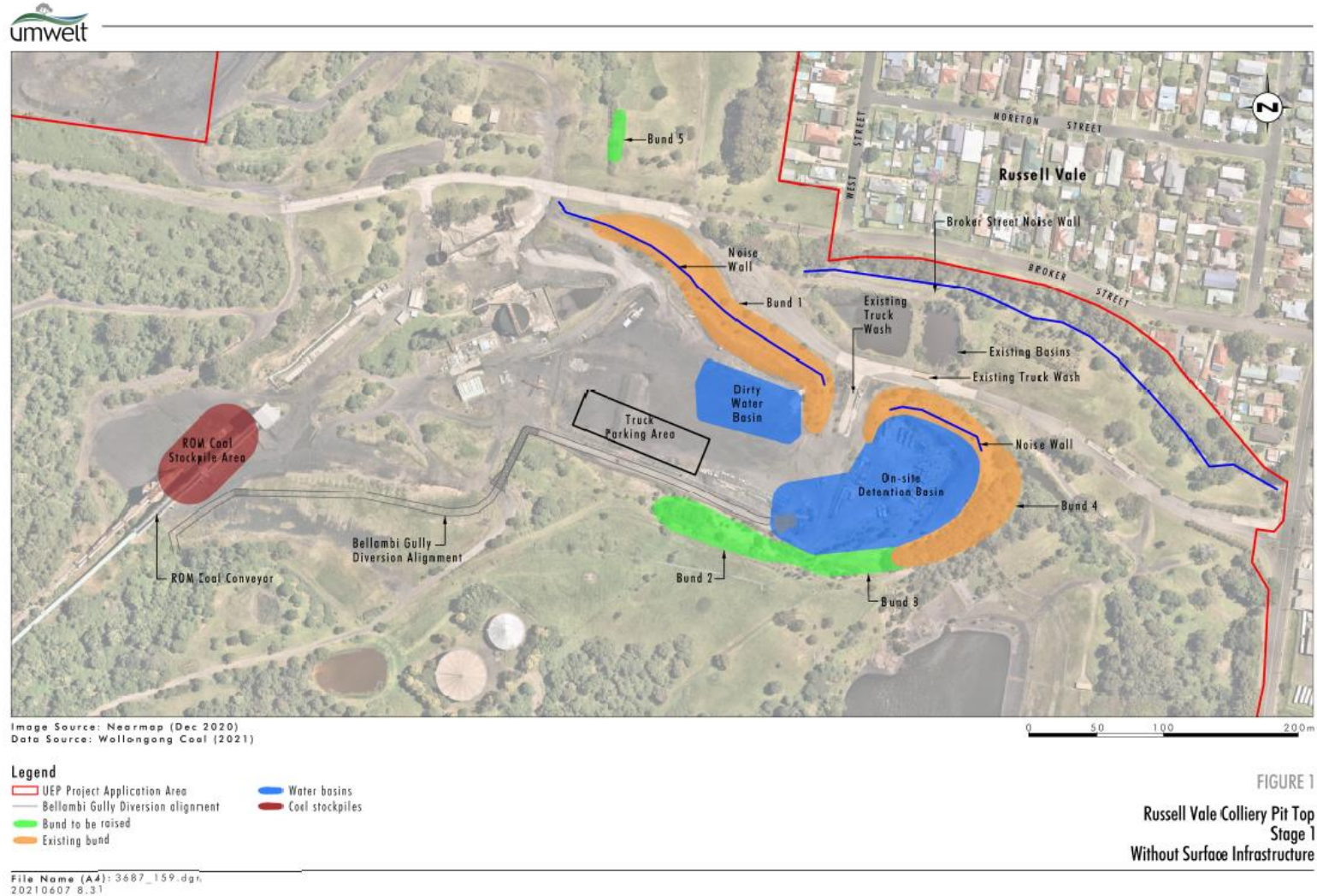


FIGURE 1.3  
Existing Russell Vale Pit Top Facilities



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

**Figure 5 - Proposed Stage 1 without surface infrastructure**



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Figure 6 - Proposed Stage 2A surface infrastructure components without coal processing plant

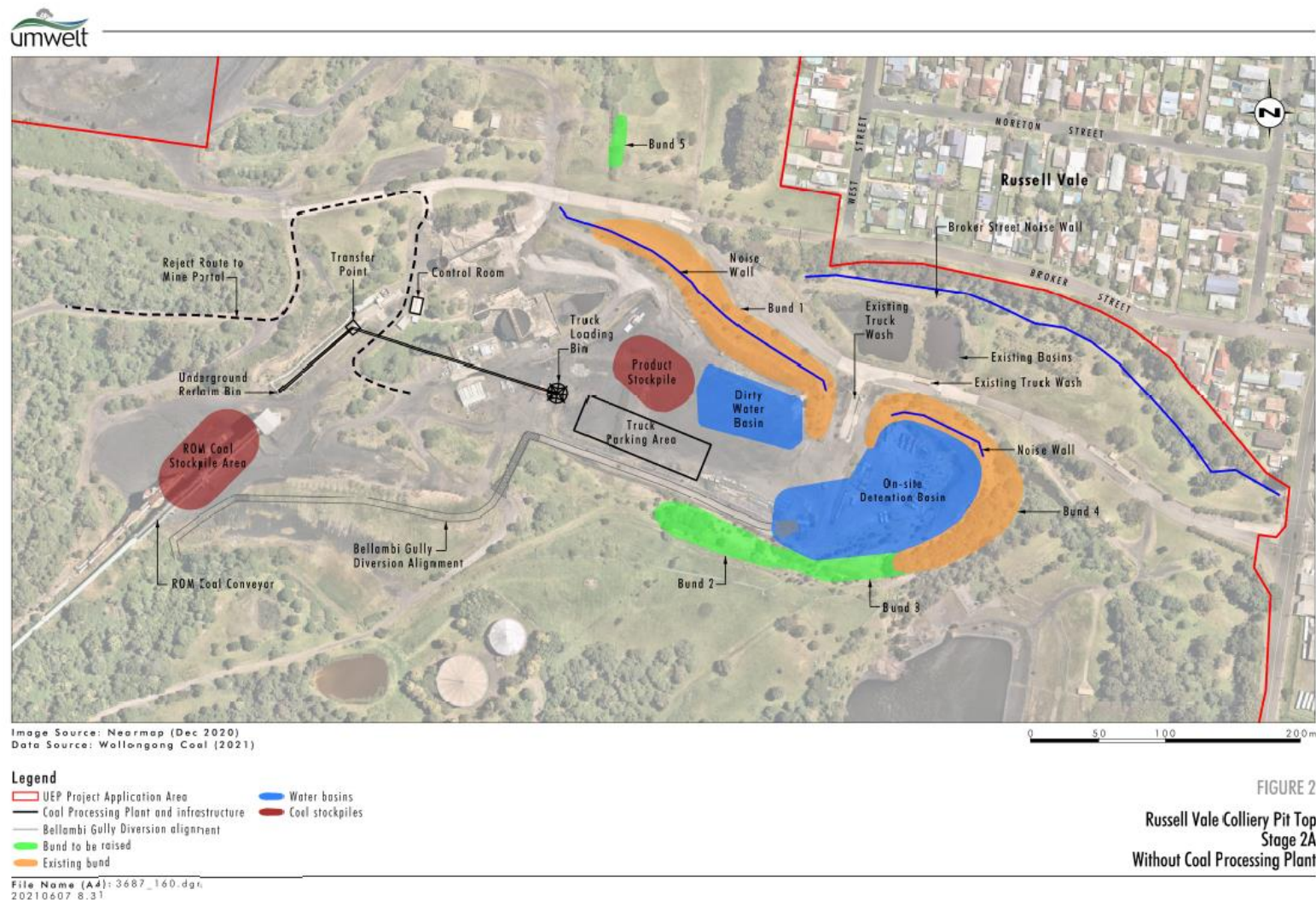
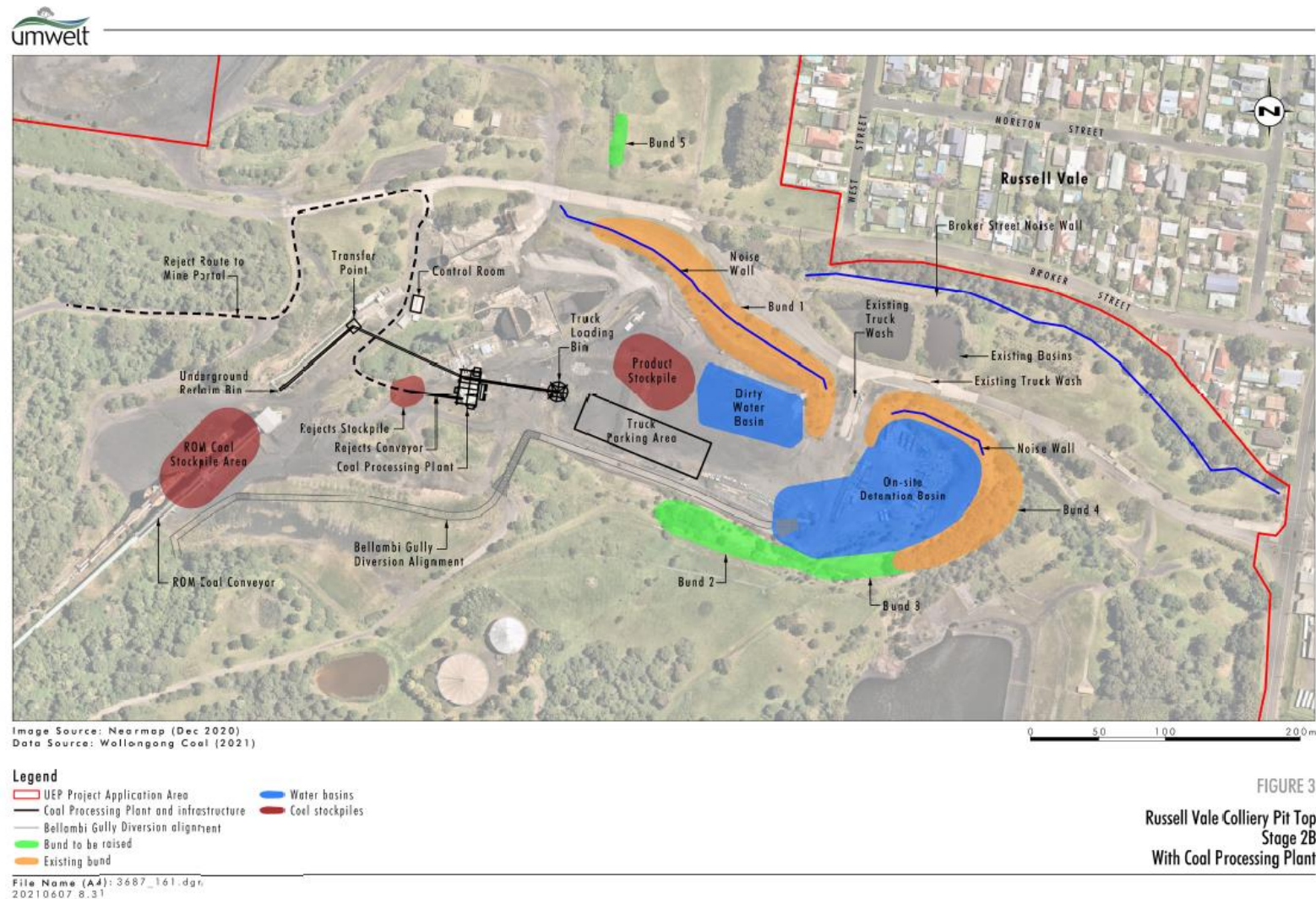


FIGURE 2  
Russell Vale Colliery Pit Top  
Stage 2A  
Without Coal Processing Plant



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

**Figure 7 - Proposed Stage 2B surface infrastructure components with coal processing plant**





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 3. STATUTORY REQUIREMENTS

### 3.1 Overview

A number of approvals, licences and consents apply to the project, with associated conditions and requirements. The following sections summarise those that are most relevant in relation to this Management Plan.

WCL will conduct all approved activities consistent with the approval and any other legislation that is applicable. There are no activities, proposed or expected, which are outside of the existing approval scope. If WCL seeks to conduct any new activity, which is outside of the existing approved scope, the relevant approvals under the EP&A Act and Heritage Act will be sought.

In accordance with Condition B24(c) and B26(c), WCL will ensure implementation of this Management Plan as is required prior to the commencement of mining operations, once approved by the Secretary.

### 3.2 Regulatory Requirements

A summary of the legal requirements applicable to the project will be in the Compliance Register, which will be updated and will consider relevant legislation, conditions of consent and licence requirements. The Compliance Register will include both Federal and State legislation, as well as State Environmental Planning Policies (SEPPs) and any Codes of Practice to which the WCL is required to comply.

A copy of the Compliance Register is maintained on the Wollongong Coal Server.

### 3.3 Development Consent

#### 3.3.1 Aboriginal Heritage Requirements

Schedule 2, Condition B24 of the Consent requires the preparation of an HMP to the satisfaction of the Planning Secretary. This condition further states that the plan must:

- a) be prepared by suitably qualified and experienced person/s;
- b) be prepared in consultation with Heritage NSW and RAPs;
- c) be approved by the Secretary prior to the commencement of mining operations under this consent.
- d) include the outcome of Aboriginal community consultation that meets the requirements of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a).
- e) include updated baseline recording of Aboriginal heritage sites previously identified in the vicinity of the first-workings mine panels.
- f) include updated assessment of risk of impact from the development to Aboriginal heritage sites previously identified above the Bulli Seam goaf areas yet to be confirmed as subsided.
- g) describe the measures to be implemented on the site to:
  - i. comply with the heritage-related operating conditions of this consent;
  - ii. ensure all workers receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- iii. monitor identified Aboriginal objects and Aboriginal places identified in the vicinity of the first-workings mine panels (see Appendix 6 of the DA).
  - iv. manage the discovery of suspected human remains and any new Aboriginal objects or Aboriginal places, including provisions for burials, over the life of the development.
  - v. maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places; and
  - vi. facilitate ongoing consultation and involvement of RAPs in the conservation and management of Aboriginal cultural heritage on the site; and;
- h) include a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term.

Additionally, Schedule 2, Condition C10 (vii) requires the preparation of the following items in support of the Extraction plan:

- Heritage Management Plan which has been prepared in consultation with Heritage NSW and relevant stakeholders for both Aboriginal and non-Aboriginal heritage, which provides for the management of potential environmental consequences of the proposed second workings on Aboriginal and non-Aboriginal heritage.

**Table 2** indicates where each component of the condition is addressed within this HMP.

**Table 2 – Aboriginal Heritage Requirements**

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<b>Schedule 2 Part B – specific environmental conditions</b>	
<p><b>Condition B23 HERITAGE - Protection of Aboriginal Heritage</b></p> <p>The applicant must ensure that the development does not cause direct or indirect impact on any identified heritage items.</p> <p><i>Note: Identified heritage items are shown in Appendix 6 of the Consent (reproduced as Figure 8)</i></p>	Section 10, and Appendix A
<p><b>Condition B24: HERITAGE - Aboriginal Cultural Heritage Management Plan</b></p> <p>The Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must:</p> <ul style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced person/s;</li> <li>b) be prepared in consultation with BCD and RAPs;</li> <li>c) be approved by the Secretary prior to the commencement of mining operations under this consent.</li> </ul>	<p>Section 1.1</p> <p>Section 4</p> <p>Section 3.1</p>
d) include the outcome of Aboriginal community consultation that meets the requirements of the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECCW 2010a).	Section 4 Appendix B
(e) include updated baseline recording of Aboriginal heritage sites previously identified in the vicinity of the bord and pillar workings.	Appendix D

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
(f) include updated assessment of risk of impact from the development to Aboriginal heritage sites previously identified above the Bulli Seam goaf areas yet to be confirmed as subsided.	Section 6.2.1
<p>(g) describe the measures to be implemented on the site to:</p> <ul style="list-style-type: none"> <li>(i) comply with the heritage-related operating conditions of this consent;</li> <li>(ii) ensure all workers receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;</li> <li>(iii) monitor identified Aboriginal objects and Aboriginal places identified in the vicinity of the first-workings mine panels (see Appendix 6 of the Consent);</li> <li>(iv) manage the discovery of suspected human remains and any new Aboriginal objects or Aboriginal places, including provisions for burials, over the life of the development;</li> <li>(v) maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places; and</li> <li>(vi) facilitate ongoing consultation and involvement of RAPs in the conservation and management of Aboriginal cultural heritage on the site.</li> </ul>	<p>Section 3.1, and 12.3</p> <p>Section 10.3</p> <p>Section 5, 10.1.2 and Figure 13</p> <p>Section 10.4</p> <p>Section 4.6</p> <p>Sections 4.3 to 4.5</p>
(h) include a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term.	<p>No Aboriginal objects are expected to require salvage as no sites are expected to be impacted by the extraction as described in section 6.2.</p> <p>However section 10.4.1 and Section 10.4.2 describes the measures to be adopted in the case of an unexpected find. Section 10.4.4 includes a strategy for a care agreement.</p>
<p><b>Condition B25:</b></p> <p>The Applicant must implement the Heritage Management Plan as approved by the Planning Secretary.</p>	Section 3.1



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Consent Condition	Where addressed in this plan
<b>Schedule 2 Part C– Specific Environmental conditions</b>	
<b>A1 - OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT</b> <p>In addition to meeting the specific performance measures and criteria established under this approval, the Applicant must implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the project, and any rehabilitation required under this consent."</p>	This plan
<p>g) (vii) Heritage Management Plan</p> <ul style="list-style-type: none"> <li>which has been prepared in consultation with Heritage NSW and relevant stakeholders for both Aboriginal and non-Aboriginal heritage,</li> <li>which provides for the management of potential environmental consequences of the proposed second workings on Aboriginal and non-Aboriginal heritage.</li> </ul>	<p>Section 4.1</p> <p>Section 8</p>
<b>Condition C1:</b> <p>The Applicant must ensure that the development does not cause any exceedances of the performance measures in Table 6, to the satisfaction of the Planning Secretary.</p>	Section 9
<b>Condition C2:</b> <p>Measurement and monitoring of compliance with performance measures and performance indicators in this consent is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans and monitoring programs. In the event of a dispute over the appropriateness of proposed methods, the Planning Secretary will be the final arbiter.</p>	<p>Section 10.1.2</p> <p>Table 16</p>

### 3.3.2 Historic Heritage Requirements

Condition B26 of the Consent requires the preparation of a Heritage Management Plan in respect of all non-Aboriginal cultural heritage to the satisfaction of the Planning Secretary. This condition further states that the plan must:

- be prepared by a suitably qualified and experienced person/s;
- be prepared in consultation with the Heritage NSW, WCC and WSC, and in accordance with the relevant Heritage Branch guidelines;
- be approved by the Secretary prior to the commencement of mining operations under this consent;
- describe how historic heritage values of the site would be recorded and preserved, including all heritage items at the surface facilities site;
- identify all heritage items in the vicinity of the site and include a statement of significance for each item;
- describe the measures to be implemented on the site to:

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- i. ensure all workers receive suitable heritage inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions;
  - ii. undertake photographic/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance;
  - iii. protect heritage items from unpredicted impacts of the development, disrepair or vandalism (where practicable); and
  - iv. manage any new heritage items discovered during the life of the development; and
- g) include a strategy for the care, control and storage of relics salvaged from the site.

**Table 3** indicates where each component of the condition is addressed within this HMP.

**Table 3 – Historic Heritage Requirements**

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<b>Schedule 2 Part B – specific environmental conditions</b>	
<b>Condition B26:</b> a) be prepared by a suitably qualified and experienced person/s; b) be prepared in consultation with the Heritage NSW, WCC and WSC, and in accordance with the relevant Heritage Branch guidelines; c) be approved by the Secretary prior to the commencement of mining operations under this consent.	Section 1.1 Section 4 Section 3.1
<b>Condition B26:</b> d) describe how historic heritage values of the site would be recorded and preserved, including all heritage items at the surface facilities site.	Section 10.2 Appendix E
<b>Condition B26:</b> e) identify all heritage items in the vicinity of the site and include a statement of significance for each item.	Section 7
<b>Condition B26:</b> (f) describe the measures to be implemented on the site to: <ul style="list-style-type: none"> <li>i. ensure all workers receive suitable heritage inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions;</li> <li>ii. undertake photographic/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance;</li> <li>iii. protect heritage items from unpredicted impacts of the development, disrepair, or vandalism (where practicable); and</li> </ul>	Section 12.3  Not applicable as no impacts to heritage items is expected; however, a photographic recording of the Pit Top has been included in APPENDIX F  Section 10

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
iv. manage any new heritage items discovered during the life of the development.	Section 10
<b>Condition B26:</b> (g) include a strategy for the care, control and storage of relics salvaged from the site.	Not applicable as no historical objects will be salvaged.  Section 10.4.3 describes the measures to be adopted in the case of an unexpected find. Section 10.4.4 includes a care agreement.
<b>Condition B27:</b> The Applicant must implement the Heritage Management Plan as approved by the Planning Secretary.	Section 3.1
<b>Condition C1:</b> The Applicant must ensure that the development does not cause any exceedances of the performance measures in Table 6, to the satisfaction of the Planning Secretary.	Section 9
<b>Condition C2:</b> Measurement and monitoring of compliance with performance measures and performance indicators in this consent is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans and monitoring programs. In the event of a dispute over the appropriateness of proposed methods, the Planning Secretary will be the final arbiter.	Section 10.2

### 3.3.3 Management Plan Requirements

Part F, Condition F5 of the Consent MP09\_0013 requires the management plans under this consent to be prepared in accordance with the relevant guidelines as detailed. **Table 4** details where each component of the condition is addressed within this HMP.

In accordance with Condition B24 and B26, WCL will ensure implementation of this Management Plan as approved by the Secretary.

**Table 4 – Management Plan Requirements**

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<b>Schedule 2 Part F – Environmental Management, Reporting and Auditing</b>	
<p><b>F4 Adaptive Management</b></p> <p>The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this approval. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&amp;A Act or EP&amp;A Regulation, notwithstanding offsetting actions taken.</p> <p>Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:"</p> <ul style="list-style-type: none"> <li>a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not reoccur;</li> <li>b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action;</li> <li>c) within 14 days of the exceedance occurring, submit a report to the Secretary describing these remediation options and any preferred remediation measures or other course of action; and</li> <li>d) "implement remediation measures as directed by the Planning Secretary; to the satisfaction of the Secretary."</li> </ul>	<p>Section 10.3 and 10.3.1</p> <p>Appendix A</p>
<p><b>Condition F5:</b></p> <p>Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> <li>a) a summary of relevant background or baseline data;</li> </ul>	<p>Appendix D, E and F</p> <p>Section 5 and 6</p>
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>b) details of: <ul style="list-style-type: none"> <li>(i) the relevant statutory requirements (including any relevant consent, licence or lease conditions);</li> <li>(ii) any relevant limits or performance measures and criteria; and</li> <li>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> </ul>	<p>Section 3</p> <p>Section 9</p> <p>Section 9</p>
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>c) any relevant commitments or recommendations identified in the document/s listed in condition A2;</li> <li>d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> </ul>	<p>Section 3.3 &amp; 3.4</p> <p>Section 9</p>
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>e) a program to monitor and report on the:</li> </ul>	<p>Section 13</p>

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<ul style="list-style-type: none"> <li>(i) impacts and environmental performance of the development; and</li> <li>(ii) effectiveness of the management measures set out pursuant to condition F5(c);</li> </ul>	Section 13.1
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>g) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> </ul>	<p>Section 10.4</p> <p>Section 13.1</p>
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>h) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>(i) incident; non-compliance or exceedance of any impact assessment criterion or performance criterion;</li> <li>(ii) complaint; or</li> <li>(iii) failure to comply with other statutory requirements;</li> </ul> </li> </ul>	<p>Section 11.1</p> <p>Section 11.3</p> <p>Section 11.2</p>
<p><b>Condition F5:</b></p> <ul style="list-style-type: none"> <li>i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and</li> <li>j) a protocol for periodic review of the plan.</li> </ul>	<p>Section 14.4</p> <p>Section 13</p>
<p><b>F6 Management Plan Requirements</b></p> <p>The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site. "</p>	<p>Section 3.3.1</p> <p>Section 3.3.2</p>
<p><b>F7 Revision of Strategies, Plans and Programs</b></p> <p>Within three months of:"</p> <ul style="list-style-type: none"> <li>(a) the submission of an incident report under condition F9;</li> <li>(b) the submission of an Annual Review under condition F11;</li> <li>(c) the submission of an Independent Environmental Audit under condition F13; or</li> <li>(d) "the approval of any modification of the conditions of this consent (unless the conditions require otherwise);</li> </ul> <p>the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant. "</p>	Section 13.3
<p><b>F8 Revision of Strategies, Plans and Programs</b></p> <p>If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised</p>	Section 13.3

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Consent Condition	Where addressed in this plan
document must be submitted to the Planning Secretary for approval within 6 weeks of the review.  <i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development."</i>	
<b>F9 REPORTING - Incident Notification</b>  The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must identify the development (including the development application number and name) and set out the location and nature of the incident."	Section 11.1
<b>F10 REPORTING - Non-Compliance Notification</b>  Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.  <i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance."</i>	Section 11.1
<b>F11 REPORTING - Annual Review</b>  By the end of March in each year after the commencement of the development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:"  (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year and the development that is proposed to be carried out over the current financial/calendar year;  (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the:  (i) relevant statutory requirements, limits or performance measures/criteria; (ii) requirements of any plan or program required under this consent; (iii) monitoring results of previous years; and (iv) relevant predictions in the document/s listed in condition A2(c).  (c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;  (d) evaluate and report on:  (i) the effectiveness of the noise and air quality management systems; and	Section 13.1

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<p>(ii) compliance with the performance measures, criteria and operating conditions of this consent;</p> <p>(e) identify any trends in the monitoring data over the life of the development;</p> <p>(f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</p> <p>(g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.</p>	
<p><b>F12 REPORTING - Annual Review</b></p> <p>Copies of the Annual Review must be submitted to WCC, WSC and made available to the CCC and any interested person upon request."</p>	Section 13.1
<p><b>F13 INDEPENDENT ENVIRONMENTAL AUDIT</b></p> <p>Within one year of commencement of development under this consent, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development.</p> <p>The audit must:"</p> <p>(a) be prepared in accordance with the Independent Audit Post Approval requirements (Department 2020 or as updated);</p> <p>(b) be led and conducted by a suitably qualified, experienced and independent auditor whose appointment has been endorsed by the Planning Secretary;</p> <p>(c) by conducted by a suitably qualified, experienced and independent team of experts (including any expert in file/s specified by the Planning Secretary) whose appointment has been endorsed by the Planning Secretary;</p> <p>(d) be carried out in consultation with the relevant agencies and the CCC;</p> <p>(e) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licenses and mining leases for the project (including any assessment, strategy, plan or program required under these approvals);</p> <p>(f) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;</p> <p>(g) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and</p> <p>(h) be conducted and reported to the satisfaction of the Planning Secretary.</p>	Section 13.2



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Consent Condition</b>	<b>Where addressed in this plan</b>
<p><b>F14 INDEPENDENT ENVIRONMENTAL AUDIT</b></p> <p>Within three months of commencing an Independent Environmental Audit, or other timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations.</p> <p>The recommendations must be implemented to the satisfaction of the Planning Secretary.</p>	Section 13.2
<p><b>F15 INDEPENDENT ENVIRONMENTAL AUDIT - Monitoring and Environmental Audits</b></p> <p>Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&amp;A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.</p> <p>For the purposes of this condition, as set out in the EP&amp;A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development."</p>	Section 10.1.2
<p><b>F17 ACCESS TO INFORMATION</b></p> <p>Before the commencement of construction until the completion of all rehabilitation required under this consent, the Applicant must:"</p> <p>(a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website:</p> <ul style="list-style-type: none"> <li>(i) the documents referred to in condition A2(c) of this consent;</li> <li>(ii) all current statutory approvals for the development;</li> <li>(iii) all approved strategies, plans and programs required under the conditions of this consent;</li> <li>(iv) the proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged;</li> <li>(v) minutes of CCC meetings;</li> <li>(vi) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;</li> </ul>	Section 14.3





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Consent Condition	Where addressed in this plan
<p>(vii) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;</p> <p>(viii) a summary of the current phase and progress of the development;</p> <p>(ix) contact details to enquire about the development or to make a complaint;</p> <p>(x) a complaints register, updated monthly;</p> <p>(xi) the Annual Reviews of the development;</p> <p>(xii) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report;</p> <p>(xiii) any other matter required by the Planning Secretary; and</p> <p>(b) keep such information up to date, to the satisfaction of the Planning Secretary.</p>	

### 3.4 Statement of Commitments

Section 6.0 of the Revised Preferred Project Report included a Statement of Commitments for the Revised Preferred Project. As a result of submissions received, WCL committed to additional environmental management and monitoring measures as outlined in the Submission Report – Part A and Part B. **Table 5** presents an updated consolidated Statement of Commitments for the Revised Preferred Project.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 5 – Statement of Commitments**

<b>Commitment</b>	<b>Timing</b>	<b>Where addressed in this plan</b>
<b>Aboriginal Heritage</b>		
Baseline archaeological recording and ongoing monitoring of known Aboriginal cultural heritage sites will be considered as part of the updates to the existing Heritage Management Plan (or if required as a condition of approval, a specific Aboriginal Cultural Heritage Management Plan).	Within 12 months of approval and ongoing	Appendix C
<b>Historical Heritage</b>		
WCL will update the existing Heritage Management Plan (or if required as a condition of approval, prepare a specific Aboriginal Cultural Heritage Management Plan) in consultation with the Aboriginal community, should the Revised Preferred Project be approved.	Within 12 months of approval and ongoing	See Section 4
WCL will update the existing Conservation Management Plan (Biosis 2013) within 12 months of development consent for the Revised Preferred Project, should it be approved.	Within 12 months of approval and ongoing	APPENDIX E – CONSERVATION MANAGEMENT PLAN
<b>Rehabilitation completion criteria</b> Decommissioning - Heritage structures and locations preserved as part of long term mine rehabilitation	End of mine life planning	Section 10.2.5 and 10.2.6

### 3.5 Relevant Legislation and Guidelines

WCL will conduct approved mining operations consistent with PAMP09\_0013 conditions and any other legislation that is applicable. The following Acts may be applicable:

- Coal Mine Health and Safety Act 2002;
- The Crown Land Management Act 2016
- Dams Safety Act 2015;
- Environmental Planning and Assessment Act 1979;
- Environment Protection and Biodiversity Conservation Act 1999(Commonwealth);
- Heritage Act 1977;
- Mining Act 1992;
- NSW National Parks and Wildlife Act 1974;
- Protection of the Environment Operations Act 1997;
- Water Act 1912
- Water Management Act 2000.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- NSW Heritage guidelines on preparing conservation management plans-  
<https://www.heritage.nsw.gov.au/protecting-our-heritage/conservation-management-plans/>

Relevant licences or approvals required under these Acts will be obtained as required. Activities relating specifically to heritage which would trigger secondary assessment and approval to be granted are outlined in **Table 6**.

**Table 6 – Other Relevant Heritage Assessments**

Activity triggering secondary approval	Assessment	Relevant Authority	Relevant Guidelines
<b>Aboriginal Heritage</b>			
Discovery of new Aboriginal heritage sites	Aboriginal Cultural Heritage Assessment (ACHA) and community consultation in accordance with the Aboriginal Cultural Heritage Consultations Requirements for Proponents, (DECCW 2010a).	Lodgement with Heritage NSW	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW, National Parks and Wildlife Act 1974
<b>Historical Heritage</b>			
Removal of heritage item	Statement of heritage impact (SoHI)	Lodgement with Heritage NSW	Heritage Act 1977, Statements of Heritage Impact
Alteration of fabric of heritage item	Statement of heritage impact (SoHI)	Lodgement with Heritage NSW	Heritage Act 1977, Statements of Heritage Impact 7
Change of use	Statement of heritage impact (SoHI)	Lodgement with Heritage NSW	Heritage Act 1977, Statements of Heritage Impact

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 4. CONSULTATION

### 4.1 Consultation During the Environmental Assessment Process

Extensive community and government consultation has been carried out prior to and during the preparation of the original environmental assessment, the Revised Project Report, the Submissions Report and other project-related assessment documentation. The primary objective of consultation was to keep the community, government agencies and other stakeholders informed and involved during project development process.

Community engagement was carried out in two phases and is summarised in Section 4.1.2 and Section 4.1.3 of the Revised Project Report.

A complete summary of previous and ongoing government agency and stakeholder consultation is provided in Table 4.5 of the Revised Project Report.

### 4.2 Consultation During the Preparation of the HMP- Agency

In accordance with Condition B24 and B26, this HMP has been prepared in consultation with:

- Heritage NSW (Heritage NSW, Department of Premier and Cabinet)
  - Historical heritage (Heritage Council of NSW)
  - Aboriginal heritage (Aboriginal Cultural Heritage Regulation);
- Wollongong City Council; and
- Wollondilly Shire Council.

WCL sought to consult with BCD; however, BCD deferred consultation to Heritage NSW who are the appropriate agency for heritage consultation. The details of consultation are provided below and stakeholder responses in accordance with Condition B24(b), B26(b), and C10 g(vii) are provided in summary with the specific feedback points addressed with reference to the location in the plan that they are addressed in **Table 7**, with copies of the feedback provided in **APPENDIX C**.

### 4.3 Consultation During the Preparation of the HMP- RAP's

Consultation during the preparation of this HMP undertaken with the Registered Aboriginal Parties has been completed in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a). On 16 March 2021, Biosis provided each RAP with a copy of the draft HMP. RAPs were given 28 days to review and prepare feedback on the HMP. The update HMP will be sent to the RAPs for a second review and the consultation log updated to reflect this.

The following RAP's were contacted and included in consultation during the development of this plan.

- Illawarra Local Aboriginal Land Council (ILALC);
- Wodi Wodi Elders Corporation – James Davis;
- Peter Falk Consultancy (formerly D'harawal Knowledge Holders);
- Kullila Welfare and Housing Aboriginal Corporation (KWHAC) – Maria Maher;
- Northern Illawarra Aboriginal Collective (NIAC).



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

A consultation log and the outcomes of consultation with the identified RAP's is provided in **APPENDIX B** inclusive of the response to feedback provided by the Illawarra Local Aboriginal Land Council (ILALC), In addition procedures for ongoing Aboriginal consultation are detailed below in **Section 4.4**.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 7 – Consultation Undertaken as part of the Preparation of this HMP**

Agency name	Issue	Where addressed in Management Plan
Heritage NSW- Heritage Office	<p>The Heritage Council provided comment on Draft Heritage Management Plan for Russell Vale Colliery on the 14 April 2021 as below:</p> <ul style="list-style-type: none"> <li>Heritage NSW letter of 20 December 2019 noted that regular monitoring and modelling should be undertaken by the applicant, and that, if vibration and subsidence is detected within the Cataract Dam SHR curtilage, activity in the surrounding area must stop immediately, followed by urgent rehabilitation of the area and a report submitted to HNSW outlining the actions taken. This has not been incorporated into the HHMP. It is requested that the monitoring and remediation actions be incorporated into the HMP as mentioned above.</li> <li>If 'relics' (as per the meaning of the Heritage Act 1977) were to be discovered, the provisions of s.146 of the Heritage Act 1977 would apply.</li> </ul>	<p>Section 8.2 APPENDIX A –TRIGGER ACTION RESPONSE PLANS</p> <p>Section 10.4.3</p>
Heritage NSW- Office of Aboriginal Heritage	<p>The Aboriginal Cultural Heritage Regulation provided comment on Draft Heritage Management Plan for Russell Vale Colliery 15 April 2021, as below:</p> <p><b>Consent</b></p> <ul style="list-style-type: none"> <li>It must be made clear in the HMP that in line with Condition B23 of the consent the Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage items.</li> </ul> <p><b>Previously Recorded Sites</b></p> <ul style="list-style-type: none"> <li>Clarify the discrepancy between the numbers of sites approved by the consent compared to the numbers of sites identified in the HMP. Does this have any implications for the approval?</li> <li>As a number of sites were unable to be relocated during the baseline recording field surveys, Heritage NSW recommend further assessment of historically recorded AHIMS sites to troubleshoot the likely inaccurate locations of sites and to ensure none of the sites are duplicated or missed.</li> </ul>	<p>Section 10.1 and 10.2</p> <p>Section 5.1 and 5.2</p> <p>Section 5.1</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<ul style="list-style-type: none"> <li>Additional survey needs to be undertaken in areas likely to contain Aboriginal cultural heritage sites to ensure baseline recording does not only include previously recorded sites.</li> <li>The HMP needs to consider how the sites that could not be relocated will be managed into the future.</li> <li>AHIMS site cards must be updated to reflect the revised baseline recording before the HMP is finalised.</li> <li>We recommend the HMP includes timeframes to outline the intervals between AHIMS site card updates. The HMP also needs to outline the triggers for the need for the site cards to be updated.</li> </ul> <p><b>Risk and Impact Assessment and Monitoring Approach</b></p> <ul style="list-style-type: none"> <li>Heritage NSW recommends monitoring occurs for all Aboriginal sites, irrespective of risk rating. Timeframes for monitoring negligible subsidence risk sites could be reduced compared to sites as higher risk of impact.</li> <li>Monitoring of negligible and low risk sites would provide evidence that impacts are not occurring or at least are not occurring as a direct result of mining. Additionally, this would ensure that the risk assessment is accurate and if there are unexpected impacts these can be managed and addressed.</li> <li>The HMP needs to: <ul style="list-style-type: none"> <li>Provide more clarity on how risk is assessed. There is a discrepancy between the sites identified for ongoing monitoring and the level of subsidence risk identified.</li> <li>Consider how potential subsidence may impact on the different types of Aboriginal cultural heritage sites within the Project area. How impact to values is established (e.g. scientific, cultural, aesthetic values etc.)</li> <li>Provide detail on what constitutes harm to heritage sites e.g. cracking of art panels, rock fall, change of water flow, removal of site access etc.</li> <li>Establish what actions can and will be taken to mitigate harm to heritage sites if it occurs.</li> <li>Detail the trigger points for conservation and mitigation actions to occur. What is considered unacceptable impact?</li> </ul> </li> </ul>	<p>Section 10.1</p> <p>Section 10.1.2</p> <p>Section 10.1.4</p> <p>Section 10.1.4</p> <p>Section 10.1.1</p> <p>Section 10.1.1</p> <p>Section 6</p> <p>Section 6</p> <p>Section 9</p> <p>APPENDIX A, Section 10.4</p> <p>APPENDIX A, section 10.3</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<ul style="list-style-type: none"> <li>We recommend the HMP implements a risk matrix to factor in the various values of a site against the risk of impact to that site. This may help inform the level of baseline recording required, the interval of monitoring necessary etc.</li> </ul> <p><b>Timeframes</b></p> <ul style="list-style-type: none"> <li>The HMP would benefit from the inclusion of timeframes where possible, such as: <ul style="list-style-type: none"> <li>When will the planned works be most likely to result in impact to sites?</li> <li>How can you design the monitoring strategy to best reflect this?</li> </ul> </li> <li>Any strategy needs to fit into the predicted plan of works with triggers in place for monitoring before, during and after works that may cause harm to sites.</li> <li>Time intervals between inspections for the various site types should be proposed in line with the risk and significance of the sites.</li> </ul> <p><b>Unexpected Finds</b></p> <ul style="list-style-type: none"> <li>The identification of any unexpected find needs to be a trigger for revision of the HMP.</li> <li>Revise the unexpected finds procedure for human remains to be in line with Requirement 25 of the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW 2010b).</li> <li>Ensure the NSW Environment Line number, 131 555, is included and provide a mechanism for the Registered Aboriginal Parties (RAPs) to be informed within 24 hours of the remains being established to be Aboriginal.</li> </ul> <p><b>Inductions</b></p> <ul style="list-style-type: none"> <li>All inductions should be developed with, and where possible, presented by or in conjunction with the RAPs.</li> </ul> <p><b>Aboriginal Community Consultation</b></p> <ul style="list-style-type: none"> <li>Consider and incorporate RAP comments into the HMP. If RAP comments cannot be addressed, provide an explanation for why the feedback has not been adopted.</li> </ul>	<p>APPENDIX A, section 6</p> <p>Section 2.1</p> <p>Section 10.1.1</p> <p>Section 10.1.1</p> <p>Section 10.1.1, 10.3 &amp; 10.3.1</p> <p>Section 10.1.2</p> <p>Section 13.3</p> <p>Section 10.4.2</p> <p>Section 10.4.2</p> <p>Section 12.3.2</p> <p>APPENDIX B</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<ul style="list-style-type: none"> <li>Following adoption and implementation of Heritage NSW and RAP comments the RAPs should be provided the draft HMP again for final comments.</li> <li>Include a summary table of trigger points and timeframes for consultation with the RAPs.</li> <li>Include a redacted contact details file as an appendix to the HMP.</li> </ul> <p><b>Other Conditions</b></p> <ul style="list-style-type: none"> <li>Demonstrate how the HMP addresses the following conditions: <ul style="list-style-type: none"> <li>Provide a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term.</li> <li>Outline protocols for affording reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places within the Project Area.</li> </ul> </li> </ul> <p><b>Baseline Recording</b></p> <p>Following review of the Russell Vale East UEP: Baseline Recording of Aboriginal Sites Final report by Biosis 2021, Heritage NSW does not consider the standard of baseline recording and photography undertaken to date sufficient.</p> <p>In order to address these concerns a stronger adherence to the stated methodology (Biosis 2021 p. 6) needs to be employed and the following points incorporated.</p> <ul style="list-style-type: none"> <li>All site photos must have appropriate scales.</li> <li>All site recordings must have both general context photos and close up photos of the components of each site.</li> <li>All site damage must be clearly documented, described and photographed at each site.</li> <li>Every art panel must have comprehensive recording undertaken with scaled and high-resolution photography e.g., AHIMS 52-3-0310, AHIMS 52-2-0603.</li> </ul>	<p>APPENDIX C</p> <p>Section 4.3</p> <p>APPENDIX B</p> <p>Section 10.2.4.1</p> <p>Section 4.6</p> <p>APPENDIX D - BASELINE RECORDING OF ABORIGINAL HERITAGE SITES has been updated for sites within Stage 1 that were able to be located. For Stage 2, the baseline survey will be further updated once the sites have been revisited as part of years 2 to 5.</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<ul style="list-style-type: none"> <li>• Include the elevation plans of shelter walls recording structural and surface features including, but not limited to, the art, graffiti, joints, bedding planes, exfoliation scars, cracks, mineral and micro-organism growth, drip line and water seepage locations.</li> <li>• Every site must have monitoring points identified for consistency e.g., cracking, damage, mineralization, water seepage etc.</li> <li>• Close up and contextual photographs of all monitoring points and damage need to be included and the locations of these included in the elevation plans and in the general site photos to enable relocation of monitoring points and damage. <ul style="list-style-type: none"> <li>◦ For example, at site AHIMS 52-2-4171 one monitoring point could be the stability of the stone arrangements.</li> </ul> </li> <li>• Relate image numbers in Appendix 1 to the relevant sites and provide descriptions of each photo.</li> <li>• Provide high resolution photo files as an appendix to the baseline recording.</li> <li>• Has any spherical photographic coverage of selected shelters using high resolution digital photography and appropriate image stitching techniques been applied to any sites. If not, why not?</li> <li>• Alternative technologies for detailed site recording should be adopted such as 3D scanning of shelters and DStretch.</li> <li>• Provide the zone and projection used for easting/northings e.g., GDA 94 Zone 55 or GDA 2020 Zone 56.</li> </ul>	<p>This has been included in the baseline survey where reasonable and feasible.</p>





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

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Registered Aboriginal Parties	<ul style="list-style-type: none"> <li>RAPs were provided with a copy of the HMP on 16 March 2021. The only comments were received by ILALC with no response from Wodi Wodi Elders Corporation; Peter Falk Consultancy (formerly D'harawal Knowledge Holders); Kullila Welfare and Housing Aboriginal Corporation (KWHAC); or Northern Illawarra Aboriginal Collective (NIAC). See Appendix B for the ILALC's response.</li> <li>Further consultation with the RAPs will be undertaken as part of the next update of the HMP prior to Stage 2.</li> </ul>	<p>Appendix B</p> <p>Section 4.4</p>
WCC	<p>Although noted that only the historic components of the HMP require consultation with WCC, the following comments are provided on the Aboriginal Heritage component. It is noted that Heritage NSW have provided a range of comments to be addressed in relation to Aboriginal Heritage.</p> <p><b>Aboriginal Heritage</b></p> <ul style="list-style-type: none"> <li>As per condition B24(a), it should be confirmed that the author of the Report is a suitably qualified consultant as no author is provided.</li> <li>Additionally, the following parts of the condition have not been addressed: <ul style="list-style-type: none"> <li>No Care Agreement provided (h). HMP states that it is not applicable but no additional justification provided;</li> <li>Part V and VI relating to ongoing engagement with RAP's including access to sites are not addressed in the HMP;</li> <li>Appendix B, C and D are not attached to the Report.</li> </ul> </li> <li>In Part 5.2.3 Site Specific Impacts there are a number of sites where the impact is assessed as "very low/negligible" however are included in the site-specific impacts table, which only addresses low-moderate impacts. This is inconsistent and the impact level should be clarified for the following sites: <ul style="list-style-type: none"> <li>Wonga East 3</li> <li>Bulli Mine Shaft 25, 26, 27</li> </ul> </li> </ul>	<p>Section 1.1</p> <p>Refer to Table 2</p> <p>Sections 4.4, 4.5, and 4.6</p> <p>Appendix B, C, and D</p> <p>Section 6.2.1 and 6.2.2</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<p><b>Historical Heritage</b></p> <ul style="list-style-type: none"> <li>As per condition B26(a), it should be confirmed that the author of the Report is a suitably qualified heritage consultant as no author is provided.</li> <li>There is no statement of significance for each site as per condition B26(e), however the Report does assess each component. It is unclear how these ratings were developed and whether they are based on the earlier GML Report. Additionally, actions that require Heritage Impact Statements are noted, however the HMP does not make it clear that these actions may require additional approval.</li> <li>Section 8 is noted in the HMP to address all conditions of B26(f-g). The Section however only deals with potential subsidence impacts to Cataract Dam Wall and does not address any other historic heritage items. It is not clear where/ or of what elements of subsidence monitoring recommended in <b>Table 21</b> will occur in the South Bulli Colliery listed or within the SHR listing. The following conditions therefore require responses: <ul style="list-style-type: none"> <li>The archival recording Appendix D has since been removed from the updated HMP plan. Therefore condition (f)(i) has not been met.</li> <li>Protect Heritage items from unpredicted elements of development (f)(iii).</li> <li>Manage new heritage items (f)(iv).</li> <li>Strategy for care and storage of relics salvaged not provided B26(g).</li> </ul> </li> </ul> <p><b>REQUEST FOR ADDITIONAL INFORMATION</b></p> <ul style="list-style-type: none"> <li>Part (e) Statements of Significance for Historic sites not provided;</li> <li>Part f(ii) Photographic recording not provided;</li> <li>Part (f)(iii) No response on protected heritage items, particularly those noted in the AHMP to have been subject to vandalism.</li> <li>Part f(iv) no response on management of new heritage items;</li> <li>Part (g) No Care Agreement provided for historic relics;</li> <li>Monitoring and remediation actions required to be incorporated into HHMP as per NSW Heritage Comments.</li> </ul>	<p>Section 1.1</p> <p>Section 7.1.1, 7.1.2, and 10.2</p> <p>APPENDIX F</p> <p>Section 10</p> <p>Section 10.4.3</p> <p>Table 3, Section 7.1.1 and 7.1.2</p> <p>APPENDIX F</p> <p>Section 10 and 10.2.7</p> <p>Section 10.4.3</p> <p>Table 3, Section 10.2 and 10.3</p>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Agency name	Issue	Where addressed in Management Plan
	<p><b>Further comments received on the 28 July 2021 following WCL providing the latest revision of the HMP to WCC, including Appendix B, C &amp; D.</b></p> <ul style="list-style-type: none"> <li>WCC remained concerned about Part 10.2.3 Management Policies as previously noted. Additionally, actions that require Heritage Impact Statements are noted, however the HMP does not make it clear that these actions if outside of the existing approval scope may require additional approval under the EP&amp;A Act or Heritage Act, not just where unacceptable change is proposed. The Policies suggests that approvals are only required where a HIS assess change as unacceptable which is not the case. The wording of these policies may need to be updated or an addition section on approvals required should be inserted.</li> <li>Please ensure WCC is included for notification in the Trigger Action Response Plan for the local heritage item South Bulli Colliery at the moment it only includes Heritage NSW who I note do not administer local heritage.</li> <li>WCC is having difficulty seeing the responses to the following points in the document: <ul style="list-style-type: none"> <li>Part (f) (iii) No response on protected heritage items, particularly those noted in the AHMP to have been subject to vandalism.</li> <li>Part f (iv) no response on management of new heritage items.</li> </ul> </li> </ul>	<p>Section 3.1, 3.5 and 10.2.3</p> <p>Appendix A</p> <p>Section 10 and 10.2.7</p> <p>Section 10.4.3</p>
WSC	<p>Wollondilly Shire Council was contacted to discuss the project. They indicated that as this project was not within their LGA that they had no comment or feedback to make on the project and would respond as such via the department's portal.</p> <p>Council submitted their response and stated that it "does not have any comments regarding the Heritage Management Plan for the Russell Vale Colliery and is satisfied for comments on this Plan to be provided by Aboriginal groups".</p>	Not Required

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 4.4 Ongoing RAP Consultation Procedures

Ongoing consultation with RAPs will be required:

- In the preparation of any subsequent revisions of the HMP where they relate to aboriginal heritage.
- If unanticipated Aboriginal objects are encountered.
- If Aboriginal ancestral remains are encountered; and,
- To participate in the monitoring of Aboriginal heritage sites.

When consultation is required, RAPs must be provided verbal and written notification that includes:

- The purpose and expectation of consultation.
- Details of stakeholder responsibilities, including details of expected timings; and,
- Details of any WH&S requirements to participate in fieldwork or any other consultation activities.

Detailed records of consultation with RAPs must be kept in a consultation log and include:

- Date and time of consultation.
- Details of RAP responses and copies of any correspondence with RAPs; and,
- Details of RAP involvement in the development of any management strategies or actions.

A copy of the consultation log will be attached to this plan upon receipt and the relevant sections of this log will be published in any monitoring report, management strategy report or any other document reporting on Aboriginal heritage and has involved Aboriginal consultation.

**Table 8 – RAP Consultation for Trigger Points and Timeframes**

Trigger	Timeframe from trigger
Major revisions of this HMP	Prior to completion of the next update of the HMP for stage 2 of the extraction plan
Unanticipated Aboriginal objects encountered	Within 2 weeks of archaeologists confirmation of object
Aboriginal ancestral remains are encountered	Within 24 hours of the remains being established to be Aboriginal
Participate in the monitoring of Aboriginal heritage sites	Three weeks prior to the scheduled work commencing
If AHIMS sites that were unable to be located during initial surveys are found during subsequent surveys	Within 2 weeks of updating the baseline recording report

## 4.5 Participation in the monitoring of Aboriginal heritage sites

For baseline recording and scheduled monitoring visits, the registered Aboriginal parties should be notified in writing – either by letter or e-mail – three weeks prior to the scheduled work





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

commencing. Attendance and participation in site inspections will be subject to attendees satisfying standard requirements for contractors and meeting mutually agreeable terms of involvement and payment with WCL. These requirements will be advised to the registered Aboriginal parties in the written notification described above.

As a condition of involvement in the monitoring visits, registered Aboriginal parties are required to provide copies of current insurances including public liability and workers compensation prior to commencement of monitoring. In addition, all field participants will be required to comply with all WCL standard occupational health and safety requirements including appropriate personal protection equipment and site inductions. Due to logistical and occupational health and safety requirements, WCL must limit the number of representatives from each registered stakeholder group to one or two persons on any one day. Multiple representatives however can be rotated between different site visits over time.

The purpose of scheduled monitoring visits is to determine if subsidence effects resulting from bord and pillar mining system result in impacts to Aboriginal heritage sites and the heritage values of those sites. Monitoring and impact assessment recording will be undertaken within six months after each predicted subsidence movement at the site (that is when the bord and pillar mining system is closest traverse to the site, and/or if the bord and pillar mining system is to finish mining within 6 months). Furthermore, a final monitoring and impact assessment recording at the completion of all subsidence movements at the sites will be undertaken.

#### **4.6 Managing Reasonable Access**

Aboriginal stakeholders will be provided with reasonable access to Aboriginal Objects and Places within the Project Area throughout the operational life of the Project. This will occur during site visits for baseline recording and scheduled monitoring, along with any discovery of unanticipated Aboriginal cultural material or unanticipated Aboriginal humans remains.

Outside of such occasions any request would be subject to a review of the environmental and access conditions at the time to identify any access restrictions, all mine safety and induction requirements, and must be received at least a week prior to any planned access.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

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## 5. BASELINE - ABORIGINAL HERITAGE

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In order to satisfy condition B24(e) of the Consent an updated baseline assessment of Aboriginal heritage sites previously identified in the vicinity of the first-workings mine panels was undertaken. This section outlines the results of the updated baseline assessment, the process of survey and site identification, and updated impact assessment for Aboriginal heritage sites included in the Consent.

### 5.1 Description of Aboriginal Heritage Sites

There are 18 Aboriginal heritage sites recorded as part of the Project approval (Appendix 6 of Development Consent) as outlined in **Table 9**. The location of these sites is shown in **Figure 8**. Details for Aboriginal heritage sites within the Project Area for this HMP are provided below as summarised from the site cards and the updated baseline recording can be found in **APPENDIX D**.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 9 – Aboriginal heritage sites within the Project Area**

Site Name	AHIMS No.	Pre-mining Baseline Survey Conducted	Pre-mining Baseline Recording Conducted	Context	Site Type	Current Status	Extraction Plan Stages
Wonga East 1	52-2-3939	Yes	Yes	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit located by baseline survey, no surface artefacts were observed. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Wonga East 2	52-2-3940	Yes	Yes	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit located by baseline survey, no surface artefacts were observed. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Wonga East 3	52-2-3941	Yes	Yes	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts located by baseline survey. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 7	52-2-0083	Yes	No	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit not identified at recorded site location targeted by baseline survey. Further attempts will be made to locate this site prior to	Future Stages



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

						second workings associated with future stages.	
Bulli Mine Shaft 8	52-2-0099	Yes	Yes	Open site	Axe grinding grooves	Grinding grooves located by baseline survey. Baseline recording photos will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 18	52-3-0310	Yes	Yes	Enclosed shelter	Shelter with deposit, art and grinding grooves	Shelter with deposit, art and grinding grooves located by baseline survey. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 19	52-3-0603	Yes	Yes	Enclosed shelter	Shelter with art and artefacts	Shelter with art located by baseline survey, no surface artefacts were observed. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 20	52-3-0311	Yes	Yes	Enclosed shelter	Shelter with deposit	Shelter with deposit located by baseline survey. Baseline recording will be updated prior to the second workings in Stage 1 to include photo scale.	Stage 1 & Future Stages
Bulli Mine Shaft 21	52-3-0314	Yes	Yes	Enclosed shelter	Shelter with art and deposit	Shelter with art and deposit located by baseline survey. Baseline recording will be updated prior to	Future Stages





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

						second workings associated with future stages.	
Bulli Mine Shaft 22	52-3-0317	Yes	Yes	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts located by baseline survey, no surface artefacts were observed. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 23	52-3-0312	Yes	Yes	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts located by baseline survey. Baseline recording will be updated prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 24	53-3-0319	Yes	No	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts not identified at recorded site location targeted by baseline survey. Further attempts will be made to locate this site prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 25	52-3-0320	Yes	No	Open site	Axe grinding grooves	Rock platform located by baseline survey, however grounding grooves unable to be located due to leaf litter. Further attempts will be made to locate this site prior to second workings associated with future stages.	Future Stages



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Bulli Mine Shaft 26	52-3-0323	Yes	No	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts at recorded site location inaccessible during baseline survey due to steep terrain. Further attempts will be made to locate this site prior to second workings.	Stage 1
Bulli Mine Shaft 27	52-3-0325	Yes	Yes	Enclosed shelter	Shelter with art, deposit and artefacts	Shelter with deposit located by baseline survey, art and artefacts no longer present due to environmental disturbances.	Stage 1
Bulli Mine Shaft 29	52-3-0313	Yes	Yes	Open site	Open camp site	Site was located but artefacts at open campsite were not identified at the recorded location targeted by baseline survey.	Stage 1 & Future Stages
Bulli Mine Shaft 30	52-3-0318	Yes	No	Enclosed shelter	Shelter with art	Shelter with art not identified at recorded location targeted by baseline survey. Further attempts will be made to locate this site prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 31	52-3-0322	Yes	No	Open Site	Axe grinding grooves	Axe grinding grooves not identified at recorded location targeted by the baseline survey. Further attempts will be made to locate this site prior to second workings associated with future stages.	Future Stages

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

### 5.1.1 Wonga East 1 (AHIMS 52-2-3939)

Wonga East 1 is a shelter with deposit. Five surface artefacts consisting of quartz, chert and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording and previous surveys; however, no surface artefacts were observed. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

### 5.1.2 Wonga East 2 (AHIMS 52-2-3940)

Wonga East 2 is a shelter with deposit. Six surface artefacts consisting of silcrete flakes and quartz angular fragments have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording; however, no surface artefacts were observed. This site will be included in the later extraction (Future Stages) plans in accordance with the staged Extraction Plan and mine plan.

### 5.1.3 Wonga East 3 (AHIMS 52-2-3941)

Wonga East 3 is a shelter with deposit. One silcrete distal flake and three quartz bipolar flakes were located on the surface of the shelter floor. There is a potential that additional artefacts are located within the shelter floor. The shelter deposit consists of yellowish grey sand and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

### 5.1.4 Bulli Mine Shaft 7 (AHIMS 52-2-0083)

Bulli Mine Shaft 7 is a rock shelter with an archaeological deposit. The sandstone shelter is approximately 2.5m long, 1.5m wide and 1.5m in height. The deposit extends outside the shelter to a depth of 30cm, with a number of artefacts being noted including chert flakes, a silcrete flake and two pieces of quartz. The site was originally recorded in 1984 by Illawarra Prehistory Group with the site having been revisited in 1991. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site prior to the Stage 2 EP program (Future Stages).

### **5.1.5 Bulli Mine Shaft 8 (AHIMS 52-2-0099)**

Bulli Mine Shaft 8 is a grinding groove site. Three grinding grooves were located on a sandstone outcrop measuring 8m x 4m. The site is below a swamp in a wooded area. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

### **5.1.6 Bulli Mine Shaft 18 (AHIMS 52-3-0310)**

Bulli Mine Shaft 18 is a shelter with deposit, art and grinding grooves. The sandstone overhang measures 9.6m long by 8.5m wide and 1.6m in heights. The surface near the dripline has over 100 artefacts of silcrete, quartz, jasper, chert and fossilized wood. Artefact types include backed blades, fabricators, cores and shell fragments. The artwork consists of figurative and geometric motifs produced with charcoal, white sprayed pigment and red ochre. Three grinding grooves are located on a sandstone block at the south end of the shelter. This site was assessed as having high scientific significance and high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. This site will be included in the stage 2 EP for Years 2-5 (Future Stages).

### **5.1.7 Bulli Mine Shaft 19 (AHIMS 52-2-0603)**

Bulli Mine Shaft 19 is a shelter with art, no identified deposit and a single artefact. The art is located on two panels on the rear wall and consists of a single red ochre hand stencil and a separate indeterminate charcoal motif. A single silcrete core has previously been identified within the shelter. The art is faded and in a poor condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording, however no artefact was identified. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

### **5.1.8 Bulli Mine Shaft 20 (AHIMS 52-3-0311)**

Bulli Mine Shaft 20 is a shelter site with deposit. The deposit consists of yellowish-brown sand with quartz, silcrete and chert flakes. The deposit has been disturbed to some extent through wombat burrowing. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the previous baseline recording by Biosis in 2015, however no artefacts were identified. The site is located on existing developed first workings, with the location approximately 400m from planned new first working development associated with EP year one PC Panel 21 (Stage 1).

In addition, the site is within the 350m area for a planned second workings panel, and will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

#### **5.1.9 Bulli Mine Shaft 21 (AHIMS 52-3-0314)**

This shelter with art site was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 6m long by 3m wide and 2.5m high shelter. The art was initially described as one indeterminate figure and one indeterminate motif on the ceiling of the shelter in 1984 but was reinterpreted in 2011 by ERM as one lizard and two figures overlapping. All motifs are charcoal drawings. This site also contains shallow archaeological deposit and therefore has some potential to yield further archaeological information and artefacts. The art motifs are not common in the area and therefore this site has high scientific significance and high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining.

#### **5.1.10 Bulli Mine Shaft 22 (AHIMS 52-3-0317)**

Bulli Mine Shaft 22 is a shelter with deposit and a single artefact. This shelter was first recorded in 1984 by the Illawarra Prehistory Group. The shelter measures 20m long by 4m wide and 4m high and large sandstone blocks fill most of the shelter. One artefact was recorded, which consisted of a transversely split cobble of fine grained light grey igneous material with use wear on two margins. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording, however no artefact was identified. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining.

#### **5.1.11 Bulli Mine Shaft 23 (AHIMS 52-3-0312)**

This shelter with deposit was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 20m long by 4.5m wide and 3.3m high shelter. Bulli Mine Shaft 23 contains a deposit of yellow clay loam approximately 23cm deep. There were 54 artefacts eroding out of the dripline. The artefacts were manufactured from chert, jasper, fossilized wood, quartz and silcrete and consisted of cores, scrapers, flakes, flake fragments and geometric microliths. This site was assessed as having high scientific significance and high cultural significance.



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining.

#### **5.1.12 Bulli Mine Shaft 24 (AHIMS 52-3-0319)**

This shelter with deposit was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 67m long by 4.5m wide and 3m high shelter with a yellow clay loam approximately 12cm deep. One fossilized flake fragment and one quartz flake fragment were recorded. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program. The site is located to the north, remote from the proposed workings, Adjacent mine plan shows the established first workings in the vicinity of the site.

#### **5.1.13 Bulli Mine Shaft 25 (AHIMS 52-3-0320)**

This axe grinding groove site was originally recorded in 1985 by the Illawarra Prehistory Group. The site was recorded as a single grinding groove located within a sandstone outcrop measuring 22 x 2.5m. One axe grinding groove is located in a water seepage area on the edge of the sandstone platform. The site is recorded as being in reasonable condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but of high cultural significance.

The site was visited during the baseline recording survey for this HMP; however, due to heavy leaf litter covering sandstone surfaces, the grinding grooves recorded at this location could not be observed. Furthermore, the sandstone platform within 50 meters of the mapped location of this site was surveyed. Previous attempts to find this site in 2014 failed to locate this site; therefore, the sandstone platform within 50 meters of the mapped location of this site was monitored. Monitoring of the sandstone platform was undertaken during mining of Longwall 5 (within 3-6 months of the longwall closest point of approach) and within six months of the completion of mining.

No impacts to sandstone outcrops from previous mining works were observed at the location. The site is located over the previously mined Longwall 5 and is not within the vicinity of first workings, 350m and/or on top of any planned place change panels. The End of Panel report for Longwall 5 found that no impacts to the Aboriginal heritage values at this site were documented during monitoring.

#### **5.1.14 Bulli Mine Shaft 26 (AHIMS 52-3-0323)**

Bulli Mine Shaft 26 is a shelter with deposit. Three surface artefacts consisting of silcrete, chert and quartz flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present with a depth of 20 cm and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

The site could not be identified during the initial baseline recording survey for this HMP at the site's recorded location. A GIS mapping investigation was undertaken to determine the location of this site due to conflicting information associated with its coordinates. It was found that there were two locations for this site – one from AHIMS and one from the previous baseline recording in 2013. Two attempts were made to baseline record 52-3-0323. The first attempt the site was unable to be located due to incorrect AHIMS coordinates, while the second attempt found the site but access to the site was dangerous. Therefore, the status of the site could not be confirmed. The 2020 SCT report assessed this site noting:

"Site 52-3-0323 as recorded by Biosis in 2015, is located approximately 500m to the south above a solid coal pillar in the Bulli Seam workings of Corrimall Colliery. Attempts to visit this site location were made during the baseline survey however, the site was located at the base of a steep cliff line and could not be accessed safely at the time. The location of this site was previously confirmed by the Biosis 2015 survey and matches the location and site description recorded in the site card as it was located approximately 25 metres from the creek line and is under a major cliff line. The barrier pillar is approximately 120m wide below the FSL of the reservoir. This location is more than 150m from PC21. No perceptible impacts are expected at this location from the planned mining in the EP Area."

Further survey effort would be undertaken to reconfirm the location of this site in accordance with the staged Extraction Plan and mine plan. The site is located to the south of PC21, remote from the proposed workings. Adjacent mine plan shows the established first workings in the vicinity of the site (Stage 1).

#### **5.1.15 Bulli Mine Shaft 27 (AHIMS 52-3-0325)**

Bulli Mine Shaft 27 is a shelter with art and deposit. Five surface artefacts consisting of silcrete, fossilised wood and quartz flakes and a quartz core have been recorded. A deposit of yellowish clayey sand is present but has been subject to wombat burrowing. A single art panel consisting of sprayed red ochre is present on the rear wall. The art is in poor condition and indiscernible. The site is a typical example of a common site type in the region and is of moderate scientific significance due to the range of features present but of high cultural significance.

The site could not be identified during the initial baseline recording survey for this HMP at the site's recorded location. As requested by Heritage NSW, a GIS mapping investigation was undertaken to determine the location of this site due to conflicting information associated with its coordinates. It was found that there were two locations for this site – one from AHIMS and one from the previous baseline recording in 2015. The 2020 SCT report assessed this site noting:

"Site 52-3-0325 as recorded by Biosis in 2015 is located approximately 300m to the west above an area of Bulli Seam goaf and PC21. In this location the site is expected to experience less than 100mm of vertical subsidence and corresponding level of compressive strain. No significant impacts to this detached boulder type feature are expected at this location. Any impacts and consequences are expected to be negligible in the context of previous impacts."

This site was identified in the 2021 survey at the previous baseline recording location undertaken by Biosis in 2015, however no artefacts were identified. The site was in a similar condition to previous recordings, although the ochre spray was no longer visible, potentially due to weathering of the sandstone rock face resulting in fading. Further disturbance from animal activity was also observed potentially resulting in displacement of previously identified

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

artefacts. No impacts as a result of previous mining activities were observed such as cracking, faults or rock fall.

#### 5.1.16 Bulli Mine Shaft 29 (AHIMS 52-3-0313)

This open camp site was first recorded in 1984 by the Illawarra Prehistory Group in an exposure created by track construction. The site consists of a 25 m by 5 m flaked stone artefact scatter, with nine artefacts of silcrete, chert and fossilised wood material being originally recorded. The site is located in woodland overlooking a sharp drop into rainforest. There is potential for this site to extend into undisturbed deposits. Although open stone artefact scatters are relatively uncommon on the Illawarra Escarpment, the number of artefacts identified coupled with the heavily disturbed nature of the site and lack of any visible cultural remains today means that this site only has low scientific value but high cultural significance.

Artefacts associated with the site were not identified during the baseline recording survey for this HMP at the site's recorded location. Due to the nature of open camp sites, it is unlikely that this site will be able to be located in the future. However as the site is adjacent to a proposed future panel, and new first workings further survey effort to locate this site has been determined as unlikely to result in the site being able to be found. The process as outlined in this plan for such occurrences in section 10 would be applied to this site.

#### 5.1.17 Bulli Mine Shaft 30 (AHIMS 52-3-0318)

Bulli Mine Shaft Site 30 is a shelter with art site recorded in 1984 by the Illawarra Prehistory Group. The shelter is located in a narrow canyon hollowed out by a creekline and the shelter dimensions are 10m long, 3.7m wide and 4.5m high. The art consists of one humanoid charcoal infill figure and one charcoal indeterminate drawing. This site was assessed as having high scientific significance and high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program in accordance with the staged Extraction Plan and mine plan.

#### 5.1.18 Bulli Mine Shaft 31 (AHIMS 52-3-0322)

This axe grinding groove site was recorded in 1984 by the Illawarra Prehistory Group. The site consists of an 11 m by 22 m sandstone platform located at the base of an upland swamp and dropping off into another upland swamp. Two axe grinding grooves were located on the sandstone platform. The site is recorded as being in reasonable condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program. This site will be included in the later extraction plans in accordance with the staged Extraction Plan and mine plan.

## 5.2 Updated AHIMS Extensive Search

As part of the development of this HMP, an updated AHIMS search was conducted on 22 January 2021 (Client Service ID: 563187), which identified an additional six Aboriginal sites.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

These sites are listed below in **Table 10** and shown in **Figure 8** and are discussed in detail below with additional commentary on their relevance to the project as measured by potential impact from the mine plan for Year one and the future mine plan (to be confirmed via subsequent extraction plans) concept as outlined in **Figure 8**.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 10 – Additional Aboriginal sites within the Project Area**

Site Name	AHIMS No.	Pre-mining Baseline Survey Conducted	Pre-mining Baseline Recording Conducted	Context	Site Type	Current Status	Extraction Plan Stages
Wonga East 4	52-2-4170	Yes	No	Enclosed shelter	Shelter with deposit and artefacts	Shelter with deposit and artefacts not identified at recorded site location targeted by baseline survey. Further attempts will be made to locate this site prior to second workings.	Stage 1 & Future Stages
Wonga East 5	52-2-4171	Yes	No	Enclosed shelter	Shelter with stone arrangement	Shelter with stone arrangement not identified at recorded site location targeted by baseline survey. Further attempts will be made to locate this site prior to second workings.	Stage 1 & Future Stages
Bulli Mine Shaft 12	52-2-0229	Yes	No	Open site	Axe grinding grooves	Axe grinding grooves not identified at recorded site location targeted by baseline survey. Further attempts will be made to locate this site prior to second workings associated with future stages.	Future Stages
Bulli Mine Shaft 13	52-2-0233	Yes	Yes	Open site	Axe grinding grooves	Axe grinding grooves located by baseline survey	Future Stages





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

<b>Site Name</b>	<b>AHIMS No.</b>	<b>Pre-mining Baseline Survey Conducted</b>	<b>Pre-mining Baseline Recording Conducted</b>	<b>Context</b>	<b>Site Type</b>	<b>Current Status</b>	<b>Extraction Plan Stages</b>
Bulli Mine Shaft 36	52-2-4617	Yes	Yes	Enclosed shelter	Shelter with art	Enclosed shelter with art located by baseline survey	Future Stages

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

As requested by Heritage NSW, the site cards for these five historically recorded sites were analysed to determine if the locations are accurate and to ensure that none of the sites are duplicated. A description of the sites and discussion of this analysis is provided below.

### 5.2.1 Wonga East 4 (AHIMS 52-2-4170)

Wonga East 4 is a shelter with archaeological deposit. Four surface artefacts consisting of quartz and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location; however, it has previously been subject to baseline recording by Biosis in 2014. The location of Wonga East 4 is within the proposed future extraction plan panel PC27 and would be subject to further survey effort to locate this site in accordance with the staged Extraction Plan and mine plan.

### 5.2.2 Wonga East 5 (AHIMS 52-2-4171)

Wonga East 5 is a shelter with stone arrangement. The shelter is low with two piles of stones in the entrance. The lichen growing on the stones indicates that they were placed some time ago. The shelter does not contain a deposit, art or artefacts. Although this may have been a historical feature, consultation with Aboriginal stakeholders indicates that the site may have cultural significance. Given the condition of the site, uncertainty as to its context, and limited range of site features, the site is of low scientific significance and of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location; however, it has previously been subject to baseline recording by Biosis in 2014. The location of Wonga East 5 is not directly located within any PC panel; however, it is located within the 350m area currently associated with PC22 and would be subject to further survey effort to locate in accordance with the staged Extraction Plan and mine plan.

### 5.2.3 Bulli Mine Shaft 12 (AHIMS 52-2-0229)

Bulli Mine Shaft 12 is a grinding groove site. One grinding groove was located on a sandstone outcrop measuring 18m x 2m with water seepage running across the site. The site is an example of a common site type in the region and is of low scientific significance but high cultural significance.

The site could not be identified during the baseline recording survey for this HMP due to the dense vegetation cover at the site's location. However, as the site is located above the proposed future panel currently described as PC33, it would be subject to future survey effort to locate in accordance with the staged Extraction Plan and mine plan.

### 5.2.4 Bulli Mine Shaft 13 (AHIMS 52-2-0233)

Bulli Mine Shaft 13 is a grinding groove site. Two grinding grooves were located on a sandstone outcrop measuring 18m x 4m. The site is an example of a common site type in the region and is of low scientific significance but high cultural significance.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. Even though this site is not included in the Project approval, it was still assessed and included in the baseline recording. As the location of Bulli Mine Shaft 13 is within the proposed future extraction plan panel currently described as PC33, it would be subject to future survey effort to locate in accordance with the staged Extraction Plan and mine plan.

### **5.2.5 Bulli Mine Shaft 36 (AHIMS 52-2-4617)**

Bulli Mine Shaft 36 is a shelter with deposit. Three surface artefacts consisting of silcrete, chert and quartz flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present with a depth of 20 cm and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

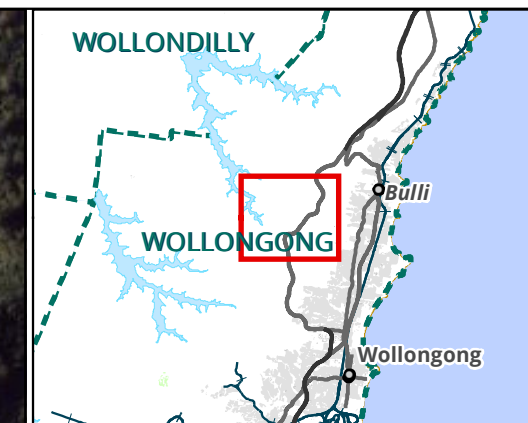
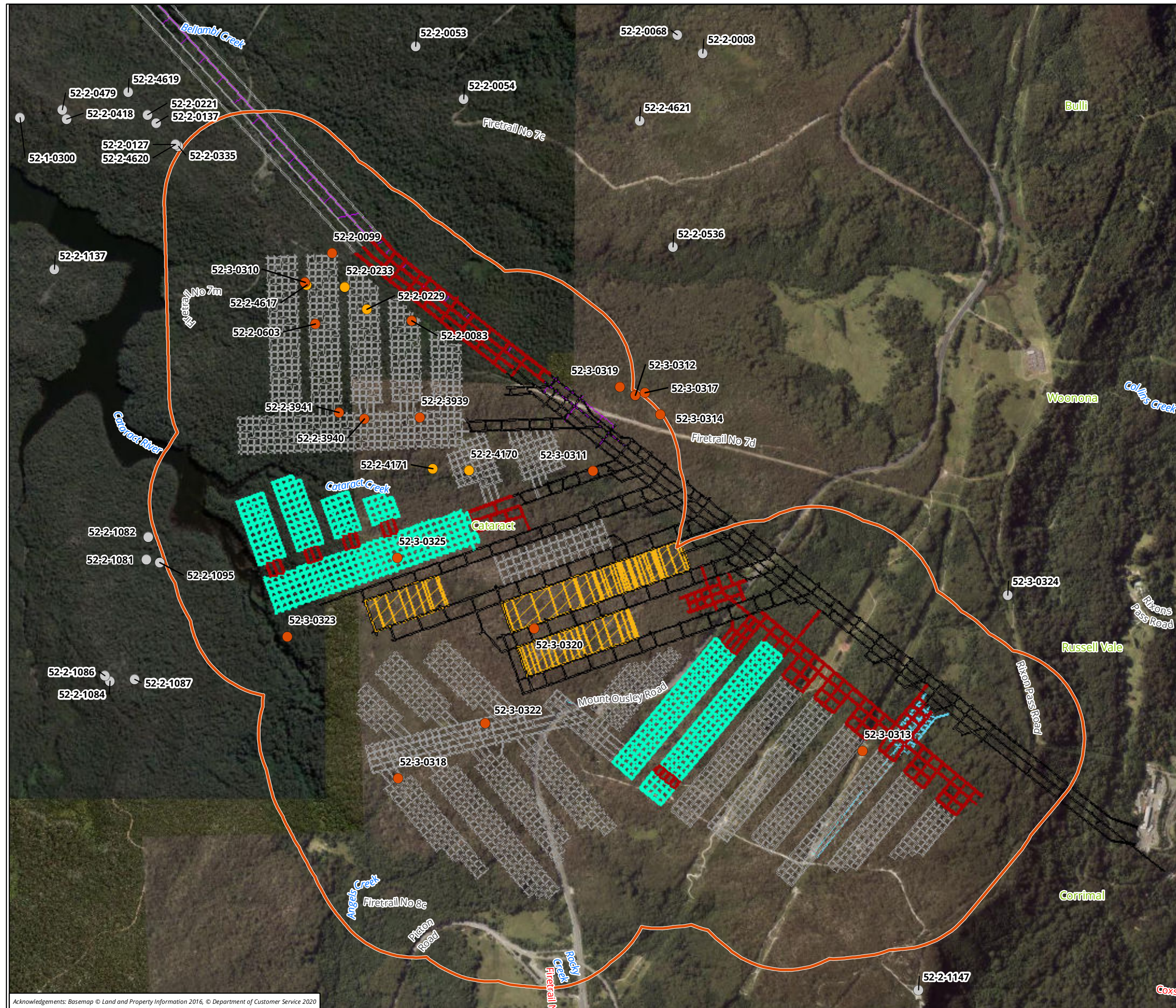
The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording, however no artefacts were identified. The location of Bulli Mine Shaft 36 is within the year 2-5 panel (Future Stages) currently described as PC3. This panel location is subject to the finalisation of the future mine plan for the extraction for this period.

### **5.2.6 Wallandoola Site 30 (AHIMS 52-2-1265)**

Wallandoola Site 30 is a shelter with deposit. Four surface artefacts consisting of one jasper flake and three quartz flakes have been recorded in the drip line at this site. A deposit of yellowish sandy loam is present with a depth of 60 cm and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. The AHIMS database has two recordings of Wallandoola Site 30, which has resulted in this site being duplicated. The description on the site card places this site 15 kilometres north-west of the Project Area. No further review or assessment of risk for this site has been carried out.





### Legend

- Study area
- AHIMS record - project approval sites
- AHIMS record - additional sites within Project area
- AHIMS record
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings
- RVE-No.3\_Design (20210219)**
  - Conforming pillars
  - Nonconforming pillars (Year 1)
  - Polaris original
  - Proposed Wonga workings (Years 2-5)
  - SCT new

**NOT TO BE MADE PUBLIC**

**Figure 8 Aboriginal Heritage sites**

0 150 300 450 600  
Metres

Scale: 1:15,800 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 17 May 2021,  
Checked by: SJK, Drawn by: LH, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F4\_AHIMS.mxd



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 6. IMPACT ASSESSMENT - ABORIGINAL HERITAGE SITES

### 6.1 Russell Vale Pit Top

No impacts are predicted to Aboriginal sites in the Russell Vale Pit Top area due to the low potential for sites to be present based on the history of mining and disturbance in the area. There are no registered Aboriginal sites within the Russell Vale Pit Top area and none were identified during the survey. However, it was recommended that contingency plans should be developed for the HMP in case of the unexpected discovery of Aboriginal sites (ERM 2011a).

### 6.2 Underground Extraction

The 2008 Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield Strategic Review defines subsidence effects as “the deformation of the ground mass surrounding a mine due to mining activity” (DoP 2008, pp. vii). Subsidence impacts are the changes to the ground that subsequently occur as a result of subsidence effects. Subsidence impacts are not always recognisable within Aboriginal shelters and are difficult to separate from normal background effects. Any change of Aboriginal shelter site condition observed during subsidence mining is managed under the assumption that it could possibly be the result of subsidence impact.

The subsidence assessment of the proposed extraction undertaken by SCT (2019) found that irrespective of the strength, load and behaviour of the proposed pillars being utilised in the proposed bord and pillar workings, some low-level deformation is expected within the Wongawilli seam, with elastic compression of the strata above and below the pillars. This strata compression has the potential to result in low-level subsidence movements (less than 100 mm and generally less than 30 mm), as well as some corresponding low levels of tilt and strain. Any such subsidence is likely to occur gradually and movement is expected to be generally imperceptible and insignificant for all practical purposes.

The assessment concluded that “the small subsidence movements that are forecast for the proposed mining layout are not expected to cause perceptible impacts to any natural surface features including upland swamps, cliffs, steep slopes, drainage lines, creeks, Cataract Creek and Cataract Reservoir” (SCT 2019). The proposed mining is not expected to have an impact on surface water dependent ecosystems or groundwater.

A peer review of the Russell Vale Colliery subsidence assessment (SCT 2019) undertaken by BK Hebblewhite Consulting supported the claim that the proposed mining is not expected to result in any significant subsidence impacts on surface or sub-surface water regimes, and that proposed pillars are large enough to be long-term stable. The review also supported the claim that the proposed workings are not considered to have any potential to perceptibly impact on any surface features such as escarpments, swamps, cliffs, creeks and drainage lines, or the Cataract Reservoir (B K Hebblewhite Consulting 2019).

The Proposed Action mine plan has been designed to be long term stable. Should an unexpected pillar failure occur, the SCT Subsidence Assessment estimated the potential vertical subsidence associated with a pillar failure in the Wongawilli Seam as being up to 140mm. A risk analysis undertaken by (SCT 2020) quantifies the risk of such a pillar failure occurring as less than 1 in 100,000 (0.001 % over the life of the project and therefore less than 0.01 % per year). The likelihood of an initiating event occurring is considered to be remote.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Changes to shelter conditions attributed to subsidence impacts include small movement along joints, tension cracking of strata, cliff collapse or block fall and increased water seepage of shelter sandstone surfaces. While subsidence impacts do not always have direct heritage values impacts, i.e. impacts to art panels, they can cause a change in shelter conditions that lead to heritage values impact, such as altering water seepage patterns that adversely affects art panels. Thus, the heritage values at a given Aboriginal shelter site, such as the presence or absence of art panels, will influence the risk of a heritage values impact due to subsidence impacts.

Changes to site conditions of axe grinding grooves and engraving sites due to subsidence effects could include cracking of sandstone platforms, tree fall and change in drainage patterns. It is possible that these changes in site conditions could result in impacts to axe grinding grooves and engravings if cracks directly impact grooves or engravings, tree fall obscures grooves or engravings and/or changes in drainage patterns alters the natural setting context of axe grinding grooves.

For a site to incur a total loss of cultural heritage value; the complete destruction of axe grinding grooves or engravings in their entirety would have to occur along with changes to the setting and context of the item. Subsidence monitoring to date indicates that this is highly unlikely to occur and changes in site conditions from subsidence effects are at most only likely to result in partial loss of cultural heritage values.

Impacts are assessed by considering:

- Cracking in sandstone platforms or shelter walls/ceilings.
- Cracking of art panels or grinding grooves.
- Movement along existing joints and/or bedding planes.
- Blockfall.
- Bedrock collapse.
- Changes to the water seepage patterns or water flow regime through the sandstone.
- Removal of site access.

Heritage NSW *Guidelines to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011)(OEH 2011) specify the importance of considering cultural landscapes when considering potential subsidence impacts to Aboriginal heritage values. The principle behind a cultural landscape is that 'the significance of individual features is derived from their inter-relatedness within the cultural landscape'. This means that sites or places cannot be 'assessed in isolation' but must be considered as parts of the wider cultural landscape. Hence the site or place will possibly have values derived from its association with other sites and places.

It is acknowledged that Aboriginal people are the primary determiners of the cultural significance of Aboriginal cultural heritage. During consultation the following information was provided by RAPs in regards to the cultural values of the Project Area:

- The study area is part of a wider cultural landscape that included both tangible and intangible values. In particular it was noted that the art sites were an important cultural resource to the Aboriginal community.
- RAPs who participated in the survey commented about the high cultural significance of the entire catchment area.

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Impacts to cultural values can only be determined in consultation with the RAPs. **APPENDIX B** details RAP consultation and responses concerning cultural values. A range of environmental monitoring programs will be implemented by WCL that will consider the wider cultural landscape as are detailed in the UEP Extraction Plan specific sub plans-Biodiversity Management Plan, Swamp Monitoring Plan, Water Management Plan that are included with and complement this plan.

Historic values refers to associations a place or object that may have with a historically important person, event, phase or activity to the Aboriginal and other communities. The Project Area is not known to have any historic associations; therefore, impacts on historical values will not occur.

Aesthetic values refer to the sensory, scenic, architectural and creative aspects of the place. The Project Area is relatively undisturbed and is a typical example of the Woronora Plateau in its natural context. The landscape of the study area is closely linked with Aboriginal cultural values and provides a context for Aboriginal sites that gives a strong sense of place. Impacts to aesthetic values are considered low due to the nature of first working mining techniques, which are designed to be long-term stable with imperceptible subsidence impacts.

### 6.2.1 Risk Assessment

The Proposed Action mine plan has been designed to be long term stable with imperceptible subsidence impacts. Should an unexpected pillar failure occur, the SCT Subsidence Assessment (2019) estimated the potential vertical subsidence associated with a pillar failure in the Wongawilli Seam as being up to 140 millimetres. A risk analysis undertaken by (SCT 2020) quantifies the risk of such a pillar failure occurring as less than 1 in 100,000 (0.001%) over the life of the project and therefore less than 0.01 % per year). The likelihood of an initiating event occurring is considered to be remote.

However, some low-level deformation is expected within the Wongawilli seam, with elastic compression of the strata above and below the pillars. The strata compression has the potential to result in low-level subsidence movements (less than 100 mm and generally less than 30 mm). Any such subsidence is likely to occur gradually and movement is expected to be generally imperceptible.

Furthermore, the updated subsidence report developed to support the requirements for the Extraction Plan as required by Condition C10 (e) by SCT (2021) have confirmed that the all Bulli goaf areas are fully subsided and the subsidence predictions do not change from their original assessment. This information provides more confidence in the views reflected in the SCT subsidence assessments and that the Bulli Seam goafs are already fully subsided and no impacts to Aboriginal sits has occurred.

The assessment of risk was made using the criteria in Section 3.6.4 of Biosis (2013) as outlined in **Table 11** below. The risk assessment identified that the impact of relevance to Aboriginal heritage sites was that related to subsidence. The risk assessment relates specifically to archaeological (scientific) values.

The subsidence impact assessment for Aboriginal sites within 350m of second workings areas PC 07-08 and PC 21-25 are presented below in **Table 12**. This assessment was made using the parameters in Sefton's (2000) Principal Components Analysis and in conjunction with the subsidence predictions provided by (SCT 2020), detailed in **Table 13** and is intended to act as an updated assessment of risk of impact from the development to Aboriginal heritage sites previously

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

identified in the EP Area, and in particular above the Bulli Seam goaf areas that have been subject to discussion as to their status as 'confirmed as subsided'.

Risks of impact will be undertaken for all other sites within 350m of proposed bord and pillar extraction areas and used to inform monitoring and management measures identified in the specific Extraction Plan provisions relevant to those sites and workings.

**Table 11 – Subsidence Effect Risk Categories and Criteria**

Category	Description	Criteria
<b>Moderate</b>	There is a moderate chance of subsidence effects occurring which may result in impacts to heritage values.	<ul style="list-style-type: none"> <li>The shelter has an art panel present.</li> <li>The shelter has a volume larger than 50 cubic metres.</li> <li>The shelter has joints or bedding plans subject to water seepage.</li> <li>Maximum predicted subsidence is greater than 300mm based on risk of unconsolidated workings.</li> </ul>
<b>Low</b>	There is a low chance of subsidence effects occurring which may result in impacts to heritage values.	<ul style="list-style-type: none"> <li>The shelter has a volume larger than 50 cubic metres.</li> <li>Maximum predicted subsidence is greater than 300mm.</li> </ul>
<b>Very Low</b>	There is a very low chance of subsidence effects occurring which may result in impacts to heritage values.	<ul style="list-style-type: none"> <li>The shelter has a volume less than 50 cubic metres and maximum predicted subsidence is greater than 300mm; or</li> <li>The shelter has a volume more than 50 cubic metres and maximum predicted subsidence is less than 300mm.</li> </ul>
<b>Negligible</b>	Impacts to heritage values are unlikely and if they did occur would normally be indistinguishable from natural environmental effects; or The site is located outside of the predicted subsidence impact zone First Workings	<ul style="list-style-type: none"> <li>The shelter has a volume less than 50 cubic metres.</li> <li>Maximum predicted subsidence is less than 20mm, tensile strain predictions are &lt;0.5mm/m and compressive strain estimates are &lt;0.01mm/m.</li> </ul>

## 6.2.2 First and Second Workings

First workings is defined as the “development of road headings, gate roads, related cut throughs, and other workings for mine access and ventilation”, would be constructed as required to support the extraction in the secondary workings' panels. Second Workings is defined as “extraction of coal from board and pillar workings”. Sites are unlikely to be affected by first workings as these



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

workings are predicted negligible subsidence, i.e. less than 20mm. However, to ensure compliance with the Condition B24g(iii) as is currently proposed to monitor the identified sites in **Table 12** it is proposed to monitor these sites before and after the development.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 12 – Summary of Predicted Risk of Impact to Aboriginal Sites**

Site Name	AHIMS No.	Site Type	Scientific Significance	Cultural Significance	Risk of Impact	Extraction Panel / First Workings	Baseline monitoring complete?
<b>Extraction Plan Year One and First Workings</b>							
Bulli Mine Shaft 26	52-3-0323	Shelter with deposit and artefacts	Moderate	High	Very Low	Within 350m radius of PC21	No
Bulli Mine Shaft 27	52-3-0325	Shelter with art, deposit and artefacts	Moderate	High	Low	PC 21	Yes
Bulli Mine Shaft 20	52-3-0311	Shelter with deposit	Moderate	High	Negligible	In vicinity of Existing First Workings	Yes
Bulli Mine Shaft 29	52-3-0313	Open camp site	Low	High	Negligible	In vicinity of new First Workings Note: site to be reviewed for status with HO.	N/A (Open campsites are not subjected to baseline recording; however it was inspected during the baseline recording survey)
Wonga East 4	52-2-4170	Shelter with deposit and scattered artefacts	Moderate	High	Very Low	Within 350m radius of PC21	No
Wonga East 5	52-2-4171	Shelter with stone arrangement	Low	High	Very Low	Within 350m radius of PC21	No





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Site Name	AHIMS No.	Site Type	Scientific Significance	Cultural Significance	Risk of Impact	Extraction Panel / First Workings	Baseline monitoring complete?
<b>Extraction Plan Years 2-5 and First Workings</b>							
Wonga East 1	52-2-3939	Shelter with deposit and artefacts	Moderate	High	Low	TBC	To be updated with Extraction Plan
Wonga East 2	52-2-3940	Shelter with deposit and artefacts	Moderate	High	Low	TBC	To be updated with Extraction Plan
Wonga East 3	52-2-3941	Shelter with deposit and artefacts	Moderate	High	Very Low	TBC	To be updated with Extraction Plan
Wonga East 4	52-2-4170	Shelter with deposit and scattered artefacts	Moderate	High	Low	TBC	To be updated with Extraction Plan
Wonga East 5	52-2-4171	Shelter with stone arrangement	Low	High	Very Low	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 7	52-2-0083	Shelter with deposit and artefacts	Moderate	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 8	52-2-0099	Axe grinding grooves	Low	High	Very Low	TBC	To be updated with Extraction Plan



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Site Name	AHIMS No.	Site Type	Scientific Significance	Cultural Significance	Risk of Impact	Extraction Panel / First Workings	Baseline monitoring complete?
Bulli Mine Shaft 12	52-2-0229	Bulli Mine Shaft 12 is a grinding groove site.	Low	High	Low	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 13	52-2-0233	Bulli Mine Shaft 36 is a shelter with deposit.	Low	High	Low	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 18	52-3-0310	Shelter with deposit, art and grinding grooves	High	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 19	52-3-0603	Shelter with art and artefacts	Low	High	Moderate	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 20	52-3-0311	Shelter with deposit	Moderate	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 21	52-3-0314	Shelter with art and deposit	High	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 22	52-3-0317	Shelter with deposit and artefacts	Moderate	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 23	52-3-0312	Shelter with deposit and artefacts	Moderate	High	Negligible	TBC	To be updated with Extraction Plan



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Site Name	AHIMS No.	Site Type	Scientific Significance	Cultural Significance	Risk of Impact	Extraction Panel / First Workings	Baseline monitoring complete?
Bulli Mine Shaft 24	53-3-0319	Shelter with deposit and artefacts	Moderate	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 29	52-3-0313	Open camp site	Low	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 30	52-3-0318	Shelter with art	Moderate	High	Very Low	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 25	52-3-0320	Axe grinding grooves	Low	High	Very Low	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 31	52-3-0322	Axe grinding grooves	Low	High	Negligible	TBC	To be updated with Extraction Plan
Bulli Mine Shaft 36	52-2-4617	Shelter with deposit and artefacts	Moderate	High	Low	TBC	To be updated with Extraction Plan



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Table 13 – Aboriginal Heritage Subsidence Risk Assessment for the Extraction Panels

Site Name	Site Number	L (m)	W (m)	H (m)	Vol (m³)	Aspect	Faces aspect	Art	Location	Wet/Dry	Location: End of Panel	Location in Panel	DIR	SUBS (mm)	Tensile Strain	Comp Strain	Tilt	Risk Assessment
Wonga East 1	52-2-3939	8	8	1.5	96.00	W	BF	N	UVS	D	Y	E	E-W	0.2	6.2	6.2	10	Low
Wonga East 2	52-2-3940	25	4	4	400.00	S	BF	N	UVS	D	Y	E	E-W	0.1	3.1	6.2	10	Low
Wonga East 3	52-2-3941	8	2	1	16.00	S	BF	N	UVS	D	Y	M	E-W	0.2	3.0	5.9	10	Very Low
Wonga East 4	52-2-4170	10	4	10	24.00	S	CW	N	UVS	D	N	O	E-W	<0.1	<0.5	<1.0	<2.0	Negligible
Wonga East 5	52-2-4171	6	4	1	24.00	S	CW	N	UVS	W	N	O	E-W	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 7	52-2-0083	2.5	1.5	1.5	5.625	NE	CW	N	LVS	D	N	O	E-W	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 8	52-2-0099	8	4	N/A	N/A	N	SP	N	UVS	W	Y	O	E-W	0.5	4.2	8	14	Very Low
Bulli Mine Shaft Site 12	52-2-0229	18	2	N/A	N/A	N	SP	N	RT	W	Y	O	E-W	0.9	4.1	8	14	Very Low
Bulli Mine Shaft Site 13	52-2-0233	18	4	N/A	N/A	N	SP	N	RT	W	N	O	E-W	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 18	52-3-0310	9.6	8.5	1.6	130.56	W	CW	Y	RT	D	N	O	E-W	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 19	52-2-0603	7	3	3	63.00	W	CW	Y	RT	W	Y	E	E-W	0.3	0.6	2.4	4.7	Moderate
Bulli Mine Shaft Site 20	52-3-0311	7.5	6.9	1.2	62.10	SW	CW	N	UVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 21	52-3-0314	6.3	3.4	2.5	53.55	NE	CW	Y	RT	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 22	52-3-0317	20	4	4	320.00	NW	BF	N	UVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 23	52-3-0312	20	4.5	3.3	297.00	N	CW	N	UVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 24	52-3-0319	67	4.5	3	904.50	NE	CW	N	UVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 25	52-3-0320	22	2.5	N/A	N/A	N/A	SP	N	RT	W	N	CP	SE-NW	1.8	14.1	28	47	Very Low
Bulli Mine Shaft Site 26	52-3-0323	6	3.5	3	63.00	SW	BF	N	LVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Very Low
Bulli Mine Shaft Site 27	52-3-0325	3	2.5	1.2	9.00	NW	CW	Y	LVS	W	Y	M	SE-NW	1.4	8.6	17	29	Very Low
Bulli Mine Shaft Site 29	52-3-0313	5	25	N/A	N/A	N/A	SP	N	UVS	W	N	O	SE-NW	<0.1	<0.5	<1.0	<2.0	Negligible
Bulli Mine Shaft Site 30	52-3-0318	10	3.7	4.5	166.50	W	BF/CW	Y	UVS	W	N	O	N-NW	0.6	4.3	8.6	14	Very Low
Bulli Mine Shaft Site 31	52-3-0322	11	20	N/A	N/A	S	SP	N	UVS	W	N	O	NW	<0.1	<0.5	<1.0	<2.0	Negligible

Abbreviations:

L	overhang/sandstone platform length (metres)	Wet/dry	D = surfaces mainly not affected by water seepage
W	overhang/sandstone platform width (metres)		W = surface mainly affected by water seepage
Area	in m²	LOC END PANEL - Y	= located within 350 of the end of a panel, whether inside or outside the panel
Aspect	direction shelter faces	N	= not located within 350m of the end of a panel wither inside or outside the panel
		LOC IN PANEL -O	= located outside the panel



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Faces	aspect	main apparent formation process either block fall (BF) or cavernous weather (CW) or sandstone	CP	= located under the panel
platform (SP)			DIR LW	Direction of the nearest panel
Art	Art present (Y=present, N=absent)		SUBS	Maximum predicted subsidence (mm)
LOC	RT = ridge top		Tensile Strain	Maximum predicted tensile strain (mm/m)
	UVS = upper valley slope		Comp. Strain	Maximum compressive strain (mm/m)
	LVS = lower valley slope		Tilt	Maximum tilt (mm/m)
	VB = valley bottom (lowest cliff line)			

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 7. BASELINE - NON-ABORIGINAL HERITAGE

### 7.1 Description of Non-Aboriginal Heritage Sites

The UEP Area is located adjacent to the curtilage of Cataract Dam as defined by the high-water mark of the Dam.

The Russell Vale Surface facilities are associated with and are adjacent to aspects of the former South Bulli Colliery and contains a number of features with coal mining associated heritage values from the late 19th Century onwards. The South Bulli Colliery is listed on the:

- Wollongong LEP 2009 as item 5928;
- individual heritage features previously listed on the Illawarra REP No. 1 1986 and gazetted in 1990 were consolidated as the South Bulli Colliery in the Wollongong LEP 1990.

Details for the South Bulli Colliery and Cataract Dam are provided below. The location of non-Aboriginal heritage items are shown in **Figure 9**.

The UEP Area is located adjacent to the curtilage of Cataract Dam as defined by the high-water mark of the Dam.

#### 7.1.1 South Bulli Colliery

The site of the South Bulli Colliery comprises buildings, structures and landscape features relating to mining operations from the mid nineteenth to late twentieth centuries. These can be said to be comprised of a series of historical 'layers' representing the cumulative changes of many stages of construction, demolition and reconstruction.

Before the commencement of the South Bulli Colliery in 1887, the Project Area was part of a larger farming property owned by Francis Peter MacCabe who resided at Russell Vale House within what is now the Washery Precinct. Infrastructure associated with this pre-coalmining phase of the Project Area have largely been destroyed by the subsequent construction of coalmining infrastructure in the 1960s, however relics from Russell Vale House and the MacCabe family, who played an important role in the early coalmining history of the Illawarra, are held by the IHS. A more detailed discussion of the MacCabe family is provided in the CMP.

The primary document designed to set out what is significant about a place and consequently what policies and or processes are appropriate to enable that significance to be retained in its future use and development is the existing 2012 WCL Russell Vale Conservation Management Plan. A CMP was first prepared for the Russell Vale Pit Top by GML in 2004 and an updated CMP was prepared by Biosis Pty Ltd (2012).

The physical elements of the site are described in the GML 2004 CMP and briefly reviewed in the ERM 2011 Historical Heritage Assessment (HHA) and included in the 2012 GMP. GML grouped the elements into seven Precincts and three features or aspects of the site. Mapping for these features and elements is provided in **Figure 10** and **Figure 11**. The descriptions for precincts and elements are as follows (significance and heritage listings for each element are provided in **Table 14**):

- **The Power House Precinct** is located on a terrace situated above the **Administration Precinct**. While the power house has been removed, GML identified a former ventilation fan and associated housing connecting to a brick flue covering the shaft to the underground workings (GML 2004, pp. 32). A 2 m to 3 m high brick retaining wall was noted as running the length of



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

the terrace as well as the remains of various concrete and metal footings, flues and brick building material remains. Two circular brick water reservoirs were noted as south as the access road (GML 2004, pp. 41).

- **The Administration Precinct** is dominated by the administration building, a two story brick building providing office space and scientific facilities to the colliery. The lower car park has been terraced using coal wash, while the upper car park is part of the administration building bench. Concrete pathways direct foot traffic across the site and some landscaping has been undertaken for the front lawns.
- **The Old Portal Precinct** which consists of:
  - **The lower bench workshops** are located south of the administration building and generally of 1960s and later construction. The Main Workshop and Diesel Shelter run north to south and are large steel framed rectangular sheds with gable roofs. The Sheltered Workshop and Hay shed are located further southeast of the main workshop and consist of steel framed corrugated iron/ profile steel sheeted sheds (GML 2004, pp. 44). The belt repairs shed, a corrugated tin shed, is located south of the Main Workshop. The lower bench workshops provide the major industrial scale buildings on the site and are of relevance as evidence of on-going mining, and by providing a visual context for the more significant elements in other areas of the project site.
  - **The upper bench workshops** consists of the Carpenter and Locomotive workshops, with the Workshop Offices contained to the rear of these workshops on an elevated bench reflecting the joint functions of the building. The workshops consist of steel-framed corrugated iron clad sheds with three gable roofs. The sheds are all interconnected with no interior partitioning. The workshops appear to have been adapted to several functions, and retain trackwork related to both the underground workings, and probably from use of the buildings as rail vehicle maintenance facilities. The Workshop Offices are brick and timber structures with sash windows and a veranda/walkway. The workshops also contain the adits associated with the 1887 Portal and brick retaining wall. Directly south of the works are the remnants of demolished buildings and further to the south are located the Diesel Workshop and Diesel Fuel Tanks (GML 2004, pp. 44). A concrete stairway leads to the remnants of demolished buildings, primarily consisting of footings, however the area is heavily overgrown. The Diesel Workshop and Diesel Fuel Tanks are corrugated iron sheds located on separate terraces. While GML's assessment is that the workshops 'have no identifiable heritage significance', their structural form, location and evident age strongly suggest a relatively early date. The riveted metal trusses and combination of timber and steel framework would put the building to 1920s to 1940s, and therefore probably the oldest major buildings on the site. As such they demonstrate the critical mid-20th century period when the mine was at its peak and having the greatest social and economic impact.
  - **The 1887 Portal** - Located inside the Carpenters and Locomotive workshops, is one of a pair of semi-circular arched brick lined adits. The second portal to the south (left) of the 1887 Portal is shown in the earliest photographs but is much shorter than the 1887 Portal. Now bricked over, this portal is referred to as the "Old Man's Hole" as it was used by older miners to mine coal to sell on the local market. Before pensions were introduced, this allowed older miners to support themselves once they were no longer able to work on the main face (personal communication Don Jeffcott). A brick retaining wall curves east

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

and then south from the 1887 Portal and “Old Man’s Hole”, which is also visible in early photographs of the 1887 Portal. There is an additional adit located behind the workshops and north of the office buildings, it has been bricked off with concrete blocks. To control water drainage issues with the 1887 Portal, three concrete block walls and drainage channels have been installed.

- **The Main Portal Precinct** consists of the Main Portal, New Bathhouse, Crib, First Aid Rooms and Storeroom, which are clustered on the Lower Bench. The Main Portal appears to date from the mid-20th century and with the adjacent New Bathhouse, Crib room, etc. helps interpret the dramatic expansion of mining on the site in the second part of the 20th century. The location of the building directly over the portal entrance is highly unusual and reflects the particular difficulties of utilising all available space for construction on the steep Illawarra escarpment site, which is a special characteristic of the Wollongong region mines. The style of the Crib room/Lamp room is also indicative of mid-20th century construction, and so like the upper bench workshops, the buildings demonstrate a critical period in the mine’s history.
- **Extraction Portal Precinct** is the group of structures within the area described as the Extraction Portal Precinct that relate to the 1960s mechanised mining operations and include the Extraction Portal, decline conveyor and closed adits. The Extraction Portal is a steel and corrugated iron structure located approximately 1km south of the Main Portal. The decline conveyor runs from the Extraction Portal to the coal storage bins in the Washery Precinct.
- **Gibsons Portal Precinct** is a group of structures that are primarily of value for the remaining twin portals (Gibsons Portal is either one or both) which like the 1887 portal has only been identified in previous studies in the singular. Since the 2004 GML assessment the fan house has been demolished and one adit opened with new grating installed over the entrance. Vegetation in the Precinct has also been cleared to allow operations to take place. The portals and sandstone retaining wall remain largely intact to their original condition although their height has been reduced due to either the build-up or placement of fill at their base. The concrete block fan house (now removed) and the substation/switchyard is of minimal significance, but a small electrical switchroom probably from mid-20th century, contributes to the more consistent built character of the upper bench.
- **The Washery Precinct** includes the Old Washery that was constructed in the 1960s and included a large steel framed corrugated iron clad Preparation Plant, conveyer system (part of the decline conveyer), concrete coal storage bins and a truck loader. The remnant structures from the 1960’s are among the only elements which convey the major processing activities on the site during that period. The 1960’s structures have mostly been demolished (approval was granted in 2004 under PA D2004/32) and the remainder of any standing fabric will be demolished in due course under existing planning approvals and permits as part of upgrades to existing operations. It is understood that archival recording and analysis of these structures have been undertaken by Paul Reinberger as a permit condition. In this context the heritage value of this part of the site as recorded by GML in 2004 has changed significantly.
- **Coal stockpiles and reject material** include landfill areas, comprising of reject material, and are located north and east of the Administration Precinct and are in active use. Coal stockpiles are located around the coal storage bins located in the Washery Precinct and to storage areas directly south of this location. Settling another dams are located across the site.

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

- **Signal Box and associated elements, Rail Tracks.** The Signal Box has been restored since the 2004 GML assessment, when it was recorded as being subject to vandalism and storm damage. The roof and upper parts of the walls and the external stairs have been reconstructed, and some internal fittings also remade. The gate wheel and points levers (and presumably at least some of the linkages) are intact, as is the brick lower story. While some rail track does remain, the majority has been removed as recorded by GML in 2004.
- **Moveable Heritage Items.** GML recorded that historical mining equipment was put in an open air display in conjunction with the restoration of the Signal Box in 1988. The display included a steel framed timber-sided hopper wagon (a Coal Wagon type commonly used in the 20th Century) and a short wall Coal Cutter at the front of the RV mine site in a location visible to the public.
- **Landscapes and vistas.** The 2004 GML assessment discussed two significant vistas associated with the project site:
  - Remnant Incline Haulage Alignments; and,
  - Original Haulage Line Vistas.

The original Incline Haulage Alignment ran from the Gibson's Portal to the bottom of the escarpment and this route has been incorporated as part of the current main access road. GML assessed this view as being important in the interpretation of rail tracks and coal distribution, however the majority of infrastructure associated with the rail tracks has subsequently been removed. Views east from the Main Portal and Old Portal benches incorporate vistas of the Colliery operations set across artificial terraces as well as the Russell Vale and Bellambi suburbs and coastline.

- **Other Heritage Items.** The South Bulli – Concrete Base (associated with the Ball Mill) is positioned between the Lower Bench Workshops and 1887 Portal and was listed on the Illawarra REP No. 1 1986. However, the concrete base associated with Ball Mill cannot be located and has probably been removed or buried in the last 10-20 years.

## Statement of Significance

The following statement of significance was provided for the project site by GML in 2004:

*The South Bulli Colliery site is an important place in the Illawarra's and the state's history because it is one of the earliest established and longest-running coal mining operations in Australia and because it retains structures, machinery, landform and spatial configurations that illustrate and embody its history.*

*The site is also important because, during its operating life, it introduced the first underground transport system installed for employees in New South Wales (1917) and it pioneered longwall mining in the New South Wales coal fields (1965). The colliery holds the Australian record for underground coal extraction and this reflects both its long period of operations and its history of investment in technical innovation.*

*The site as a whole is important in the course of the Illawarra's history because [it] was important in providing the employment and investment that catalysed population growth and established the pattern of settlement of Russell Vale Township and the north Wollongong area.*

*The site has cultural associations with the local community and the broader coal mining community because of its long history, historically-pivotal social and economic role in the area*

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

and because it was, at various times, a centre for labour movement and workplace reform activity (GML 2004, pp. 82–83).

In determining the level of significance of the site, GML assessed the project site as being of “State significance on historical grounds and of local significance on social, aesthetic, and historical grounds. Overall this indicates that the as a whole is of State level significance (GML 2004, pp. 82–83).

**Table 14 – South Bulli Colliery Elements**

<b>Item name (including commentary)</b>	<b>Illawarra REP No.1 1986</b>	<b>Wollongong LEP 1990</b>	<b>Wollongong LEP 2009</b>	<b>Significance Rating</b>
South Bulli Colliery (whole site)	–	Listed	Listed Item 5928	State
Power House Precinct	Listed	–	–	Moderate
<b>Administration Precinct</b>				
Administration building	–	–	–	Little
Pathways and landscape	–	–	–	Little
Car park	–	–	–	Intrusive
<b>Old Portal Precinct</b>				
Workshops lower bench	–	–	–	Little
Workshops upper bench	–	–	–	Moderate
Workshops offices	–	–	–	Moderate
1887 Portal	Listed	–	–	Exceptional
Brick retaining wall	–	–	–	High
<b>Main Portal Precinct</b>				
The main portal	–	–	–	Little
New bathroom	–	–	–	Little
Crib room and First Aid Station	–	–	–	High
Store room	–	–	–	High
<b>Extraction Portal Precinct</b>				
Extraction portal	–	–	–	Little
Main downhill conveyor (decline conveyor)	–	–	–	Little
Closed adits	–	–	–	Moderate
<b>Gibson's Portal Precinct</b>				
Gibson's Portal/s	Listed	–	–	High
Sandstone retaining wall	–	–	–	Moderate

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Item name (including commentary)	Illawarra REP No.1 1986	Wollongong LEP 1990	Wollongong LEP 2009	Significance Rating
Gibson's Sublease and associated area	–	–	–	Little
Fan house	–	–	–	Little
Electrical substation	–	–	–	Little
Electrical switchroom	–	–	–	Little
Washery Precinct				
The Preparation Plant/Old Washery 1960 (mostly demolished and permits for completion issued)	Listed	–	–	Moderate
Conveyor system (removed)	–	–	–	None
Storage silos (removed)	–	–	–	None
Truck loader (scheduled to be removed)	–	–	–	Little
Former mines office – lower area (demolished)	Listed	–	–	None
Coal stockpiles and reject material				
Coal stockpiles	–	–	–	Little
Reject materials emplacement	–	–	–	Little
Settling dams	–	–	–	Little
Other dams	–	–	–	Little
Rail tracks and associated elements				
Rails tracks and system	–	–	–	High/Moderate
Signal box	–	–	–	High
Moveable heritage items				
Coal wagon	–	–	–	High
Coal cutter	–	–	–	Moderate
Landscapes and vistas				
Remnant incline haulage alignments	–	–	–	High
Original haulage vista	–	–	–	High
Other heritage items				
Concrete base for ball mill – mapped inaccurately and cannot be located	Listed			

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

### 7.1.2 Cataract Dam

The Project Area is located adjacent to the curtilage of Cataract Dam as defined by the Dam high water line. During the early years of the 20th century, work on the Nepean Water Scheme that included Cataract, Cordeaux, Nepean and Avon dams began in order to supply water to meet the needs of the increasing population in and its suburbs (Heritage NSW 2019).

Cataract Dam was the first of the four dams constructed to collect water from the Illawarra Plateau and was created by damming the Cataract River. Construction started in 1902 and was completed in 1907. Cataract Dam is a straight dam with an unlined side spillway to the left of the dam wall. For the first time in Australia, pre-cast moulded concrete blocks were used to build the upstream face of the dam. They were hauled to the site from an open factory on the banks of the Loddon River. Cement and other supplies were delivered to the site by steam tractors hauling trailer trains over rough roads from Campbelltown, 16 kilometres away.

Completed in 1907, when Cataract filled to capacity for the first time in January 1911, it soon became clear that the spillway needed to be widened to prevent any risk of floodwater overtopping the dam wall. This work was completed in 1915.

#### Statement of Significance

The following statement of significance is taken from the NSW State Heritage Inventory:

*Cataract Dam was the first of the four water supply dams built as part of the development of the Upper Nepean Water Supply Scheme, one of the most important engineering works and items of public infrastructure in Australia. Cataract Dam was designed by engineers of the Public Works Department under direction of two of Australia's leading water supply engineers, L.A.B. Wade, Chief Engineer for Water Supply and Sewerage and E.M. De Burgh, who was Supervising Engineer.*

*The completion of Cataract Dam was a significant step in the continuing process of providing a reliable water supply for Sydney and surrounding areas and was part of a process of development of the Upper Nepean Scheme which was envisaged when that Scheme was designed in the 1880s. Cataract Dam was the largest dam constructed in NSW at the time and was considered to be a significant work of engineering in its day. It continues to play an important role as a major source of water supply for the Sydney area. Additionally, the Cataract Dam is a handsome, well-proportioned structure with strong Tudor style architectural character which complements the monumental nature of the structure and its attractive natural surroundings.*

*Cataract Dam includes a range of ancillary structures which form components of the overall site, including a set of handsome sandstone masonry residential cottages for operational staff (which appear to date from the construction of the dam). They are representative of their age and type.*

*The Official Quarters is a particularly fine example of a Federation Queen Anne Bungalow, with matching outbuildings and landscaped gardens and is associated with the accommodation of both the senior engineers of the Public Works Department and the Governor of NSW at the opening of the Dam. The Residential Engineers Cottage is also a fine quality building dating from the 1960s.*

*The Dam surrounds include remnants of its early 20th century gardens, evidence of a high level of landscape design awareness through its planning and detailing, and extensive areas of bushland. Individual components of its remnant gardens, such as its main (upper level) grotto shelter and ornamental follies, are rare in NSW on account of their imaginative conception and quality of craftsmanship. The extensive scale of the remnant area of public parklands is notable and that*

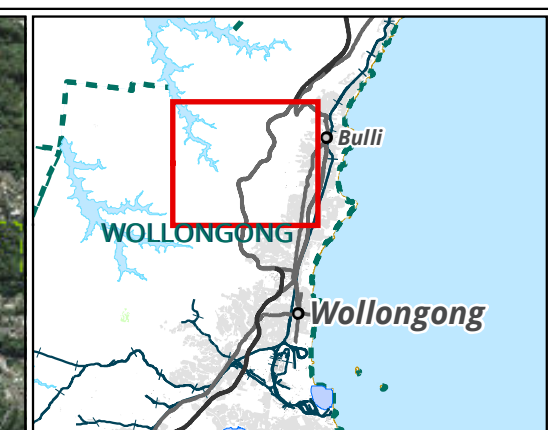
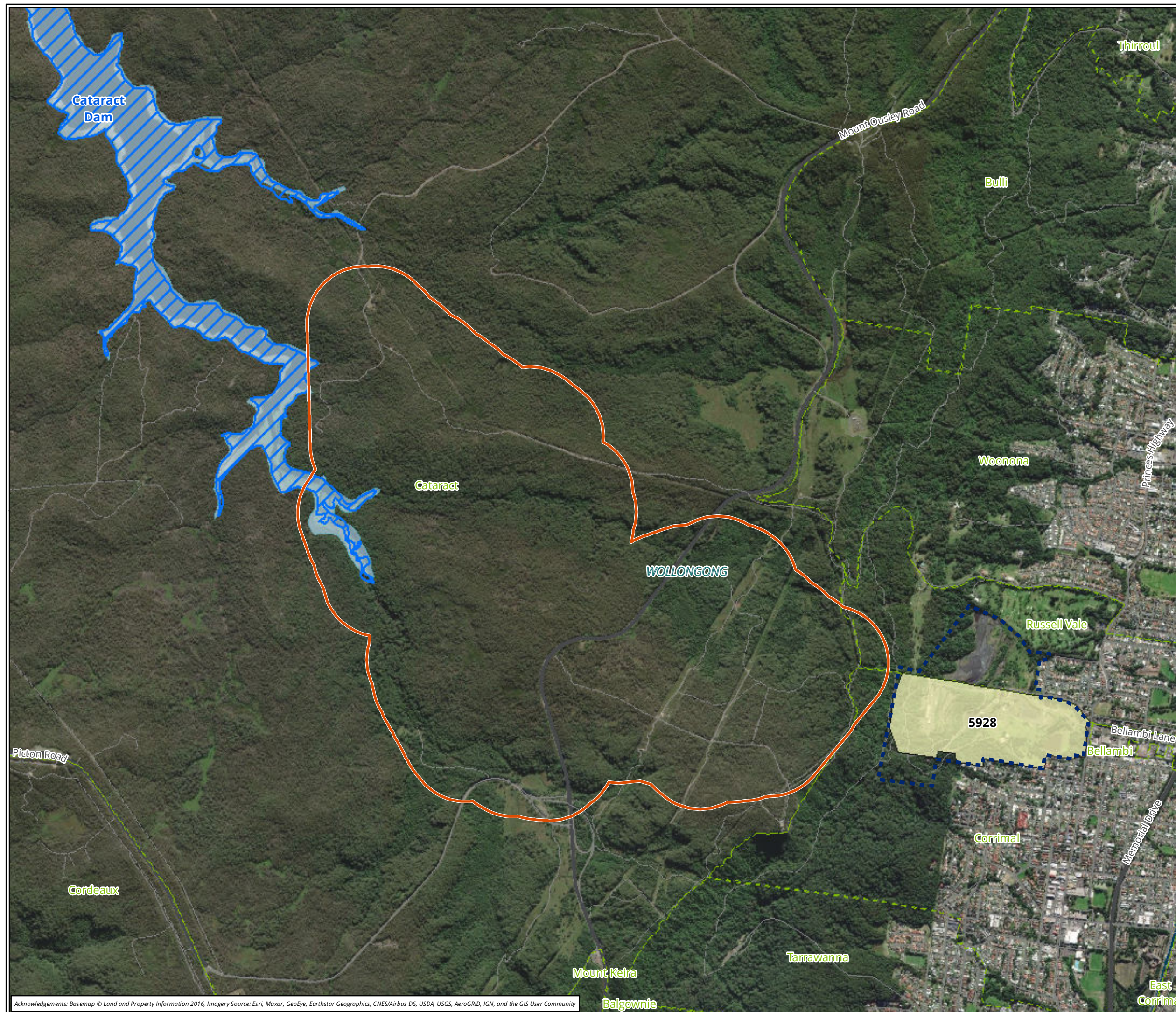




<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

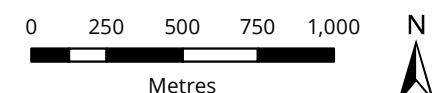
*they continue to attract regular visitation since their opening indicates that the place is highly regarded. The immediate environment around the dam wall - including the key engineering structures and associated architecture, the upstream body of water, the downstream gorge and surrounding vegetation - forms a localised cultural landscape of scenic distinction.*





- Legend**
- Study area
  - Russell Vale Colliery surface facilities
  - State heritage item
  - Local heritage item**
  - Item - Archaeological

Figure 9 Historical Heritage



Scale: 1:25,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 28 April 2021,  
Checked by: SK, Drawn by: LH, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F5\_HistoricalHeritage.mxd



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 8. IMPACT ASSESSMENT – NON-ABORIGINAL HERITAGE SITES

### 8.1 Russell Vale Surface Facilities

#### 8.1.1 South Bulli Colliery

The RVC Pit Top is located on the lower slopes of the Illawarra Escarpment, adjacent to the suburbs of Russell Vale and Corrimal. The RVC Pit Top occupies an area of approximately 100 hectares and includes coal handling, processing, storage and transport facilities, a mine water management system, mine entry adits, workshops and administration buildings.

Upgrades to the existing surface infrastructure within the RVC Pit Top will be undertaken in accordance with the Consent under the NSW EP&A Act. These upgrades are shown on **Figure 10** and **Figure 11** and include the following:

- Redesign of the Pit Top layout to reduce amenity impacts.
- Construction of a coal processing plant and associated infrastructure to improve coal quality. This plant will comprise a coal sizing plant that will remove reject rock material using dry separation methods.
- Additional noise mitigation works, including extension and construction of bunds and noise walls.

Works associated with the planned upgrade are all located within the existing disturbance footprint of the Project Area. The only impacts to occur at the RVC Pit Top are the decommissioning and removal of the Coal Washery Plant. The removal of this item has been approved under Wollongong City Council DA D2004/32.

There are also two moveable heritage items that are part of the South Bulli colliery site – the coal wagon and coal cutter displayed at the lower car park entrance. These two items will not be impacted by the proposed Pit Top works as described above. However, if they are to be relocated then an archival record of the physical condition will be prepared prior to any works commencing.

### 8.2 Cataract Dam

As the RVE UEP is being developed using the first workings mining method, no impacts are expected to the ground surface. Natural or seasonal variations in surface levels due to wetting and drying of soils are approximately 20 millimetres, and thus subsidence less than this can be considered no more than the variations occurring from natural processes, and should have negligible impacts on both natural and man-made surface infrastructure (CoA 2014, MSEC 2007, Hume Coal 2017).

The planned mining layout in the PC21 and PC22-25 EP Area is located adjacent to the Full Supply Level (FSL) Cataract Storage Reservoir which is part of the Notification Area. The subsidence assessment of the proposed extraction undertaken by SCT (2021) states that:

*“The expected subsidence effects and impacts from the planned mining within the Notification Area are expected to be tolerable to Dams Safety NSW. Any changes to water quantity flowing into the mine are expected to be negligible. No changes to water quality are expected and no additional conductive cracking is expected.”*



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Vertical subsidence impacts within the Notification Area are predicted to be less than 100mm and the Performance Measure for vertical subsidence has been set at 300mm under the development consent. This level of subsidence impact, which would be restricted to the edge of the FSL area immediately adjacent to the EP Area will have no observable impacts on the Reservoir and would not have any effect on the heritage values of the Cataract Dam. The proposed mining will not have any impacts on the dam wall itself. Subsidence will be monitored as set out in the Subsidence Monitoring Program in the EP. This monitoring will include the use of Differential Interferometric Synthetic Aperture Radar (DInSAR) monitoring which will enable survey coverage of the entire proposed mining areas including the areas below the FSL immediately adjacent to the proposed mining area. This survey has resolution in the order of 5-10mm and will be capable of detecting material vertical subsidence effects in this area.

The Dam and the creeks that feed into the Dam in the project area are subject to a monitoring and sampling regime as detailed in the Extraction Plan for surface water, groundwater, swamps, and Biodiversity. The Project is predicted to have only negligible impacts on the water quality within the Cataract Reservoir. The trivial nature of the predicted impacts would not have any impact on the heritage values of Cataract Reservoir. The EP Water Management Plan as is required to be developed in accordance with Condition c10 g(iii) includes details on a relevant surface water groundwater monitoring and sampling regime.

These monitoring programs would allow any mining related subsidence or water level impacts to the Cataract Dam to be identified.

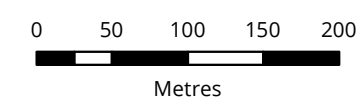




#### Legend

- Russell Vale Colliery surface facilities
- Precincts

**Figure 10 Historical Precinct Plan**



Scale: 1:5,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56




Matter: 34553,  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F6\_HistoricalPrecincts.mxd

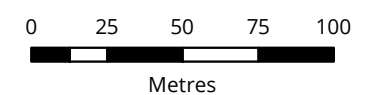




### Legend

-  Russell Vale Colliery surface facilities

**Figure 11 Site elements**



Scale: 1:2,500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F7\_SiteElements.mxd



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 9. PERFORMANCE MEASURES AND CRITERIA

Performance measures for the Extraction Plan component are outlined in the Consent Schedule 2 Condition C1 Table 5. Performance measures relevant to this Heritage Management Plan are outlined in **Table 15**.

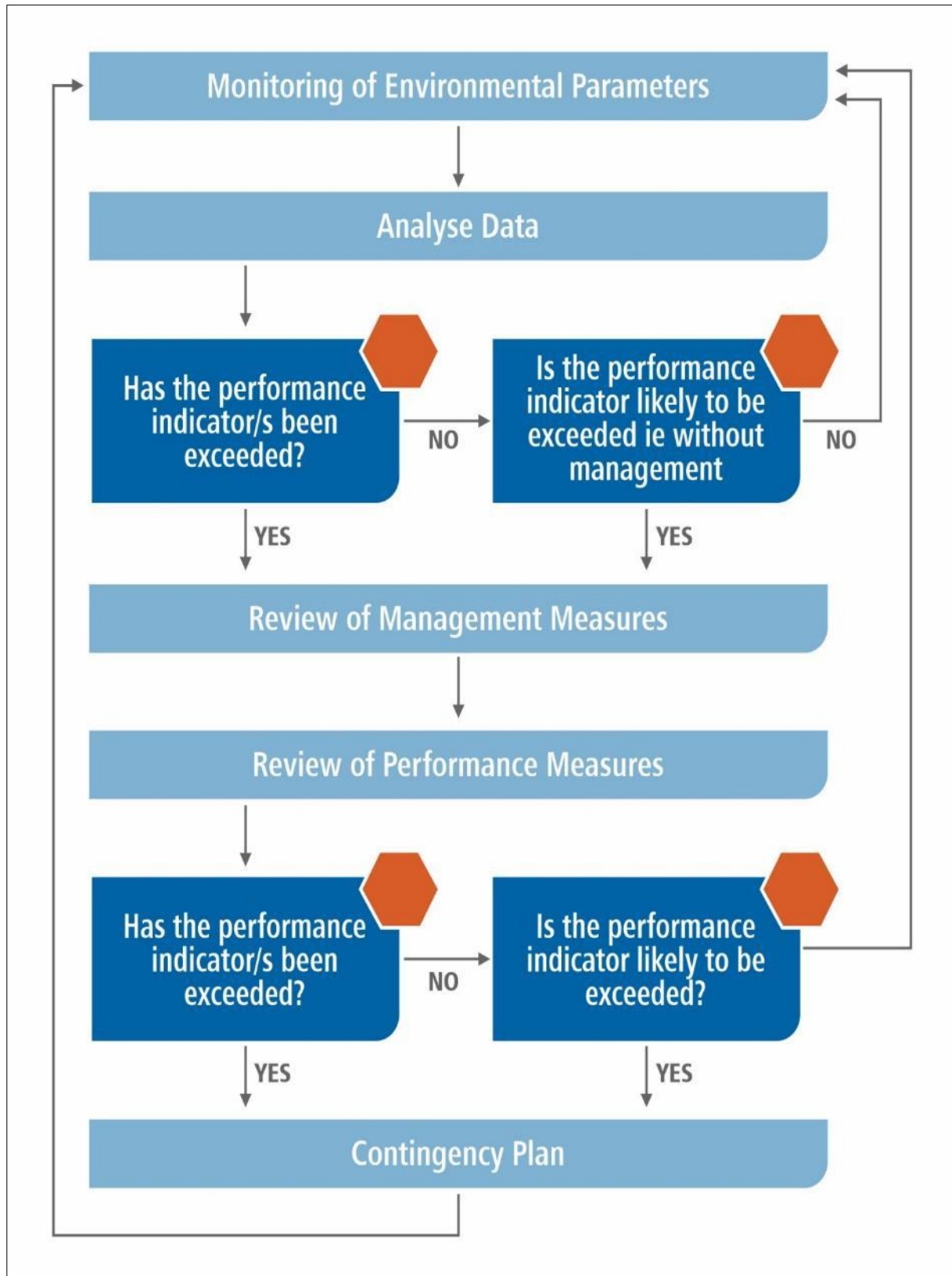
**Table 15 – Subsidence Performance Measures**

Feature	Performance Measures	Performance Indicator	Monitoring
Aboriginal heritage sites identified in the figure in Appendix 6 of the DA. AHIMS 52-3-0323 (AHIMS 52-3-0325)	Negligible subsidence impacts and environmental consequences Negligible loss of heritage value	Visible evidence of subsidence impacts (cracking, cliff falls, feature realignment, increased water seepage) Change in heritage value	Visual inspection Photographic recording LiDAR
Historic heritage sites listed in the figure Appendix 7 of the DA. (Cataract Reservoir)	Negligible subsidence impacts and environmental consequences Negligible loss of heritage value	Change in Condition Change in heritage value	LiDAR Visual Inspection
Other Aboriginal and historic heritage sites.	Negligible subsidence impacts and environmental consequences Negligible loss of heritage value	Change in Condition Change in heritage value	LiDAR Visual Inspection

The performance indicators and associated trigger levels to manage compliance with these performance criteria are outlined in Trigger Action Response Plan (TARP) as outlined in **Section 10.3** and **APPENDIX A**.

Triggers that indicate a greater than negligible impact are outlined below Environmental management will be undertaken in accordance with the process described in **Figure 12**.

**Figure 12 – Management process**



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 10. MITIGATION AND MANAGEMENT STRATEGIES

### 10.1 Aboriginal Cultural Heritage

The following management options and mitigation measures for Aboriginal cultural heritage sites that may be impacted due to mining subsidence have been made to inform the HMP. The heritage performance measures and indicators (TARP) are presented in **APPENDIX A** for sites potentially impacted by pit top activities and the second workings of Stage 1 of the extraction plan. General monitoring principles for the monitoring of impacts to sites potentially impacted by future secondary extraction covered by the Development Consent are also discussed with details to be included in subsequent Extraction Plans prepared under Condition C10 of the Development Consent.

#### 10.1.1 Baseline Assessment and Recording Process

Prior to the survey AHIMS mapping coordinates and site card descriptions were used to locate sites and develop site maps to inform the survey and display and complement the information from the site cards and AHIMS search. The survey team including two Biosis archaeologists and the RAPs undertook a targeted survey for Aboriginal heritage sites in the Project Area as required by Condition B24(e). The results of the surveys are summarised below with further detail contained in **Appendix D**.

##### 10.1.1.1 Review process for site/s unable to be located

To address the requirement for pre-mining baseline survey of all sites a review of all relevant background information including a revised request from Heritage NSW for all site cards, spatial and mapping process and including all relevant previous surveys available has been carried out.

Where the site has during the surveys to date not been located at the prescribed location, the survey team reviewed the site cards and mapping information and widened the search to an area of 50 metres around the site, focusing on locations suitable landforms where the sites would be expected to be found.

These additional surveys will be carried out in a staged manner relative to the Extraction Management Plan and the underlying mine plan initially for Year 1, and subsequently the remainder of the Project Area prior to secondary extraction.

**Stage 1** – Only sites 52-3-0323, 52-3-0325, 52-2-4170 and 52-2-4171 are located within 350m of the proposed Stage 1 second workings (PC07-08 and PC21-25). Site 52-3-0313 is located within the vicinity of new first workings for panels 7 and 8, while 52-3-0311 is located in the vicinity of existing first workings. First workings are noted as resulting in negligible subsidence. Three of the six sites that were located during the survey have had an updated 2021 baseline recording which is detailed in **Appendix D**. The baseline recording for 52-3-0311 did not include a photo scale but will be updated prior to the second workings. **Stage 2** – All sites located within 350m of proposed second workings will be relocated and recorded at least 3 months prior to and second workings within 350m of these sites. The 2021 baseline survey of a number of these sites has already been undertaken and is detailed in **Appendix D**. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for Future Stages are preliminary only and will be updated following additional surveys prior to the second workings. Details of these baseline line



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

inspections will be contained in relevant extractions plans for second workings within 350m of these sites.

In the instance that the additional Extraction Plan specific surveys result in a site being confirmed to be located at spatial coordinates that differ from that in the AHIMS database and site card, WCL and its consultants would contact NSW Heritage to commence the process to address this via the AHIMS database.

The results of these surveys will be recorded in an updated baseline survey. In the case that any site is still unable to be located a report detailing the efforts to find the site/s would be prepared to support discussions with Heritage NSW, the RAP's and DPIE.

#### **10.1.1.2 Updated Baseline Recording**

In accordance with **Condition B23** of the Consent, WCL will ensure that the development does not cause any direct or indirect impact on any identified heritage items.

This is primarily achieved through the use of a long term stable bord and pillar design which is predicted to have vertical subsidence impacts of less than 100mm. This level of impact is not predicted to have any observable impacts on aboriginal heritage items in the areas above or in the vicinity of the proposed underground workings.

Within the UEP, Aboriginal sites that are within 350m of the proposed bord and pillar workings may be subject to the expected minor levels of subsidence impacts. The levels of predicted subsidence are expected to have only negligible impacts on Aboriginal sites such as rock shelters or grinding groove sites which are considered the most susceptible to subsidence impacts. The project is not predicted to have any impacts on isolated artefacts or artefact scatters, even in the unlikely event that a pillar failure occurs and vertical subsidence in excess of 300mm occurs. Only those workings immediately above the proposed bord and pillar workings (second workings) are likely to experience subsidence impacts of up to 100mm. Sites located outside the area immediate above the proposed bord and pillar mining areas are unlikely to experience any observable vertical subsidence impacts.

Baseline recording prior to mining beginning in the project area has been completed for one site (52-3-0325) that is within 350m of the proposed Stage 1 second workings. Two attempts were made to baseline record 52-3-0323. The first attempt the site was unable to be located due to incorrect AHIMS coordinates, while the second attempt found the site but access to the site was dangerous. Therefore, the status of the site could not be confirmed. Of these, only 52-3-0325 is located within the area where subsidence impacts are predicted to be up to 100mm. No sites are located over any Bulli Seam goaf areas which have potential to contain remnant standing pillars. Details of the updated baseline recording of these sites can be found in **APPENDIX D**. Baseline recording of sites for Future Stages will occur at least three months prior to any further second workings within 350m of these sites. A number of these sites have already had baseline surveys and preliminary recordings undertaken and are documented in **APPENDIX D**.

It is expected that any impacts to Aboriginal archaeological sites from subsidence effects in the Project Area will be negligible due to the system of mining proposed and the predicted low levels of subsidence. Higher levels of subsidence may be experienced over Bulli Seam Goaf areas which may (but are unlikely to) contain remnant pillars. Potential risks to sites located in these areas will be considered as part of the Extraction Plan process for mining in these areas.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Both monitoring and management responses for Aboriginal heritage need to be carefully considered so as to be commensurate with the level of risk of impact. Regular monitoring will not be undertaken at any artefact scatter or isolated find sites as the level of potential subsidence effects is unlikely to have any impact on these sites, even in the event of higher than anticipated subsidence effects.

### 10.1.2 Aboriginal Heritage Project Monitoring

It is expected that any impacts to Aboriginal archaeological sites from subsidence effects in the Project Area will be low to negligible. Management responses for Aboriginal heritage need to be carefully considered so as to be commensurate with the level of risk of impact.

Monitoring of negligible and low risk sites will provide evidence that impacts are not occurring or are not occurring as a direct result of mining. This will ensure that the risk assessment is accurate and if there are unexpected impacts to sites, these can be managed and addressed.

Monitoring will be undertaken prior to, during and after mining operations of grinding grove and rock shelter sites in areas of predicted subsidence as outlined in **Table 17** below. This program includes all Stage 1 sites that are within the study area, that being within 350m of board and pillar mining. Regular (6 monthly) monitoring of these sites during the period when subsidence impacts are occurring will provide evidence that impacts are or are not occurring as a direct result of mining.

Increased monitoring frequency in the event that observed subsidence impacts are higher than anticipated (i.e., greater than 100mm) will also be undertaken as part of the Subsidence TARP process (Section 10.3).

Post mining (12 months after 'second workings' mining has finished within 350m of the site) will be undertaken to assess any changes from baseline conditions. Any observed changes in site condition relative to baseline condition at any stage during the monitoring program will be compared against observed subsidence impacts to ascertain any link between observed changes and mining. This monitoring framework will ensure that the risk assessment is accurate and if there are unexpected impacts to sites, these can be managed and, in the unlikely event of impact to a site, addressed.

Monitoring of sites potentially impacted by mining in subsequent stages of second workings will be undertaken prior to, during and after mining operations generally consistent with the above process. This monitoring will be informed by the Stage 1 monitoring process and will be detailed in the relevant Extraction Plans applying to future stages. As described in Section 2.6, the underground extraction and the extraction plan are intended to be staged. The associated AHIMS sites are outlined below in **Table 16** and shown in **Figure 13**. The general monitoring framework is detailed in **Table 17**.

Biosis will record any new Aboriginal sites identified during the monitoring program of all stages of mining.

Multiple surveys have now been completed within the Project Area. Due to the low risk of any potential impact and the comprehensive nature of past surveys, additional comprehensive surveys are not recommended.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Noting that the monitoring as described in Section 10.1.2 is taken to be monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act records will kept as outlined in Section 14, and reviewed as outlined in Section 13, Section 9, 10.3 and **APPENDIX A**.

The recording and monitoring program aims to establish recording procedures that are up-to-date with current technologies and practices and capture a record of the heritage items in its current context. Recording of heritage items including information as outlined below, is part of the standard recording forms. This includes:

- Baseline recording staged approached:
  - All AHIMS sites are located within 350m of the proposed Stage 1 second workings.
  - All AHIMS sites located within 350m of proposed Stage 2-5 second workings will be relocated and recorded at least 3 months prior to second workings.
- Archival recording of heritage sites:
  - Recording of heritage sites on specially prepared recording forms.
  - Comprehensive photographic coverage of heritage sites using slide and high resolution digital photography.
- Elevation plans of heritage sites recording structural and surface features including, but not limited to, the art, graffiti, joints, bedding planes, exfoliation scars, cracks, mineral and micro-organism growth, drip line and water seepage locations.
- The identification and recording through digital photography of specific monitoring points, generally being pre-existing cracks, joints, areas of seepage, or in other parts of the shelter.

The archival material consists of all digital photographs and written records for each site.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 16 – Project Monitoring**

Extraction Plan Stage	Year	Extraction Panel	AHIMS site <100mm subsidence predicted	AHIMS site within 350m of proposed second workings (i.e. Negligible subsidence predicted)	AHIMS Site within vicinity of new first workings associated with extraction panel
Stage 1	Year 1	PC7	None	None	52-3-0313
		PC8	None	None	52-3-0313
		PC21	52-3-0325	52-3-0323 52-2-4170 52-2-4171	52-3-0311
		PC22	None	52-3-0323	None
		PC23	None	52-3-0323 52-3-0325	None
		PC24	None	52-3-0325	None
		PC25	None	52-3-0325	None
Future Stages	Years 2 to 5: further mining within the approved UEP with panel configuration and schedule to be included within subsequent extraction plans	TBC	52-2-3939 52-2-3940 52-2-3941 52-2-0083 52-2-0099	52-3-0314 52-3-0317 52-3-0312 53-3-0319 52-3-0320	52-3-0313 52-3-0312 52-3-0314 52-3-0317 52-3-0319



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Extraction Plan Stage	Year	Extraction Panel	AHIMS site <100mm subsidence predicted	AHIMS site within 350m of proposed second workings (i.e. Negligible subsidence predicted)	AHIMS Site within vicinity of new first workings associated with extraction panel
			52-3-0310 52-3-0603 52-3-0311 52-3-0313 52-3-0318 52-3-0322 52-2-4170 52-2-0229 52-2-0233 52-2-4617	52-2-4171	



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 17 – Proposed Monitoring Framework**

Type of site	Location of Site	Baseline Monitoring	Monitoring frequency during mining	Timing of monitoring after mining
<b>Artefact scatter or isolated finds</b>	Anywhere within project Area	At least 3 months prior to second working within 350m of the site	Every 6 months from the commencement of mining within 350m of the site	Single post mining observation 12 -24 months after the completion of all second workings mining within 350m of the site.
<b>Shelter, Engraving, grinding groove, scarred tree</b>	In areas of predicted subsidence <100mm	At least 3 months prior to second working within 350m of the site	Every 6 months from the commencement of mining within 350m of the site	Single post mining observation 12 -24 months after the completion of all second workings mining within 350m of the site.
<b>Shelter, Engraving, grinding groove, scarred tree</b>	In areas within 350m of the proposed bord and pillar mining but outside the areas of predicted subsidence impacts <100mm	At least 3 months prior to second working within 350m of the site	Every 6 months from the commencement of mining within 350m of the site	Single post mining observation 12 -24 months after the completion of all second workings mining within 350m of the site.

### 10.1.3 Actions If Harm Occurs

WCL will take all efforts to eliminate impacts to Aboriginal sites via implementation of the monitoring and action process outlined in Section 10.3 and detailed in **APPENDIX A**.

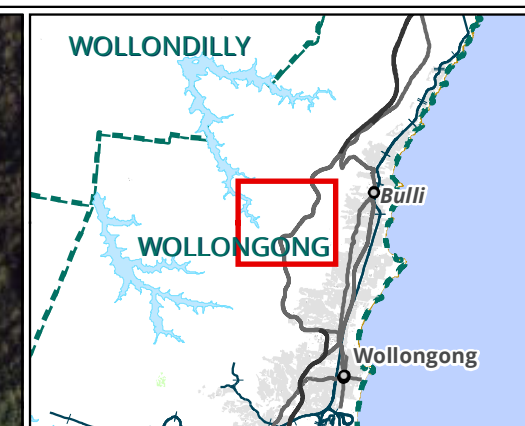
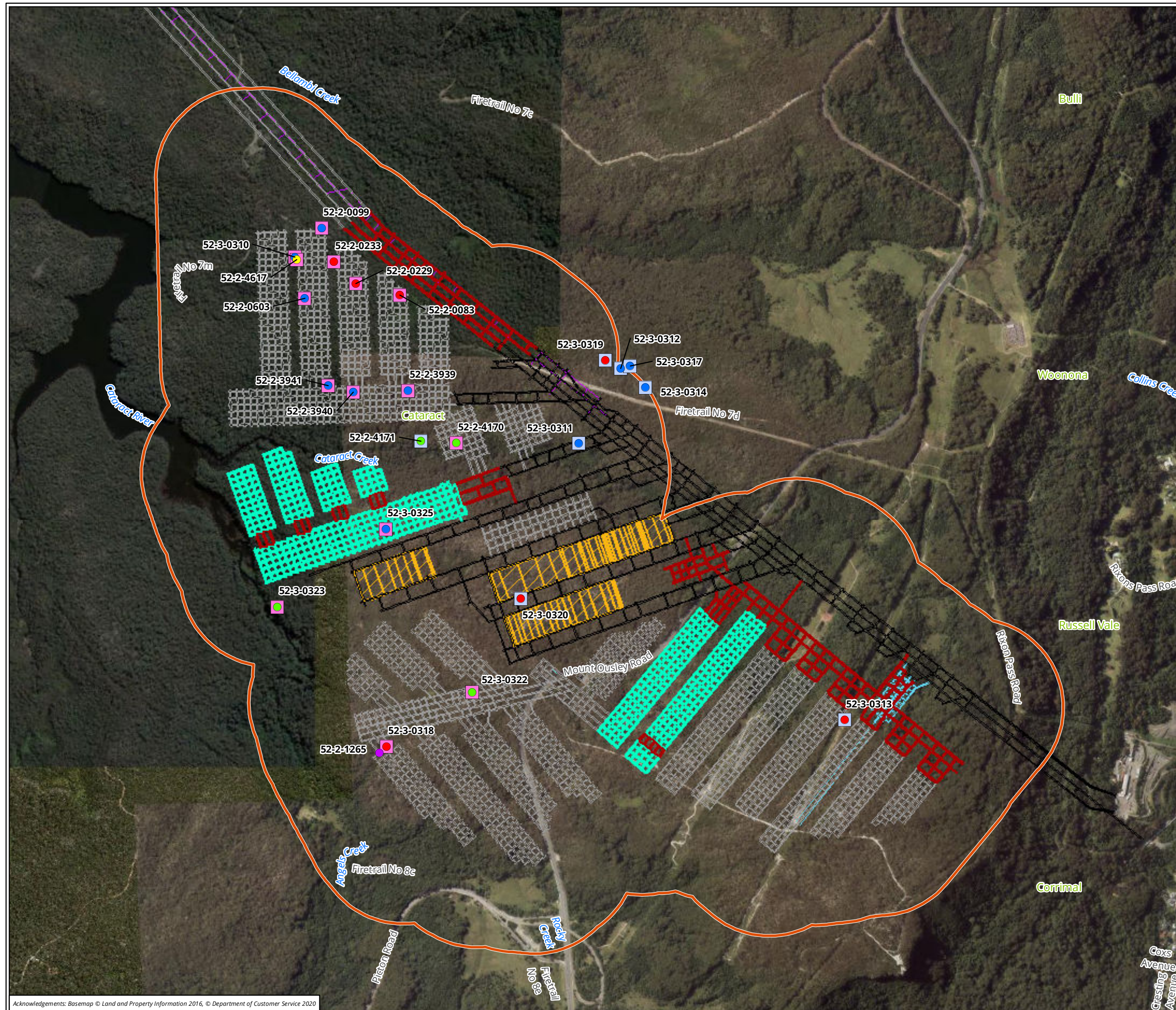
### 10.1.4 AHIMS Site Cards

AHIMS sites cards must be updated following the baseline recording of Aboriginal sites to reflect the current condition of the site. Triggers for updating site cards include:

- Following baseline recording.
- Following six monthly monitoring site visits.
- Following any changes to sites including any unexpected find

Any new Aboriginals sites identified during the monitoring program will required new site cards to be lodged with AHIMS.





### Legend

- Study area
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings

### Baseline monitoring

- Duplicate site
- No
- Yes (2015)
- Yes (2015) Yes (2021)
- Yes (2021)

### Monitoring frequency

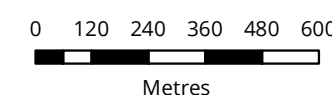
- Every 6 months
- Following mining

### RVE-No.3\_Design (20210219)

- Conforming pillars
- Nonconforming pillars (Year 1)
- Polaris original
- Proposed Wonga workings (Years 2-5)
- SCT new

**NOT TO BE MADE PUBLIC**

**Figure 13 Monitoring Program for Aboriginal Heritage Sites**



Scale: 1:16,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 17 May 2021,  
Checked by: SJK, Drawn by: LH, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F9\_MonitoringProgram.mxd



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 10.2 Non-Aboriginal Heritage

In accordance with Condition B23 of the Consent, WCL will ensure that the development does not cause any direct or indirect impact on any identified heritage items.

The management of non-Aboriginal or Historical heritage will be undertaken in accordance with the 2012 CMP conservation policy (*WCL Conservation Management Plan - Biosis Pty Ltd 2012*). The 2012 CMP as detailed and set below sets out a strategy for managing the place to best maintain its cultural significance whilst ensuring high operational standards.

It is further noted that the CMP will be updated within 12 months of the commencement of the granting of the MP09\_0013 consent, with the updated document appended in **Appendix E**. In the interim the 2012 CMP is provided.

### 10.2.1 Monitoring and Inspections

Heritage items at the Russell Vale Colliery Pit Top as detailed in the **Table 18** will be routinely inspected on a 6 monthly basis, with photographic records collected to monitor the condition of the item. The recording and monitoring program aims to establish recording procedures that are up-to-date with current technologies and practices, and capture a record of the heritage items in its current context. Recording of heritage items includes collection of information as outlined below, is part of the standard recording forms. This includes:

- Visual Inspection of heritage item;
- Archival recording of heritage sites:
  - Recording of heritage sites on specially prepared recording forms.
  - Comprehensive photographic coverage of heritage sites using high resolution digital photography.
- The identification and recording through digital photography of specific monitoring points, including any visual deterioration of the item.

The archival material consists of all digital photographs and written records for each site.

### 10.2.2 CMP Statement of Conservation Policy

The following policies are recommended for the conservation and future development.

The implications of each policy for individual site elements (individual buildings, features, relics, moveable heritage items, important views and vistas) that contribute to the overall significance of the place are shown in **Table 18**.

### 10.2.3 Management Policies

#### 10.2.3.1 Policy 1 – Adoption of updated Conservation Management Plan

WCL will for this consent formally adopt the updated 2012 CMP for the WCL Russell Vale Colliery site. If the CMP is not formally adopted and implemented, there is a likelihood that the cultural significance of the place will be jeopardised, and additional time and costs will be incurred.

The management of the property, its future development and ongoing maintenance, must be undertaken in a manner which permits the Conservation Policy to be implemented. It is important that the Conservation Policy is retained by the owners and/or tenants of the property and

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

understood by all those connected with the use, future development and maintenance of the property. This includes the property owners and management, as well as any consultants and contractors involved with work on the site.

#### **10.2.3.2 Policy 2 – Review of Policy**

That the Conservation Plan should be reviewed on a regular basis, preferably at least once every ten years, or when new material which has the potential to supplant a present policy, is discovered. This will ensure that new material or analysis can be properly assessed and if necessary incorporated into revisions of the CMP.

### **10.2.4 General Policies**

#### **10.2.4.1 Policy 3 – Retention of Key Heritage Elements**

Elements of exceptional, high and moderate significance must be managed in accordance with their level of significance. That is:

- Elements/items of exceptional or high significance should be retained, maintained and preferably utilised; some change is acceptable and should be guided by a Statement of Heritage Impact (SoHI). Where changes or impacts are assessed as unacceptable, or are outside of the scope of the existing approval, further consultation with Heritage NSW and DPIE and/or approvals will be required (**Table 6**).
- Elements/items of moderate significance should be retained, maintained and utilised. Changes to these items is acceptable as long as those changes are guided by a SoHI and do not detract from the significance. Where changes or impacts are assessed as unacceptable, or are outside of the scope of the existing approval, further consultation with Heritage NSW and DPIE and/or approvals will be required (**Table 6**).

In addition, key elements/items of significance should not be demolished or removed, and maintenance actions should be undertaken to stabilise their condition. Such works need only involve ensuring the buildings remain structurally sound and have adequate external integrity to prevent ingress of rain. These are the buildings which most closely relate to the significant historical periods of the mine's operation and provide the best opportunities for future interpretation if public access is ever to be provided to the mine site.

- Elements of little, intrusive or no significance need only be retained and conserved where required. However, if demolition or removal is required, then consideration should be given to the impact of this action on the potential future use and conservation of the exceptional, high and moderate significance site elements. Demolition or removal of elements of little, intrusive or no significance do not require heritage documentation; however, the date of removal should be recorded in the CMP.

*Note: Development consent was received previously for the removal of elements in the Washery Precinct and removal of these elements should proceed in accordance with the conditions of the consent.*

#### **10.2.4.2 Policy 4 – Maintenance of Existing Fabric**

All work to the identified significant elements and within the curtilage of significant elements on the property, whether subject to planning permit conditions or not, will be required to be undertaken in accordance with the provisions of the Burra Charter, and any action which has the potential to alter fabric of exceptional, high or moderate elements will require the preparation of



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

a SoHI. Where changes or impacts are assessed as unacceptable, or are outside of the scope of the existing approval, further consultation with Heritage NSW and/or DPIE if required with regard to any required approvals will occur (**Table 6**)

In general, maintenance schedules should ensure that the physical appearance of the building elements should principally reflect the appearance around the time of operation during the collieries period of greatest social and economic impact c, 1930-1960.

Features from c. 1880, particularly the 1887 Portal, should be retained and protected as they reflect rare examples of industrial and investment culture from the late 19<sup>th</sup> Century.

#### 10.2.4.3 Policy 5 – Sealing Mine Portals

One aspect of the rehabilitation of redundant mines that can come into conflict with heritage values is the sealing of adits, shafts and portals, and in particular sealing them in such a way that no evidence of the structure remains. This approach has been used on Illawarra escarpment particularly on some mines where they are within or adjacent to the Escarpment Conservation Areas. It is understood that this is a preferred approach of NSW National Parks.

DPI guidelines for the backfilling and sealing of adits and drifts (established under Section 92 – Section 97 inclusive of the Coal Mine Health and Safety Act 2002) suggest that as part of making safe and sealing disused mine entrances, earth may be mounded over the portal to remove any visible evidence of the structures. These guidelines are intended to ensure safety at disused mine sites. However, the guideline for burying the portal under earth, as opposed to sealing the portal internally, would appear to be optional rather than obligatory. It states: “Where possible, the adit bulkhead and surrounds should be completely covered by mounding earth over the area”. The guideline also states that: “any man-made structures or fittings in the adit, which can be safely removed, should be removed”. The guidelines would therefore appear to be sufficiently flexible to allow the retention of historic surface features where this is consistent with the safe sealing of the adit.

The Wollongong Council (and various heritage bodies - see Pearson & McGowan 2000, Mining Heritage Manual) recognises the important contribution coal mining has made to the history of the region, and that each mining site has a story to tell. The completed *Strategic Management Plan for Historic Coal Mining Sites of the Illawarra*, also confirms local heritage policy is to retain evidence of historic coal mining activity in the Illawarra region (OHM Consultants/McBeath 2006).

Therefore, a review of options for all existing portals in the vicinity of the Upper Bench should consider the need to cover the adit entry so that there is minimal disturbance to the surface structures and immediate surrounding area as far as practical considering health and safety regulations. The retention of surface features will ensure that the heritage significance of the sites, as evidence of early coal mining and prospecting, will be retained.

In line with proposed procedures for sealing portals (Sheldon 2005: 9), the recording and surveying of the site should be carried out on completion of the works, a plaque placed in a clearly visible location at each portal, indicating the colliery name, adit name and date of sealing. If possible, this should also include the historical date of operation. Copies of this documentation should be provided to the Local Studies Section of the Wollongong City Library.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

#### **10.2.4.4 Policy 6 – Interpretation & Access to Information**

Items of moveable heritage, photographs, plans and historical information should be displayed in a location accessible to visitors to the place. Interpretative material should also be displayed with, within were applicable, elements of exceptional, high or moderate significance to demonstrate their former use and appearance. Copies of historical documentation for the place should be retained on site for future reference and lodged with the Local Studies Library at Wollongong City Council.

#### **10.2.4.5 Policy 7 – Moveable Heritage Items**

Potential and identified moveable cultural heritage are intrinsic to the cultural heritage of the South Bulli colliery site. Such items range from the mechanical coal cutter displayed at the lower car park entrance, to hand tools and plans found in some redundant buildings.

Historically significant moveable heritage items including objects, photographs, plans and documents, should be retained on site were possible and an inventory of the items should be prepared and maintained. In the event that they are no longer required by the mine company, historically significant moveable heritage items should be offered to a suitable archive or museum (for example the Local Studies section of the Wollongong City Library).

The coal wagon and coal cutter should be relocated to a dry covered or preferably weatherproof location to arrest decay, and options for further conservation, such as treatment of rust and dry rot should be investigated. Failing this, offering the items to an organisation such as local historical society or museum, that might be able to carry out the conservation works would be an alternative.

#### **10.2.4.6 Policy 8 – Recording Heritage Items**

Where an item or element of heritage significance is to be altered or removed, an archival record of the physical condition will be prepared prior to any works commencing. This record will entail existing conditions architectural drawings, photographs and an inventory of components, finishes, fittings, moveable items and other details. Recording of the modification or removal of significant fabric will be undertaken prior to the disturbance.

### **10.2.5 Policies for Managing Change**

#### **10.2.5.1 Policy 9 – New Works or Buildings**

The undertaking of new works or buildings should not dominate or compromise significant aspects of elements of exceptional, high, and moderate significance. To achieve this:

- New structures must be designed to be respectful in scale, form and detail to the existing early to mid-century buildings where they are in visual proximity;
- New structures or works must not obscure important vistas or views from elements of exceptional, high and moderate significance;
- That only limited physical intervention to the fabric of the significant elements of exceptional, high and moderate significance be permitted;
- Openings connecting existing building and new structures should be limited in size and number. Existing openings should be utilised when possible; and

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- If fabric of elements of exceptional, high and moderate significance will be altered or impacted than a SoHI must be prepared. Where changes or impacts are assessed as unacceptable, or are outside of the scope of the existing approval, further consultation with Heritage NSW and DPIE and/or approvals will be required (**Table 6**).

#### 10.2.5.2 Policy 10 – Adaptive Reuse

Opportunities for compatible reuse of buildings must be investigated in the event of buildings becoming redundant, or mining cease on the site. In determining potential for adaptive reuse of buildings identified with exceptional, high or moderate significance, the following constraints should be observed:

- External envelope should be maintained;
- New openings should be limited to unobtrusive locations;
- Existing wall and roof cladding and finishes should be retained and conserved;
- Internal spaces and dividing walls of buildings identified with exceptional significance should be retained where possible, if spaces require enlarging or subdividing, such work should be reversible and identifiable;
- Internal spaces and dividing walls of buildings identified with high or moderate significance can be modified in a accordance with operational requirements and a SoHI; and
- If fabric of elements of exceptional, high and moderate significance will be altered or impacted than a SoHI must be prepared. Where changes or impacts are assessed as unacceptable, or are outside of the scope of the existing approval, further consultation with Heritage NSW and DPIE and/or approvals will be required (**Table 6**).

#### 10.2.6 Mine Rehabilitation

Preservation of Heritage structures and locations will be undertaken in accordance with the Heritage Management Plan (HMP) in place at the time of the mine closure with regard to the Russell Vale surface facilities / pit top area described as Domains 1-3 in the *Wollongong Coal Limited Russell Vale Colliery Underground Expansion Project Rehabilitation and Post Closure Commitments February 2020* to ensure presentation.

The implementation of the plan will involve a site inspection by a heritage expert to assess the listed heritage items and make recommendations as to what heritage preservation actions may be required and a review of legislation in place at the time. The recommendations would likely include a consideration of options ranging from full restoration and display of items of mobile heritage, development and installation of interpretive signage, or full restoration of heritage structures.

The recommendations that result from the review would be incorporated into the Long Term rehabilitation plans for the end of mine life to ensure preservation of all site heritage items as required by legislation or in liaison with regulatory authorities.

#### 10.2.7 Protecting non-Aboriginal heritage sites

To protect non-Aboriginal heritage sites within the project disturbance area from unpredicted impacts of the development, disrepair or vandalism, all employees, contractors and sub-contractors shall:

- Be made aware of the locations of these sites during site induction.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- Seek permission to travel across areas outside of the disturbance areas from the Group Environmental Manager.
- Be provided within access to maps, with a description of the site and site coordinates available to all employees, contractors and sub-contractors as needed.

Where sites cannot be identified or located, advice shall be sought from the Group Environmental Manager.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Table 18 – Conservation Policy Implications for Historic Heritage Elements**

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)								Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Not applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
<b>1. Power House Precinct</b>	Remnant Power House Features	Moderate	X	X		X		X	X		U	C	Y	-
<b>2. Administration Precinct</b>	Administration Building	Little	X					X			N	N	N	N
	Pathways and Landscape Elements	Little	X					X			N	N	N	-
	Car park	Intrusive	X					X			N	N	N	-
<b>3. Old Portal Precinct</b>	Lower Bench Workshops	Little						X			N	N	N	N
	Upper bench Workshops	Moderate	X	X		X		X	X	X	U	C	Y	Y
	Workshop Offices	Moderate	X	X		X		X	X	X	U	C	Y	Y
	Brick Retaining Wall	High	X	X		X		X	X	X	U	C	Y	Y
	1887 Portal	Exceptional	X	X	X	X		X	X	X	U	C	Y	Y



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)								Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Not applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
<b>4. Main Portal Precinct</b>	The Main Portal	Little	X		X			X			N	N	N	N
	The New Bathhouse	Little	X					X			N	N	N	N
	Crib Room and First Aid Station	High	X	X		X		X	X	X	U	C	Y	Y
	Storeroom	High	X	X		X		X	X	X	U	C	Y	Y
<b>5. Extraction Portal Precinct</b>	The Extraction Portal	Little	X		X			X			N	N	N	N
	Main Downhill Conveyor	Little	X					X			N	N	N	-
	Closed Adits	Moderate	X			X		X			U	C	Y	Y
<b>6. Gibson's Portal Precinct</b>	Gibson's Portal	High	X	X	X	X		X	X	X	U	C	Y	Y
	Sandstone Retaining Wall	Moderate	X	X		X		X	X	X	U	C	Y	Y
	Fan House	Little	X					X			N	N	N	N/A



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)								Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Not applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
	Gibson's Sublease Portal and Associated Area	Little	X					X			N	N	N	N/A
	Electrical Sub-Station	Little	X					X			N	N	N	N/A
	Electrical Switchroom	Little	X					X			N	N	N	N/A
<b>7. The Washery Precinct*</b>	The Preparation Plant	Moderate						X			N*	N*	N*	N*
	Conveyor Systems	None						X			N	N	N	N/A
	Storage Silos	None						X			N	N	N	N/A
	Truck Loader	Little						X			N	N	N	N/A
<b>8. Coal Stockpiles and Reject Material</b>	Coal Stockpiles	Little									N	N	N	N/A
	Reject Material Emplacements	Little									N	N	N	N/A
	Settling Dams	Little									N	N	N	N/A



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)								Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Not applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
<b>9. Rail Tracks, Signal Box and Associated Elements</b>	Rail Tracks and System - Upper Bench	High	X	X		X		X	X	X	U	C	Y	Y
	Rail Tracks and System – Other Areas	Moderate	X	X		X		X	X	X	U	C	Y	Y
	Signal Box	High	X	X		X		X	X	X	U	C	Y	Y
<b>10. Moveable Heritage Items</b>	Coal Wagon	High	X	X		X	X	X	X		U	C	Y	N/A
	Coal Cutter	Moderate	X	X		X	X	X	X		U	C	Y	N/A
<b>11. Views and Vistas</b>	Original Haulage Line Vistas	High	X			X		X	X		U	C	Y	N/A
	Remnant Incline Haulage Alignments	High	X			X		X	X		U	C	Y	N/A
<b>*Conditional consent for the removal of this item has been approved under DA D2004/32.</b>														



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

### 10.3 Trigger Action Response Plans (TARPs)

In accordance with Schedule 2, Condition C10 (g) (viii) of the Development Consent, the Extraction Plan and associated sub plans will identify TARPs to be implemented to manage potential impacts associated with underground mining.

These TARPS include the following:

- monitoring requirements (may include different locations);
- trigger levels that indicate a potential non-compliance or flag implementation of contingency measures;
- management and contingency actions (i.e. corrective and preventative actions) and reporting requirements;
- responsibilities; and
- timing.

Trigger Action Response Plans (TARP) for both Historical and Aboriginal Cultural Heritage have been designed specifically for this HMP. These TARPs detail how the various predicted subsidence impacts, monitoring components, performance measures, and responsibilities are structured to achieve compliance with the relevant statutory requirements. They also form the framework for adaptive management and contingency actions. These TARPS relate to subsidence related impacts and are based on the management of predicted impacts associated with subsidence up to the 300mm permitted under the development consent. As noted earlier, this level of vertical subsidence is predicted to have no more than negligible impacts on any sites. The HMP includes specific TARPs associated with the monitoring and management of subsidence impacts and these include a requirement to halt operations in certain circumstances, including where observed subsidence impacts are approaching the 300 mm vertical subsidence limit.

The TARP system provides a simple, transparent and useable reference of the monitoring of environmental performance and the implementation of management and/or contingency measures. Due to the nature of predicted impacts associated with the proposed second workings, Performance Measure TARPs have been established under this HMP.

The Performance Measure TARPS are designed with consideration of baseline conditions and predicted negligible subsidence impacts from the mine design and or the Russell Vale surface facilities design. The TARP's for both Aboriginal and Historical Heritage are comprised of trigger levels associated with monitoring to assess performance, and identify where there is a need for further investigation and if required, the implementation of contingency measures (**APPENDIX A**).

**Table 19** below outlines the trigger level definitions to be applied to the Performance Management TARPs provided within **Appendix A**.

**Table 19 – HMP Trigger Levels**

TRIGGER LEVEL	DESCRIPTION
<b>Level 1</b>	<p>No exceedance of level 2 or level 3 triggers.</p> <p>Operations continue as normal.</p> <p>Less than 100mm recorded subsidence.</p>

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

TRIGGER LEVEL	DESCRIPTION
Level 2	<p>Minor or persistent changes in monitoring results indicate potential alteration of the environment (could be natural or mining related) or impacts outside of predictions.</p> <p>Internal investigation of potential causes required to determine if there is potential to cause material harm due to mining operations.</p> <p>Exceedances of subsidence triggers may result on implementation of adaptive management measures.</p> <p>100mm to 300mm recorded subsidence.</p>
Level 3	<p>Significant change in monitoring results indicates a likely alteration of the environment (could be natural or mining related) or impacts outside of predictions.</p> <p>Investigation into potential causes required to determine if material harm has been caused due to mining operations. External notification of <i>potential</i> incident required for Performance Measures TARPs.</p> <p>Exceedances of subsidence triggers will result on implementation of adaptive management measures.</p> <p>Greater than 300mm recorded subsidence.</p>

If monitoring indicates a Level 2 or 3 trigger has been reached, an investigation will occur in all circumstances. The nature of the investigation will depend on the feature being monitored, the location of the trigger exceedance and Trigger level exceeded among other matters. Different investigation options are discussed in detail in the management plans specific to the feature being monitored.

**Note: Level 3 Performance Measure TARP triggers do not, of themselves, constitute an incident or non-compliance under the Development Consent. Investigations following a Level 3 trigger will determine whether an exceedance or non-compliance of the performance measures or Development Consent conditions is likely or has occurred.**

In the unlikely event that investigations of Level 3 Performance Measure TARP trigger exceedances determine that material harm has occurred *and* is attributable to the development approved under the Development Consent, the contingency plan and adaptive management measures outlined within **Section 10.3** will be implemented. In certain cases, management measures may be implemented in the absence of any clear link between the approved development and the observed impact to mitigate adverse environmental outcomes. Response to matters which are identified as Incidents or Non-Compliances will be implemented in consultation with relevant stakeholders.

**Figure 14** provides a flow chart covering the Performance Measure TARP Process.

### 10.3.1 Adaptive Management

Where investigations triggered by the Performance Measure TARPS indicate that the changed conditions of sites have been, or are likely to have been, caused by mining operations, the response to these impacts include adaptive management measures to ensure further impacts to the site will not occur or be mitigated or that impacts to future sites do not occur in the future. Due to the nature of the proposed mining and low likelihood of underground mining resulting in any impacts to the site provided subsidence impacts remain within predictions, these adaptive



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

management measures that will be implemented, will be considered in the investigation process. Adaptive management measures to be implemented in the event of a clear linkage between the mining authorised under the development consent and Historical and Aboriginal Cultural Heritage items will include a review of the design and layout of future mining within areas that may potentially impact on such items to avoid a recurrence of any such impacts. These adaptive management measures include:

- stop mining and investigate causes of the exceeding of subsidence predictions.
- undertake a review of the panel design parameters in consultation with the resource regulator.

The Contingency Planning process set out in **Section 10.4** also covers this process.

The TARPS in **APPENDIX A** contain adaptive management measures for subsidence which inform decisions regarding underground mining operations, should higher than predicted vertical subsidence effects be observed. The purpose of this adaptive management measures are to implement additional measures where necessary to:

- enable potential impacts associated with higher than predicted subsidence impacts to be monitored; and/or
- the implementation of changes in mining operations to prevent performance criteria from being exceeded.

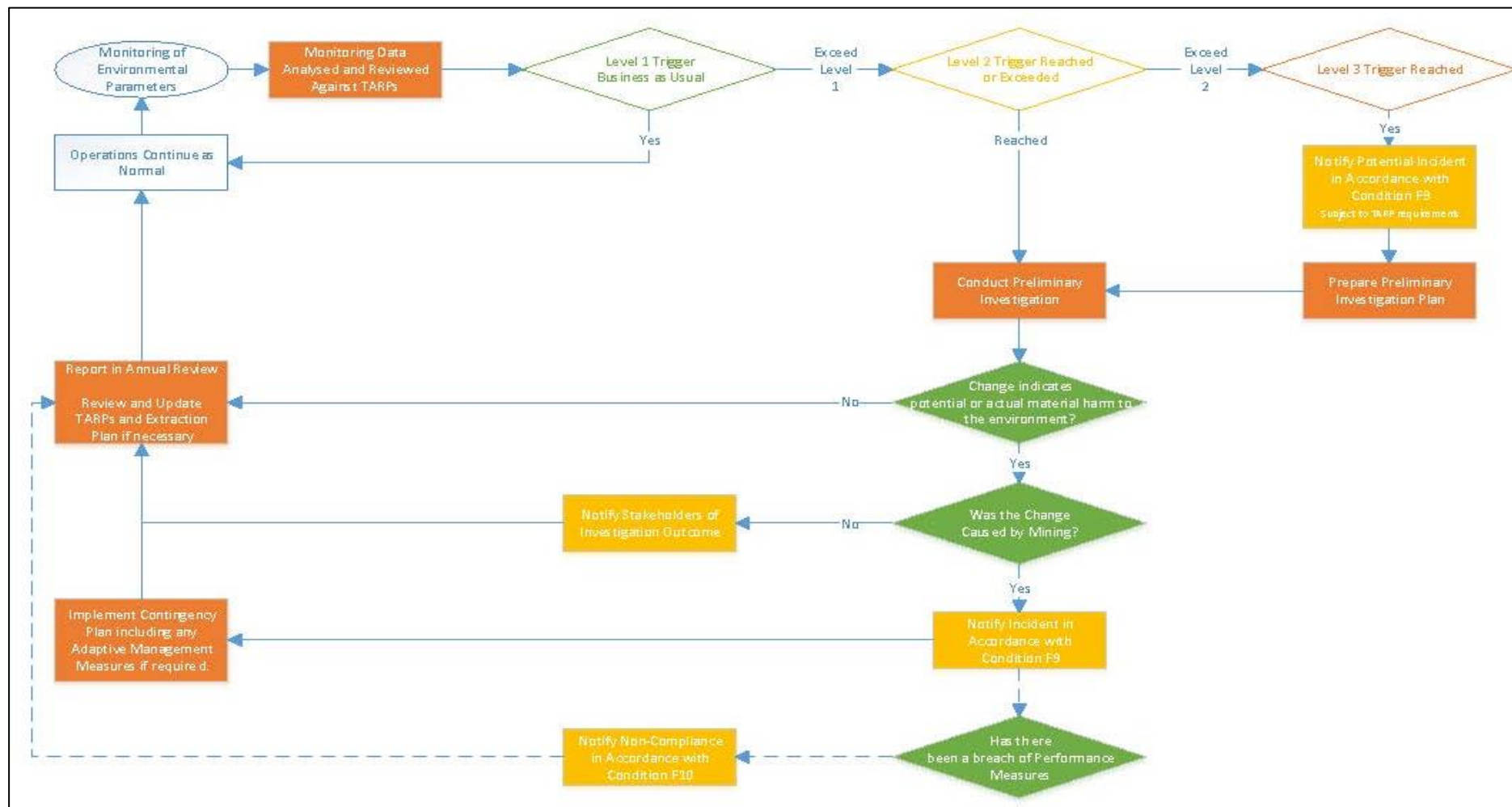
WCL will assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in this consent in accordance with **Condition F4 of Schedule 2**. Any exceedance of the Subsidence criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation, notwithstanding offsetting actions taken. Where any exceedance of these criteria and/or performance measures has occurred, WCL will at the earliest opportunity:

- take all reasonable and feasible steps to ensure the exceedance ceases and does not re-occur;
- consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action;
- within 14 days of the exceedance occurring, submit a report to the Secretary describing these remediation options and any preferred remediation measures or other course of action; and
- implement remediation measures as directed by the Planning Secretary,

to the satisfaction of the Secretary.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

**Figure 14 – Flow Chart Covering Performance Measures TARP Process**





Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 10.4 Contingency Plan

In the event that the observed parameters or impacts indicate that there is a change in the condition of a site which may be an exceedance or is considered likely to exceed the performance measures detailed in Section 9 of this HMP, WCL will implement the following Contingency Plan:

- The observation will be reported to the Group Environmental Manager as soon as possible;
- The observation will be recorded;
- WCL will report the observations to DPIE and Heritage NSW as a 'potential' incident;
- An investigation will be undertaken to identify the cause of the observed impacts (noting that the proposed Development is not anticipated to have any more than negligible impacts on heritage items).
- WCL will report any exceedances of the performance measure attributable to mining as an 'incident' to the Secretary of DIPE and other relevant stakeholders as soon as practicable after WCL becomes aware of the exceedances;
- The Group Environmental Manager will investigate any potential contributing factors and identify an appropriate action plan to manage the identified impact(s), in consultation with specialists and/or relevant agencies if necessary;
- WCL will identify an appropriate action plan to manage the identified impact(s) attributable to mining, in consultation with other specialists and/or key stakeholders;
- WCL will submit the proposed course of action to DPIE for approval;
- WCL will implement the approved course of action to the satisfaction of DPIE;
- WCL will continue to monitor performance with the new action plan in place and, if successful will formalise these actions as part of the Management Plan. Contingency measures will be developed in consideration of the specific circumstances of the issue and the assessment of consequences.

In the event that the change in condition is not attributable to mining, liaise with DPIE, Heritage NSW and other relevant stakeholders regarding any management measures.

Contingency measures will be developed in consideration of the specific circumstances of the issue and the assessment of consequences. Specific mitigation measures, such as 3D scanning of rock shelters for Aboriginal heritage can only be determined through investigation and consultation with the RAPs and or specific consultation with NSW Heritage and DPIE as detailed in **Table 20**. Furthermore, unacceptable impacts can only be determined by the RAPs.

### 10.4.1 Discovery of Unanticipated Aboriginal Cultural Material

The following contingency plan describes the actions that must be taken in instances where Aboriginal cultural material is discovered or unearthed:

- 1) **Discovery:** Should potential Aboriginal heritage items be encountered during any works; those works must cease and an exclusion be set up in the vicinity of the find (NOTE: this only requires a cessation or adjustment to works that are in the immediate vicinity of the identified items, it does not require the complete cessation of all activities approved under the Development Consent).

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- 2) **Notification:** Notify Environmental Manager, who will notify Heritage NSW, RAPs and DPIE of the find. If the find is human remains, notify Police.
- 3) **Management:** In consultation with Heritage NSW, RAPs and a qualified archaeologist, a preliminary assessment will be undertaken and management strategy developed to manage the identified Aboriginal cultural item or material. A subsidence monitoring program may be required for Aboriginal sites identified over areas of proposed mining, using a methodology consistent with that outlined in **Section 7**. If the item is determined not to be heritage, obtain authorisation from the Environmental Manager to resume work.
- 4) **Recording:** The find will be recorded in accordance with the requirements of the NPW Act and Heritage NSW guidelines and registered on AHIMS (if applicable).
- 5) **Recommencement of works:** Works in the immediate area are to recommence only after all previous steps have been taken, an adequate management strategy is in place and authorisation has been received from DPIE.
- 6) If unanticipated Aboriginal cultural material is discovered, a **strategy for the care, control and storage** of Aboriginal objects salvaged on the site, both during the life of the development and in the long term must be prepared in consultation with the RAPs.

#### 10.4.2 Discovery of Unanticipated Human Remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. The following contingency plan describes the actions that must be taken in instances where human remains or suspected human remains are discovered in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b). Any such discovery at the activity area must follow these steps:

- 1) Immediately cease all work at that location and not further move or disturb the remains. (NOTE: this only requires a cessation or adjustment to works that are in the immediate vicinity of the remains, it does not require the complete cessation of all activities approved under the Development Consent).
- 2) Notify the NSW Police and Heritage NSW's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
- 3) Not recommence work at that location unless authorised in writing by Heritage NSW.
- 4) RAPs must be informed within 24 hours of the remains being established to be Aboriginal.

#### 10.4.3 Discovery of Unanticipated Historic Relics

The following contingency plan describes the actions that must be taken in instances where historical cultural material is discovered or unearthed:

- 1) **Discovery:** Should unanticipated historical material be identified during any works, works must cease in the vicinity of the find. (NOTE: this only requires a cessation or adjustment to works that are in the immediate vicinity of the remains, it does not require the complete cessation of all activities approved under the Development Consent).

If 'relics' (as per the meaning of the Heritage Act 1977) were to be discovered, the provisions of s.146 of the Heritage Act 1977 would apply.

- 2) **Notification:** Heritage NSW and DPIE must be notified of the find.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- 3) **Management:** In consultation with Heritage NSW and a qualified archaeologist, an impact assessment will be undertaken and management strategy developed to manage the identified historical cultural material.
- 4) **Recording:** The find will be recorded in accordance with the requirements of Heritage Branch and Heritage NSW guidelines.
- 5) **Recommendation of works:** Works are to recommence only all previous steps have been taken, an adequate management strategy is in place and authorisation has been received from DPIE and Heritage NSW.

#### 10.4.4 Unexpected Find/Contingency Salvage

As the project will result in minimal subsidence, as outlined in section 10.1, no Aboriginal objects or historical relics are expected to be required to be salvaged. However, if salvage is required then a strategy for the care, control, and storage of Aboriginal objects and historical relics would be developed. For Aboriginal objects this would include:

- Consultation with Aboriginal stakeholders for a Care and Control agreement will be conducted following the RAPs review of the HMP.
- Documentation of all salvaged materials will be in accordance with Requirement 26 (Stone artefact disposition and storage) of the Code.
- Following the salvage of each Aboriginal site, an Aboriginal Site Impact Recording Form (ASIRF) will be prepared and submitted to AHIMS.

For historical relics this would include:

- Consultation with Heritage NSW will be conducted following any non-Aboriginal unexpected find.
- A strategy will be developed in consultation with Heritage NSW for the management of any relic that may be salvaged or relocated.
- The CMP will be updated following any salvage or relocation of historical items.

#### 10.4.5 Contingency Consultation

**Table 20 - Contingency Consultation**

Stakeholder	Stakeholder Responsibilities
Department of Planning, Industry and Environment	<ul style="list-style-type: none"> <li>• To be consulted if human remains are encountered.</li> </ul>
Heritage NSW	<ul style="list-style-type: none"> <li>• To be consulted:               <ul style="list-style-type: none"> <li>○ In the preparation of the HMP and any subsequent revisions of the HMP;</li> <li>○ If unanticipated Aboriginal objects are encountered;</li> <li>○ If Aboriginal ancestral remains are encountered.</li> <li>○ If unanticipated historical relics are encountered; and,</li> <li>○ Consultation may be required in the discovery of human remains.</li> </ul> </li> </ul>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Stakeholder	Stakeholder Responsibilities
	<ul style="list-style-type: none"> <li>○ If a strategy for the care, control and storage of Aboriginal objects needs to be developed.</li> </ul>
NSW Police	<ul style="list-style-type: none"> <li>• To be notified and consulted if human remains are encountered.</li> </ul>
Registered Aboriginal Parties (RAP)	<ul style="list-style-type: none"> <li>• To be consulted and provide cultural knowledge:               <ul style="list-style-type: none"> <li>○ In the preparation of the HMP and any subsequent revisions of the HMP;</li> <li>○ If unanticipated Aboriginal objects are encountered; and,</li> <li>○ If Aboriginal ancestral remains are encountered.</li> <li>○ If a strategy for the care, control and storage of Aboriginal objects needs to be developed.</li> </ul> </li> <li>• To participate in any specific event based monitoring of Aboriginal heritage sites.</li> </ul>
Wollongong City Council Wollondilly City Council	<ul style="list-style-type: none"> <li>• To be consulted in the preparation of the HMP and any subsequent revisions of the HMP.</li> </ul>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 11. INCIDENTS, COMPLAINTS AND NON-COMPLIANCE

### 11.1 Incidents

The Consent defines an 'incident' to be "An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance". Incidents will be managed through established WCL procedures. In accordance with **Condition F9** WCL must "immediately notify the DPIE and any other relevant agencies immediately after it becomes aware of an incident". The notification must identify the following items:

- The development application number and name
- The location and nature of the incident.
- A detailed report of the incident shall be provided to DPIE within 7 days of the incident occurring.

As detailed in **Section 8** the Project is not predicted to have only negligible subsidence impacts on the storage area of the Cataract Reservoir (which is part of the curtilage of the listed heritage item) and would have no impact on the physical structures forming part of the heritage item. The trivial nature of the permissible impacts from vertical subsidence impacts on the storage area of the Reservoir (up to 300mm) is considered to be trivial in terms of impact to heritage values. Vertical subsidence impacts of up to 300mm below the FSL will not be notified as Incident due to impacts on heritage values. Any exceedance of this criteria below the FSL (or indeed anywhere in the areas being mined by bord and pillar methods), will require notification as non-compliance with a performance measure.

Impacts to Aboriginal heritage items could occur through either direct contact (e.g. works associated with the installation of monitoring equipment) or indirectly via subsidence impacts. As detailed in **Section 8**, the magnitude of predicted subsidence effects is considered unlikely to have any observable impacts on Aboriginal Heritage Items or rock shelves or cliff lines which are associated with the features. In the unlikely impact that monitoring of the sites indicates a change which may be attributable to subsidence related impacts (e.g., rock falls along cliff lines), The Performance Management TARP Process will be implemented with a *Potential* Incident notification being made and an investigation being carried out to determine whether the impacts has been caused by development approved under the Development Consent. Formal incident notification, as required by F9 will occur if the investigation indicates that the event has likely been cause by the development and has caused material harm (i.e. more than trivial) to the feature).

### 11.2 Non-Compliance Protocol

The consent defines a non-compliance as an occurrence or set of circumstances that is a breach of this consent. Except in the case where a non-compliance has been notified as an incident, WCL will within seven days of becoming aware of the non-compliance, notify DPIE of the non-compliance.

The notification must set out:

- the condition of this consent that the development is non-compliant with,
- why it does not comply, and the reasons for the non-compliance (if known), and
- what actions have been, or will be, undertaken to address the non-compliance.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

WCL will manage and report non-compliances against statutory requirements in accordance with an established protocol developed as a component of the EMS (in the case of pit top and associate activities) and/or the Extraction Plan.

### 11.3 Complaints Handling

Complaints will be managed through established WCL procedures as described in section 4.7 of the EMS as required by Condition F5(h) of the Consent. All complaints will be logged with the Environmental Manager responsible for ensuring that all complaints are appropriately investigated, actioned and that information is fed back to the complainant, unless requested to the contrary. A copy of a complaints register (updated on a Monthly basis) will be kept on the WCL website.

A summary of complaints will be available to regulatory authorities on request and provided in the Annual Environmental Management Reports (AEMRs).

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 12. PLAN ADMINISTRATION AND TRAINING

### 12.1 Roles and Responsibilities

Environment and community management is regarded as part of the responsibilities of all Colliery personnel. The roles and function of the main personnel responsible for the implementation of environmental and community management including the plans, procedures and action plans contained in this EMP are outlined in WCL's Management Operating System and the site EMS S9.1.3., 9.1.4 which notes the Monitoring Coordinator to undertake or coordinate monitoring as required.

### 12.2 Resources Required

In accordance with the WCL SYS POL 003 Environmental Policy, the Operations Manager Management shall ensure that the appropriate resources are made available to achieve the implementation of this Plan in addition to the authority to stop and/ or recommence works.

It is the role of the Group Environment Manager to ensure that these requirements are communicated to WCL Management, investigate any potential items and identify an appropriate action plan to manage the identified impact(s), in consultation with specialists and/or relevant agencies if necessary, and or DPIE.

### 12.3 Training and Awareness

All training and inductions conducted are to be undertaken as per the WCL Training procedures. As per Condition A28, WCL must ensure that all employees, contractors and their subcontractors be made aware of, and are instructed to comply with, the consent conditions relevant to activities they carry out in respect of the development.

Project Leads and Surface Staff will inform the Environment Manager of any actual or potential finds and stop work immediately. Undertake heritage training as part of the risk assessment process.

Specific content for Aboriginal and non-Aboriginal heritage, as may be included in activity specific training. This will address the following elements to ensure that personnel whose activities have the potential to cause impacts to Aboriginal objects or Aboriginal places. Workers will receive suitable Aboriginal cultural heritage training prior to carrying out any such activities. This would include:

- Requirements of this HMP, the measures to prevent harm to heritage objects and or places, and relevant legislation.
- Basic awareness on the identification of Aboriginal and non-Aboriginal artefacts.
- Location of identified heritage sites where relevant to their activities or works.
- Procedure to follow in the event of an unexpected aboriginal or non-aboriginal heritage item find during construction works.
- Procedure to follow in the event of discovery of human remains during construction works.
- Penalties associated with non-compliance with this HMP.
- Specific measures to avoid or otherwise protect the site from impact.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Aboriginal heritage awareness and specific components of the induction will be sent to the RAPs for their involvement and comment.

In the event that there are specific environmental management safeguards that are identified relating to heritage as above where work activities are identified as having potential to result in actual or potential impact upon a heritage item. The relevant details from this regarding the heritage related operating conditions of the Consent and this plan or otherwise from any permit or similar are to be issued to the contractor in writing. This should occur at the time of the induction or site activity briefing via inclusion in their SWMS or similar activity. These specific risk documentations can be communicated by toolbox talks and daily pre-start meetings, as outlined in section 5.5 and 5.6 of the EMS.

### 12.3.1 Staff Training

Staff training will be undertaken as detailed in the EMS to ensure all workers receive suitable heritage training relative to their level and their intended activities prior to carrying out any activities which may cause impacts to historic or Aboriginal heritage. Suitable records would be kept of such training in line with WCL training procedures.

- **Level 1** – High level training regarding environmental requirements – Management, including awareness of the requirement to ensure suitable training for all workers whose activities have the potential to cause impacts to Aboriginal or non-Aboriginal heritage object and or places.
- **Level 2** – Operational level training – Project Managers, Supervisors, Surface Personnel, Contractors including awareness of the requirement to ensure suitable training for all workers whose activities have the potential to cause impacts to Aboriginal or non-Aboriginal heritage object and or places.
- **Level 3** – Basic environmental awareness – all staff

### 12.3.2 Inductions

All contractors and associated subcontractors will be required to participate in site induction prior to the commencement of work as described in section 5.2 of the EMS.

As a minimum, the induction is to include:

- An overview of the mandatory site HSECQ Rules, Environment Policy and PEMS requirements
- Environmental incident and community compliant reporting requirements.
- Environmental emergency contact details.

Induction records, which detail the attendees, content of the induction/training as well as any additional information provided, will be maintained onsite. The aboriginal heritage aspects of all inductions will be developed in consultation with the RAPs.



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## 13. AUDIT AND REVIEW

### 13.1 Annual Review

In accordance with Part F – Environmental management, reporting and auditing of the Consent, an Annual Review of the environmental performance of the Proposed Action is prepared.

The Annual Review will act to investigate and implement ways to improve the environmental performance of the development over time by

- Describe the development (including any rehabilitation) that was carried out in the previous calendar year and the development that is proposed to be carried out over the current financial/calendar year;
- Including a comprehensive review of the monitoring results and complaints records of the Project over the past year, including a comparison of these results against the:
  - relevant statutory requirements, limits or performance measures/criteria,
  - requirements of any plan or program required under this consent;
  - monitoring results of previous year/s; and
  - relevant predictions in the document/s listed in condition A2(c).
  - Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance.
- identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence.
- evaluate and report on:
  - the effectiveness of the noise and air quality management systems; and
  - compliance with the performance measures, criteria and operating conditions of this consent.
- Identify any trends in the monitoring data over the life of the Project.
- Identify any discrepancies between the predicted and actual impacts of the Proposed Action and analyse the potential cause of any significant discrepancies.
- Describe what identified measures will be implemented over the next calendar year to improve the environmental performance of the development

Copies of the annual review will be submitted to WCC, WSC and made available to the CCC and any interested person upon request, and will be made public via listing on the website.

### 13.2 Auditing

In accordance with Condition F13, an Independent Environmental Audit will be undertaken by a suitably qualified auditor and include experts in any field specified by the Secretary. The timeframe and scope of the audit are defined in Section 5.2 of the EMS.

### 13.3 Plan revision

In accordance with Condition F7, this HMP will be reviewed within three months of:

- the submission of an incident report under **Condition F9**;



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

- the submission of an annual review under **Condition F11**;
- the submission of an independent environmental audit under **Condition F13**; or
- the approval of any modification of the conditions of the development consent (unless the conditions require otherwise).
- the identification of any Aboriginal or historical unexpected finds.
- In accordance with the prescribed staging, i.e. prior to Stage 2 Extraction Plans.
- following the locations of Aboriginal sites that were unable to be located during the baseline recording survey.

The suitability of existing strategies, plans and programs required under the development consent will be reviewed by WCL.

In accordance with **Condition F8**, if necessary, to either improve the environmental performance of the project, cater for a modification or comply with a direction, the strategies, plans and programs required under the Development Consent will be revised, to the satisfaction of the Planning Secretary.

Where revisions are required to ensure the required updates are included as required, the revised document incorporating the relevant updates as above will be submitted to the Planning Secretary for approval within 6 weeks of the review.

Revisions to any documents listed within this Plan will not necessarily constitute a revision of this document.

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 14. RECORDS AND DOCUMENT REVIEW

### 14.1 Document control

Any revisions undertaken will be the responsibility of WCL and any notifications will be sent accordingly to Heritage NSW, WCC, WSC, the registered aboriginal groups, and DPIE.

During the next major update of the plan as would likely be associated with subsequent extraction plans, further consultation with the identified stakeholders will be sought and the plan will be amended accordingly.

WCL will not be responsible for maintaining uncontrolled copies beyond ensuring the most recent version is maintained on WCL's computer system, website, and hard copy at the Russell Vale Colliery, 7 Princes Highway, Corrimal NSW 2518.

### 14.2 Record Keeping and Control

Environmental records are to be managed in accordance with the WCL SYS PRO 001 Document and Data Control procedure.

All records of the EMS will be stored so that they are readily retrievable and suitably protected from deterioration or loss. Archiving will be managed in accordance with the WCL SYS PRO 001 Document and Data Control procedure.

A master copy of each EMS document including all appendices and supporting information is to be held in the office of the E&C Department.

### 14.3 Information Access

Before the commencement of construction until the completion of all rehabilitation required under this consent WCL will ensure the information and documents as stipulated in Condition F17 and the EMS, are made publicly available on its website as they are obtained, approved or as otherwise stipulated within the conditions of this consent.

This information must be kept up to date to the satisfaction of the planning secretary.

### 14.4 Public sources of Information

To assist the public and other stakeholders understand the impacts from the development, including monitoring results, newsletters and updates, and in accordance with Condition F5(i), WCL will:

- publish information on the company website;
- notify the local community through the Russell Vale CCC;
- contact individuals by direct notification (email subject to registration of interest) where relevant.

Information required to be published in accordance with Condition F17, such as CCC minutes, current statutory approvals and complaints register will also be included on the company website.

This information will be updated as required.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 15. REFERENCES

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<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## 16. GLOSSARY OF ABBREVIATIONS AND TERMS

Abbreviations	
<b>ACHA</b>	Aboriginal Cultural Heritage Assessment
<b>CCL</b>	Consolidated Coal Lease
<b>CMP</b>	Conservation Management Plan
<b>DInSAR</b>	Differential Interferometric Synthetic Aperture Radar
<b>DPIE</b>	Department of Planning, Industry & Environment
<b>EES</b>	NSW Environment, Energy and Science
<b>EP&amp;A Act</b>	Environmental Planning & Assessment Act 1979
<b>ERM</b>	Environmental Resources Management Australia
<b>EP</b>	Extraction Plan
<b>GML</b>	Godden Mackay Logan Heritage Consultants
<b>Heritage NSW</b>	Heritage NSW, Department of Premier and Cabinet
<b>HMP</b>	Heritage Management Plan
<b>HHA</b>	Historical Heritage Assessment
<b>IHS</b>	Illawarra Historical Society
<b>LGA</b>	Local Government Area
<b>ML</b>	Mining Lease
<b>MPL</b>	Mining Purposes Lease
<b>Mtpa</b>	Million tonnes per annum
<b>NPWS</b>	National Parks and Wildlife Service
<b>NRE</b>	Gujarat NRE Coking Coal Limited
<b>NSW</b>	New South Wales
<b>PAC</b>	NSW Planning Assessment Commission
<b>RAPs</b>	Registered Aboriginal Parties
<b>ROM</b>	Run of Mine
<b>SoHI</b>	Statement of Heritage Significance
<b>TARP</b>	Trigger Action Response Plan



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

Abbreviations	
<b>UEP</b>	Underground Extension Project
<b>WCL</b>	Wollongong Coal Limited
<b>WVEC</b>	Wodi Wodi Elders Corporation

Terms	
<b>Secretary</b>	Secretary of Department of Planning and Infrastructure, or delegate
<b>Incident</b>	A set of circumstances that causes or threatens to cause material and which may or may not be or cause a non-compliance.
<b>Material Harm</b>	<p>Is harm to the environment that:</p> <ul style="list-style-type: none"> <li>involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or</li> <li>results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable costs and expenses that would be incurred in taking all reasonable and practical measures to prevent, mitigate or make good harm to the environmental).</li> </ul> <p>This definition excludes "harm" that is authorised under any development consent.</p>
<b>Mitigation</b>	Activities associated with reducing the impacts of the project prior to or during those impacts occurring
<b>Negligible</b>	Small and unimportant, such as to be not worth considering.
<b>Russell Vale Site</b>	Location of main surface infrastructure, including stock piles and truck loading facilities (lower level) and administration offices, workshops and mine entries (upper level).

## APPENDIX A –TRIGGER ACTION RESPONSE PLANS

### Aboriginal Cultural Heritage Trigger Action Response Plan

The following TARPs are Performance Measure TARPS and adaptive management for Stage 1.

**Table 21 – Aboriginal Trigger Action Response Plan**

Aspect	Monitoring				Trigger			
	Sites	Parameters	Frequency	Purpose	Level	Action/Reporting	Responsibility	Timing
Aboriginal Heritage	<b>Aboriginal heritage sites (Stage 1):</b> <ul style="list-style-type: none"> <li>Bulli Mine Shaft 20 (AHIMS 52-3-0311)</li> <li>Bulli Mine Shaft 29 (AHIMS 52-3-0313)</li> <li>Bulli Mine Shaft 26 (AHIMS 52-3-0323)</li> <li>Bulli Mine Shaft 27 (AHIMS 52-3-0325)</li> <li>Wonga East 4 (AHIMS 52-2-4170)</li> <li>Wonga East 5 (AHIMS 52-2-4171)</li> </ul>	Baseline recording.  Visual inspections and comparative photograph monitoring regime.	Baseline archival recording 3 months prior to second workings within 350m of site.  Continuous subsidence monitoring using GNSS units within the extraction area.  Six monthly monitoring from the commencement of mining within 350m of the site.  Final assessment recording within 12-24 months of second workings mining being completed within 350m of site.	To determine if subsidence effects resulting from bord and pillar mining system result in impacts to Aboriginal heritage sites and the heritage values of those sites.	<b>Within prediction (Level 1):</b>  <b>No change in site condition observed.</b> <ul style="list-style-type: none"> <li>Less than 100mm recorded subsidence.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Report negligible impact in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>Six monthly reporting.</li> </ul>
					<b>Within prediction (Level 2):</b>  <b>Change in site condition is observed but the heritage values of the site are not impacted.</b> <ul style="list-style-type: none"> <li>Greater than 100mm and less than 300mm recorded subsidence.</li> <li>Cracking in sandstone platforms or shelter walls/ceilings.</li> <li>Movement along existing joints and/or bedding planes.</li> <li>Changes to the water seepage patterns or water flow regime through the sandstone.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring but at increase intervals of monthly monitoring.</li> <li>Inform DPIE, Resources Regulator, Heritage NSW and RAPs of potential impact, and consult on proposed adaptive management and, if required, remediation.</li> <li>Undertake site inspection with RAPs to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition.</li> <li>Where the investigation identifies mining as a likely cause of the changes, consultation and meetings with RAPs to determine the most appropriate mitigation measures and management of the site.</li> <li>Cease operations and implement adaptive management if assessed as a requirement</li> <li>Review the mine plan for future mining areas to avoid impacts to sites potentially impacted by future second workings</li> <li>Report potential impacts in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE, Heritage NSW and RAPs informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Six monthly reporting.</li> </ul>
					<b>Exceeding prediction (Level 3):</b>  <b>Change in site condition is observed, and the heritage values of the site are impacted.</b> <ul style="list-style-type: none"> <li>Greater than 300mm recorded subsidence.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Inform DPIE, Resources Regulator, Heritage NSW, and RAP of potential impact.</li> <li>Undertake site inspection to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition.</li> <li>Where the investigation identifies mining as a likely cause of the changes, consultation on</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE, Heritage NSW and RAP informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Commence preparation of mitigation/action and monitoring plan within one week (if required).</li> </ul>



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

Aspect	Monitoring				Trigger			
	Sites	Parameters	Frequency	Purpose	Level	Action/Reporting	Responsibility	Timing
						potential remediation / mitigation action will be undertaken with Heritage NSW and RAP.  • Cease operations and implement adaptive management and contingency plan.  • Review the mine plan for future mining areas to avoid impacts to sites potentially impacted by future second workings.  • Use appropriate specialists to undertake physical remediation activities.  • Report potential impacts in six monthly reports.		<ul style="list-style-type: none"><li>• Within 14 days of the exceedance occurring, submit a report to the DPIE and Heritage NSW describing the remediation options and any preferred remediation measures of other course of action</li><li>• Six monthly reporting.</li></ul>



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## Non-Aboriginal Trigger Action Response Plan – Non Subsidence

Table 22 – Historical Heritage Trigger Action Response Plan - Non Subsidence

Aspect	Monitoring				Trigger			
	Sites	Parameters	Frequency	Purpose	Level	Action/Reporting	Responsibility	Timing
Non Aboriginal Heritage	Historical heritage sites:  1. South Bulli Colliery	Visual inspection and photographic records of heritage items.  As per updated CMP	Routinely inspected on a 6 monthly basis.  Revised CMP within 12 months of commencement.  Final assessment recording as part of mine closure sign-off process.	To determine if pit top operations have had an impact on the heritage value of sites (noting the operational nature of the site).	Within prediction (Level 1):  No change in site condition observed.	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Report negligible impact in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>End of panel reporting.</li> </ul>
					Within in prediction (Level 2):  Change in site condition is observed, but the heritage values of the site are not impacted.	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Inform DPIE, WCC and Heritage NSW of potential impact.</li> <li>Undertake site inspection to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition and, if identified as potential caused by mining, review management procedures.</li> <li>Report potential impacts in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE, WCC and Heritage NSW informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Six monthly reporting.</li> </ul>
					Exceeding prediction (Level 3):  Change in site condition is observed, and the heritage values of the site are impacted.	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Inform DPIE, WCC and Heritage NSW of potential impact.</li> <li>Implement adaptive management and contingency plan</li> <li>Undertake site inspection to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition.</li> <li>Where the investigation identifies mining as a likely cause of the changes, consultation on potential remediation / mitigation works will be conducted with Heritage NSW and WCC.</li> <li>Use appropriate specialists to undertake physical remediation activities.</li> <li>Report potential impacts in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE, WCC and Heritage NSW informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Commence preparation of mitigation/action and monitoring plan within one week (if required).</li> <li>Within 14 days of the exceedance occurring, submit a report to the DPIE, WCC and Heritage NSW describing the remediation options and any preferred remediation measures of other course of action</li> <li>Six monthly reporting.</li> </ul>

Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

## Non-Aboriginal Trigger Action Response Plan –Subsidence

Table 23 – Historical Heritage Trigger Action Response Plan - Subsidence

Aspect	Monitoring				Trigger			
	Sites	Parameters	Frequency	Purpose	Level	Action/Reporting	Responsibility	Timing
Non Aboriginal Heritage	Historical heritage sites:  1. Cataract Dam	Subsidence monitoring	Impact assessment recording, within six months after each predicted subsidence movement at the site (that is when the bord and pillar mining system is closest traverse to the FSL of Cataract Reservoir).  Final assessment recording within 6 months of completion of all subsidence movements at the site.	To determine if subsidence effects resulting from bord and pillar mining system result in impacts to the heritage values of Cataract Dam.	<b>Within prediction (Level 1):</b>  <b>No change in site condition observed.</b>  <ul style="list-style-type: none"> <li>Less than 100mm recorded subsidence.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Report negligible impact in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>End of panel reporting.</li> </ul>
					<b>Within in prediction (Level 2):</b>  <b>Change in site condition is observed, but the heritage values of the site are not impacted.</b>  <ul style="list-style-type: none"> <li>Greater than 100mm and less than 300mm recorded subsidence.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Inform DPIE and Heritage NSW of potential impact.</li> <li>Undertake site inspection to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition and, if identified as potential caused by mining, review management procedures.</li> <li>Report potential impacts in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE and Heritage NSW and informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Six monthly reporting.</li> </ul>
					<b>Exceeding prediction (Level 3):</b>  <b>Change in site condition is observed, and the heritage values of the site are impacted.</b>  <ul style="list-style-type: none"> <li>Greater than 300mm recorded subsidence.</li> </ul>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Inform DPIE and Heritage NSW of potential impact.</li> <li>Implement adaptive management an contingency plan</li> <li>Undertake site inspection to document and photograph any observed changes / impacts.</li> <li>Investigate potential cause of observed changes in site condition.</li> <li>Where the investigation identifies mining as a likely cause of the changes, consultation on potential remediation / mitigation works will be conducted with Heritage NSW.</li> <li>Review mine planning for future mining areas to avoid further impacts</li> <li>Use appropriate specialists to undertake physical remediation activities.</li> <li>Report potential impacts in six monthly reports.</li> </ul>	Russell Vale Colliery (Environmental Manager)	<ul style="list-style-type: none"> <li>DPIE and Heritage NSW and informed within one week.</li> <li>Investigations into potential cause of observed changes to be commenced within 2 days of being detected.</li> <li>Commence preparation of mitigation/action and monitoring plan within one week (if required).</li> <li>Within 14 days of the exceedance occurring, submit a report to the DPIE and Heritage NSW describing the remediation options and any preferred remediation measures of other course of action</li> <li>Six monthly reporting.</li> </ul>



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

## APPENDIX B – RAP CONSULTATION

Organisation contacted	Date and type of contact	Date and type of response	Response details
Illawarra Local Aboriginal Land Council (ILALC)	16/03/2021, email	08/04/2020, email	See comments in Table 24 below.
James Davis (Wodi Wodi Elders Corporation)	16/03/2021, email	N/A	No response
Peter Falk Consultancy (formerly D'harawal Knowledge Holders)	16/03/2021, email	N/A	No response
Kullila Welfare and Housing Aboriginal Corporation (KWHAC)	16/03/2021, email	N/A	No response
Northern Illawarra Aboriginal Collective (NIAC)	16/03/2021, post	N/A	No response
Illawarra Local Aboriginal Land Council (ILALC)	13/04/2021, meeting	N/A	See comments in Table 24 below.

**Table 24 – RAP Consultation Outcomes and Response**

RAP group	Issue	Response
Illawarra Local Aboriginal Land Council	<ul style="list-style-type: none"> <li>When referencing the status of the site from the baseline survey in section 5 please change to located. Relocated means to move and re-establish. This should be changed on all site comments.</li> </ul>	'Relocated' has been changed to 'located' through the HMP.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

RAP group	Issue	Response
	<ul style="list-style-type: none"> <li>What process will be implemented to locate this site, prior to ratification of this HMP? It is the LALC's view that this site needs to be located. A process of recording and identifying all known sites needs to be in place before the HMP is approved.</li> </ul>	<p>Biosis has thoroughly investigated the GIS data and site cards to determine the most probable location of sites. One was found to be a duplicate (AHIMS 52-5-1265).</p> <p>Additionally, a GIS mapping investigation was undertaken to determine the location of these sites due to conflicting information associated with its coordinates. It was found that seven Aboriginal sites are not located where AHIMS coordinates are recorded. The new locations of these sites will confirmed by additional surveys.</p>
	<ul style="list-style-type: none"> <li>Upland swamps should be recorded as cultural sites for the purpose of providing sustenance to Aboriginal communities. These sites need to be recorded as part of the cultural landscape of Aboriginal occupation.</li> </ul>	<p>Condition B23 of the Consent notes that <i>"the applicant must ensure that the development being the Russell Vale Underground Expansion project does not cause direct or indirect impact on any identified heritage items"</i>.</p> <p>The upland swamps are not currently listed as being aboriginal heritage sites. The matter of whether the swamps should be recognised as aboriginal heritage sites is beyond the scope of this plan, would require further consultation and determination with all RAP's and NSW heritage as it was not raised during the environmental assessment process.</p> <p>However specific details on how the project has sought to minimise impact to and will monitor to determine any potential impact to upland swamps is detailed in the <i>Project Extraction Plan – Upland Swamp Monitoring Plan</i> (Biosis 2021) as required by condition c10(v).</p>



Site	Russell Vale Colliery	DOC ID	RVC EC PLN 016
Type	Management Plan	Date Published	17/8/2021
Doc Title	Heritage Management Plan		

RAP group	Issue	Response
		In Addition if at any time during the monitoring of the swamps Aboriginal sites are identified they will recorded to the appropriate standard and registered on AHIMS.
	<p>Regarding the section of the HMP as was submitted for consultation with the RAP's, in section 5.2. the 5<sup>th</sup> paragraph which states as below in italics was highlighted with the comment:</p> <p>Shouldn't we be evaluating in perpetuity for our purposes and not just the life of the mine? Our cultural heritage will still remain long after the mine has closed, one would hope.</p> <p><i>The Proposed Action mine plan has been designed to be long term stable. Should an unexpected pillar failure occur, the SCT Subsidence Assessment estimated the potential vertical subsidence associated with a pillar failure in the Wongawilli Seam as being up to 140 millimetres. A risk analysis undertaken by (SCT 2020) quantifies the risk of such a pillar failure occurring as less than 1 in 100,000 (0.001 % over the life of the project and therefore less than 0.01 % per year). The likelihood of an initiating event occurring is considered to be remote.</i></p>	<p>Condition B23 of the Consent notes that <i>"the applicant must ensure that the development being the Russell Vale Underground Expansion project does not cause direct or indirect impact on any identified heritage items"</i>.</p> <p>The potential for impact is associated with the underground mining and its potential impacts which primarily relate to subsidence.</p> <p>The revised subsidence assessment for the development that is outlined in SCT 2020 notes that the development has been designed with a mine plan that is predicted to result in "imperceptible vertical subsidence". "Impacts and consequences to natural, surface, and sub-surface features are expected to be negligible and imperceptible in the undeveloped bushland setting that exists over most of the Extraction Plan assessment areas."</p> <p>The TARP and contingency process outline how WCL will monitor this criteria and deal with any non-compliance or incidents.</p>
	Regarding the section of the HMP as was submitted for consultation with the RAP's in the final paragraph of section 5.2 which states as below in italics was highlighted with the following comment	This has been updated to <i>'For a site to incur a total loss of cultural heritage value; the complete destruction of axe grinding grooves or engravings in their entirety</i>

<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

RAP group	Issue	Response
	<p>I disagree with the point regarding the statement <i>"For a site to incur a total loss of cultural heritage value; the complete destruction of axe grinding grooves or engravings in their entirety would have to occur"</i>.</p> <p><i>Total loss of value also occurs if the context of the object is changed. If water, that is essential to the grinding process, is not present the context of the site has changed. This would be the same as relocating a site and therefore the total destruction of the site has occurred.</i></p>	<p>would have to occur along with changes to the setting and context of the item' in Section 6.</p>
	<p>Regarding the section of the HMP as was submitted for consultation with the RAP's, in section 5.2.2 which states as below in italics was highlighted with the comment:</p> <p>I disagree with the risk rating methodology. There is no criteria to allow for residual risk that exists from the potential long term impacts after the project as been completed. The subsidence modelling is based on the subsidence potential during the life of the project.</p> <p>Furthermore, the criteria is based on specific objects and not landscape, it also doesn't recognise the potential contextual damage as previously noted relating to axe grinding grooves.</p> <p><i>The assessment of risk was made using the criteria in Section 3.6.4 of Biosis (2013) as outlined in <b>Table 8</b> below. The subsidence impact assessment for Aboriginal sites in the Project Area is presented below in <b>Table 9</b>. This assessment was made using the parameters in Sefton's (2000) Principal Components Analysis and in conjunction with the subsidence predictions provided by (SCT 2020), detailed in <b>Table 10</b>.</i></p>	<p>A sentence has been added to clarify the risk rating methodology applies to archaeology values – <i>'The risk assessment relates specifically to archaeological (scientific) values'</i>.</p>

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** 34553 Russel Vale East - Revised Underground Expansion Project - Heritage Management Plan  
**Date:** Tuesday, 16 March 2021 11:53:20 AM  
**Attachments:** [34553.RV.UEP.CHMP.20210309.pdf](#)  
[image0a8335.PNG](#)

---

Good morning Donna and Paul,

Please find attached an updated HMP for Russel Vale East UEP for your review and feedback. It would be appreciated if you would provide feedback on the HMP by 5pm 13 April 2021 either by email, return mail or a phone call. If you would like further information, please do not hesitate to contact me.

Thanks

Sam

**Samantha Keats**

Team Leader - Heritage (NSW)



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**Leaders in Ecology and Heritage Consulting**

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**To:** [REDACTED]  
**Subject:** 34553 Russel Vale East - Revised Underground Expansion Project - Heritage Management Plan  
**Date:** Tuesday, 16 March 2021 11:39:59 AM  
**Attachments:** [34553.RV.UEP.CHMP.20210309.pdf](#)  
[image665bda.PNG](#)

---

Hi James,

Please find attached an updated HMP for Russel Vale East UEP for your review and feedback. It would be appreciated if you would provide feedback on the HMP by 5pm 13 April 2021 either by email, return mail or a phone call. If you would like further information, please do not hesitate to contact me.

Thanks

Sam

**Samantha Keats**

Team Leader - Heritage (NSW)



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**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** 34553 Russel Vale East - Revised Underground Expansion Project - Heritage Management Plan  
**Date:** Tuesday, 16 March 2021 11:50:09 AM  
**Attachments:** [34553.RV.UEP.CHMP.20210309.pdf](#)  
[image49c02.PNG](#)

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Good morning Maria,

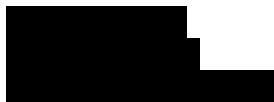
Please find attached an updated HMP for Russel Vale East UEP for your review and feedback. It would be appreciated if you would provide feedback on the HMP by 5pm 13 April 2021 either by email, return mail or a phone call. If you would like further information, please do not hesitate to contact me.

Thanks

Samantha

**Samantha Keats**

Team Leader - Heritage (NSW)



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**From:** [REDACTED]  
**To:** [REDACTED]  
**Subject:** 34553 Russel Vale East - Revised Underground Expansion Project - Heritage Management Plan  
**Date:** Tuesday, 16 March 2021 11:46:53 AM  
**Attachments:** [34553.RV.UEP.CHMP.20210309.pdf](#)  
[imageaff0f8.PNG](#)

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Good morning Peter,

Please find attached an updated HMP for Russel Vale East UEP for your review and feedback. It would be appreciated if you would provide feedback on the HMP by 5pm 13 April 2021 either by email, return mail or a phone call. If you would like further information, please do not hesitate to contact me.

Thanks

Samantha

**Samantha Keats**

Team Leader - Heritage (NSW)



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Site	Russell Vale Colliery	DOC ID	
Type	Management Plan	Date Published	23/02/2021
Doc Title	Russell Vale Colliery - HMP		

Site Name	AHIMS No.	Context	Site Type
Bulli Mine Shaft 30	52-3-0318	Enclosed shelter	Shelter with art
Bulli Mine Shaft 31	52-3-0322	Open Site	Axe grinding grooves
Bulli Mine Shaft 36	52-2-4617	Enclosed shelter	Shelter with art
Wallandoola Site 30	52-2-1265	Enclosed shelter	Shelter with deposit and artefacts

Details for Aboriginal heritage sites within the Project Area for this HMP are provided below and the updated baseline recording can be found in APPENDIX D.

#### 5.1.1 Wonga East 1 (AHIMS 52-2-3939)

Wonga East 1 is a shelter with deposit. Five surface artefacts consisting of quartz, chert and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was <sup>2</sup>relocated during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording (APPENDIX D).

#### 5.1.2 Wonga East 2 (AHIMS 52-2-3940)

Wonga East 2 is a shelter with deposit. Six surface artefacts consisting of silcrete flakes and quartz angular fragments have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was relocated during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording (APPENDIX D).

#### 5.1.3 Wonga East 3 (AHIMS 52-2-3941)


Wonga East 3 is a shelter with deposit. One silcrete distal flake and three quartz bipolar flakes were located on the surface of the shelter floor. There is a potential that additional artefacts are located within the shelter floor. The shelter deposit consists of yellowish grey sand and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

# Summary of Comments on Plain Template

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Page: 31

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 Number: 1      Author: ILALCCEO    Subject: Sticky Note      Date: 8/04/2021 8:58:02 AM  
Please change to located. Relocated means to move and re-establish.

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This should be changed on all site comments

 Number: 2      Author: ILALCCEO    Subject: Highlight    Date: 8/04/2021 8:57:07 AM

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Site	Russell Vale Colliery	DOC ID	
Type	Management Plan	Date Published	23/02/2021
Doc Title	Russell Vale Colliery - HMP		

The site was relocated during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording (APPENDIX D).

#### 5.1.4 Wonga East 4 (AHIMS 52-2-4170)

Wonga East 4 is a shelter with archaeological deposit. Four surface artefacts consisting of quartz and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance due to its preservation and lack of disturbance, and of high cultural significance.

<sup>2</sup> The site could not be re-located during the baseline recording survey for this HMP; however, it has previously been subject to baseline recording by Biosis in 2015.

#### 5.1.5 Wonga East 5 (AHIMS 52-2-4171)

Wonga East 5 is a shelter with stone arrangement. The shelter is low with two piles of stones in the entrance. The lichen growing on the stones indicates that they were placed some time ago. The shelter does not contain a deposit, art or artefacts. Although this may have been a historical feature, consultation with Aboriginal stakeholders indicates that the site may have cultural significance. Given the condition of the site, uncertainty as to its context, and limited range of site features, the site is of low scientific significance but and of high cultural significance.

The site could not be re-located during the baseline recording survey for this HMP; however, it has previously been subject to baseline recording by Biosis in 2015.


#### 5.1.6 Bulli Mine Shaft 7 (AHIMS 52-2-0083)

Bulli Mine Shaft 7 is a rock shelter with an archaeological deposit. The sandstone shelter is approximately 2.5m long, 1.5m wide and 1.5m in height. The deposit extends outside the shelter to a depth of 30cm, with a number of artefacts being noted including chert flakes, a silcrete flake and two pieces of quartz. The site was originally recorded in 1984 by Illawarra Prehistory Group with the site having been revisited in 1991. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be re-located during the baseline recording survey for this HMP.

#### 5.1.7 Bulli Mine Shaft 8 (AHIMS 52-2-0099)


---

 Number: 1 Author: ILALCCEO Subject: Sticky Note Date: 8/04/2021 9:01:12 AM

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What process will be implemented to locate this site, prior to ratification of this HMP? It is the LALC's view that this site needs to be located.

A process of recording and identifying all known sites needs to be in place before the HMP is approved.

 Number: 2 Author: ILALCCEO Subject: Highlight Date: 8/04/2021 8:58:33 AM

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Site	Russell Vale Colliery	DOC ID	
Type	Management Plan	Date Published	23/02/2021
Doc Title	Russell Vale Colliery - HMP		

one charcoal indeterminate drawing. This site was assessed as having high scientific significance and high cultural significance.

The site could not be re-located during the baseline recording survey for this HMP.

#### 5.1.22 Bulli Mine Shaft 31 (AHIMS 52-3-0322)

This axe grinding groove site was recorded in 1984 by the Illawarra History Group. The site consists of an 11 m by 22 m sandstone platform located at the base of an upland swamp and dropping off into another upland swamp. Two axe grinding grooves were located on the sandstone platform. The site is recorded as being in reasonable condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but of high cultural significance.

The site could not be re-located during the baseline recording survey for this HMP.

#### 5.1.23 Bulli Mine Shaft 36 (AHIMS 52-2-4617)

Bulli Mine Shaft 36 is a shelter with deposit. Three surface artefacts consisting of silcrete, chert and quartz flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present with a depth of 20 cm and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.


The site was relocated during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording (APPENDIX D).

#### 5.1.24 Wallandoola Site 30 (AHIMS 52-2-1265)

Wallandoola Site 30 is a shelter with deposit. Four surface artefacts consisting of one jasper flake and three quartz flakes have been recorded in the drip line at this site. A deposit of yellowish sandy loam is present with a depth of 60 cm and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.


The site could not be re-located during the baseline recording survey for this HMP.

---

 Number: 1      Author: ILALCCEO    Subject: Sticky Note      Date: 8/04/2021 9:14:57 AM  
Upland swamps should be recorded as cultural sites for the purpose of providing sustenance to Aboriginal communities.

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These sites need to be recorded as part of the cultural landscape of Aboriginal occupation.

 Number: 2      Author: ILALCCEO    Subject: Highlight    Date: 8/04/2021 9:13:17 AM

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Site	Russell Vale Colliery	DOC ID	
Type	Management Plan	Date Published	23/02/2021
Doc Title	Russell Vale Colliery - HMP		

## 5.2 Potential Impacts to Aboriginal Heritage Sites

The 2008 Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield Strategic Review defines subsidence effects as “the deformation of the ground mass surrounding a mine due to mining activity” (DoP 2008, pp. vii). Subsidence impacts are the changes to the ground that subsequently occur as a result of subsidence effects. Subsidence impacts are not always recognisable within Aboriginal shelters and are difficult to separate from normal background effects. Any change of Aboriginal shelter site condition observed during subsidence mining is managed under the assumption that it could possibly be the result of subsidence impact.

The subsidence assessment of the proposed extraction undertaken by SCT (2019) found that irrespective of the strength, load and behavior of the proposed pillars being utilised in the proposed bord and pillar workings, some low-level deformation is expected within the Wongawilli seam, with elastic compression of the strata above and below the pillars. This strata compression has the potential to result in low-level subsidence movements (less than 100 mm and generally less than 30 mm), as well as some corresponding low levels of tilt and strain. Any such subsidence is likely to occur gradually and movement is expected to be generally imperceptible and insignificant for all practical purposes.


The assessment concluded that “the small subsidence movements that are forecast for the proposed mining layout are not expected to cause perceptible impacts to any natural surface features including upland swamps, cliffs, steep slopes, drainage lines, creeks, Cataract Creek and Cataract Reservoir” (SCT 2019). The proposed mining is not expected to have an impact on surface water dependent ecosystems or groundwater.

A peer review of the Russell Vale Colliery subsidence assessment (SCT 2019) undertaken by BK Hebblewhite Consulting supported the claim that the proposed mining is not expected to result in any significant subsidence impacts on surface or sub-surface water regimes, and that proposed pillars are large enough to be long-term stable. The review also supported the claim that the proposed workings are not considered to have any potential to perceptibly impact on any surface features such as escarpments, swamps, cliffs, creeks and drainage lines, or the Cataract Reservoir (B K Hebblewhite Consulting 2019).


<sup>2</sup> The Proposed Action mine plan has been designed to be long term stable. Should an unexpected pillar failure occur, the SCT Subsidence Assessment estimated the potential vertical subsidence associated with a pillar failure in the Wongawilli Seam as being up to 140 millimetres. A risk analysis undertaken by (SCT 2020) quantifies the risk of such a pillar failure occurring as less than 1 in 100,000 (0.001 % over the life of the project and therefore less than 0.01 % per year). The likelihood of an initiating event occurring is considered to be remote.

Changes to shelter conditions attributed to subsidence impacts include small movement along joints, tension cracking of strata, cliff collapse or block fall and increased water seepage of shelter sandstone surfaces. While subsidence impacts do not always have direct heritage values impacts,

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 Number: 1      Author: ILALCCEO    Subject: Sticky Note      Date: 8/04/2021 9:47:12 AM

Shouldn't we be evaluating in perpetuity for our purposes and not just the life of the mine. Our cultural heritage will still remain long after the mine has closed, one would hope.

 Number: 2      Author: ILALCCEO    Subject: Highlight    Date: 8/04/2021 9:46:04 AM

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Site	Russell Vale Colliery	DOC ID	
Type	Management Plan	Date Published	23/02/2021
Doc Title	Russell Vale Colliery - HMP		

i.e impacts to art panels, they can cause a change in shelter conditions that lead to heritage values impact, such as altering water seepage patterns that adversely affects art panels. Thus, the heritage values at a given Aboriginal shelter site, such as the presence or absence of art panels, will influence the risk of a heritage values impact due to subsidence impacts.

Changes to site conditions of axe grinding grooves and engraving sites due to subsidence effects could include cracking of sandstone platforms, tree fall and change in drainage patterns. It is possible that these changes in site conditions could result in impacts to axe grinding grooves and engravings if cracks directly impact grooves or engravings, tree fall obscures grooves or engravings and/or changes in drainage patterns alters the natural setting context of axe grinding grooves.

<sup>2</sup> For a site to incur a total loss of cultural heritage value; the complete destruction of axe grinding grooves or engravings in their entirety would have to occur. Subsidence monitoring to date indicates that this is highly unlikely to occur and changes in site conditions from subsidence effects are at most only likely to result in partial loss of cultural heritage values.

### 5.2.1 Surface Works at the Russell Vale Pit Top

No impacts were predicted to Aboriginal sites in the Russell Vale Pit Top area due to the low potential for sites to be present; however, it was recommended that contingency plans should be developed for the HMP in case of the unexpected discovery of Aboriginal sites (ERM 2011a).


### 5.2.2 Potential Subsidence Impacts

The assessment of risk was made using the criteria in Section 3.6.4 of Biosis (2013) as outlined in Table 8 below. The subsidence impact assessment for Aboriginal sites in the Project Area is presented below in Table 9. This assessment was made using the parameters in Sefton's (2000) Principal Components Analysis and in conjunction with the subsidence predictions provided by (SCT 2020), detailed in Table 10.

Table 8 – Subsidence Effect Risk Categories and Criteria

Category	Description	Criteria
<b>Moderate</b>	There is a moderate chance of subsidence effects occurring which may result in impacts to heritage values.	The shelter has an art panel present; and The shelter has a volume larger than 50 cubic metres; The shelter has joints or bedding plans subject to water seepage; and Maximum predicted subsidence is greater than 300mm.
<b>Low</b>	There is a low chance of subsidence effects occurring which may result in impacts to heritage values.	The shelter has a volume larger than 50 cubic metres; and Maximum predicted subsidence is greater than 300mm


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 Number: 1 Author: ILALCCEO Subject: Sticky Note Date: 8/04/2021 9:50:59 AM


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I disagree with this point. Total loss of value also occurs if the context of the object is changed. If water, that is essential to the grinding process, is not present the context of the site has changed.


This would be the same as relocating a site and therefore the total destruction of the site has occurred.

 Number: 2 Author: ILALCCEO Subject: Highlight Date: 8/04/2021 9:48:49 AM

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 Number: 3 Author: ILALCCEO Subject: Highlight Date: 8/04/2021 9:54:18 AM

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 Number: 4 Author: ILALCCEO Subject: Sticky Note Date: 8/04/2021 10:05:34 AM

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I disagree with the risk rating methodology.

There is no criteria to allow for residual risk that exists from the potential long term impacts after the project has been completed.

The subsidence modeling is based on the subsidence potential during the life of the project.

Furthermore, the criteria is based on specific objects and not landscape, it also doesn't recognise the potential contextual damage as previously noted relating to axe grinding grooves





<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

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## APPENDIX C - AGENCY CONSULTATION

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Richard Sheehan  
Group Environmental & Approvals Manager  
Wollongong Coal Limited  
Russell Vale Colliery

Your reference: MP09\_0013-PA-11  
Our reference: DOC21/211099-2

Uploaded to the NSW Major Project Portal

Dear Richard

**HERITAGE NSW – ABORIGINAL CULTURAL HERITAGE REGULATION  
DRAFT HERITAGE MANAGEMENT PLAN ADVICE**

**Proposal:** Russell Vale Underground Expansion Heritage Management Plan  
**SSD no:** Post Approval MP09\_0013-PA-11

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Thank you for referring the above State Significant Development (SSD) to Heritage NSW via the NSW Major Projects Portal. We understand that you are seeking Aboriginal Cultural Heritage Regulation advice on the post approval Draft Heritage Management Plan (HMP).

In preparing the following advice we have reviewed the following material available on the Major Project Portal:

- Russell Vale Colliery Russel Vale East - Revised Underground Expansion Project Cultural and Historical Heritage Management Plan Draft RVC EC PLN 0XX (dated 5 March 2021).

This letter intends to formalise the comments provided by Heritage NSW during the meeting with Wollongong Coal and Biosis Pty Ltd on 14 April 2021. Heritage NSW are happy to work with Biosis Pty Ltd and Wollongong Coal to continue to develop the HMP.

Attachment A contains our detailed review of the draft HMP. Please note: these comments relate only to Aboriginal cultural heritage regulation matters. You may wish to seek separate advice from Heritage NSW in relation to State Heritage Register listed sites and matters under the *Heritage Act 1977*.

If you have any questions regarding these comments, please contact Emily Dillon, Archaeologist, Aboriginal Cultural Heritage Regulation – South, at Heritage NSW, on 02 6229 7189 or [emily.dillon@environment.nsw.gov.au](mailto:emily.dillon@environment.nsw.gov.au).

Yours sincerely

**Jackie Taylor**  
**Senior Team Leader, Aboriginal Cultural Heritage Regulation - South**  
**Heritage NSW**  
15 April 2021

Enclosure: Attachment A: Detailed Aboriginal Cultural Heritage Regulation Comments

## **ATTACHMENT A: DETAILED ABORIGINAL CULTURAL HERITAGE REGULATION COMMENTS**

Based on the discussions on 14 April 2021 and the comments below, the applicant needs to prepare a revised Heritage Management Plan (HMP) for further consultation with the Registered Aboriginal Parties and Heritage NSW. The HMP must be finalised before the start of any ground disturbance works.

### **Consent**

- It must be made clear in the HMP that in line with Condition B23. of the consent the Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage items.

### **Previously Recorded Sites**

- Clarify the discrepancy between the numbers of sites approved by the consent compared to the numbers of sites identified in the HMP. Does this have any implications for the approval?
- As a number of sites were unable to be relocated during the baseline recording field surveys, Heritage NSW recommend further assessment of historically recorded AHIMS sites to troubleshoot the likely inaccurate locations of sites and to ensure none of the sites are duplicated or missed.
- Additional survey needs to be undertaken in areas likely to contain Aboriginal cultural heritage sites to ensure baseline recording does not only include previously recorded sites.
- The HMP needs to consider how the sites that could not be relocated will be managed into the future.
- AHIMS site cards must be updated to reflect the revised baseline recording before the HMP is finalised.
- We recommend the HMP includes timeframes to outline the intervals between AHIMS site card updates. The HMP also needs to outline the triggers for the need for the site cards to be updated.

### **Risk and Impact Assessment and Monitoring Approach**

- Heritage NSW recommends monitoring occurs for all Aboriginal sites, irrespective of risk rating. Timeframes for monitoring negligible subsidence risk sites could be reduced compared to sites as higher risk of impact.
- Monitoring of negligible and low risk sites would provide evidence that impacts are not occurring or at least are not occurring as a direct result of mining. Additionally, this would ensure that the risk assessment is accurate and if there are unexpected impacts these can be managed and addressed.
- The HMP needs to:
  - Provide more clarity on how risk is assessed. There is a discrepancy between the sites identified for ongoing monitoring and the level of subsidence risk identified.
  - to consider how potential subsidence may impact on the different types of Aboriginal cultural heritage sites within the Project area. How is impact to values established. E.g. scientific, cultural, aesthetic values etc.
  - provide detail on what constitutes harm to heritage sites e.g. cracking of art panels, rock fall, change of water flow, removal of site access etc.

- establish what actions can and will be taken to mitigate harm to heritage sites if it occurs.
- detail the trigger points for conservation and mitigation actions to occur. What is considered unacceptable impact?
- We recommend the HMP implements a risk matrix to factor in the various values of a site against the risk of impact to that site. This may help inform the level of baseline recording required, the interval of monitoring necessary etc.

### **Timeframes**

- The HMP would benefit from the inclusion of timeframes where possible, such as:
  - When will the planned works be most likely to result in impact to sites?
  - How can you design the monitoring strategy to best reflect this?
- Any strategy needs to fit into the predicted plan of works with triggers in place for monitoring before, during and after works that may cause harm to sites.
- Time intervals between inspections for the various site types should be proposed in line with the risk and significance of the sites.

### **Unexpected Finds**

- The identification of any unexpected find needs to be a trigger for revision of the HMP.
- Revise the unexpected finds procedure for human remains to be in line with Requirement 25 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010).
- Ensure the NSW Environment Line number, 131 555, is included and provide a mechanism for the Registered Aboriginal Parties (RAPs) to be informed within 24 hours of the remains being established to be Aboriginal.

### **Inductions**

- All inductions should be developed with, and where possible, presented by or in conjunction with the RAPs.

### **Aboriginal Community Consultation**

- Consider and incorporate RAP comments into the HMP. If RAP comments cannot be addressed, provide an explanation for why the feedback has not been adopted.
- Following adoption and implementation of Heritage NSW and RAP comments the RAPs should be provided the draft HMP again for final comments.
- Include a summary table of trigger points and timeframes for consultation with the RAPs.
- Include a redacted contact details file as an appendix to the HMP.

### **Other Conditions**

- Demonstrate how the HMP addresses the following conditions:
  - Provide a strategy for the care, control and storage of Aboriginal objects salvaged on the site, both during the life of the development and in the long term.
  - Outline protocols for affording reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places within the Project Area.

### **Baseline Recording**

Following review of the Russell Vale East UEP: Baseline Recording of Aboriginal Sites Final report by Biosis 2021, Heritage NSW does not consider the standard of baseline recording and photography undertaken to date sufficient. In order to address these concerns a stronger

adherence to the stated methodology (Biosis 2021 p. 6) needs to be employed and the following points incorporated.

- All site photos must have appropriate scales.
- All site recordings must have both general context photos and close up photos of the components of each site.
- All site damage must be clearly documented, described and photographed at each site.
- Every art panel must have comprehensive recording undertaken with scaled and high-resolution photography e.g. AHIMS 52-3-0310, AHIMS 52-2-0603.
- Include the elevation plans of shelter walls recording structural and surface features including, but not limited to, the art, graffiti, joints, bedding planes, exfoliation scars, cracks, mineral and micro-organism growth, drip line and water seepage locations.
- Every site must have monitoring points identified for consistency e.g. cracking, damage, mineralization, water seepage etc.
- Close up and contextual photographs of all monitoring points and damage need to be included and the locations of these included in the elevation plans and in the general site photos to enable relocation of monitoring points and damage.
  - For example, at site AHIMS 52-2-4171 one monitoring point could be the stability of the stone arrangements.
- Relate image numbers in Appendix 1 to the relevant sites and provide descriptions of each photo.
- Provide high resolution photo files as an appendix to the baseline recording.
- Has any spherical photographic coverage of selected shelters using high resolution digital photography and appropriate image stitching techniques been applied to any sites. If not, why not?
- Alternative technologies for detailed site recording should be adopted such as 3D scanning of shelters and DStretch.
- Provide the zone and projection used for easting/northings e.g. GDA 94 Zone 55 or GDA 2020 Zone 56.



Richard Sheehan  
Wollongong Coal

By email: richard.sheehan@wcl.net.au  
CC: gen.lucas@planning.nsw.gov.au

Dear Mr Sheehan

**Heritage Council comments on Draft Heritage Management Plan for Russell Vale Colliery (MP09\_0013-PA-12)**

Heritage NSW received a referral from DPIE dated 18/3/2021 inviting comments from the Heritage Council of NSW on the Draft Heritage Management Plan for Russell Vale Colliery.

It is understood that the subject modification was approved on 8 December 2020. The following conditions are relevant: Schedule 2, Part B conditions B26 and 27 (Historic Heritage Management Plan) and Schedule 2, Part C condition C10 (Extraction Plan).

The following report was considered:

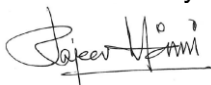
- *Russell Vale Colliery, Russel Vale East – Revised Underground Expansion Project, Cultural and Historical Heritage Management Plan, prepared by Wollongong Coal, dated 5/3/2021.*

As delegate of the Heritage Council of NSW, I provide the following comments:

- Heritage NSW letter of 20 December 2019 noted that regular monitoring and modelling should be undertaken by the applicant, and that, if vibration and subsidence is detected within the Cataract Dam SHR curtilage, activity in the surrounding area must stop immediately, followed by urgent rehabilitation of the area and a report submitted to HNSW outlining the actions taken. This has not been incorporated into the HHMP. It is requested that the monitoring and remediation actions be incorporated into the HHMP as mentioned above.
- If 'relics' (as per the meaning of the Heritage Act 1977) were to be discovered, the provisions of s.146 of the Heritage Act 1977 would apply.

If you have any questions regarding the above advice, please contact Veerle Norbury, Senior Heritage Assessment Officer at Heritage NSW on 9873 8616 or [veerle.norbury@environment.nsw.gov.au](mailto:veerle.norbury@environment.nsw.gov.au).

Yours sincerely



**Rajeev Maini**  
Senior Team Leader  
South Assessments  
Heritage NSW  
Department of Premier and Cabinet  
**As Delegate of the Heritage Council of NSW**  
14 April 2021

## Richard Sheehan

---

**From:** David Henry <David.Henry@wollondilly.nsw.gov.au> on behalf of David Henry  
**Sent:** Wednesday, 28 April 2021 10:33 AM  
**To:** 'Richard Sheehan'  
**Subject:** RE: Consultation as required to be closed off for the Heritage Management Plan

Hi Richard

So sorry for the delay

Council does not have any comments regarding the Heritage Management Plan for the Russell Vale Colliery and is satisfied for comments on this Plan to be provided by Aboriginal groups.

David



**David Henry**  
Environmental Assessment Planner

**T** 0246779687  
**A** P.O. Box 21 Picton, NSW, 2571  
**E** [David.Henry@wollondilly.nsw.gov.au](mailto:David.Henry@wollondilly.nsw.gov.au)  
**W** <http://www.wollondilly.nsw.gov.au>



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**From:** Richard Sheehan [mailto:[richard.sheehan@wcl.net.au](mailto:richard.sheehan@wcl.net.au)]  
**Sent:** Tuesday, 27 April 2021 6:00 PM  
**To:** David Henry  
**Subject:** Consultation as required to be closed off for the Heritage Management Plan

David,

Further to our conversation on Friday 16 April regarding the consultation with Wollondilly City Council I am writing to you to formally request your response to this request for feedback as per the screenshot below. Can you please respond to this email or via the departments portal by lunchtime tomorrow so we can close this consultation loop.

**Wollondilly Shire Council (PAE-16352215)**

Status  
Pending Advice

Due Date  
Wednesday, 14 April 2021

No response received

With regards to the project Wollongong Coal Limited (WCL) received planning approval to extract up to 3.7-million tonnes of coal over five years using bord-and-pillar mining at the Russell Vale Colliery on Tuesday 8 December 2020 subject to 118 conditions. It's projected the Russell Vale Underground Expansion Project (UEP) will deliver a net economic benefit to the state of up to \$174 million and create ongoing employment for 205 people.

The Colliery, which has been in care and maintenance since 2015 is currently in the process of developing the suite of approximately 30 new management plans in accordance with the major project approval MP09\_0013 to detail the specific measures developed to address the specific performance measures and criteria within the approval.

Specifically this submission is in relation to the Schedule 2, Part C Conditions B26, and B27, in addition to C10 (vi). Conditions B26 - B27 require:

- Outline statutory requirements, including any performance measures to be achieved;
- Provide updated baseline recording and mapping of historic heritage sites previously identified in the Project Area including statements of significance for each item;
- Describe how historic heritage values at the site will be recorded, preserved and protected;
- Provide protocols for the archival recording of any historic heritage items prior to any impacts by development;
- Outline heritage induction procedures for construction personnel, including procedures for keeping records of inductions;
- Provide protocols for protecting heritage items from unpredicted impact of the development;
- Provide a strategy for managing any newly identified heritage items discovered during the life of the development;
- Provide a strategy for the care, control and storage of historic relics salvaged on the site, both during the life of the development and in the long term.
- In addition the Management Plan has been prepared to address the requirements of the Schedule 2, Part C, Condition C10 Extraction Plan where condition C10 (vi) requires the preparation of a Heritage Management Plan relating to measures to be implemented in association with the extraction plan for the management of potential environmental consequences of the proposed second workings.

Regards

Richard Sheehan  
*Group Environmental & Approvals Manager*



Wollongong Coal Limited  
Russell Vale Colliery  
7 Princes Highway, Corrimal NSW 2518  
PO Box 281, Fairy Meadow NSW 2519  
☎ Mob: 0404 972 746  
✉ Email: [Richard.sheehan@wcl.net.au](mailto:Richard.sheehan@wcl.net.au)

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**From:** [Carly Boag](#)  
**To:** [Robert Faddy-Vrouwe](#); [Ron Zwicker](#)  
**Cc:** [Daniel Martin](#); [Samantha Keats](#); [Richard Sheehan](#)  
**Subject:** RE: WCL - WCC HMP Consultation following DPIE review  
**Date:** Wednesday, 28 July 2021 4:47:35 PM  
**Attachments:** [image017.png](#)  
[image018.png](#)  
[image020.png](#)  
[image021.png](#)  
[image009.png](#)  
[image011.png](#)  
[image012.png](#)  
[image013.png](#)

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Hi Robert,

Thank you for providing the updated HMP back to WCC for comment. I note that Heritage NSW has provided conditions related to Historic heritage, which should be complied with. It would have been useful with such a large document to perhaps include a cover letter with specific responses to each of the additional information requests, noting there is a brief response table included in the HMP.

I remained concerned about Part 10.2.3 Management Policies as previously noted:

*Additionally, actions that require Heritage Impact Statements are noted, however the HMP does not make it clear that these actions if outside of the existing approval scope may require additional approval under the EP&A Act or Heritage Act, not just where unacceptable change is proposed. The Policies suggests that approvals are only required where a HIS assess change as unacceptable which is not the case.*

*Example:*

**10.2.5.1 Policy 9 – New Works or Buildings**

The undertaking of new works or buildings should not dominate or compromise significant aspects of elements of exceptional, high, and moderate significance. To achieve this:

- New structures must be designed to be respectful in scale, form and detail to the existing early to mid-century buildings where they are in visual proximity;
- New structures or works must not obscure important vistas or views from elements of exceptional, high and moderate significance;
- That only limited physical intervention to the fabric of the significant elements of exceptional, high and moderate significance be permitted;
- Openings connecting existing building and new structures should be limited in size and number. Existing openings should be utilised when possible; and
- If fabric of elements of exceptional, high and moderate significance will be altered or impacted than a SoHI must be prepared. Where changes or impacts are assessed as unacceptable further consultation with Heritage NSW and DPIE and/or approvals will be required.

The wording of these policies may need to be updated or an addition section on approvals required should be inserted.

Can you also please ensure WCC is included for notification in the Trigger Action Response Plan for the local heritage item South Bulli Colliery at the moment it only includes Heritage NSW who I note do not administer local heritage.

I note the archival recording, CMP has been provided.

I am having difficulty seeing the Responses to the following points in the document, if you could



point me in the right direction that would be great:

3. Part (f)(iii) No response on protected heritage items, particularly those noted in the AHMP to be subject to vandalism.
4. Part f(iv) no response on management of new heritage items;

Thanks

Carly



**Carly Boag**  
**Heritage Officer**  
**Post** Locked Bag 8821 Wollongong DC NSW 2500  
**Phone** +61242277135  
**Email** [cboag@wollongong.nsw.gov.au](mailto:cboag@wollongong.nsw.gov.au) • [www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au)  
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**From:** Robert Faddy-Vrouwe <rfaddy@wcl.net.au>

**Sent:** Thursday, 22 July 2021 1:53 PM

**To:** Ron Zwicker <RZwicker@wollongong.nsw.gov.au>; Carly Boag <cboag@wollongong.nsw.gov.au>

**Cc:** Daniel Martin <daniel.martin@dpie.nsw.gov.au>; Samantha Keats <SKeats@biosis.com.au>; Richard Sheehan <richard.sheehan@wcl.net.au>

**Subject:** WCL - WCC HMP Consultation following DPIE review

**[EXTERNAL EMAIL]** This email was sent from outside of Wollongong City Council – be cautious, particularly with links and attachments.

Hi Ron & Carley

In response to the consultation with Wollongong City Council on the Heritage Management Plan (HMP), in accordance with condition B26 (b) which states that the Historic Heritage Management Plan be prepared in consultation with WCC. Please find the latest version of the Heritage MP (in tracked changes and as a clean document) in the link below which includes all the following appendixes:

Appendix A – Trigger Action Response Plans

Appendix B – RAP Consultation

Appendix C – Agency Consultation

Appendix D – Baseline Recording of Aboriginal Heritage Sites

Appendix E – Conservation Management Plan

Appendix F – Archival Recording

The RVC HMP can be accessed here:

[https://www.dropbox.com/sh/7d6hzmekv2u3p88/AACmPhFKsRF6XMpDcXFCc3z\\_a?dl=0](https://www.dropbox.com/sh/7d6hzmekv2u3p88/AACmPhFKsRF6XMpDcXFCc3z_a?dl=0)

This is in response the WCC feedback that Appendix B, C and D were not attached to the report.  
Please give me a call do discuss when you get a chance.

Kind Regards

Robert Faddy-Vrouwe  
*Environmental Coordinator*



Wollongong Coal Limited  
Russell Vale Colliery  
7 Princes Highway, Corrimal NSW 2518  
PO Box 281, Fairy Meadow NSW 2519  
☎ Mob: 0426 246 825  
✉ Email: [RFaddy@wcl.net.au](mailto:RFaddy@wcl.net.au)

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**From:** Richard Sheehan [mailto:[richard.sheehan@wcl.net.au](mailto:richard.sheehan@wcl.net.au)]  
**Sent:** Wednesday, 14 July 2021 6:20 PM  
**To:** Robert Faddy-Vrouwe <[rfaddy@wcl.net.au](mailto:rfaddy@wcl.net.au)>  
**Subject:** FW: Council Response to the Draft Russell Vale Colliery Underground Expansion Project Cultural and Historic Heritage Management Plan

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**From:** Richard Sheehan <[richard.sheehan@wcl.net.au](mailto:richard.sheehan@wcl.net.au)>  
**Sent:** Tuesday, 1 June 2021 5:20 PM  
**To:** 'Samantha Keats' <[SKeats@biosis.com.au](mailto:SKeats@biosis.com.au)>  
**Subject:** FW: Council Response to the Draft Russell Vale Colliery Underground Expansion Project Cultural and Historic Heritage Management Plan

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**From:** Ron Zwicker <[RZwicker@wollongong.nsw.gov.au](mailto:RZwicker@wollongong.nsw.gov.au)>  
**Sent:** Wednesday, 5 May 2021 9:00 AM  
**To:** Richard Sheehan <[richard.sheehan@wcl.net.au](mailto:richard.sheehan@wcl.net.au)>  
**Cc:** Carly Boag <[cboag@wollongong.nsw.gov.au](mailto:cboag@wollongong.nsw.gov.au)>; Joel Thompson <[JThompson@wollongong.nsw.gov.au](mailto:JThompson@wollongong.nsw.gov.au)>  
**Subject:** FW: Council Response to the Draft Russell Vale Colliery Underground Expansion Project Cultural and Historic Heritage Management Plan

Hi Richard

Please find attached Council's heritage comments for your review / consideration.

Regards,

Ron



**Ron Zwicker**

**Special Projects and Planning Support Manager**

**Post** Locked Bag 8821 Wollongong DC NSW 2500

**Phone** +61242277639

**Email** [rzwicker@wollongong.nsw.gov.au](mailto:rzwicker@wollongong.nsw.gov.au) • [www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au)

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**From:** Carly Boag <[cboag@wollongong.nsw.gov.au](mailto:cboag@wollongong.nsw.gov.au)>

**Sent:** Tuesday, 4 May 2021 1:36 PM

**To:** Ron Zwicker <[RZwicker@wollongong.nsw.gov.au](mailto:RZwicker@wollongong.nsw.gov.au)>; Joel Thompson  
<[JThompson@wollongong.nsw.gov.au](mailto:JThompson@wollongong.nsw.gov.au)>

**Subject:** RE: Council Response to the Draft Russell Vale Colliery Underground Expansion Project  
Cultural and Historic Heritage Management Plan

Hi Ron,

Please see attached Council comment.

Thanks

Carly



**Carly Boag**

**Heritage Officer**

**Post** Locked Bag 8821 Wollongong DC NSW 2500

**Phone** +61242277135

**Email** [cboag@wollongong.nsw.gov.au](mailto:cboag@wollongong.nsw.gov.au) • [www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au)

**Our Values** SUSTAINABLE COURAGE RESPECT INTEGRITY ONE TEAM



---

**From:** Ron Zwicker <[RZwicker@wollongong.nsw.gov.au](mailto:RZwicker@wollongong.nsw.gov.au)>

**Sent:** Tuesday, 20 April 2021 3:13 PM

**To:** Carly Boag <[cboag@wollongong.nsw.gov.au](mailto:cboag@wollongong.nsw.gov.au)>; Joel Thompson  
<[JThompson@wollongong.nsw.gov.au](mailto:JThompson@wollongong.nsw.gov.au)>

**Subject:** FW: Council Response to the Draft Russell Vale Colliery Underground Expansion Project  
Cultural and Historic Heritage Management Plan

Hi Carly / Joel

Please see Biosis Baseline Report for Aboriginal Heritage – Please Note this is not a consent  
requirement for consultation to take place with WCC or for WCC to provide input into this.

I haven't received any Baseline Report on the Historical Heritage component as yet.

Regards,

Ron



**Ron Zwicker**

**Special Projects and Planning Support Manager**

**Post** Locked Bag 8821 Wollongong DC NSW 2500

**Phone** +61242277639

**Email** [rzwicker@wollongong.nsw.gov.au](mailto:rzwicker@wollongong.nsw.gov.au) • [www.wollongong.nsw.gov.au](http://www.wollongong.nsw.gov.au)

**Our Values** SUSTAINABLE COURAGE RESPECT INTEGRITY ONE TEAM



---

**From:** Richard Sheehan <[richard.sheehan@wcl.net.au](mailto:richard.sheehan@wcl.net.au)>

**Sent:** Tuesday, 20 April 2021 2:04 PM

**To:** Ron Zwicker <[RZwicker@wollongong.nsw.gov.au](mailto:RZwicker@wollongong.nsw.gov.au)>

**Subject:** Re: Council Response to the Draft Russell Vale Colliery Underground Expansion Project Waste Management Plan

**[EXTERNAL EMAIL]** This email was sent from outside of Wollongong City Council – be cautious, particularly with links and attachments.

Thanks Ron

See attached FYI

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It is noted in response to requests for additional information, an updated HMP was provided on the 29<sup>th</sup> April 2021.

### Aboriginal Heritage

Although noted that only the historic components of the HMP require consultation with WCC, the following comments are provided on the Aboriginal Heritage component. It is noted that Heritage NSW have provided a range of comments to be addressed in relation to Aboriginal Heritage.

As per condition B24(a), it should be confirmed that the author of the Report is a suitably qualified consultant as no author is provided.

Additionally the following parts of the condition have not been addressed:

- No Care Agreement provided (h). HMP states that it is not applicable but no additional justification provided;
- Part V and VI relating to ongoing engagement with RAP's including access to sites are not addressed in the HMP;
- Appendix B,C and D are not attached to the Report.

In Part 5.2.3 Site Specific Impacts there are a number of sites where the impact is assessed as "very low/negligible" however are included in the site specific impacts table, which only addresses low-moderate impacts. This is inconsistent and the impact level should be clarified for the following sites:

- Wonga East 3
- Bulli Mine Shaft 25, 26, 27

### Historic Management Plan

#### Historic Heritage Management Plan

- B26. The Applicant must prepare a Historic Heritage Management Plan for the development, in respect of all non-Aboriginal cultural heritage items, to the satisfaction of the Planning Secretary. This plan must:
- (a) be prepared by a suitably qualified and experienced person/s;
  - (b) be prepared in consultation with the Heritage Branch, WCC and WSC, and in accordance with the relevant Heritage Branch guidelines;
  - (c) be approved by the Secretary prior to the commencement of mining operations under this consent;
  - (d) describe how historic heritage values of the site would be recorded and preserved, including all heritage items at the surface facilities site;
  - (e) identify all heritage items in the vicinity of the site and include a statement of significance for each item;
  - (f) describe the measures to be implemented on the site to:
    - (i) ensure all workers receive suitable heritage inductions prior to carrying out any activities which may cause impacts to historic heritage, and that suitable records are kept of these inductions;
    - (ii) undertake photographic/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance;
    - (iii) protect heritage items from unpredicted impacts of the development, disrepair or vandalism (where practicable); and
    - (iv) manage any new heritage items discovered during the life of the development; and
  - (g) include a strategy for the care, control and storage of relics salvaged from the site.

- B27. The Applicant must implement the Historic Heritage Management Plan as approved by the Planning Secretary.

As per condition B26(a), it should be confirmed that the author of the Report is a suitably qualified heritage consultant as no author is provided.

There is no statement of significance for each site as per condition B26(e), however the Report does assess each component. It is unclear how these ratings were developed and whether they are based



on the earlier GML Report. Additionally actions that require Heritage Impact Statements are noted, however the HMP does not make it clear that these actions may require additional approval.

Section 8 is noted in the HHMP address all conditions of B26(f)-g). The Section however only deals with potential subsidence impacts to Cataract Dam Wall and does not address any other historic heritage items. It is not clear where/ or of what elements of subsidence monitoring recommended in Table 20 will occur in the South Bulli Colliery listed or within the SHR listing. The following conditions therefore require responses:

- The archival recording Appendix D has since been removed from the updated AHMP plan. Therefore condition (f)(i) has not been met.
- Protect Heritage items from unpredicted elements of development. (f)(iii).
- Manage new heritage items. (f)(iv).
- Strategy for care and storage of relics salvaged not provided B26(g).

#### **REQUEST FOR ADDITIONAL INFORMATION**

1. Part (e) Statements of Significance for Historic sites not provided;
2. Part f(ii) Photographic recording not provided;
3. Part (f)(iii) No response on protected heritage items, particularly those note din the AHMP to been subject to vandalism.
4. Part f(iv) no response on management of new heritage items;
5. Part (g) No Care Agreement provided for historic relics;
6. Monitoring and remediation actions required to be incorporated into HHMP as per NSW Heritage Comments.



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

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## APPENDIX D - BASELINE RECORDING OF ABORIGINAL HERITAGE SITES

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# Russell Vale East UEP: Baseline recording of Aboriginal sites

FINAL REPORT

Prepared for Wollongong Coal Limited

17 August 2021

## Biosis offices

### NEW SOUTH WALES

#### Albury

Phone: (02) 6069 9200  
Email: [albury@biosis.com.au](mailto:albury@biosis.com.au)

#### Newcastle

Phone: (02) 4911 4040  
Email: [newcastle@biosis.com.au](mailto:newcastle@biosis.com.au)

#### Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Western Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Wollongong

Phone: (02) 4201 1090  
Email: [wollongong@biosis.com.au](mailto:wollongong@biosis.com.au)

### VICTORIA

#### Ballarat

Phone: (03) 5304 4250  
Email: [ballarat@biosis.com.au](mailto:ballarat@biosis.com.au)

#### Melbourne

Phone: (03) 8686 4800  
Email: [melbourne@biosis.com.au](mailto:melbourne@biosis.com.au)

#### Wangaratta

Phone: (03) 5718 6900  
Email: [wangaratta@biosis.com.au](mailto:wangaratta@biosis.com.au)

## Document information

**Report to:** Wollongong Coal Limited

**Prepared by:** Samantha Keats

**Biosis project no.:** 34553

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- Wollongong Coal Limited: Richard Sheehan and Sasa Cugalj.

Biosis staff involved in this project were:

- Astrid Mackegard for mapping.

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# Contents

<b>Glossary.....</b>	<b>1</b>
<b>1 Introduction .....</b>	<b>2</b>
1.1 Project background .....	2
1.2 Project aims.....	2
1.3 Aboriginal consultation.....	3
<b>2 Baseline recording methodology.....</b>	<b>6</b>
<b>3 Baseline records .....</b>	<b>9</b>
3.1 Updated baseline site descriptions and observations .....	11
3.2 Stage 1 – Year 1 .....	11
3.2.1 Bulli Mine Shaft 20 (AHIMS 52-3-0311).....	11
3.2.2 Bulli Mine Shaft 26 (AHIMS 52-3-0323).....	17
3.2.3 Bulli Mine Shaft 27 (AHIMS 52-3-0325).....	17
3.2.4 Bulli Mine Shaft 29 (AHIMS 52-3-0313).....	25
3.2.5 Wonga East 4 (AHIMS 52-2-4170) .....	27
3.2.6 Wonga East 5 (AHIMS 52-2-4171) .....	27
3.3 Stage 2 – Years 2 to 5 .....	28
3.3.1 Wonga East 1 (AHIMS 52-2-3939) .....	28
3.3.2 Wonga East 2 (AHIMS 52-2-3940) .....	30
3.3.3 Wonga East 3 (AHIMS 52-2-3941) .....	32
3.3.4 Bulli Mine Shaft 7 (AHIMS 52-2-0083).....	34
3.3.5 Bulli Mine Shaft 8 (AHIMS 52-2-0099) .....	34
3.3.6 Bulli Mine Shaft 12 (AHIMS 52-2-0229).....	36
3.3.7 Bulli Mine Shaft 13 (AHIMS 52-2-0233).....	36
3.3.8 Bulli Mine Shaft 18 (AHIMS 52-3-0310).....	36
3.3.9 Bulli Mine Shaft 19 (AHIMS 52-2-0603).....	39
3.3.10 Bulli Mine Shaft 21 (AHIMS 52-3-0314).....	41
3.3.11 Bulli Mine Shaft 22 (AHIMS 52-3-0317).....	45
3.3.12 Bulli Mine Shaft 23 (AHIMS 52-3-0312).....	47
3.3.13 Bulli Mine Shaft 24 (AHIMS 53-3-0319).....	49
3.3.14 Bulli Mine Shaft 25 (AHIMS 52-3-0320).....	49
3.3.15 Bulli Mine Shaft 30 (AHIMS 52-3-0318).....	50
3.3.16 Bulli Mine Shaft 31 (AHIMS 52-3-0322).....	50
3.3.17 Bulli Mine Shaft 36 (AHIMS 52-2-4617).....	50
<b>References.....</b>	<b>53</b>
<b>Appendices .....</b>	<b>54</b>
<b>Appendix 1 Photo catalogue – Stage 1 .....</b>	<b>55</b>
<b>Appendix 2 High resolution photos – Stage 1.....</b>	<b>56</b>



## Tables

Table 1	Aboriginal sites within the project approval area.....	9
---------	--	---

## Figures

Figure 1	Location of the study area .....	4
Figure 2	Study area detail .....	5
Figure 3	AHIMS sites within the vicinity of the study area.....	8

## Photos

Photo 1	Bulli Mine Shaft 20, facing north-west .....	13
Photo 2	Bulli Mine Shaft 20 – monitoring point 1 .....	14
Photo 3	Bulli Mine Shaft 20 – monitoring point 2 .....	14
Photo 4	Bulli Mine Shaft 20 – monitoring point 3 .....	15
Photo 5	Bulli Mine Shaft 20 – monitoring point 4 .....	15
Photo 6	Bulli Mine Shaft 27, facing south .....	19
Photo 7	Bulli Mine Shaft 27 – monitoring point 1 .....	20
Photo 8	Bulli Mine Shaft 27 – monitoring point 2 .....	20
Photo 9	Bulli Mine Shaft 27 – monitoring point 3 .....	21
Photo 10	Detail shot of eastern portion of northern facing shelter rock face showing cavernous weathering and water seepage, ochre could not be observed on the rock face.....	22
Photo 11	Details of western portion of northern facing shelter face showing cavernous weathering and lichen growth, with wombat burrow in bottom left corner.....	23
Photo 12	Bulli Mine Shaft 26, facing south .....	26
Photo 13	Bulli Mine Shaft 26, facing north.....	26
Photo 14	Wonga East 1, facing north-west .....	29
Photo 15	Wonga East 2, facing north-west .....	31
Photo 16	Wonga East 3, facing south.....	33
Photo 17	Bulli Mine Shaft 8, facing west .....	35
Photo 18	Bulli Mine Shaft 18, facing north.....	39
Photo 19	Bulli Mine Shaft 19, facing west .....	41
Photo 20	Bulli Mine Shaft 21 living area, facing north.....	44
Photo 21	Art panel within Bulli Mine Shaft 21 .....	44
Photo 22	Bulli Mine Shaft 22, facing north-west .....	46
Photo 23	Bulli Mine Shaft 23, facing north-west .....	49
Photo 24	Bulli Mine Shaft 36, facing north.....	52

## Glossary

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<b>AHIMS</b>	Aboriginal Heritage Information Management System
<b>Heritage NSW</b>	Heritage NSW, Department of Premier and Cabinet (DPC)
<b>LGA</b>	Local Government Area
<b>Mt</b>	Million tonnes
<b>NSW</b>	New South Wales
<b>PAC</b>	Planning Assessment Commission
<b>ROM</b>	Run-of-mine
<b>RVE</b>	Russell Vale East
<b>RVC</b>	Russell Vale Colliery
<b>Study area</b>	Figure 2
<b>WCL</b>	Wollongong Coal Limited
<b>UEP</b>	Underground Expansion Project

# 1 Introduction

---

## 1.1 Project background

Biosis Pty Ltd has been commissioned by Wollongong Coal Limited (WCL) to undertake baseline recording of Aboriginal archaeological and cultural heritage sites within Russell Vale East Domain of Russell Vale Colliery (RVC), New South Wales (NSW) (the project).

WCL operates the RVC in the Southern Coalfield of NSW. The mine is located at Russell Vale approximately 8 kilometres north of Wollongong and 70 kilometres south of Sydney, within the local government areas of Wollongong and Wollondilly in the Illawarra region of NSW. RVC is within the Sydney Catchment Authority controlled Metropolitan Catchment area, which is used to provide drinking water to Sydney and Wollongong. It also occurs within the Dam Safety Committee Notification Area for Cataract Reservoir.

RVC comprises an existing underground coal mine under project approval (10\_0046) granted by the Planning Assessment Commission (PAC) on 13 October 2011. The project approval was modified (PA 10\_0046 MOD1) by the PAC in 2012 to allow:

- Extraction of coal using longwall mining techniques in the Wongawilli Seam for Longwall 4 (LW 4) and Longwall 5 (LW 5).
- Development of the main gate roads for Longwall 6 (LW 6).

A second modification to the project approval (PA 10\_0046 MOD2) was granted by the PAC on 19 November 2014 to authorise:

- Secondary extraction of the first 365 metres of Longwall 6.
- Extension of the duration of mining until 31 December 2015.

A time extension comprising three years from the date of the approval (PA 10\_0046 MOD3), was also granted by the PAC on 19 November 2014. The most recent modification to the project approval for the Russell Vale East (RVE) Revised Underground Expansion Project (UEP) (MP09\_0013) was granted by the NSW Independent Planning Commission (IPC) on 8 December 2020 to allow:

- Mining using first working mining techniques within the RVE UEP area, with the workings targeting the Wongawilli Seam designed to be long-term stable with imperceptible subsidence impacts. No longwall mining is proposed.
- Extraction of approximately 3.7 Million tonnes (Mt) of run-of-mine (ROM) coal over a period of five years at a rate not exceeding 1.2 Mt of ROM coal per year and a production rate not exceeding one Mt of product coal per year.

The mine plan has been designed to be long term stable, to address potential subsidence-related mining impacts on surface cracking within the Cataract Reservoir catchment.

## 1.2 Project aims

The aim of the project is to satisfy Section 4.38 Condition B24 of DC MP09\_0013 specifically Condition B24(e), which requires an:

- Updated baseline recording of Aboriginal heritage sites previously identified in the vicinity of the first-workings mine panels;

### **1.3 Aboriginal consultation**

The initial Aboriginal stakeholder consultation was undertaken by ERM (2011). Consultation for the project commenced in October 2008 and resulted in five groups registering their interest. Section 2 and Annex U of the ERM (2011) details the Aboriginal community consultation. A series of site visits were conducted between 28 January and 10 February 2021 with the participation of two Aboriginal groups.

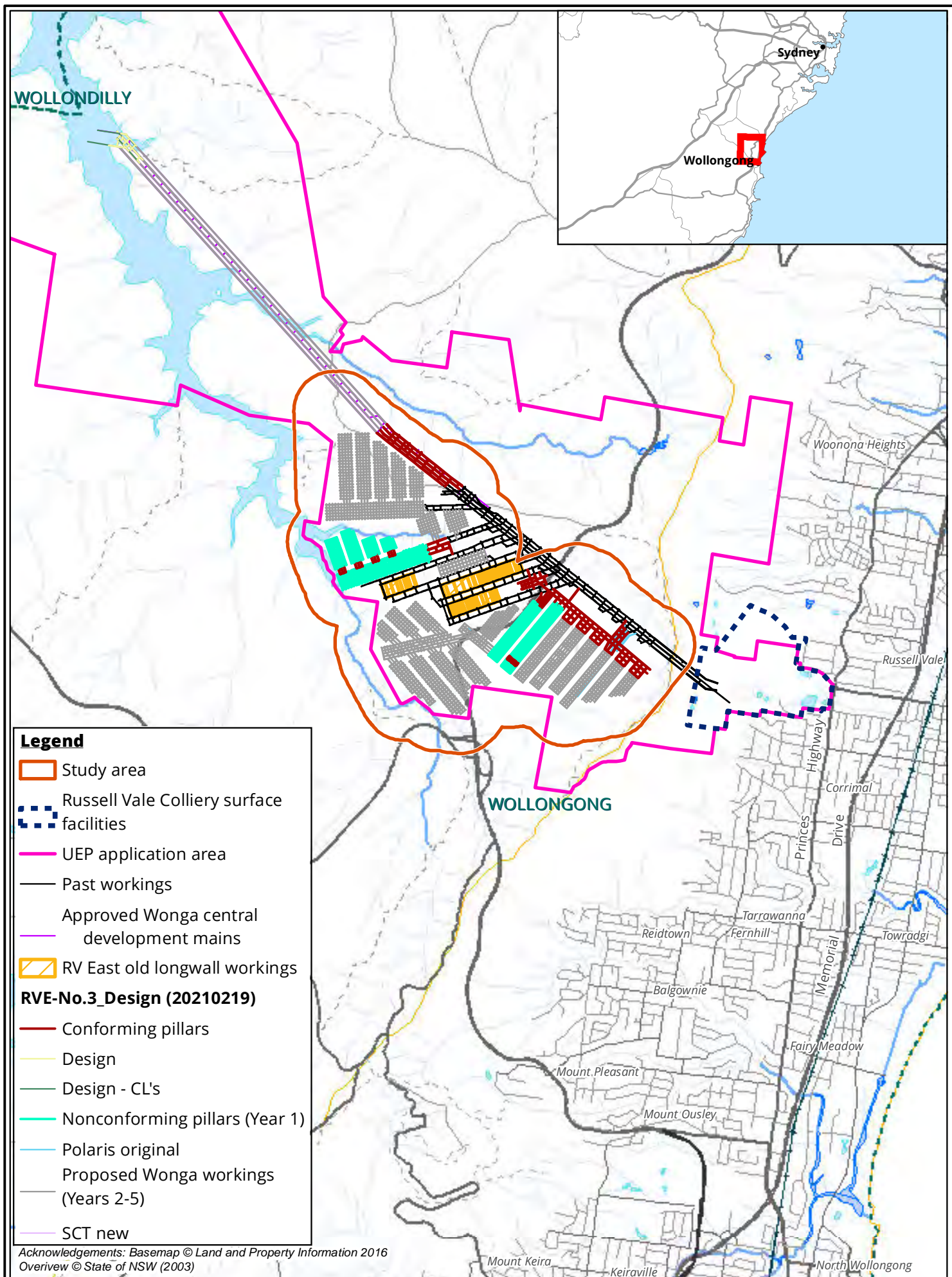
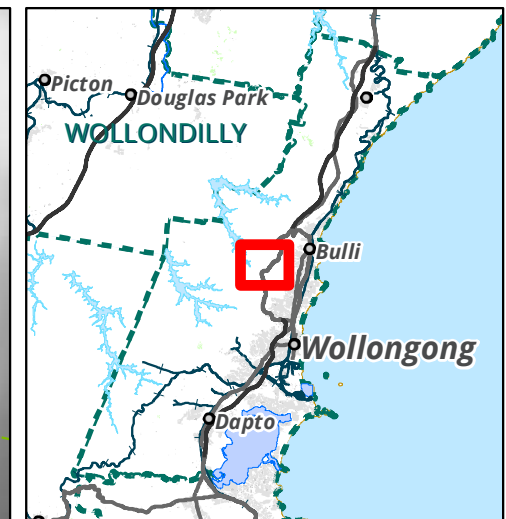
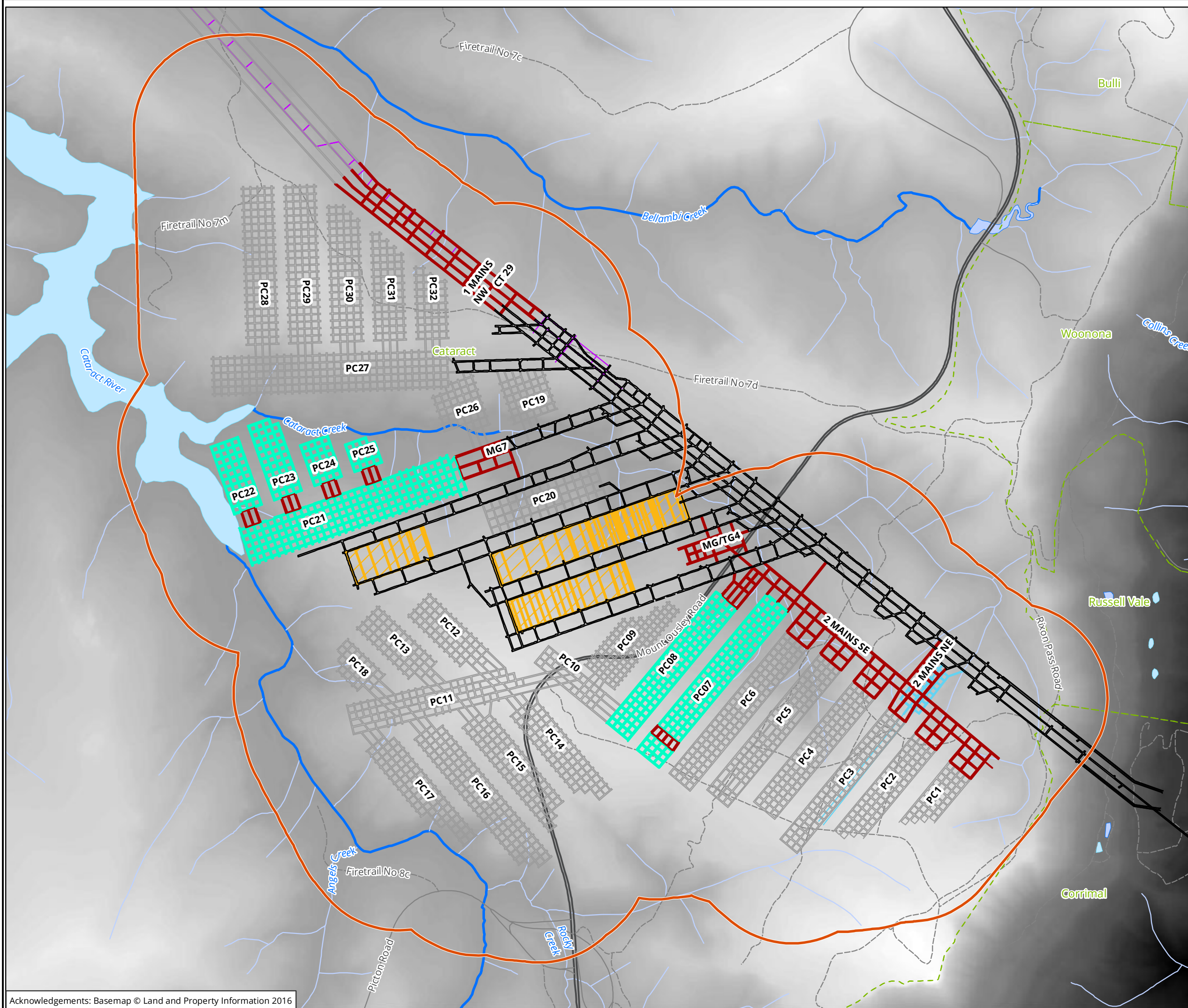


Figure 1 Location of the study area





### Legend

- Study area
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings
- RVE-No.3\_Design (20210219)**
- Conforming pillars
- Nonconforming pillars (Year 1)
- Polaris original
- Proposed Wonga workings (Years 2-5)
- SCT new

**Figure 2 Study area**

0 200 400 600 800  
Metres

Scale: 1:15,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Albury, Ballarat, Melbourne,  
Newcastle, Sydney, Wangaratta & Wollongong

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## 2 Baseline recording methodology

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All the currently known Aboriginal archaeological sites within Russell Vale East Domain that were able to be located have been subject to recording at the level appropriate for registration on the Aboriginal Heritage Information Management System (AHIMS). The purpose of the detailed recording proposed in this report is to:

- Mitigate the risk of potential impact through more detailed archival recording of all shelters with art sites.
- Provide a set of baseline records for the monitoring program.

A monitoring regime established by Sefton (2000) and amended and continued by Biosis (2013), has proved effective in observing changes to Aboriginal shelter sites due to subsidence movements.

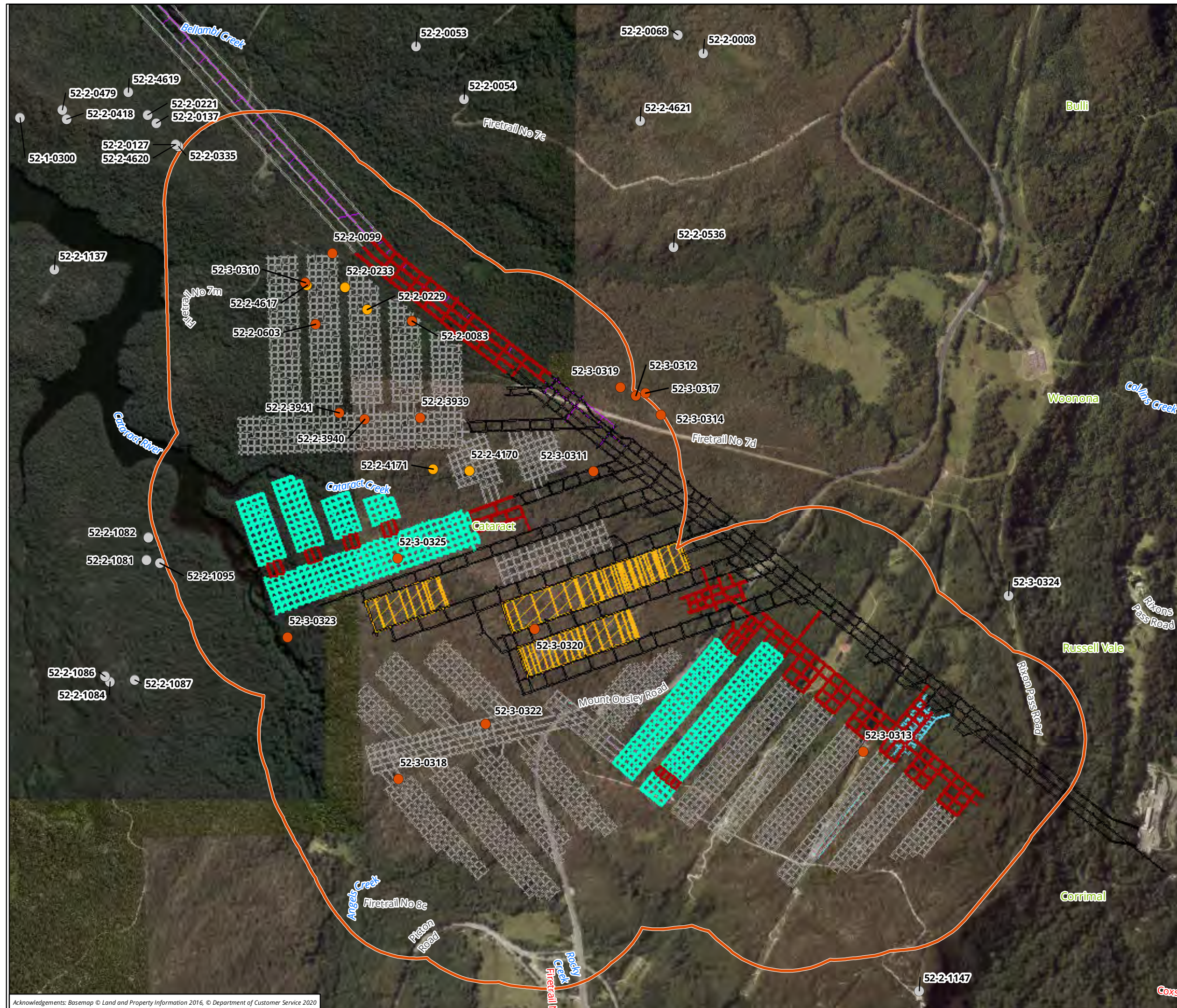
The recording and monitoring regime described in this report aims to implement a similar monitoring program, and to establish recording procedures that are up-to-date with current technologies and practice and capture a record of the rock art in its current context. Recording of each sandstone shelter site including information outlined below that is part of the standard recording forms used by Biosis. This includes:

- Baseline recording staged approached:
  - All AHIMS sites are located within 350m of the proposed Stage 1 second workings.
  - All AHIMS sites (other than isolated finds and artefact scatter sites, which are unlikely to be impacted by subsidence from the project) located within 350m of proposed Stage 2-5 second workings will be relocated and recorded at least 3 months prior to second workings.
- Archival recording of shelter with art sites:
  - Recording of each shelter site with rock art on specially prepared recording forms.
  - Comprehensive photographic coverage of shelters and art panels using slide and high resolution digital photography, showing art panels in their wider context and in relation to each other.
  - Art panels will be digitally and slide photographed at scales appropriate to their size and complexity, including:
    - Single frame coverage of the panel.
    - If required, set distance scale photography for montage of the panel (digital only).
    - Single frame coverage of individual motifs.
    - If required, set distance scale photography for montage of individual motifs (digital only).
  - Where informative, close-up photography of notable features of the rock art (e.g. superimposition of motifs or media) and its context (e.g. joints, cracks, seepage, mineral or organic accretions).
- Elevation plans of shelter walls recording structural and surface features including, but not limited to, the art, graffiti, joints, bedding planes, exfoliation scars, cracks, mineral and micro-organism growth, drip line and water seepage locations.

- The identification and recording through digital photography of specific monitoring points, generally being pre-existing cracks, joints, areas of seepage located on or adjacent to art panels, or in other parts of the shelter.

This report includes a detailed description of each of the sites recorded including, in the case of rock art sites, a full list of the art present and description of the media, application techniques and motif types. In addition, the rock art present at each site was interpreted using an appropriate level of observation (the more complex the site the more detailed the interpretation), including digital enhancement where appropriate. The archival material consists of all digital photographs for each site.





### Legend

- Study area
- AHIMS record - project approval sites
- AHIMS record - additional sites within Project area
- AHIMS record
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings
- RVE-No.3\_Design (20210219)**
  - Conforming pillars
  - Nonconforming pillars (Year 1)
  - Polaris original
  - Proposed Wonga workings (Years 2-5)
  - SCT new

NOT TO BE MADE PUBLIC

Figure 3 Aboriginal Heritage sites



Scale: 1:15,800 @ A3  
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### 3 Baseline records

There are 18 Aboriginal heritage sites recorded as part of the Project approval; however, an updated AHIMS search identified 23 Aboriginal heritage sites within the Project Area, as listed below in Table 1. Archival information was collected for 13 registered Aboriginal archaeological sites, which consisted of those that were able to be identified during the baseline rerecording survey.

For Stage 1, only sites 52-3-0323, 52-3-0325, 52-2-4170 and 52-2-4171 are located within 350m of the proposed Stage 1 second workings (PC07-08 and PC21-25). Site 52-3-0313 is located within the vicinity of new first workings for panels 7 and 8, while 52-3-0311 is located in the vicinity of existing first workings. First workings are noted as resulting in negligible subsidence. Three of the six sites that were located during the survey have had an updated 2021 baseline recording. The baseline recording for 52-3-0311 did not include a photo scale but will be updated prior to the second workings.

For future stages, all AHIMS sites located within 350 metres of proposed second workings will be located and recorded at least 3 months prior to and second workings within 350 metres of these sites. Details of these baseline line inspections will be contained in relevant extractions plans for second workings within 350 metres of these sites. The 2021 baseline survey of a number of these sites has already been undertaken, while the baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for Future Stages are preliminary only and will be updated following additional surveys prior to the second workings. Details of these baseline line inspections will be contained in relevant extractions plans for second workings within 350m of these sites.

**Table 1 Aboriginal sites within the project approval area**

Site name	AHIMS No.	Site type	Scientific significance	Cultural significance	Baseline survey	Baseline recording	Monitoring
<b>STAGE 1 – YEAR 1</b>							
<b>Bulli Mine Shaft 20</b>	52-3-0311	Shelter with deposit	Moderate	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 26</b>	52-3-0323	Shelter with deposit and artefacts	Moderate	High	Yes	No	Yes
<b>Bulli Mine Shaft 27</b>	52-3-0325	Shelter with art, deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 29</b>	52-3-0313	Open camp site	Low	High	Yes	Yes	Yes
<b>Wonga East 4</b>	52-2-4170	Shelter with deposit and artefacts	Moderate	High	Yes	No	Yes
<b>Wonga East 5</b>	52-2-4171	Shelter with stone arrangement	Low	High	Yes	No	Yes
<b>FUTURE STAGES – YEAR 2 to 5</b>							



Site name	AHIMS No.	Site type	Scientific significance	Cultural significance	Baseline survey	Baseline recording	Monitoring
<b>Wonga East 1</b>	52-2-3939	Shelter with deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Wonga East 2</b>	52-2-3940	Shelter with deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Wonga East 3</b>	52-2-3941	Shelter with deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 7</b>	52-2-0083	Shelter with deposit and artefacts	Moderate	High	Yes	No	Yes
<b>Bulli Mine Shaft 8</b>	52-2-0099	Axe grinding grooves	Low	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 12</b>	52-2-0229	Axe grinding grooves	Low	High	Yes	No	Yes
<b>Bulli Mine Shaft 13</b>	52-2-0233	Axe grinding grooves	Low	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 18</b>	52-3-0310	Shelter with deposit, art and grinding grooves	High	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 19</b>	52-3-0603	Shelter with art and artefacts	Low	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 21</b>	52-3-0314	Shelter with art and deposit	High	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 22</b>	52-3-0317	Shelter with deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 23</b>	52-3-0312	Shelter with deposit and artefacts	Moderate	High	Yes	Yes	Yes
<b>Bulli Mine Shaft 24</b>	53-3-0319	Shelter with deposit and artefacts	Moderate	High	Yes	No	Yes
<b>Bulli Mine Shaft 25</b>	52-3-0320	Axe grinding grooves	Low	High	Yes	No	Yes
<b>Bulli Mine Shaft 30</b>	52-3-0318	Shelter with art	Moderate	High	Yes	No	Yes
<b>Bulli Mine Shaft</b>	52-3-0322	Axe grinding	Low	High	Yes	No	Yes

Site name	AHIMS No.	Site type	Scientific significance	Cultural significance	Baseline survey	Baseline recording	Monitoring
31		grooves					
<b>Bulli Mine Shaft 36</b>	52-2-4617	Shelter with art	Moderate	High	Yes	No	Yes

### 3.1 Updated baseline site descriptions and observations

The following site descriptions and observations were made during baseline recording conducted in February and May 2021. Information collected on each site according to Biosis' recording forms is tabulated and summarised. All other information is displayed on plans, figures, maps and photos with a selection of these provided in the report. Representative photos are included with each site located during the survey, while the photo catalogue for Stage 1 can be found in Appendix 1 and high resolution photos for Stage 1 can be found in Appendix 2.

Where the site has not been located during the surveys at the prescribed location, the survey team reviewed the site cards and mapping information, prior to inspecting an area of 50 metres buffering the sites focusing on suitable landforms where the sites were expected to be found.

To address the requirement for pre-mining baseline survey of all sites, a review of all relevant background information including a revised request from Heritage NSW for all site cards, spatial and mapping process and including all relevant previous surveys available has been carried out prior to additional surveys. These additional surveys will be carried out in a staged manner relative to the Extraction Plan and the underlying mine plan for Year 1 initially, prior to the remainder of the Project Area.

In the instance that the additional Extraction Plan specific surveys result in a site being confirmed to be located at spatial coordinates that differ from that in the AHIMS database and site card, WCL and its consultants would contact NSW Heritage to commence the process to address this via the AHIMS database. The results of these surveys will be recorded in an updated baseline survey. In the case that any site is still unable to be located, a report detailing the efforts to find the site/s would be prepared to support discussions with Heritage NSW, the RAP's and DPIE.

As noted above, the baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for Future Stages will be updated following additional surveys prior to the second workings. This baseline recording report will be updated along with the photo catalogue and high resolution photos for Stage 2.

### 3.2 Stage 1 – Year 1

#### 3.2.1 Bulli Mine Shaft 20 (AHIMS 52-3-0311)

Bulli Mine Shaft 20 is a shelter site with deposit. The deposit consists of yellowish-brown sand with quartz, silcrete and chert flakes. The deposit has been disturbed to some extent through wombat burrowing. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the previous baseline recording by Biosis in 2015; however, no artefacts were identified. The site is located on existing developed first workings, with the location approximately 400 metres from planned new first working development associated with the Extraction Plan (EP) for year one PC Panel 21 (Stage 1). In addition, the site is

within the 350 metres area for a planned second workings panel, and will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan.

Site information	
<b>AHIMS</b>	52-3-0311 (shelter with deposit)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 303197. Northing: 6197467
<b>Previous recording</b>	Illawarra Prehistory Group 1984, Biosis Research September 2004
<b>Current recording</b>	Visited and verified: Biosis February 2021
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the first cliff line up from the bottom of Cataract Creek, and is about 90 metres north of Cataract Creek and about 260 metres south of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Lower valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 90m north. Temporary: 100m
<b>Name of water</b>	Permanent: Cataract Creek. Temporary: Tributary creek to Cataract Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 10m. Depth: 4.5m. Height: 1m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	South-east
<b>Orientation/Bearing (0-360°):</b>	48°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.
Deposit details	
<b>Deposit depth</b>	40cm
<b>Deposit description</b>	Grey sand
<b>Living area size</b>	5m by 4m
<b>Living area description</b>	Deposit is formed through cavernous weathering, heavily weathered overhang, living area within the east part of the shelter, moderate slope in front of shelter and outside there is flat area.
<b>Surface stone artefact(s)</b>	Five quartz flakes, one silcrete and one chert flake identified during the recording of the site in 1984. None observed during baseline recording.

Damage/impacts to shelter			
<b>Animals</b>	None	<b>Water seepage</b>	Significant water seepage within the central part of the shelter wall
<b>Insects</b>	Yes – spider webs	<b>Microflora</b>	Yes – lichen on walls and ceiling
<b>Fire</b>	None	<b>Mineral accretions</b>	Yes – white mineral accretions on walls and ceiling
<b>Graffiti</b>	None	<b>Salt deterioration</b>	None
<b>Sunlight</b>	No	<b>Exfoliation</b>	Yes



**Photo 1** Bulli Mine Shaft 20, facing north-west





**Photo 2** Bulli Mine Shaft 20 – monitoring point 1



**Photo 3** Bulli Mine Shaft 20 – monitoring point 2











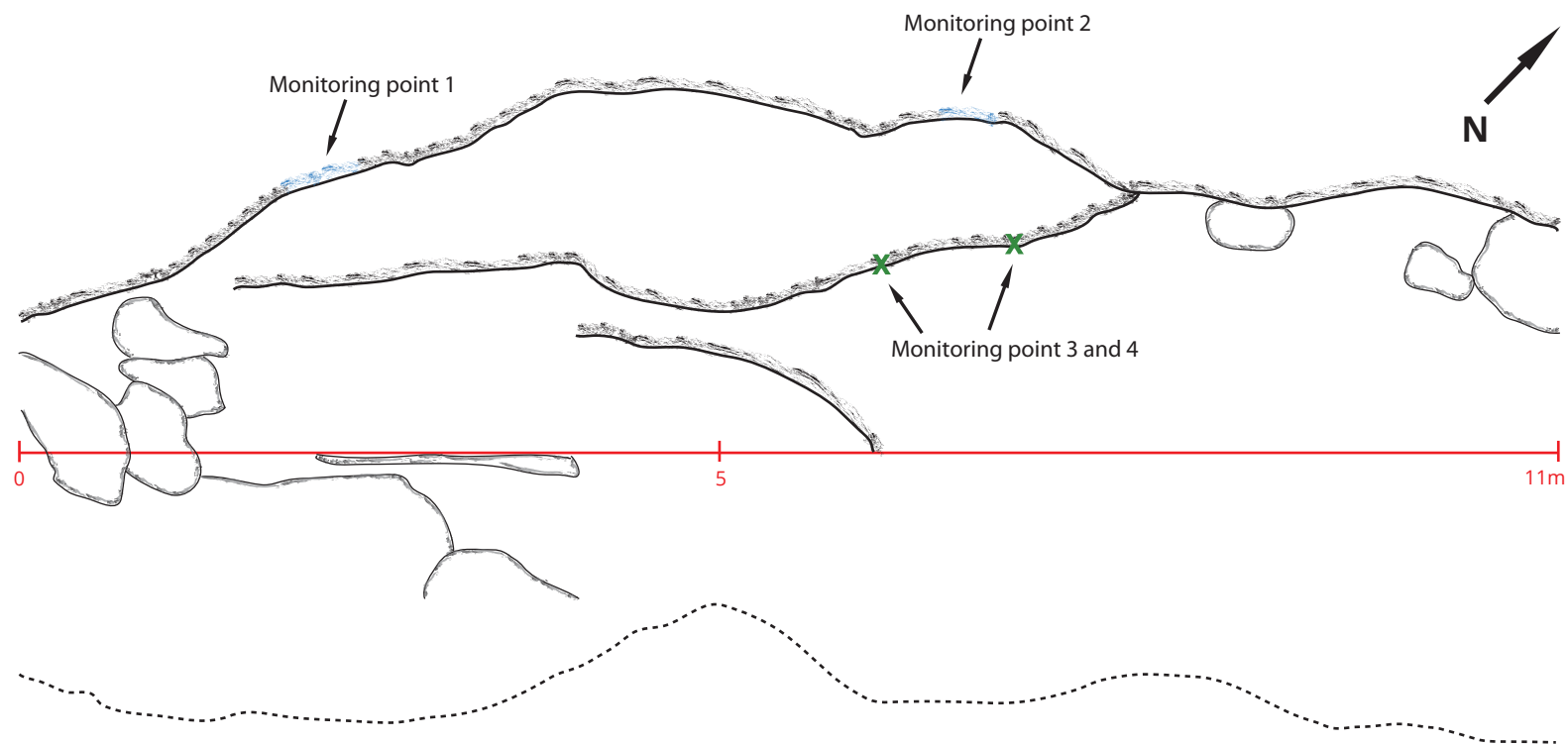
**Photo 4** Bulli Mine Shaft 20 – monitoring point 3



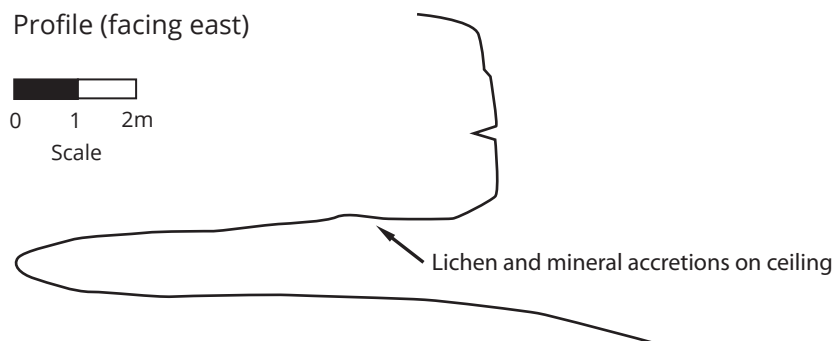
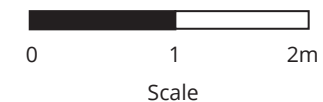
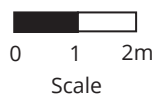
**Photo 5** Bulli Mine Shaft 20 – monitoring point 4

**Legend:**

-  Internal surface
-  Dripline
-  Baseline
-  Rock
-  Water seepage
-  Joint/crack



Profile (facing east)



30 Wentworth Street, Port Kembla NSW 2505

## Site and profile plan of Bulli Shaft Site 20 (AHIMS 52-3-0311)

Date recorded: 02/03/2021

Digitally drawn by: SJK

Date digitally drawn: 09/05/2021

### 3.2.2 Bulli Mine Shaft 26 (AHIMS 52-3-0323)

Bulli Mine Shaft 26 is a shelter with deposit. Three surface artefacts consisting of silcrete, chert and quartz flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present with a depth of 20 cm and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the initial baseline recording survey at the site's recorded location. A GIS mapping investigation was undertaken to determine the location of this site due to conflicting information associated with its coordinates. It was found that there were two locations for this site – one from AHIMS and one from the previous baseline recording in 2013. Two attempts were made to baseline record 52-3-0323. The first attempt the site was unable to be located due to incorrect AHIMS coordinates, while the second attempt found the site but access to the site was dangerous. Therefore, the status of the site could not be confirmed.

Further survey effort would be undertaken to reconfirm the location of this site in accordance with the staged Extraction Plan and mine plan. The site is located to the south of PC21, remote from the proposed workings. Adjacent mine plan shows the established first workings in the vicinity of the site (Stage 1).

### 3.2.3 Bulli Mine Shaft 27 (AHIMS 52-3-0325)

Bulli Mine Shaft 27 is a shelter with art and deposit. Five surface artefacts consisting of silcrete, fossilised wood and quartz flakes and a quartz core have been recorded. A deposit of yellowish clayey sand is present but has been subject to wombat burrowing. A single art panel consisting of sprayed red ochre is present on the rear wall. The art is in poor condition and indiscernible. The site is a typical example of a common site type in the region and is of moderate scientific significance due to the range of features present but of high cultural significance.

The site could not be identified during the initial baseline recording survey at the site's recorded location. As requested by Heritage NSW, a GIS mapping investigation was undertaken to determine the location of this site due to conflicting information associated with its coordinates. It was found that there were two locations for this site – one from AHIMS and one from the previous baseline recording in 2015.

This site was identified in the 2021 survey at the previous baseline recording location undertaken by Biosis in 2015; however, no artefacts were identified. The site was in a similar condition to previous recordings, although the ochre spray was no longer visible, potentially due to weathering of the sandstone rock face resulting in fading. Further disturbance from animal activity was also observed potentially resulting in displacement of previously identified artefacts. No impacts as a result of previous mining activities were observed such as cracking, faults or rock fall.

Site information	
<b>AHIMS</b>	52-3-0325 (shelter with art and deposit)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 302321. Northing: 6197077
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis September 2021
<b>Lighting conditions</b>	Overcast
<b>Weather conditions</b>	Raining
<b>Site situation description</b>	The site is located within the mid slope adjacent to a small drainage line at the eastern side of the upland swamp. It is about 320 metres south of Cataract Creek and 860



	metres south of Fire Road 7D.		
Environment			
Geology	Hawkesbury Sandstone		
Landform	Hill slope		
Vegetation	Open woodland		
Landform unit	Mid valley slope		
Land use	Special Management Area		
Distance to water	Permanent: 320m north. Temporary: 16m		
Name of water	Permanent: Cataract Creek. Temporary: Tributary creek to Cataract Creek		
Overhang details			
Dimensions of shelter	Length: 4.5m at west section and 3m at north section. Depth: 1.7m at west section and 2.5m at north section. Height: 3m at west section and 1.2m at north section		
How determined	Measured with tape and laser levels – used baseline to reference all features – see site plan following		
Site Aspect:	North and west		
Orientation/Bearing (0-360°):	N/A		
Shelter formation process	Cavernous weathering		
Internal shelter features	Horizontal bedding planes, case hardened surface and exfoliation on surfaces		
Deposit details			
Deposit depth	45cm		
Deposit description	Yellow sand		
Living area size	5m by 4m		
Living area description	Shelter consists of two parts: one facing west and one facing north. Deposit is white sand outside and yellow sand inside. Deposit formed through cavernous weathering.		
Surface stone artefact(s)	Five artefacts were recorded in 1984 within the western section of the shelter. No artefacts could be observed during baseline recording by Biosis.		
Art description			
General	The art was located on the rear wall of the shelter and consisted of 1 panel with remnants of red ochre spray. The ochre spray could not be relocated during the 2021 baseline recording and it is likely that it has faded as a result of natural weathering processes.		
Art panels	1	Recording technique	Photographs
Panel 1 – 20cm x 5cm area			
Motif	Indeterminate	Application technique	Sprayed
Application form	Paint	Colour/pigment	Red ochre
Damage/impacts			



<b>Animals</b>	Wombats burrowing at the north section of the shelter	<b>Water seepage</b>	Some water seepage within the western and eastern parts of the shelter
<b>Insects</b>	Yes – spider webs	<b>Microflora</b>	Yes - lichen
<b>Fire</b>	None	<b>Mineral accretions</b>	Yes – white and red mineral accretions
<b>Graffiti</b>	None	<b>Salt deterioration</b>	None
<b>Sunlight</b>	No	<b>Exfoliation</b>	Yes



**Photo 6** Bulli Mine Shaft 27, facing south





**Photo 7** Bulli Mine Shaft 27 - monitoring point 1



**Photo 8** Bulli Mine Shaft 27 - monitoring point 2





**Photo 9** Bulli Mine Shaft 27 – monitoring point 3











**Photo 10** Detail shot of eastern portion of northern facing shelter rock face showing cavernous weathering and water seepage, ochre could not be observed on the rock face



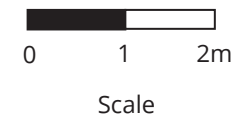
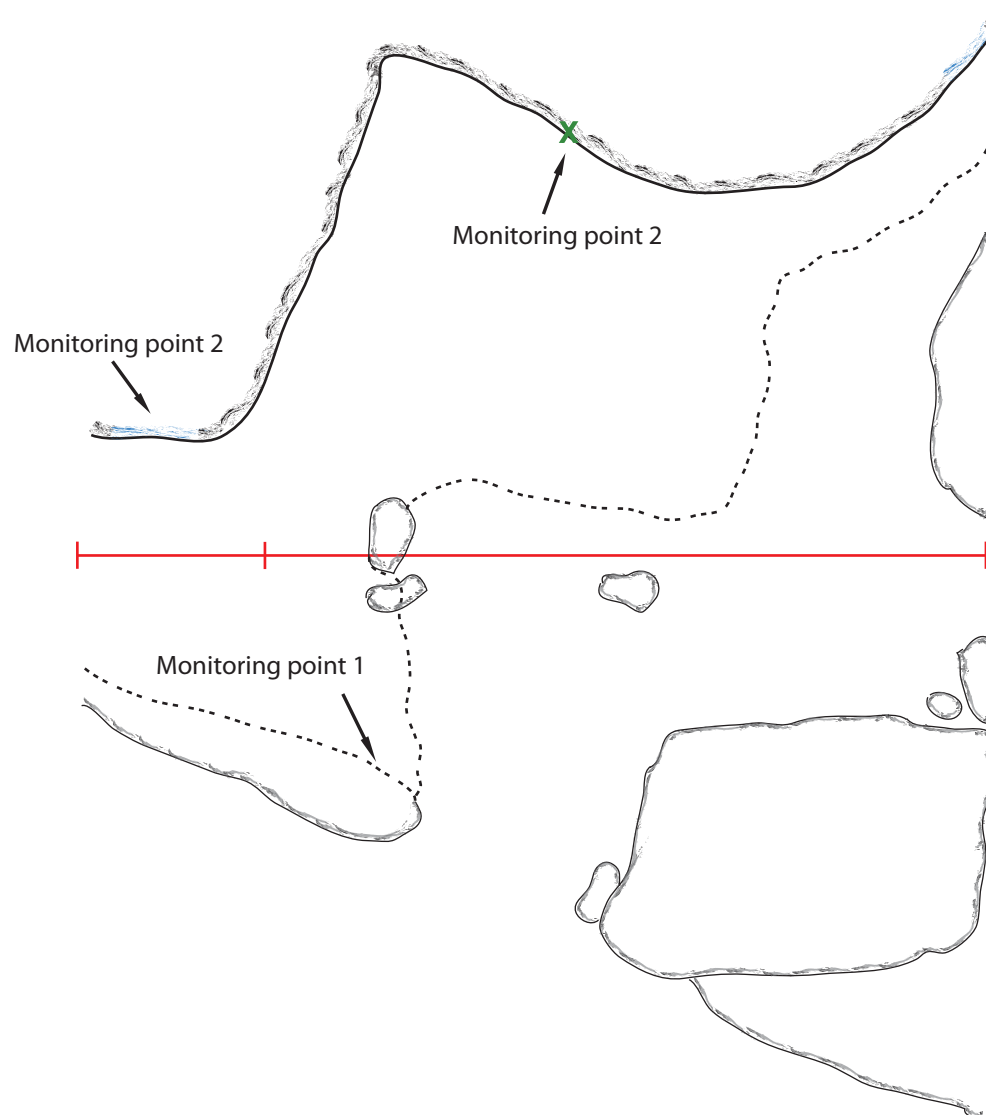
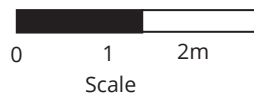
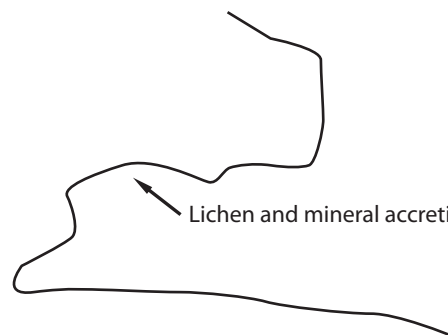


**Photo 11** Details of western portion of northern facing shelter face showing cavernous weathering and lichen growth, with wombat burrow in bottom left corner

**Legend:**

-  Internal surface
-  Dripline
-  Baseline
-  Rock
-  Water seepage
-  Joint/crack

Profile (facing west)



30 Wentworth Street, Port Kembla NSW 2505

## Site and profile plan of Bulli Shaft Site 27 (AHIMS 52-3-0325)

Date recorded: 25/05/2021

Digitally drawn by: SJK

Date digitally drawn: 28/05/2021

### 3.2.4 Bulli Mine Shaft 29 (AHIMS 52-3-0313)

This open camp site was first recorded in 1984 by the Illawarra Prehistory Group in an exposure created by track construction. The site consists of a 25 metre by 5 metre flaked stone artefact scatter, with nine artefacts of silcrete, chert and fossilised wood material being originally recorded. The site is located in woodland overlooking a sharp drop into rainforest. There is potential for this site to extend into undisturbed deposits. Although open stone artefact scatters are relatively uncommon on the Illawarra Escarpment, the number of artefacts identified coupled with the heavily disturbed nature of the site and lack of any visible cultural remains today means that this site only has low scientific value but high cultural significance.

Artefacts associated with the site were not identified during the baseline recording survey at the site's recorded location. Both access tracks on either side of the site and the access track that transects the site was inspected for artefacts. Due to the nature of open camp sites, it is unlikely that this site will be able to be located in the future. However as the site is adjacent to a proposed future panel and new first workings, further survey effort to locate this site has been determined as unlikely to result in the site being able to be found.

Site information	
<b>AHIMS</b>	52-3-0313 (artefact scatter)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 304404. Northing: 6196207
<b>Previous recording</b>	Illawarra Prehistory Group 1984, Biosis Research September 2004
<b>Current recording</b>	Visited: Biosis February 2021
<b>Lighting conditions</b>	Bright
<b>Weather conditions</b>	Sunny
<b>Site situation description</b>	The site is located on an access track between the Princes Freeway and the Illawarra Escarpment. It is about 550 metres north of Rixon Pass Road.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Flat
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Undulating slopes
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 2.3km west. Temporary: N/A
<b>Name of water</b>	Permanent: Cataract Creek. Temporary: N/A





**Photo 12 Bulli Mine Shaft 26, facing south**



**Photo 13 Bulli Mine Shaft 26, facing north**



### **3.2.5 Wonga East 4 (AHIMS 52-2-4170)**

Wonga East 4 is a shelter with archaeological deposit. Four surface artefacts consisting of quartz and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey at the site's recorded location; however, it has previously been subject to baseline recording by Biosis in 2014. The location of Wonga East 4 is within the proposed future extraction plan panel PC27 and would be subject to further survey effort to locate this site in accordance with the staged Extraction Plan and mine plan.

### **3.2.6 Wonga East 5 (AHIMS 52-2-4171)**

Wonga East 5 is a shelter with stone arrangement. The shelter is low with two piles of stones in the entrance. The lichen growing on the stones indicates that they were placed some time ago. The shelter does not contain a deposit, art or artefacts. Although this may have been a historical feature, consultation with Aboriginal stakeholders indicates that the site may have cultural significance. Given the condition of the site, uncertainty as to its context, and limited range of site features, the site is of low scientific significance and of high cultural significance.

The site could not be identified during the baseline recording survey at the site's recorded location; however, it has previously been subject to baseline recording by Biosis in 2014. The location of Wonga East 5 is not directly located within any PC panel; however, it is located within the 350m area currently associated with PC22 and would be subject to further survey effort to locate in accordance with the staged Extraction Plan and mine plan.

### 3.3 Stage 2 – Years 2 to 5

#### 3.3.1 Wonga East 1 (AHIMS 52-2-3939)

Wonga East 1 is a shelter with deposit. Five surface artefacts consisting of quartz, chert and silcrete flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording and previous surveys; however, no surface artefacts were observed. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-2-3939 (shelter with deposit and artefacts)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 302422. Northing: 6197706
<b>Previous recordings</b>	Illawarra Prehistory Group 1984, Biosis September 2012
<b>Current recording</b>	Visited and verified: Biosis February 2021
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the second ridge line from the road, and is about 300 metres north of Cataract Creek and about 210 metres south of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 300m north
<b>Name of water</b>	Permanent: Cataract Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 8m. Depth: 4m. Height: 1.5m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	South-east
<b>Orientation/Bearing (0-360°):</b>	150°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.
Deposit details	

Deposit depth	40cm		
Deposit description	Yellowish grey sand		
Living area size	6m by 4m		
Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang, living area within the east part of the shelter, moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	Two quartz flake fragments, one silcrete flake, one chert flake and one chert distal flake fragment identified during the recording of the site in 2012. None observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal scratching on shelter floor	Water seepage	No water seepage observed
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	Yes – white mineral accretions
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes



**Photo 14 Wonga East 1, facing north-west**

### 3.3.2 Wonga East 2 (AHIMS 52-2-3940)

Wonga East 2 is a shelter with deposit. Six surface artefacts consisting of silcrete flakes and quartz angular fragments have been recorded in the drip line at this site. A deposit of yellowish grey sand is present and is an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording; however, no surface artefacts were observed. This site will be included in the later extraction (Future Stages) plans in accordance with the staged Extraction Plan and mine plan. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-2-3940 (shelter with deposit and artefacts)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 302173. Northing: 6197699
<b>Previous recordings</b>	Illawarra Prehistory Group 1984, Biosis September 2012
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the first cliff line up from the bottom of Cataract Creek, and is about 90 metres north of Cataract Creek and about 260 metres south of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 280m south
<b>Name of water</b>	Permanent: Cataract Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 25m. Depth: 4m. Height: 4m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	South-east
<b>Orientation/Bearing (0-360°):</b>	150°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.
Deposit details	
<b>Deposit depth</b>	20cm



<b>Deposit description</b>	Grey sand		
<b>Living area size</b>	10m by 2m		
<b>Living area description</b>	Deposit is formed through cavernous weathering, heavily weathered overhang, moderate to steep slope in front of shelter and outside there is flat area. There are three living areas within the shelter that are separated by rock boulders.		
<b>Surface stone artefact(s)</b>	One quartz flake fragment, one silcrete flake fragment and one hammerstone identified during the recording of the site in 2012. None observed during baseline recording.		
<b>Damage/impacts to shelter</b>			
<b>Animals</b>	None	<b>Water seepage</b>	Some water seepage within the central part of the shelter wall
<b>Insects</b>	Yes – spider webs	<b>Microflora</b>	Yes - lichen
<b>Fire</b>	None	<b>Mineral accretions</b>	Yes – white mineral accretions
<b>Graffiti</b>	None	<b>Salt deterioration</b>	None
<b>Sunlight</b>	No	<b>Exfoliation</b>	Yes



**Photo 15** Wonga East 2, facing north-west

### 3.3.3 Wonga East 3 (AHIMS 52-2-3941)

Wonga East 3 is a shelter with deposit. One silcrete distal flake and three quartz bipolar flakes were located on the surface of the shelter floor. There is a potential that additional artefacts are located within the shelter floor. The shelter deposit consists of yellowish grey sand and is in an intact and fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-2-3941 (shelter with deposit and artefacts)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 302055. Northing: 6197736
<b>Previous recordings</b>	Illawarra Prehistory Group 1984, Biosis September 2012
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the fourth ridge line up from the road, and is about 3300 metres north of Cataract Creek and about 3300 metres south-west of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 330m north. Temporary: 180m
<b>Name of water</b>	Permanent: Cataract Creek. Temporary: Tributary creek to Cataract Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 8m. Depth: 2m. Height: 1m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	West
<b>Orientation/Bearing (0-360°):</b>	270°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.
Deposit details	



<b>Deposit depth</b>	20cm
<b>Deposit description</b>	Yellowish grey sand
<b>Living area size</b>	6m by 1m
<b>Living area description</b>	Deposit is formed through cavernous weathering, heavily weathered overhang, moderate slope in front of shelter and outside there is flat area.
<b>Surface stone artefact(s)</b>	Three quartz flake fragments and one silcrete distal flake fragment identified during the recording of the site in 2012. One artefact was observed during the baseline recording and consisted of a petrified wood flake measuring 55mm long by 22mm wide by 9mm deep.

Damage/impacts to shelter			
<b>Animals</b>	Animal scratching on shelter floor	<b>Water seepage</b>	No water seepage observed
<b>Insects</b>	Yes – spider webs	<b>Microflora</b>	Yes - lichen
<b>Fire</b>	None	<b>Mineral accretions</b>	Yes – white mineral accretions
<b>Graffiti</b>	None	<b>Salt deterioration</b>	None
<b>Sunlight</b>	No	<b>Exfoliation</b>	Yes



**Photo 16 Wonga East 3, facing south**

### 3.3.4 Bulli Mine Shaft 7 (AHIMS 52-2-0083)

Bulli Mine Shaft 7 is a rock shelter with an archaeological deposit. The sandstone shelter is approximately 2.5m long, 1.5m wide and 1.5m in height. The deposit extends outside the shelter to a depth of 30cm, with a number of artefacts being noted including chert flakes, a silcrete flake and two pieces of quartz. The site was originally recorded in 1984 by Illawarra Prehistory Group with the site having been revisited in 1991. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey for this HMP at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site prior to the Stage 2 EP program (Future Stages).

### 3.3.5 Bulli Mine Shaft 8 (AHIMS 52-2-0099)

Bulli Mine Shaft 8 is a grinding groove site. Three grinding grooves were located on a sandstone outcrop measuring 8m x 4m. The site is below a swamp in a wooded area. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan, and the baseline recordings updated. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-2-0099 (grinding grooves)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 302029. Northing: 6198443
<b>Previous records</b>	Illawarra Prehistory Group 1984
<b>Current record</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is situated near the top of the ridge on the north-eastern side of the ridge.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Upper valley slope
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper ridge slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 460m north-east. Temporary: 50m
<b>Name of water</b>	Permanent: Bellambi Creek. Temporary: Tributary creek to Bellambi Creek
Description	
<b>Type of grinding feature</b>	Broad



Profile shape	U shaped		
Groove count	3		
Dimensions	Groove 1: 18cm long x 7cm wide x 5cm deep Groove 2: 6cm long x 6cm wide x 4cm deep Groove 3: 39cm long x 16cm wide x 9cm deep		
Pecked	N/A		
Ground	N/A		
Damage/impacts			
Animals	None	Water seepage	None
Insects	None	Microflora	None
Fire	None	Vegetation cover	Clear of vegetation cover
Graffiti	None	Development	None
Water worn/weathered	Water wearing down the groove depressions	Exfoliation	None
Condition	Fair. The site was found to be in a similar condition since the last recording and was difficult to relocate.		



**Photo 17 Bulli Mine Shaft 8, facing west**

### 3.3.6 Bulli Mine Shaft 12 (AHIMS 52-2-0229)

Bulli Mine Shaft 12 is a grinding groove site. One grinding groove was located on a sandstone outcrop measuring 18m x 2m with water seepage running across the site. The site is an example of a common site type in the region and is of low scientific significance but high cultural significance.

The site could not be identified during the baseline recording survey for this HMP due to the dense vegetation cover at the site's location. However, as the site is located above the proposed future panel currently described as PC33, it would be subject to future survey effort to locate in accordance with the staged Extraction Plan and mine plan.

### 3.3.7 Bulli Mine Shaft 13 (AHIMS 52-2-0233)

Bulli Mine Shaft 13 is a grinding groove site. Two grinding grooves were located on a sandstone outcrop measuring 18m x 4m. The site is an example of a common site type in the region and is of low scientific significance but high cultural significance.

The site was located during the baseline recording survey for this HMP and found to be in a similar condition to the AHIMS site card recording. This site will be included in the stage 2 EP for Years 2-5 (Future Stages). The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

### 3.3.8 Bulli Mine Shaft 18 (AHIMS 52-3-0310)

Bulli Mine Shaft 18 is a shelter with deposit, art and grinding grooves. The sandstone overhang measures 9.6m long by 8.5m wide and 1.6m in heights. The surface near the dripline has over 100 artefacts of silcrete, quartz, jasper, chert and fossilized wood. Artefact types include backed blades, fabricators, cores and shell fragments. The artwork consists of figurative and geometric motifs produced with charcoal, white sprayed pigment and red ochre. Three grinding grooves are located on a sandstone block at the south end of the shelter. This site was assessed as having high scientific significance and high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording. This site will be included in the stage 2 EP for Years 2-5 (Future Stages). The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-3-0310 (shelter with art, deposit and grinding grooves)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 301907. Northing: 6198312
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located below a ridgeline, and is about 760 metres east of Cataract River and about 280 metres south-west of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge top

Vegetation	Open woodland		
Landform unit	Upper valley slope		
Land use	Special Management Area		
Distance to water	Permanent: 650m north-east. Temporary: 190m		
Name of water	Permanent: Cataract River. Temporary: Tributary creek to Cataract River		
Overhang details			
Dimensions of shelter	Length: 9.6m. Depth: 8.5m. Height: 1.6m		
How determined	Measured with tape – used baseline to reference all features – see site plan following		
Site Aspect:	West		
Orientation/Bearing (0-360°):	230°		
Shelter formation process	Block fall and cavernous weathering		
Internal shelter features	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.		
Deposit details			
Deposit depth	45cm		
Deposit description	Yellowish grey sand		
Living area size	5m by 3m		
Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang, living area within the central part of the shelter, moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	The original 1984 recording of the site identified over 100 artefacts of silcrete, quartz, jasper, chert and fossilized wood in the dripline. Artefact types include backed blades, fabricators and cores. Some were observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal disturbance on floor	Water seepage	No water seepage observed
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	None
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes
Art description			
General	The art is located on the front wall of the north end and roof front of the south end of the shelter and consists of five panels of figurative and geometric motifs produced with charcoal, white sprayed pigment and red ochre.		
Art panels	5	Recording technique	Photographs
Panel 1 – 120cm x 60cm area			
Motif	Fish, geometric, indeterminate	Application technique	Drawn

<b>Application form</b>	Charcoal	<b>Colour/pigment</b>	Black
<b>Panel 2 – 260cm x 110cm area</b>			
<b>Motif</b>	Fish, geometric, indeterminate	<b>Application technique</b>	Drawn, sprayed
<b>Application form</b>	Charcoal, paint	<b>Colour/pigment</b>	Black, red
<b>Panel 3 – 140cm x 60cm area</b>			
<b>Motif</b>	Indeterminate	<b>Application technique</b>	Drawn
<b>Application form</b>	Charcoal	<b>Colour/pigment</b>	Black
<b>Panel 4 – 100cm x 40cm area</b>			
<b>Motif</b>	Geometric, hand prints	<b>Application technique</b>	Drawn, sprayed
<b>Application form</b>	Charcoal, paint	<b>Colour/pigment</b>	White, red and black
<b>Panel 5 – 100cm x 100cm area</b>			
<b>Motif</b>	Macropod, indeterminate	<b>Application technique</b>	Drawn
<b>Application form</b>	Charcoal	<b>Colour/pigment</b>	Black
<b>Grinding groove description</b>			
<b>Type of grinding feature</b>	Narrow	<b>Engraved groove channels</b>	No
<b>Profile shape</b>	U shaped	<b>Pecked</b>	N/A
<b>Groove count</b>	3	<b>Ground</b>	N/A
<b>Dimensions</b>	Largest groove: 41 long x 7.5cm wide x 1.8cm deep		





**Photo 18 Bulli Mine Shaft 18, facing north**

### 3.3.9 Bulli Mine Shaft 19 (AHIMS 52-2-0603)

Bulli Mine Shaft 19 is a shelter with art, no identified deposit and a single artefact. The art is located on two panels on the rear wall and consists of a single red ochre hand stencil and a separate indeterminate charcoal motif. A single silcrete core has previously been identified within the shelter. The art is faded and in a poor condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording, however no artefact was identified. This site will be included in the later extraction plans (Future Stages) in accordance with the staged Extraction Plan and mine plan. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

#### Site information

<b>AHIMS</b>	52-3-0603 (shelter with art and deposit)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 301952. Northing: 6198125
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull

Weather conditions	Cloudy		
Site situation description	The site is located below a ridgeline, and is about 630 metres north of Cataract River and about 400 metres west of Fire Road 7D.		
Environment			
Geology	Hawkesbury Sandstone		
Landform	Ridge top		
Vegetation	Open woodland		
Landform unit	Middle valley slope		
Land use	Special Management Area		
Distance to water	Permanent: 630m south. Temporary: 180m west		
Name of water	Permanent: Cataract River. Temporary: Tributary creek to Cataract River		
Overhang details			
Dimensions of shelter	Length: 7m. Depth: 3m. Height: 3m		
How determined	Measured with tape – used baseline to reference all features – see site plan following		
Site Aspect:	West		
Orientation/Bearing (0-360°):	230°		
Shelter formation process	Block fall and cavernous weathering		
Internal shelter features	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.		
Deposit details			
Deposit depth	None		
Deposit description	Yellowish grey sand		
Living area size	5m by 2m		
Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang and moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	The original 1984 recording of the site identified one silcrete core, which was not observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal disturbance on floor	Water seepage	Some water seepage within the central part of the shelter wall
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	None
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes
Art description			



<b>General</b>	The art is located on two panels on the rear wall and consists of a single red ochre hand stencil and a separate indeterminate charcoal motif.		
<b>Art panels</b>	2	<b>Recording technique</b>	Photographs
<b>Panel 1 – 90cm x 50cm area</b>			
<b>Motif</b>	Hand stencil	<b>Application technique</b>	Sprayed
<b>Application form</b>	Paint	<b>Colour/pigment</b>	Red ochre
<b>Panel 2 – 60cm x 40cm area</b>			
<b>Motif</b>	Indeterminate	<b>Application technique</b>	Drawn
<b>Application form</b>	Charcoal	<b>Colour/pigment</b>	Black



**Photo 19 Bulli Mine Shaft 19, facing west**

### **3.3.10 Bulli Mine Shaft 21 (AHIMS 52-3-0314)**

This shelter with art site was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 6m long by 3m wide and 2.5m high shelter. The art was initially described as one indeterminate figure and one indeterminate motif on the ceiling of the shelter in 1984 but was reinterpreted in 2011 by ERM as one lizard and two figures overlapping. All motifs are charcoal drawings. This site also contains shallow archaeological deposit and therefore has some potential to yield further archaeological information and artefacts. The art

motifs are not common in the area and therefore this site has high scientific significance and high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-3-0314 (shelter with art and deposit)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 303508. Northing: 6197719
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on a ridgeline, and is about 440 metres north of Cataract Creek and about 50 metres north of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge top
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 640m north-west. Temporary: 220m north-east
<b>Name of water</b>	Permanent: Bellambi Creek. Temporary: Tributary to Bellambi Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 6.3m. Depth: 3.4m. Height: 2.5m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	North-east
<b>Orientation/Bearing (0-360°):</b>	60°
<b>Shelter formation process</b>	Block fall and cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.
Deposit details	
<b>Deposit depth</b>	25cm
<b>Deposit description</b>	Yellowish white sand
<b>Living area size</b>	1m by 1m



Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang and there is flat area in front of shelter.		
Surface stone artefact(s)	None.		
Damage/impacts to shelter			
Animals	Animal disturbance on floor	Water seepage	No water seepage observed
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	None
Graffiti	Yes	Salt deterioration	None
Sunlight	No	Exfoliation	Yes
Art description			
General	The art was initially described as one indeterminate figure and one indeterminate motif on the ceiling of the shelter in 1984, but was reinterpreted in 2011 by ERM as one lizard and two figures overlapping.		
Art panels	1	Recording technique	Photographs
Panel 1 – 90cm x 50cm area			
Motif	Lizard, anthropomorph	Application technique	Drawn
Application form	Charcoal	Colour/pigment	Black



**Photo 20** Bulli Mine Shaft 21 living area, facing north



**Photo 21** Art panel within Bulli Mine Shaft 21

### 3.3.11 Bulli Mine Shaft 22 (AHIMS 52-3-0317)

Bulli Mine Shaft 22 is a shelter with deposit and a single artefact. This shelter was first recorded in 1984 by the Illawarra Prehistory Group. The shelter measures 20m long by 4m wide and 4m high and large sandstone blocks fill most of the shelter. One artefact was recorded, which consisted of a transversely split cobble of fine grained light grey igneous material with use wear on two margins. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording, however no artefact was identified. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-3-0317 (shelter with deposit and artefact)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 303438. Northing: 6197835
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the second ridge line from the road, and is about 550 metres south-east of Bellambi Creek and about 135 metres north of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 550m north-west. Temporary: 160m north-east
<b>Name of water</b>	Permanent: Bellambi Creek. Temporary: Tributary to Bellambi Creek.
Overhang details	
<b>Dimensions of shelter</b>	Length: 20m. Depth: 4m. Height: 4m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	North-west
<b>Orientation/Bearing (0-360°):</b>	310°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces.



Deposit details			
Deposit depth	40cm		
Deposit description	Yellowish grey sand		
Living area size	15m by 2m		
Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang, living area within the central part of the shelter, moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	One artefact was recorded, which consisted of a transversely split cobble of fine grained light grey igneous material with use wear on two margins. None observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal scratching on shelter floor	Water seepage	Some water seepage within the central part of the shelter wall
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	Yes – white mineral accretions
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes



**Photo 22 Bulli Mine Shaft 22, facing north-west**



### 3.3.12 Bulli Mine Shaft 23 (AHIMS 52-3-0312)

This shelter with deposit was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 20m long by 4.5m wide and 3.3m high shelter. Bulli Mine Shaft 23 contains a deposit of yellow clay loam approximately 23cm deep. There were 54 artefacts eroding out of the dripline. The artefacts were manufactured from chert, jasper, fossilized wood, quartz and silcrete and consisted of cores, scrapers, flakes, flake fragments and geometric microliths. This site was assessed as having high scientific significance and high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording. The site is located to the north, remote from the proposed workings, with adjacent first working in the vicinity of the site noted as being previously established for previous longwall mining. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-3-0312 (shelter with deposit and artefacts)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 303382. Northing: 6197826
<b>Previous recording</b>	Illawarra Prehistory Group 1984
<b>Current recording</b>	Visited and verified: Biosis February 2021 (baseline recording)
<b>Lighting conditions</b>	Dull
<b>Weather conditions</b>	Cloudy
<b>Site situation description</b>	The site is located on the second ridge line from the road, and is about 550 metres south-east of Bellambi Creek and about 120 metres north of Fire Road 7D.
Environment	
<b>Geology</b>	Hawkesbury Sandstone
<b>Landform</b>	Ridge
<b>Vegetation</b>	Open woodland
<b>Landform unit</b>	Upper valley slope
<b>Land use</b>	Special Management Area
<b>Distance to water</b>	Permanent: 550m north-west. Temporary: 160m north-east
<b>Name of water</b>	Permanent: Bellambi Creek. Temporary: Tributary to Bellambi Creek
Overhang details	
<b>Dimensions of shelter</b>	Length: 20m. Depth: 4.5m. Height: 3.3m
<b>How determined</b>	Measured with tape – used baseline to reference all features – see site plan following
<b>Site Aspect:</b>	North-west
<b>Orientation/Bearing (0-360°):</b>	310°
<b>Shelter formation process</b>	Cavernous weathering
<b>Internal shelter features</b>	Horizontal bedding planes, case hardened surface and exfoliation on surfaces

Deposit details			
Deposit depth	40cm		
Deposit description	Yellowish grey sand		
Living area size	15m by 2m		
Living area description	Deposit is formed through cavernous weathering, heavily weathered overhang, living area within the central part of the shelter, moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	There were 54 artefacts manufactured from chert, jasper, fossilized wood, quartz and silcrete and consisted of cores, scrapers, flakes, flake fragments and geometric microliths. None observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal scratching on shelter floor	Water seepage	Some water seepage within the central part of the shelter wall
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	Yes – white mineral accretions
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes



**Photo 23 Bulli Mine Shaft 23, facing north-west**

### **3.3.13 Bulli Mine Shaft 24 (AHIMS 53-3-0319)**

This shelter with deposit was first recorded in 1984 by the Illawarra Prehistory Group. The site consists of a 67m long by 4.5m wide and 3m high shelter with a yellow clay loam approximately 12cm deep. One fossilized flake fragment and one quartz flake fragment were recorded. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site could not be identified during the baseline recording survey at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program. The site is located to the north, remote from the proposed workings.

### **3.3.14 Bulli Mine Shaft 25 (AHIMS 52-3-0320)**

This axe grinding groove site was originally recorded in 1985 by the Illawarra Prehistory Group. The site was recorded as a single grinding groove located within a sandstone outcrop measuring 22 x 2.5m. One axe grinding groove is located in a water seepage area on the edge of the sandstone platform. The site is recorded as being in reasonable condition. The site is an example of a common site type in the region with poorly preserved features and is of low scientific significance but of high cultural significance.

The site was visited during the baseline recording survey; however, due to heavy leaf litter covering sandstone surfaces, the grinding grooves recorded at this location could not be observed. Furthermore, the sandstone platform within 50 meters of the mapped location of this site was surveyed. Previous attempts to find this site

in 2014 failed to locate this site; therefore, the sandstone platform within 50 meters of the mapped location of this site was monitored. Monitoring of the sandstone platform was undertaken during mining of Longwall 5 (within 3-6 months of the longwall closest point of approach) and within six months of the completion of mining.

No impacts to sandstone outcrops from previous mining works were observed at the location. The site is located over the previously mined Longwall 5 and is not within the vicinity of first workings, 350m and/or on top of any planned place change panels. The End of Panel report for Longwall 5 found that no impacts to the Aboriginal heritage values at this site were documented during monitoring.

### **3.3.15 Bulli Mine Shaft 30 (AHIMS 52-3-0318)**

Bulli Mine Shaft Site 30 is a shelter with art site recorded in 1984 by the Illawarra Prehistory Group. The shelter is located in a narrow canyon hollowed out by a creekline and the shelter dimensions are 10m long, 3.7m wide and 4.5m high. The art consists of one humanoid charcoal infill figure and one charcoal indeterminate drawing. This site was assessed as having high scientific significance and high cultural significance.

The site could not be identified during the baseline recording survey at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program in accordance with the staged Extraction Plan and mine plan.

### **3.3.16 Bulli Mine Shaft 31 (AHIMS 52-3-0322)**

Bulli Mine Shaft Site 30 is a shelter with art site recorded in 1984 by the Illawarra Prehistory Group. The shelter is located in a narrow canyon hollowed out by a creekline and the shelter dimensions are 10m long, 3.7m wide and 4.5m high. The art consists of one humanoid charcoal infill figure and one charcoal indeterminate drawing. This site was assessed as having high scientific significance and high cultural significance.

The site could not be identified during the baseline recording survey at the site's recorded location. It is possible that the recorded site location is incorrect. Further attempts will be made to locate this site during the Stage 1 monitoring program in accordance with the staged Extraction Plan and mine plan.

### **3.3.17 Bulli Mine Shaft 36 (AHIMS 52-2-4617)**

Bulli Mine Shaft 36 is a shelter with deposit. Three surface artefacts consisting of silcrete, chert and quartz flakes have been recorded in the drip line at this site. A deposit of yellowish grey sand is present with a depth of 20 cm and is intact and in fair condition. The site is a typical example of a common site type in the region and is of moderate scientific significance, due to its preservation and lack of disturbance, and of high cultural significance.

The site was located during the baseline recording survey and found to be in a similar condition to the AHIMS site card recording, however no artefacts were identified. The location of Bulli Mine Shaft 36 is within the year 2-5 panel (Future Stages) currently described as PC3. This panel location is subject to the finalisation of the future mine plan for the extraction for this period. The baseline recordings (inclusive of site plans, high resolution photographs and monitoring points) for this site is preliminary only and will be updated following additional surveys prior to the second workings.

Site information	
<b>AHIMS</b>	52-2-4617 (shelter with deposit)
<b>Co-ordinates</b>	GDA 94 Zone 56 – Easting: 301915. Northing: 6198300
<b>Previous recording</b>	Illawarra Prehistory Group 1984



Current recording	Visited and verified: Biosis September 2021 (baseline recording)		
Lighting conditions	Dull		
Weather conditions	Cloudy		
Site situation description	The site is located below a ridgeline, and is about 760 metres east of Cataract River and about 280 metres south-west of Fire Road 7D.		
Environment			
Geology	Hawkesbury Sandstone		
Landform	Ridge		
Vegetation	Open woodland		
Landform unit	Upper valley slope		
Land use	Special Management Area		
Distance to water	Permanent: 650m north-east. Temporary: 190m		
Name of water	Permanent: Cataract River. Temporary: Tributary creek to Cataract River		
Overhang details			
Dimensions of shelter	Length: 13m. Depth: 4.5m. Height: 1m		
How determined	Measured with tape – used baseline to reference all features – see site plan following		
Site Aspect:	South-west		
Orientation/Bearing (0-360°):	230°		
Shelter formation process	Cavernous weathering		
Internal shelter features	Horizontal bedding planes, case hardened surface and exfoliation on surfaces		
Deposit details			
Deposit depth	20cm		
Deposit description	Yellowish grey sand		
Living area size	3m by 2m		
Living area description	Deposit is formed through cavernous weathering, weathered overhang, living area in east part of shelter, moderate slope in front of shelter and outside there is flat area.		
Surface stone artefact(s)	One quartz, one silcrete and one chert flake identified during the recording of the site in 1984. None observed during baseline recording.		
Damage/impacts to shelter			
Animals	Animal scratching on shelter floor	Water seepage	No water seepage observed
Insects	Yes – spider webs	Microflora	Yes - lichen
Fire	None	Mineral accretions	None
Graffiti	None	Salt deterioration	None
Sunlight	No	Exfoliation	Yes



**Photo 24 Bulli Mine Shaft 36, facing north**

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## Appendices

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## Appendix 1 Photo catalogue – Stage 1

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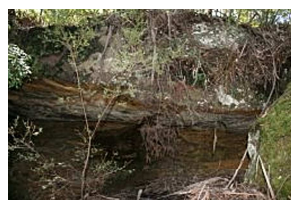
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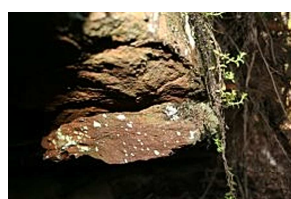
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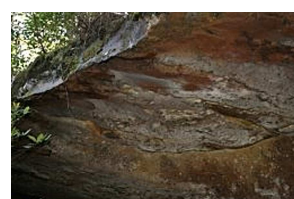
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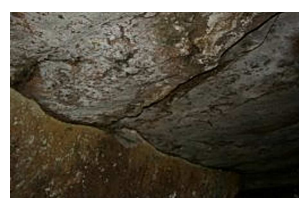
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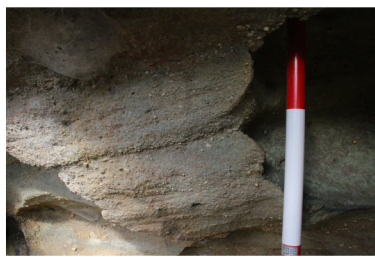




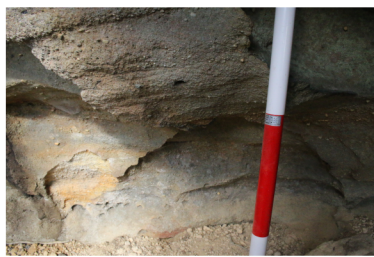
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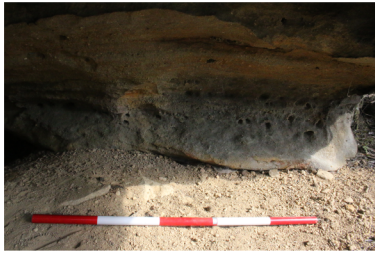
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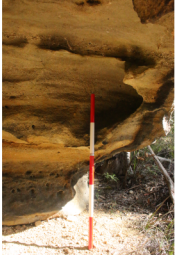
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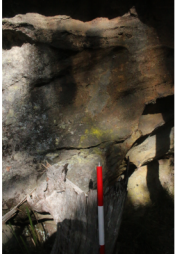
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## Appendix 2 High resolution photos – Stage 1

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**Bulli Mine Shaft 20 (AHIMS 52-3-0311)**



**Bulli Mine Shaft 20, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter, facing north-west**



**Bulli Mine Shaft 20 – exterior of shelter, facing north-west**





**Bulli Mine Shaft 20 – exterior of shelter, facing north-west**



**Bulli Mine Shaft 20 – interior of shelter, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter showing lichen growth, facing west**



**Bulli Mine Shaft 20 – interior of shelter showing bedding planes, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter showing bedding planes, facing north-west**



**Bulli Mine Shaft 20 – interior of shelter showing mineral accretions, facing north**





**Bulli Mine Shaft 20 – interior of shelter showing bedding planes and cracking, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter showing cracking and water seepage**



**Bulli Mine Shaft 20 – interior of shelter showing cracking, water seepage and mineral accretions**





**Bulli Mine Shaft 20 – interior of shelter showing cracking and water seepage, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter showing mineral accretions, facing north-west**



**Bulli Mine Shaft 20 – interior of shelter showing mineral accretions, facing north-west**





**Bulli Mine Shaft 20 – interior of shelter showing lichen growth, facing west**



**Bulli Mine Shaft 20 – interior of shelter showing mineral accretions and exfoliation, facing west**





**Bulli Mine Shaft 20 – interior of shelter showing cracking and mineral accretions**



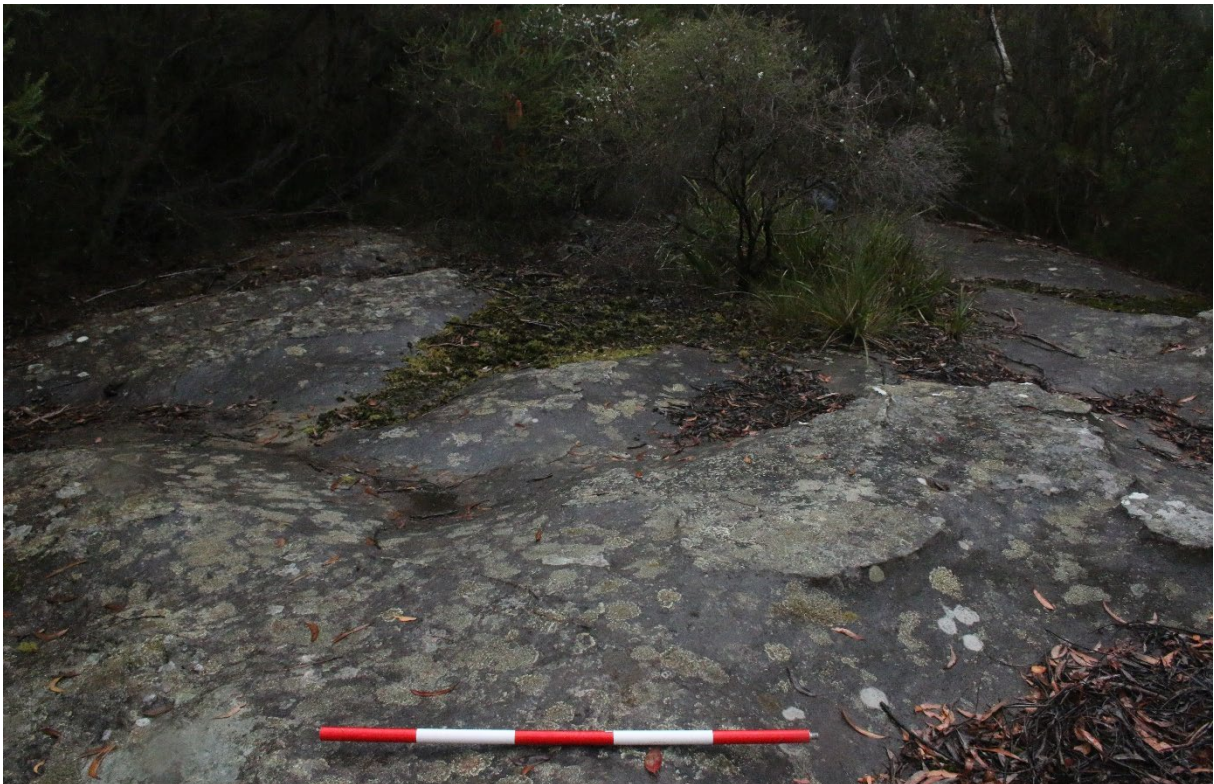
**Bulli Mine Shaft 20 – interior of shelter showing lichen growth and mineral accretions**



**Bulli Mine Shaft 27 (AHIMS 52-3-0325)**



**Bulli Mine Shaft 27 – sandstone platforms outside of shelter, facing west**



**Bulli Mine Shaft 27 – sandstone platforms outside of shelter, facing south-west**





**Bulli Mine Shaft 27 – sandstone platforms outside of shelter, facing west**



**Bulli Mine Shaft 27 – sandstone platforms outside of shelter, facing north-west**





**Bulli Mine Shaft 27 – general context photo of shelter, facing north**



**Bulli Mine Shaft 27 – general context photo of shelter, facing south**





**Bulli Mine Shaft 27 – general context photo of shelter, facing north**



**Bulli Mine Shaft 27 – general context photo of shelter, facing south**





**Bulli Mine Shaft 27 – general context photo of shelter, facing north**



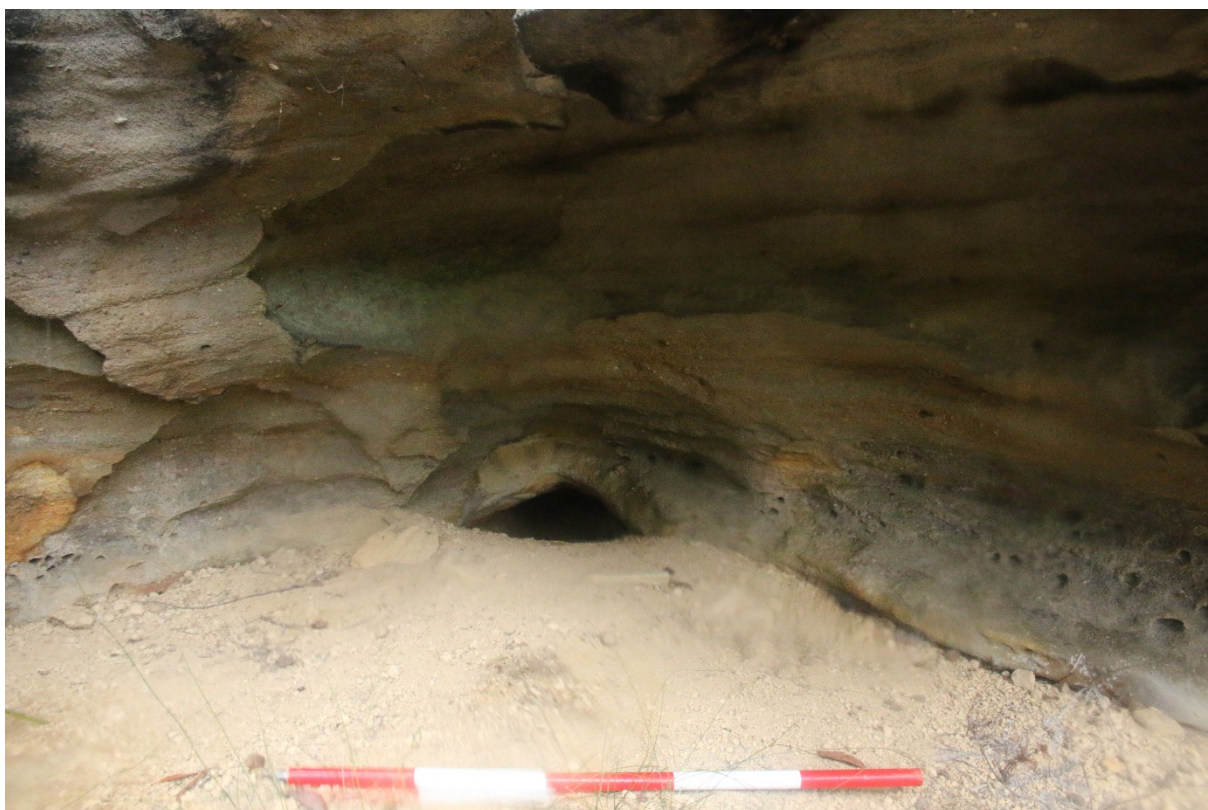
**Bulli Mine Shaft 27 – exterior of shelter, facing north**





**Bulli Mine Shaft 27 – interior of shelter showing weathering and exfoliation**





**Bulli Mine Shaft 27 – interior of shelter showing animal burrow**



**Bulli Mine Shaft 27 – interior of shelter showing animal burrow and weathering**





**Bulli Mine Shaft 27 – interior of shelter showing lichen growth**



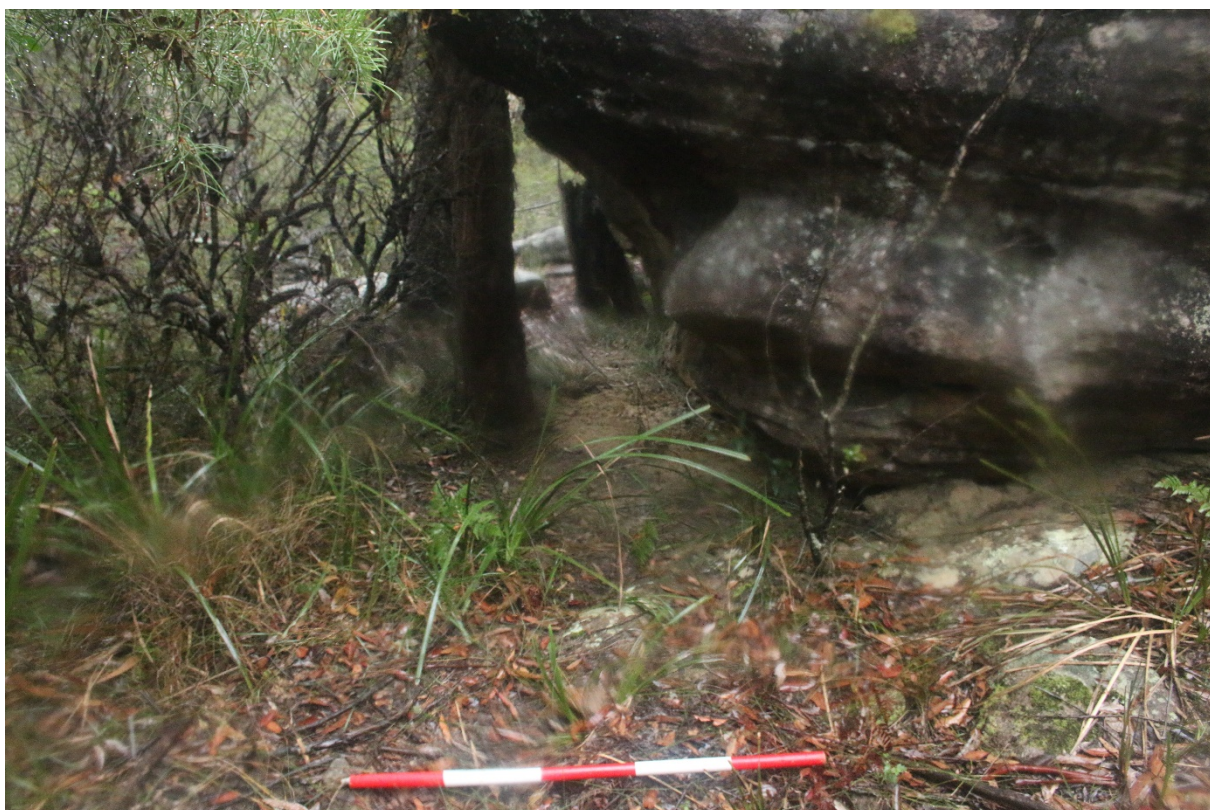
**Bulli Mine Shaft 27 – exterior of shelter, facing south**





**Bulli Mine Shaft 27 – interior of shelter showing lichen growth and weathering**





**Bulli Mine Shaft 27 –exterior of shelter, facing north-west**



**Bulli Mine Shaft 27 – interior of shelter showing weathering**





**Bulli Mine Shaft 27 – interior of shelter showing and weathering**





**Bulli Mine Shaft 27 – general contest photo, facing north-west**



**Bulli Mine Shaft 27 – general contest photo, facing south east**





**Bulli Mine Shaft 27 – interior of shelter showing mineral accretions and weathering**



**Bulli Mine Shaft 27 – interior of shelter showing exfoliation and weathering**





**Bulli Mine Shaft 27 – general context photo, facing north**



**Bulli Mine Shaft 27 – exterior of shelter, facing north-east**





**Bulli Mine Shaft 27 – general context photo, facing north**





**Bulli Mine Shaft 27 – exterior of shelter, facing south**



**Bulli Mine Shaft 27 – interior of shelter showing floor deposit and weathering**





**Bulli Mine Shaft 27 – exterior of shelter showing fallen slab, facing north**



**Bulli Mine Shaft 27 – interior of shelter showing floor deposit and animal burrow**





**Bulli Mine Shaft 27 – interior of shelter showing floor deposit and animal burrow detail**



**Bulli Mine Shaft 27 – interior of shelter showing floor deposit detail**





**Bulli Mine Shaft 27 – interior of shelter showing**



**Bulli Mine Shaft 27 – interior of shelter showing floor deposit detail and weathering**





**Bulli Mine Shaft 27 – interior of shelter showing**



**Bulli Mine Shaft 27 – general context photo, facing west**





**Bulli Mine Shaft 27 – interior of shelter showing weathering**





**Bulli Mine Shaft 27 – interior of shelter showing weathering and lichen growth**





**Bulli Mine Shaft 27 – exterior of shelter, facing east**



**Bulli Mine Shaft 27 – interior of shelter showing floor deposit**





**Bulli Mine Shaft 27 – interior of shelter showing lichen growth**





**Bulli Mine Shaft 27 – interior of shelter showing floor deposit**



**Bulli Mine Shaft 27 – exterior of shelter, facing north**



### **Bulli Mine Shaft 29 (AHIMS 52-3-0313)**



**Bulli Mine Shaft 29 – location of artefact scatter, facing north**



**Bulli Mine Shaft 29 – location of artefact scatter, facing south**





**Bulli Mine Shaft 29 – access track east of artefact scatter**



**Bulli Mine Shaft 29 – access track west of artefact scatter**



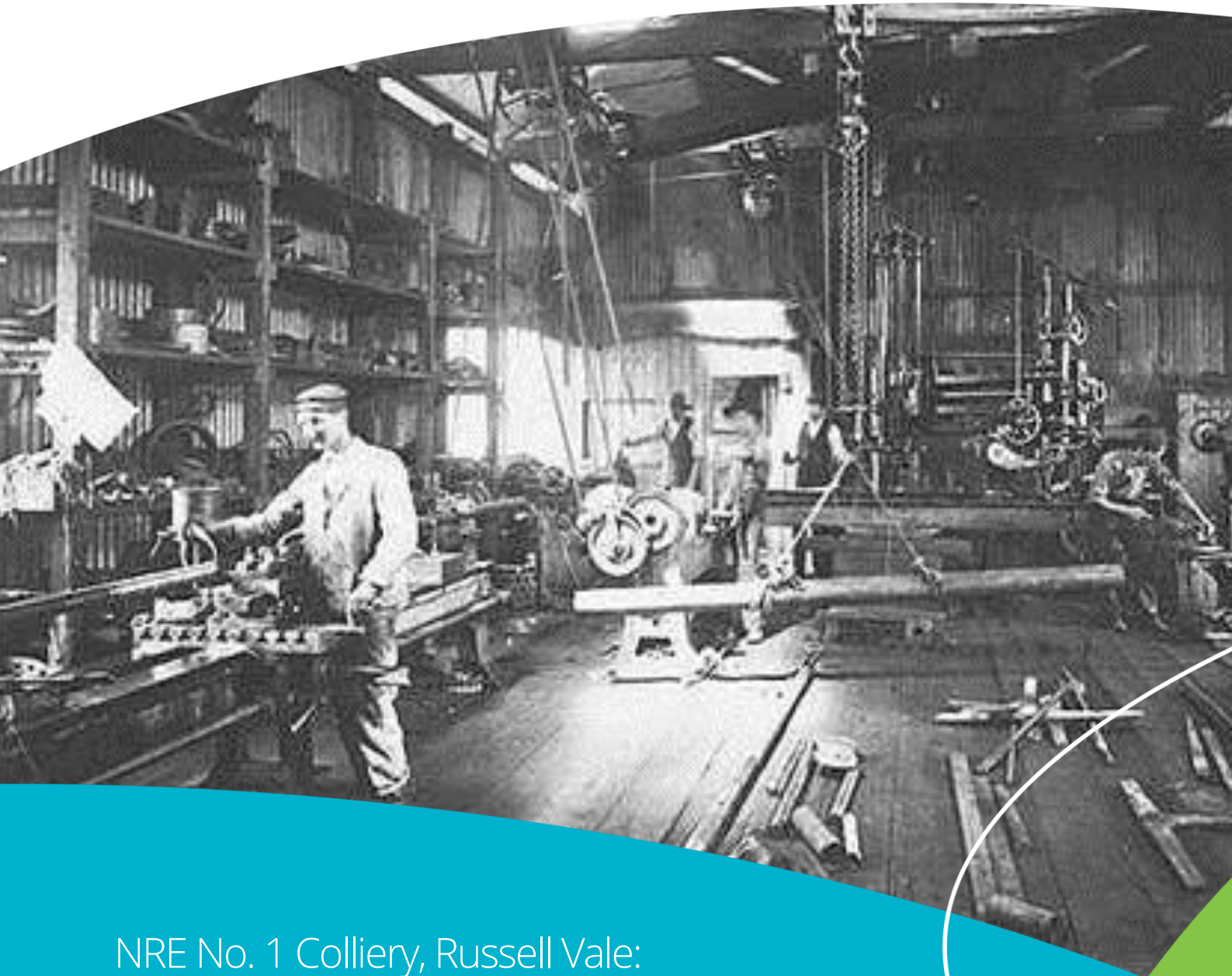
<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

---

## APPENDIX E – CONSERVATION MANAGEMENT PLAN

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# NRE No. 1 Colliery, Russell Vale: Conservation Management Plan

FINAL

Prepared for Gujarat NRE Coking Coal Limited

27 February 2013



## Biosis offices

### AUSTRALIAN CAPITAL TERRITORY

#### Canberra

Floor 1, Unit 3, 38 Essington Street  
Mitchell ACT 2911

Phone: (02) 6241 2333

Fax: (03) 9646 9242

Email: [canberra@biosis.com.au](mailto:canberra@biosis.com.au)

### NEW SOUTH WALES

#### Sydney

Unit 4, 119 McEvoy Street  
Alexandria NSW 2015

Phone: (02) 9690 2777

Fax: (02) 9690 2577

Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Wollongong

8 Tate Street  
Wollongong NSW 2500

Phone: (02) 4229 5222

Fax: (02) 4229 5500

Email: [wollongong@biosis.com.au](mailto:wollongong@biosis.com.au)

### QUEENSLAND

#### Brisbane

Suite 4 First Floor, 72 Wickham Street  
Fortitude Valley QLD 4006

Phone: (07) 3831 7400

Fax: (07) 3831 7411

Email: [brisbane@biosis.com.au](mailto:brisbane@biosis.com.au)

### VICTORIA

#### Ballarat

506 Macarthur Street  
Ballarat VIC 3350

Phone: (03) 5331 7000

Fax: (03) 5331 7033

Email: [ballarat@biosis.com.au](mailto:ballarat@biosis.com.au)

#### Melbourne (Head Office)

38 Bertie Street  
Port Melbourne VIC 3207

Phone: (03) 9646 9499

Fax: (03) 9646 9242

Email: [melbourne@biosis.com.au](mailto:melbourne@biosis.com.au)

#### Wangaratta

16 Templeton Street  
Wangaratta VIC 3677

Phone: (03) 5721 9453

Fax: (03) 5721 9454

Email: [wangaratta@biosis.com.au](mailto:wangaratta@biosis.com.au)

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Asher Ford

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**LGA:** Wollongong

**Cover:** Work shops, South Bulli Mine ca. 1906. National Library nla.pic-an13595532-32 LOC Album 918.

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Final 01	Asher Ford	01/02/2013	ASF
Final 01	Asher Ford	27/02/2013	ASF

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## Abbreviations

AHC	Australian Heritage Commission
AHIMS	Aboriginal Heritage Information Management System
AMG	Australian Map Grid
Gujarat NRE	Gujarat NRE Coking Coal Limited

## Contents

<b>Acknowledgements .....</b>	<b>ii</b>
<b>Abbreviations.....</b>	<b>ii</b>
<b>Summary .....</b>	<b>viii</b>
<b>1 Introduction .....</b>	<b>12</b>
1.1 Project Background.....	12
1.2 Study Area.....	12
1.3 CMP Methodology.....	13
1.4 Planning Framework.....	13
1.5 Definitions.....	16
1.6 Limitations of the Report.....	16
1.7 Authorship .....	17
<b>2 Documentary Evidence .....</b>	<b>18</b>
2.1 Environment.....	18
2.2 Aboriginal History.....	18
2.2.1 Regional Context and Predictive Models.....	19
2.2.2 Previous Aboriginal Archaeological Work .....	19
2.2.3 Previously Recorded Aboriginal Sites.....	20
2.2.4 Predictive framework for Aboriginal Cultural Heritage.....	20
2.2.5 Results.....	21
2.3 European History.....	23
2.3.1 Exploration & Settlement.....	23
2.3.2 Coal Mining in the Illawarra.....	25
2.3.3 Early Coalmining at South Bulli.....	26
2.3.4 Bellambi Coal Company .....	26
2.3.5 Mechanisation .....	29
2.3.6 Austen and Butta Limited .....	31
2.3.7 Shell .....	32
2.3.8 Gujarat NRE.....	32
2.4 Summary of Documentary Evidence .....	32
<b>3 Physical Evidence .....</b>	<b>35</b>
3.1 Description of the Colliery .....	35
3.1.1 Power House Precinct .....	37
3.1.2 Administration Precinct.....	38
3.1.3 Old Portal Precinct.....	38
3.1.4 The Main Portal Precinct.....	43
3.1.5 Extraction Portal Precinct.....	43



3.1.6	Gibson's Portal Precinct.....	44
3.1.7	Washery Precinct.....	46
3.1.8	Coal Stockpiles and Reject Material.....	47
3.1.9	Rail Tracks, Signal Box and associated elements .....	48
3.1.10	Moveable Heritage Items.....	49
3.1.11	Landscapes and vistas.....	50
3.2	Related Historical Items .....	50
<b>4</b>	<b>Cultural Significance .....</b>	<b>51</b>
4.1	Basis of Assessment .....	51
4.1.1	Conservation Principles.....	51
4.1.2	Methodology for Assessing Significance .....	51
4.1.3	Grading of Significance.....	52
4.2	Significance Assessment.....	53
4.2.1	Results of Significance Assessment of Site Elements/Precincts.....	53
4.2.2	Comparative assessment .....	67
4.2.3	Assessment of Significance .....	69
4.2.4	Statement of Significance .....	71
4.3	Curtilage .....	72
4.3.1	Power House Precinct Curtilage.....	72
4.3.2	Old Portal Precinct Curtilage .....	72
4.3.3	Main Portal Precinct Curtilage .....	72
4.3.4	Extraction Portal Precinct Curtilage .....	72
4.3.5	Gibson's Portal Precinct Curtilage.....	72
4.3.6	Signal Box Curtilage .....	73
4.3.7	Views and Vistas.....	73
<b>5</b>	<b>Constraints and Opportunities.....</b>	<b>81</b>
5.1	Statutory Obligations.....	81
5.1.1	Heritage Act 1977 .....	81
5.1.2	National Parks and Wildlife Act 1974 .....	81
5.1.3	Local Planning Context.....	81
5.2	Current Uses.....	84
5.3	Proposed works.....	84
5.4	Expected Impacts of Mine Operations .....	84
5.4.1	Aboriginal site impacts .....	84
5.4.2	Historic Site Impacts.....	84
5.4.3	Managing change .....	85
<b>6</b>	<b>Conservation Policy .....</b>	<b>86</b>
6.1	Introduction.....	86

6.1.1 Objective .....	86
6.1.2 Basis of Approach.....	86
6.1.3 Statutory Compliance .....	86
6.2 Statement of Conservation Policy.....	86
6.2.1 Management Policies.....	87
Policy 1 – Adoption of this Conservation Management Plan.....	87
Policy 2 – Review of Policy .....	87
6.2.2 General Policies.....	87
Policy 3 – Retention of Key Heritage Elements .....	87
Policy 4 – Maintenance of Existing Fabric.....	87
Policy 5 – Sealing Mine Portals .....	88
Policy 6 – Interpretation & Access to Information.....	88
Policy 7 – Moveable Heritage Items.....	89
Policy 8 – Recording Heritage Items .....	89
6.2.3 Policies for Managing Change .....	89
Policy 9 – New Works or Buildings.....	89
Policy 10 – Adaptive Reuse .....	89
Policy 11 – Archaeology.....	90
<b>REFERENCES.....</b>	<b>95</b>
Websites .....	96
<b>APPENDIX 1: How to prepare a statement of heritage impact.....</b>	<b>97</b>

## List of Tables

Table 1: Summary of site elements and their conservation requirements .....	ix
Table 2: Aboriginal Site Prediction Model .....	20
Table 3: Timeline of European Activities at the Study Site. ....	32
Table 4: Grading of Significance .....	52
Table 5: Implications of Assessment.....	53
Table 6: Schedule of Element Significance for the Site .....	54
Table 7: Listed Heritage Sites in the Study Site.....	82
Table 8: Summary of site elements and their conservation requirements .....	92

## List of Figures

Figure 1: Location of the Study Area in a regional context .....	14
Figure 2: Precinct Plan of the Study Area .....	15
Figure 3: AHIMS Search Results .....	22
Figure 4: Site Element Details .....	36
Figure 5: Power House Precinct Curtilage.....	74
Figure 6: Old Portal Precinct Curtilage.....	75
Figure 7: Main Portal Precinct Curtilage .....	76
Figure 8: Extraction Portal Precinct Curtilage.....	77
Figure 9: Gibson's Portal Precinct Curtilage.....	78
Figure 10: Signal Box Curtilage .....	79
Figure 11: Landscapes and Vistas.....	80

## List of Plates

Plate 1: Francis Peter MacCabe and Jane MacCabe (ca 1860-1870) Wollongong City Library P07/P07752 and P07/P07753	24
Plate 2: H.G. Lloyd <i>Russell Vale near Bellambi</i> 1879 Allport Library and Museum of Fine Arts AUTAS001124062654.....	24
Plate 3: 1955 Aerial of Project Area showing Russell Vale House (Aerial courtesy of Gujarat NRE) .....	25
Plate 4: Photograph of Project Area showing Russell Vale House and future Washery area (Photo courtesy of Illawarra Historical Society). .....	25
Plate 5: S.S. Bellambi loading coal at Bellambi Point ca. 1906. National Library nla.pic-an13595532-20PIC P694/1-47 LOC Album 918 .....	27
Plate 6: General view of Bellambi Point Jetty ca. 1906. National Library nla.pic-an13595532-39 P694/1-47 LOC Album 918	27
Plate 7: New screens, workshops, etc., South Bulli ca. 1906. National Library nla.pic-an13595532-17 PIC P694/1-47 LOC Album 918 .....	28
Plate 8: Gibson's Portal 1915. Wollongong City Library P02/P02407 Broadhurst Photos .....	28
Plate 9: South Bulli Colliery pit ponies and miners ca. 1906. National Library nla.pic-an13595532-1 PIC P694/1-47 LOC Album 918 .....	29
Plate 10: Short-wall Coal Cutter 2011. Biosis Research. ....	30
Plate 11: Lee Norse Continuous Miner in the Illawarra ca. Unknown. Illawarra Coal. ....	31
Plate 12: Japanese Taiheyo Engineering Incorporated Super Dynamic SD System 1975. Wollongong City Library P19/P19253.31	
Plate 13: South Bulli Mine ca. 1900 (photo from NRE No 1) .....	37
Plate 14: Main Workshop (left) and Diesel Shelter (right) looking south. 2011 Biosis .....	39
Plate 15: Upper Bench Workshops 2011 Biosis .....	40
Plate 16: Upper Bench Workshops interior 2011 Biosis.....	40
Plate 17: 1887 Portal 2011 Biosis.....	41



Plate 18: 1887 Portal, with second portal to left and workshops behind.ca. 1904. Wollongong City Library BRN: 339706 42

Plate 19: Brick retaining wall, 1887 Portal 2011 Biosis..... 42

Plate 20: Left to right – main portal, new bathroom above, crib room, first aid station (former Lamp room) store room. 2011 Biosis Research..... 43

Plate 21: Looking up along the decline conveyor from Coal Storage Bin 1. 2011 Biosis Research ..... 44

Plate 22: Gibson's Portal 2011 Biosis. .... 45

Plate 23: Electric switch room with switchyard to left rear. 2011 Biosis. .... 46

Plate 24: Remnants of coal gantries, 2011 Biosis..... 47

Plate 25: Remnants of the Washery and coal gantries, 2011 Biosis. .... 47

Plate 26: Coal stockpile area south of the coal storage bins. 2011 Biosis. .... 48

Plate 27: Restored signal box, 2011 Biosis Research. .... 49

Plate 28: Coal wagon. 2011 Biosis. .... 50

## Summary

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This Conservation Management Plan (CMP) was commissioned by Gujarat NRE Coking Coal Limited (Gujarat NRE) in order to meet the requirements of the statement of commitments in the NRE No. 1 Colliery Preliminary Works conditional Project Approval granted in October 2011. The Project Approval was granted under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1974). The CMP has been developed in line with the requirements of the NSW *Heritage Act 1977*, *National Parks & Wildlife Act 1974* (NP&W Act 1974), and EP&A Act 1974 and is based on a review and update of the previous heritage studies undertaken for the site.

The NRE No. 1 Colliery (the study site) is a working coal mine located in Russell Vale NSW and was previously known as the South Bulli Colliery. The study site is generally located on private land adjacent to the Illawarra Escarpment State Conservation Area, which is administered by the National Parks and Wildlife Service (see Figure 1). Previous heritage studies undertaken for the study site include a CMP undertaken by Godden Mackay Logan Heritage Consultants (GML) in 2004, the *Strategic Management Plan for Historic Coal Mining Sites of the Illawarra* (SMP) undertaken by O.H.M. Consultants (OHM) in 2006 and a Historic Heritage Assessment (HHA) undertaken by Environmental Resources Management Australia (ERM) in 2011. As a working colliery for over a century and a half, the study site has a variety of infrastructure that is spread out over a wide area.

In November 1995, the Heritage Council of NSW adopted the policy “Altering Heritage Assets”. The policy recognises that development proposals should consider the overall significance of an item, and its value to the community. The NSW Heritage Office *Heritage Manual* (1996) identifies a minimum documentation required of activities or works with minor impact would be a Statement of Heritage Impact and works documentation, while major works to a state listed place require a Conservation Management Plan. The legislative framework protecting the study site entails that the impact to the heritage significance from the development be considered prior to development. This is to ensure that any development proposal does not adversely impact the heritage significance of the item.

Recommendations have been made in Section 6 for the management of the various portals, buildings, structures and other features according to the level of significance of each place as listed above. A summary of conservation requirements for each site element is provided below in Table 1.

**Table 1: Summary of site elements and their conservation requirements**

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
1. Power House Precinct	Remnant Power House Features	Moderate	X	X		X		X	X		X	U	C	Y	-
2. Administration Precinct	Administration Building	Little	X					X			X	N	N	N	N
	Pathways and Landscape Elements	Little	X					X			X	N	N	N	-
	Car park	Intrusive	X					X			X	N	N	N	-
3. Old Portal Precinct	Lower Bench Workshops	Little						X			X	N	N	N	N
	Upper bench Workshops	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Workshop Offices	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Brick Retaining Wall	High	X	X		X		X	X	X	X	U	C	Y	Y
	1887 Portal Area	Exceptional	X	X	X	X		X	X	X	X	U	C	Y	Y
4. Main Portal Precinct	The Main Portal	Little	X		X			X			X	N	N	N	N
	The New Bathhouse	Little	X					X			X	N	N	N	N
	Crib Room and First Aid Station	High	X	X		X		X	X	X	X	U	C	Y	Y
	Storeroom	High	X	X		X		X	X	X	X	U	C	Y	Y
5. Extraction Portal Precinct	The Extraction Portal	Little	X		X			X			X	N	N	N	N
	Main Downhill Conveyor	Little	X					X			X	N	N	N	-



Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
	Closed Adits	Moderate	X			X		X			X	U	C	Y	Y
6. Gibson’s Portal Precinct	Gibson’s Portal	High	X	X	X	X		X	X	X	X	U	C	Y	Y
	Sandstone Retaining Wall	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Fan House	Little	X					X			X	N	N	N	N/A
	Gibson’s Sublease Portal and Associated Area	Little	X					X			X	N	N	N	N/A
	Electrical Sub-Station	Little	X					X			X	N	N	N	N/A
	Electrical Switchroom	Little	X					X			X	N	N	N	N/A
7. The Washery Precinct*	The Preparation Plant	Moderate						X			X	N*	N*	N*	N*
	Conveyor Systems	None						X			X	N	N	N	N/A
	Storage Silos	None						X			X	N	N	N	N/A
	Truck Loader	Little						X			X	N	N	N	N/A
8. Coal Stockpiles and Reject Material	Coal Stockpiles	Little									X	N	N	N	N/A
	Reject Material Emplacements	Little									X	N	N	N	N/A
	Settling Dams	Little									X	N	N	N	N/A
9. Rail Tracks, Signal Box and Associated Elements	Rail Tracks and System - Upper Bench	High	X	X		X		X	X	X	X	U	C	Y	Y

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
	Rail Tracks and System – Other Areas	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Signal Box	High	X	X		X		X	X	X	X	U	C	Y	Y
10. Moveable Heritage Items	Coal Wagon	High	X	X		X	X	X	X		X	U	C	Y	N/A
	Coal Cutter	Moderate	X	X		X	X	X	X		X	U	C	Y	N/A
11. Views and Vistas	Original Haulage Line Vistas	High	X			X		X	X		X	U	C	Y	N/A
	Remnant Incline Haulage Alignments	High	X			X		X	X		X	U	C	Y	N/A
*Conditional consent for the removal of this item has been approved under DA D2004/32.															

# 1 Introduction

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## 1.1 Project Background

This Conservation Management Plan (CMP) was commissioned by Gujarat NRE Coking Coal Limited (Gujarat NRE) in order to meet the requirements of the statement of commitments in the NRE No. 1 Colliery Preliminary Works conditional Project Approval granted in October 2011. The Project Approval was granted under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1974). The CMP has been developed in line with the requirements of the NSW *Heritage Act 1977* (NH Act 1997), *National Parks & Wildlife Act 1974* (NP&W Act 1974) and EP&A Act 1974 and is based on a review and update of the previous heritage studies undertaken for the site.

The NRE No. 1 Colliery (the study site) is a working coal mine located in Russell Vale NSW and was previously known as the South Bulli Colliery. The study site is generally located on private land adjacent to the Illawarra Escarpment State Conservation Area, which is administered by the National Parks and Wildlife Service (see Figure 1). Previous heritage studies undertaken for the study site include a CMP undertaken by Godden Mackay Logan Heritage Consultants (GML) in 2004, the *Strategic Management Plan for Historic Coal Mining Sites of the Illawarra* (SMP) undertaken by O.H.M. Consultants (OHM) in 2006 and a Historic Heritage Assessment (HHA) undertaken by Environmental Resources Management Australia (ERM) in 2011. As a working colliery for over a century and a half, the study site has a variety of infrastructure that is spread out over a wide area.

**Aims**

The general aim of this report is to update the information gathered in the 2005 CMP, 2006 SMP and 2011 HHA. This information will then be used to develop a conservation policy for the study site in compliance with the Project Approval requirements.

The specific aims are to:

- identify the cultural significance of the place;
- conduct a literature review and database search for the study area;
- undertake field inspection to update and identify recorded and potential cultural heritage places;
- provide a brief assessment of the cultural heritage values of the study area;
- undertake an assessment of significance of Aboriginal and historic sites and features existing or potentially occurring in the study area; and,
- create policies to guide continued operation of the site while recognising its significance.

## 1.2 Study Area

NRE No. 1 Colliery is located at Russell Vale, within the Wollongong Local Government Area (Figure 1). The site extends from Princess Highway to the east up the base of the Escarpment to the west. As a working colliery for over a century and a half, the study site has infrastructure that is spread out over a wide area. The 2004 GML assessment and 2011 HHA broke up the study site into Precincts and features (ERM 2011a: 25), that have been used in this CMP as shown in Figure 2.



### 1.3 CMP Methodology

This CMP has been prepared in accordance with the Australia ICOMOS *Burra Charter* 1999, James Semple Kerr's *The Conservation Plan* (2000) and Guidelines provided by the NSW Heritage Office Model Brief (1996) and suggested table of contents for a CMP, and the flow chart have been employed as the basis for the structure of the CMP.

*The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (Burra Charter 1999), provides a framework for which heritage management in Australia is considered. The overarching guidelines are:

- *Places of cultural significance should be conserved;*
- *The aim of conservation is to retain the cultural significance of a place;*
- *Conservation is an integral part of good management of places of cultural significance; and,*
- *Places of cultural significance should be safeguarded and not put at risk or left in a vulnerable state.*

Good management of sites with heritage significance requires an understanding of how to best apply the Burra Charter principles to a site. An operational site with its own set of particular needs can be complex if not managed practically, as is the case with the current site.

### 1.4 Planning Framework

Gujarat NRE will conduct the Project consistent with the Part 3A Project Approval conditions, granted in October 2011, and any other legislation that is applicable to the approval under the EP&A Act. Condition 2 of the Project Approval specifies that the NRE No. 1 Colliery Preliminary Works Project must be carried out in general accordance with the Environmental Assessment, Statement of Commitments and Conditions of the Project Approval. As part of the Statement of Commitments for non-Aboriginal heritage, Gujarat NRE committed to the preparation of a CMP for the project.

Other relevant legislation, planning instruments and guidelines that will inform the CMP include:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);*
- *Aboriginal and Torres Strait Islander Heritage Protection Amendment Act 1987;*
- *Heritage Act 1977 (amended 1998);*
- *ICOMOS Australia Burra Charter 1999 (the Burra Charter); and,*
- *National Parks & Wildlife Act 1974 (NPW Act) (as amended 2010).*

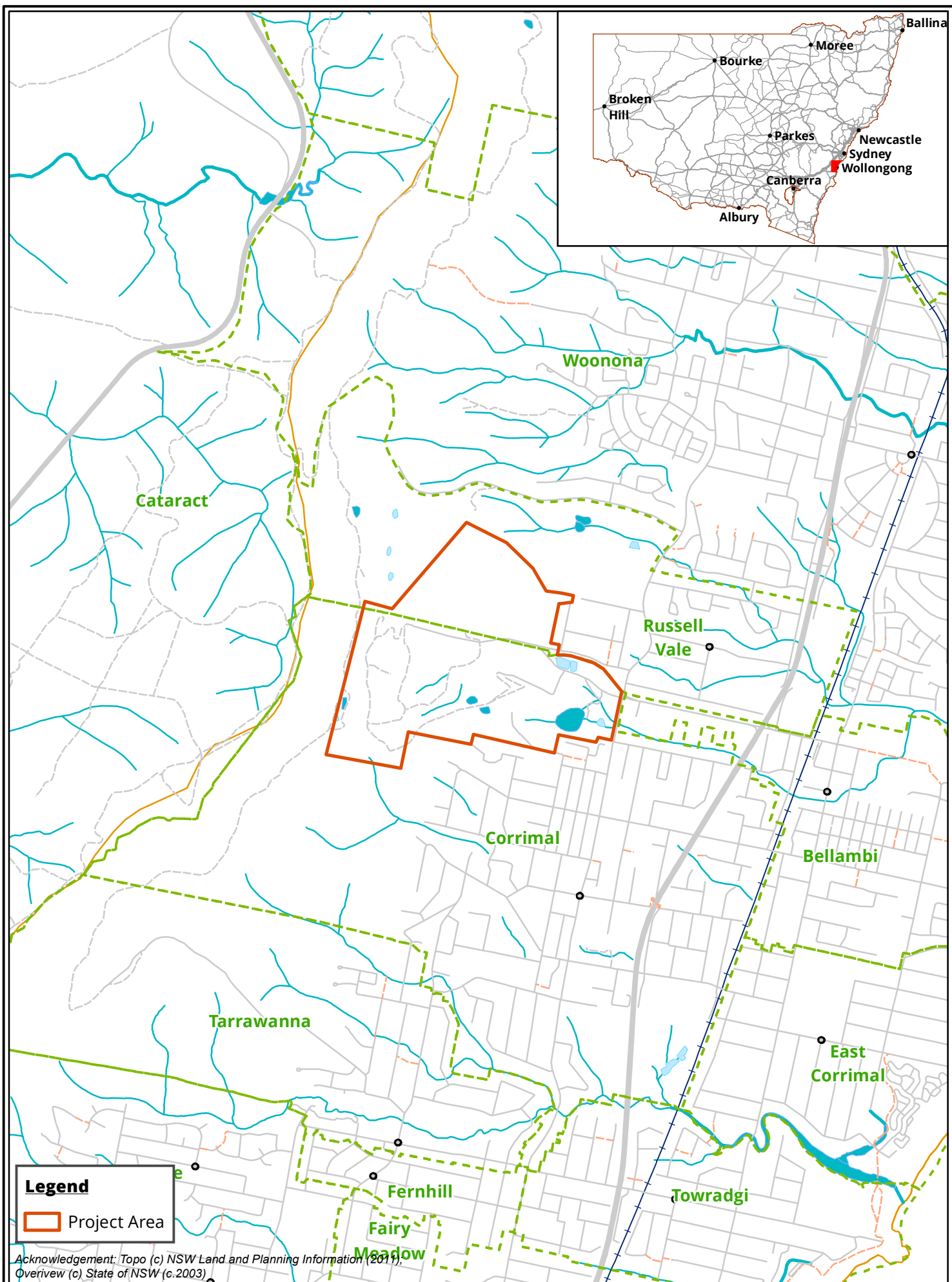
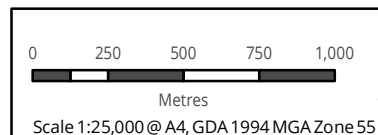


Figure 1: Location of the Project Area



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Sydney, Wangarratta & Wollongong

Matter: 15606  
Date: 01 February 2013, Checked By: ASF, Drawn By: jshepherd  
Location: P:\15600s\15606\Mapping\15606\_F1\_Locality.mxd







#### Legend

- Project Area
- Precincts

Figure 2: Precinct Plan of the Project Area

0 50 100 150 200 250  
Metres

Scale: 1:5,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Ballarat, Brisbane, Canberra, Melbourne,  
Sydney, Wangaratta & Wollongong

Matter: 15606  
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## 1.5 Definitions

The terms fabric, conservation, maintenance, preservation restoration reconstruction adaptation compatible use and cultural significance used in the CMP are as defined in the Burra Charter.

**Place** means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

**Cultural significance** means **aesthetic, historic, scientific, social** or **spiritual value** for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

**Fabric** means all the physical material of the place including fixtures, contents and objects.

**Conservation** means all the processes of looking after a place so as to retain its cultural significance (as listed below).

**Maintenance** means the continuous protective care of the fabric, and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.

**Condition** (not a Burra Charter definition) means the state of a place or component of a place —the extent to which it is well maintained and is physical sound.

**Integrity** (not a Burra Charter definition) means the degree to which a place or component of a place retains the form and completeness of its physical fabric, historical associations, use or social attachments that give the place its cultural significance.

**Preservation** means maintaining the fabric of a place in its existing state and retarding deterioration.

**Restoration** means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

**Reconstruction** means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

**Adaptation** means modifying a place to suit the existing use or a proposed use. [Article 7.2 states regarding use that: a place will have a compatible use]

**Compatible use** means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

**Interpretation** means all the ways of presenting the cultural significance of a place.

## 1.6 Limitations of the Report

This conservation Management Plan relates specifically to the future development and operation of the NRE No. 1 Colliery. The report focuses, therefore, on the impact of the current and proposed operations on the overall heritage setting and does not relate to detailed management of the remainder of the larger property or other heritage elements at the property except where they relate to the current proposal.

The context for the current study is described in Section 1. This report does not cover an extensive review of environmental and archaeological background for the study area. The assessment is based on previous historical research work on the South Bulli Colliery by GML in 2005 and ERM in 2011, as well as the various heritage surveys undertaken for Wollongong City Council in preparing its schedule of heritage items associated with coal mining in the Illawarra District under the Wollongong Local Environment Plan 1990.

The historical and descriptive sections are based on the best available information accessed during the preparation of this document, but as interpretations change with new information, these may be subject to change.

## **1.7 Authorship**

The CMP has been prepared by Gary Vines, industrial archaeologist and Asher Ford, archaeologist. Review of the policy section of the report was undertaken by Pamela Kottaras, Cultural Heritage Team Leader. Mapping has been prepared by Ashleigh Pritchard and James Shepard, GIS officers.

## 2 Documentary Evidence

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### 2.1 Environment

The Illawarra escarpment rises steeply from the narrow coastal plain behind Wollongong and the coastal towns to the north where the escarpment progressively comes closer to the coast until it drops straight into the sea at Coalcliff. Beyond the escarpment a plateau dips gradually to the northwest and the escarpment is progressively lower to the north. The study site consists of predominantly steep sandstone slopes and bands of claystone and coal seams. The escarpment foothill slopes are subject to sheet erosion, land slips, rock falls and major land slides. As a consequence it is unlikely that archaeological deposits on escarpment slopes have remained undisturbed.

### 2.2 Aboriginal History

It is generally accepted that people have inhabited the Australian landmass for at least 40,000 years. Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The timing for the human occupation of the Sydney Basin is still uncertain. The earliest undisputed radiocarbon date from the region comes from a rock shelter site on the western side of the Nepean known as Shaws Creek K2 which has been dated to 14,700 years before present (BP) (Attenbrow 2002). This site is over 50 km north from the study area along the Nepean River. To the south, along the coast just north of Shell Harbour, the site of Bass Point has been dated at 17,101 +/- 750 BP (Flood 1999).

Our knowledge of the social organisation of Aboriginal people prior to European contact is, to a large extent, reliant on documents written by European people. Such documents are affected by the inherent bias of these authors. They can, however, be used in conjunction with archaeological information in order to gain a picture of Aboriginal life in the region.

The study area is recognised as being within the traditional lands of the Wodi Wodi tribal group, which extended from around Stanwell Park to the Shoalhaven River, and inland to Picton, Moss Vale and Marulan. The Wodi Wodi spoke the Dharawal language, however Dharawal (Tharwal) was not a word they had heard of or used themselves (Tindale 1974, Navin Officer 2000: 20). Many of the town and place names of the Illawarra are derived from the Dharawal language.

For many years the name "Bulli" was used for all the country from Wollongong north to Coal Cliff. The original Aboriginal name for the area was Bulla or Bulla Bulla, meaning "two mountains" (Mt Kembla & Mt Keira). Other meanings of Bulli have been given as "white grubs" and "place where the Christmas Bush grows". Mt Kembla gets its name from the Aboriginal word for "abundant game" or possibly from "Djembla", meaning wallaby.

Traditional Aboriginal social organisation consisted of clans and bands. It was through clans that associations with lands and sites were dictated. Marriage was between clans, and groups that included individuals who had married into the group are referred to as bands. In day to day life bands ranged over economic areas that included lands of more than a single clan. Attenbrow (2002) sums up the situation succinctly by saying 'whilst the relationship of clan to country was principally religious in character, that of band to range was economic.'

The Illawarra escarpment has significance to local Aboriginal people as it was used for ceremonial practices and gathering food and medicine. For example, the Dharawal knew Mt Keira as a gateway to the hereafter (Hagan & Wells 1997: 9.11). Aborigines travelled between areas on the coast and the escarpment and plateau



and there are a number of places in the Illawarra Escarpment State Conservation Area where rock engravings, cave art and other archaeological evidence has been found. However, very few sites are found on the steep cliffs and slopes of the escarpment.

The arrival of European colonists in early 1788 wrought swift and catastrophic change to the Aboriginal people of the Illawarra region. Europeans began appearing in the area before the end of the eighteenth century, and by the first couple of decades of the nineteenth century forestry had begun in the region. The land was broken up for pastoral and dairy enterprises throughout that century. Conflict, disease and dispossession took a terrible toll on the Wodi Wodi and Tharwal peoples.

In 1820 approximately 3000 Aboriginal people were living in the Illawarra, but by 1899 their numbers had declined to only 33 people of non-mixed descent. Today many Wodi Wodi and Tharwal people continue to live in the Illawarra.

### **2.2.1 Regional Context and Predictive Models**

The Illawarra region has been subject to a number of archaeological studies. Although numerous individual sites have been recorded this has not always translated into information on past behaviour patterns (Navin Officer 2000). Some information has been compiled relating to changes in artefact types and distribution patterns of sites within the landscape. The oldest recorded date in the immediate area was recorded at Mill Creek 11 at approximately 1520±70 BP (Before Present) (Navin Officer 2000).

From analysis of previous studies certain generalisations about site distribution can be proposed. The sandstone landforms of the Woronora Plateau and parts of the Illawarra Escarpment contain rock shelter sites, where suitable shelter formations exist. Such shelters may include deposits or areas of potential deposit and/or art on the shelter walls. Flat areas of fine-grained sandstone adjacent to reliable water sources have potential for axe grinding grooves to occur. Flat areas of smooth sandstone rock platforms have the potential for rock engravings, although these may only be located where erosion processes have not removed traces of modification.

On the Illawarra Escarpment foothill ridges and streams, Aboriginal sites are most commonly located on major ridgelines where access routes were located. Waterway corridors such as rivers and creek lines are also likely to contain sites. The proximity of the site to the pass at the head of Gallahers Creek "Summit Tank Pass", and the local character of the topography with a series of relatively gently rising ridges, suggest this is a potential route for prehistoric access between the plateau and coast (Navin Officer 2000).

Recent submissions to the Commonwealth Department of Environment and Heritage by the Northern Illawarra Aboriginal Corporation (NIAC) raised several issues regarding Aboriginal cultural heritage associations in the Illawarra Escarpment area. These included the presence of rock art sites and shelters along the escarpment as well as indigenous traditions associated specifically with the Illawarra Escarpment (Campbell 2005).

Also noted, were places identified as being of particular importance to the Aboriginal Community such as Mt Keira, described as 'women's business' and that Mount Kembla has been similarly described and denotes 'men's business' (draft Illawarra Escarpment Strategic Management Plan). In other submissions NIAC claimed that corroborees were held near the Excelsior Coal Mine at Thirroul, and the traditional Aboriginal track went through the Bulli Pass. NIAC also claimed that a traditional Fire Man extracted coal from the Bulli coal seam for night fishing (Campbell 2005).

### **2.2.2 Previous Aboriginal Archaeological Work**

ERM undertook an archaeological survey for Aboriginal heritage at the study site in 2010. No Aboriginal sites or areas of potential archaeological deposit were identified and the report concluded that the study site had

been extensively modified and that there was a low likelihood that Aboriginal cultural material was present (ERM 2011b: A11).

### 2.2.3 Previously Recorded Aboriginal Sites

A search was conducted of the Office of Environment and Heritage's (OEH) Aboriginal Heritage Information Management System (AHIMS) with a 2.5km search radius of the study site on the 5th January 2011 (Figure 3). Two sites are located west of the study site, 52-3-024 and 52-2-1147, both artefact scatters classified as open camp sites.

### 2.2.4 Predictive framework for Aboriginal Cultural Heritage

A model has been developed to broadly predict the type and character of Aboriginal cultural heritage sites likely to exist or have existed throughout the study site and where they are likely to be located.

This model is based on:

- Site distribution in relation to landscape descriptions within the study site;
- Consideration of site type, raw material types and site densities likely to be present within the study site;
- Findings of the ethnohistorical research on the potential for material traces to be present within the study site;
- Potential Aboriginal use of natural resources present or once present within the study site; and,
- Consideration of the temporal and spatial relationships of sites within the study site and surrounding region.

The predictive model indicates the site types most likely to be encountered during the investigations across the study site (see Table 2). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the Study Area.

**Table 2: Aboriginal Site Prediction Model**

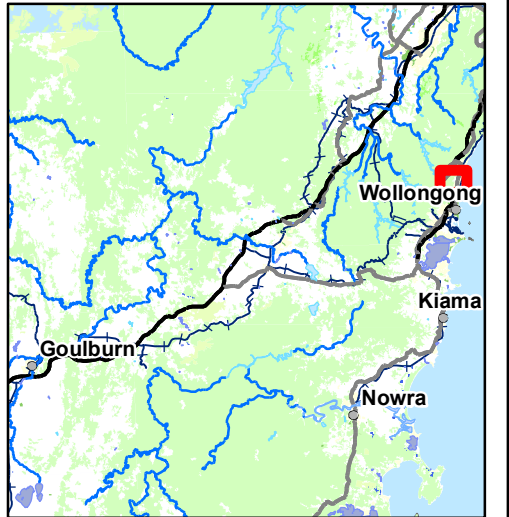
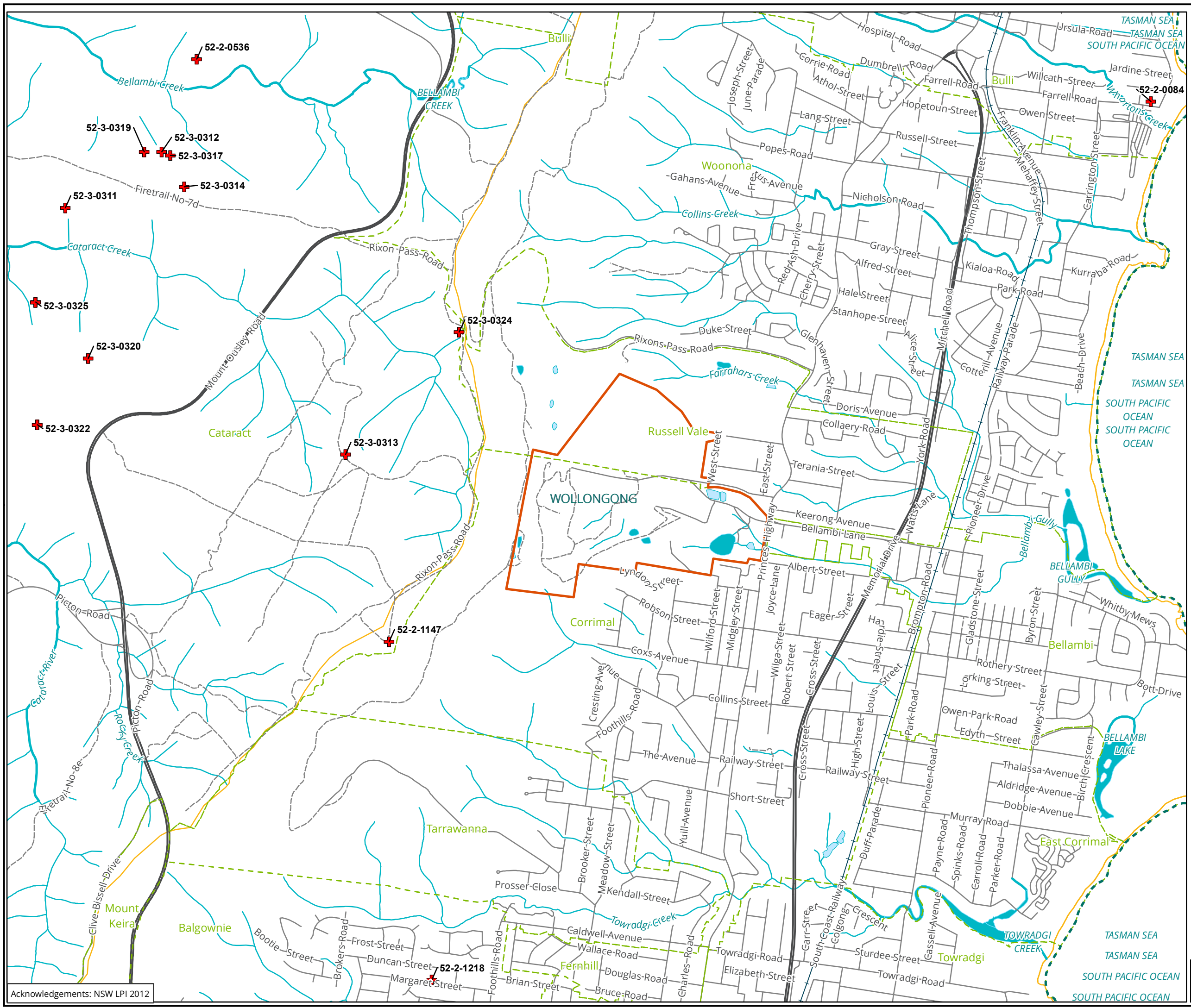
Site Type	Site Description	Potential
<b>Flaked Stone Artefact Scatters and Isolated Artefacts</b>	Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.	<b>Low:</b> Stone artefact sites have been previously recorded in the region across a wide range of landforms including slopes, ridgelines and crests. However they are unlikely to be identified due to extensive landscape modification associated with past mining practices..
<b>Potential Archaeological Deposits (PADs)</b>	Sub-surface deposits of cultural material.	<b>Low:</b> PADs have been previously recorded in the region across a wide range of landforms including alluvial flats, slopes, ridgelines and crests and they have the potential to be present in undisturbed landforms. However they are unlikely to be identified due to extensive landscape modification associated with past mining practices..

Site Type	Site Description	Potential
Scarred Trees	Trees with cultural modifications	<b>Low:</b> Appropriate tree species are known to occur within the study site. However, the study site has been extensively clear and as such, there is low potential for identifying scarred trees where these remnant tree species have survived.

### 2.2.5 Results

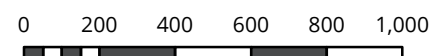
Few Aboriginal sites have been found on the steep cliffs and talus slopes of Illawarra escarpment. While this area may have been traversed, the steep and unstable slopes would not have been conducive to establishing campsites. The mine site has been benched into the middle and lower slopes of the escarpment, so that all of the occupied area is either cut or fill. In addition, the disturbance has caused landslips up and down the slope, which would have removed any archaeological remains, as well as the naturally unstable soils of the area.





- Legend**
- AHIMS
  - Study Area

**Figure 3: AHIMS Search Results**



Metres  
Scale: 1:20,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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Date: 01 February 2013,  
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## 2.3 European History

The Illawarra region was explored by Europeans from the 1770s onwards and first attracted settlers in the early 1800s. Cedar getters were the first to open up the district as early as 1805. When the easily accessible timber had been exhausted by 1820, cattle grazing took over and the coastal plain was extensively settled and cleared for pastoral estates and farms. Agricultural activities in turn gave way to coalmining, which is still the dominant industry in Russell Vale. A summary of the European history at the study site is provided in Table 3.

### 2.3.1 Exploration & Settlement

One of the first pioneers to cut a track down the mountain slope to the Illawarra Plain vicinity was Dr Charles Throsby in 1815. He was travelling with a party of two European and two Aboriginal people, and was investigating whether the land at the foot of the escarpment was rich in grass and water as he had been told by the Aborigines. Throsby subsequently drove cattle into the Illawarra near Wollongong harbour and favourable pasture conditions were reported in the Sydney Gazette in 1815 and 1816 (Bayley 2002: 2).

Determined efforts led to gradual improvements in negotiating the steep descent. The original Throsby track was used from 1815-1844. Eventually, in 1867, the Bulli Pass road was constructed as a formed and graded road. Wheeled vehicles began using the road in 1863. Prior to that date, carriages had to take the road built by Deputy Surveyor General Perry in 1852, which led from Mt Keira through Broughton's Pass to Appin. Perry reported at the time that the road down the mountain at Bulli was both difficult and dangerous. The new road down Bulli Pass was shorter and safer than Rixon's Pass (located a few kilometres to the south near the study site), and provided Illawarra residents with a greatly improved method of travelling by horse-drawn coach via Appin to Campbelltown to meet the Sydney train. The Pass was not bitumen surfaced until 1926 (Bayley 2002).

The Russell Vale area was initially part of a large land grant promised to Miss Harriett Overington in 1827, the grant being 1920 acres in size. This grant passed to James Spearing on his marriage to Miss Overington to become part of the larger Spearing estate. The Spearings left the Illawarra sometime in the 1830s and the deeds were issued to Robert and Charles Campbell in 1841 (Wollongong City Council 2012). Pastoral holdings were largely cleared in the 1830s and trend of selling larger estates into smaller farm lots started in the 1840s (Bayley 2002: 6). The study site however remained intact as a larger estate rather than being broken into smaller farm lots and was occupied in 1856 by the MacCabe family.

Francis Peter MacCabe had arrived in NSW in 1841 to take up a post as a surveyor, a position which he held until 1856 (MacCabe 1992: 78). Francis undertook extensive surveys of the Murrumbidgee, Murray and Darling Rivers between 1848 and 1852 and was later involved in surveying Gladstone and other parts of Queensland. Due to a labour shortage during the gold rush, survey expeditions were temporarily put on hold and Francis was posted to Wollongong in January 1853. Francis met Jane Osborne, daughter of Henry Osborne, relatively quickly and in March 1853 formally asked Henry's permission to court his daughter which was granted after some discussion about their different religions (MacCabe Family Papers).

Francis undertook a survey expedition to Queensland but took leave to marry Jane on 28 November 1855 and then left the survey office in 1856 to move to Russell Vale. The estate house and collection of outbuildings was known locally as "Russell Vale House", although there is some uncertainty whether the house was built by Francis or was already on the property. Aileen MacCabe, granddaughter of Francis, states that the Russell Vale House was possibly built before it was occupied by the MacCables (MacCabe 1966). Photos held by the Illawarra Historical Society indicate that it was most likely heavily modified by Francis with the main building being constructed of sandstone. Francis was known to have installed a stained glass window portraying the MacCabe Coat of Arms, which is now on display in the Illawarra Museum.



Francis and Jane (Plate 1) would raise a family of 14 children on the property and be directly involved in the early coal industry at Russell Vale. Francis took up a position as Manager of the Osborne-Wallsend Colliery, controlled by Henry Osborne, and it is likely that the Russell Vale Estate was bought by the MacCables on the basis of its future potential for coal mining. Despite his activities in coalmining, Francis did make extensive improvements to the estate in order to operate it as a dairy with an onsite creamery (Illawarra Mercury 1895).



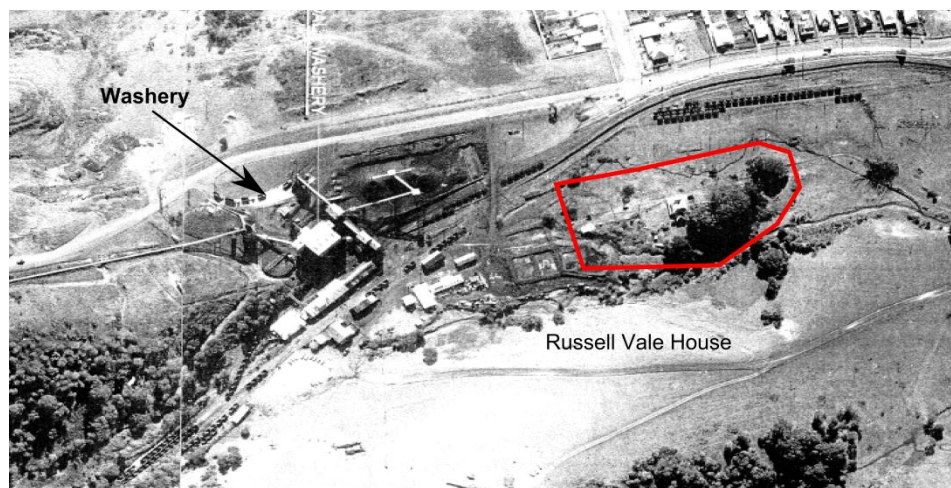
**Plate 1: Francis Peter MacCabe and Jane MacCabe (ca 1860-1870) Wollongong City Library P07/P07752 and P07/P07753**

Henry Grant Lloyd painted the Russell Vale Estate in 1897, looking at the property from the north with Princes Highway and the Russell Vale house clearly visible (Plate 2). The Russell Vale House is visible in a 1955 aerial (Plate 3) and earlier photograph taken from one of the upper benches (Plate 4) and located directly east of the future Washery area.



**Plate 2: H.G. Lloyd *Russell Vale near Bellambi* 1879 Allport Library and Museum of Fine Arts AUTAS001124062654.**





**Plate 3: 1955 Aerial of Project Area showing Russell Vale House (Aerial courtesy of Gujarat NRE)**



**Plate 4: Photograph of Project Area showing Russell Vale House and future Washery area (Photo courtesy of Illawarra Historical Society).**

### 2.3.2 Coal Mining in the Illawarra

Coal was first identified in the area by the shipwrecked crew of the Sydney Cove at Coalcliff in 1797 (Bayley 2002: 1). While an inspection of Illawarra coal measures was undertaken, coal mining in the area was originally passed over for discoveries at Newcastle. The combination of difficulties in access to south coast seams and the early monopoly on coal mining held by the Australian Agricultural Company until 1848, hindered the development of a coal industry in the area. In 1849, oil-bearing shale from the slopes of Mount Kembla was tested by the Reverend W.B. Clarke, who reported the following:

*Under the escarpment at the head of the Cordeaux River, and a little to the west of it and below Mount Kembla in the beds intersected by America Creek, a series of shales exist with coal, a portion of which are found to produce oil (Sellers 1976).*

Subsequently, the first kerosene shale mine in Australia was sited on a small plateau beside the American Creek. This is the present day site of the Nebo Colliery, but at the time the land was owned by Mr. John Graham. Larger mines began to open in 1857 particularly around the Bulli-Woonona area. The first railway in the district was constructed in 1861 by the Bulli Coal Company as a horse tramway of standard gauge

between the incline of Bulli Colliery and a jetty on Bulli Point. In May 1867 it operated its first steam locomotive, the first in the Illawarra district. By the First World War there were ten or more collieries being worked on the Illawarra escarpment, mostly to supply the Sydney market, although some coal was utilised in the production of coke.

### **2.3.3 Early Coalmining at South Bulli**

Coalmining in the Bellambi area was first initiated by Thomas Hale in the late 1850s on land leased from Henry Osborne south of the study site. A rough bush track was built between the mine and a jetty built at Bellambi Point, with coal being transported by horses. The Taylor and Walker Company opened a mine north of Hales in 1858 but ceased mining after only a year as they hit a fault at 300 feet (Bayley 2002: 7-9). Hales mine closed in 1963 at a loss due to the drops in the price of coal and ongoing difficulties with loading coal at the Bellambi Jetty in open water.

The Taylor and Walker Company opened the Russel Vale Colliery in 1862, which was located above the Russell Vale Estate (Baley 2002: 9) but is not visible in Lloyds 1879 painting. Taylor and Walker were forced to close in 1864 after difficulties were encountered with extraction and a depression in coal prices (GML 2004: 11-12). Francis MacCabe retired as manager of the Osborne-Wallsend Colliery in 1883, with his eldest son Henry Osborne MacCabe taking up this position (MacCade 1992: 78).

Attempts were made by the MacCables to open a Russell Vale mine in 1884 but ultimately floundered. In 1887 the mine was bought by a syndicate associated with Thomas Saywell forming the South Bulli Mining Company. A series of surface works were undertaken which included the construction of the 1887 portal entrance, the erection of a large boiler house and steam engine, sawmill and a new jetty at Bellambi Point. The South Bulli Mining Company was sold to Ebeneza Vickery in 1890 who continued to expand operations. This included the introduction of endless rope haulage in the mine and possibly the introduction of locomotives to haul coal from the pit top to the jetty (Bayley 2002: 10). A small gas explosion occurred in 1891, but no other major incidents occurred (ibid: 18). While transport continued to be improved between the pit top and jetties, horse transport within the mine would continue well into the 20th Century.

Francis MacCabe died in 1897 and the Russell Vale estate was purchased by the mine after his death. Jane MacCabe and the majority of the family then moved to Sydney. Henry MacCabe remained in the Illawarra and was a major figure in local politics and mining until his death in 1902 leading a rescue party during the Bulli Mine Disaster (MacCabe 1992: 78). After the MacCabe's left the Russell Vale house, Fred Hart, remained as an ostler and the house and outbuildings served as a convalescence area for pit ponies (Osborne 1992).

### **2.3.4 Bellambi Coal Company**

The Bellambi Coal Company purchased the South Bulli Colliery in 1901, combining the South Bulli and Bellambi mining operations (Bayley 2002: 10). Operations continued to expand with the introduction of the companies own shipping line which was operating four coastal colliers by 1908, including the custom built S.S. Bellambi (Plate 5 and Plate 6). The jetty was again expanded, new workshops and screens were added and a standard-gauge skip haulage-incline was constructed up to Gibson's Portal which had its own endless rope system (GML 2004: 12, see Plate 7 and Plate 8). Over 1000 men were employed on the mine and transport system and the mine had reached an output of 2,200 tonnes per day in 1909 (Bayley 2002: 10, GML 2004: 12, Plate 9).

The Russel Vale estate was also broken up in two large land sales in 1904, many of which were bought by miners and their families (Russell Vale Local History Group 1994). A power station for the mine was built in 1913 above Gibson's Portal which also supplied the Bulli Township until 1957 (GML 2004: 12). Electrical lighting was installed underground and the mine was operating both day and night (Bayley 2002: 10). The demand for coke increased at the beginning of the 20th Century, and coking ovens were installed along the

coastal mines to meet this demand. One oven was located on the South Bulli tramline below the study site (Bayley 2002: 19). Coastal coke ovens would produce the majority of coke in the region until 1927 when production was directed to the newly built Port Kembla steelworks which had superior coking facilities. The Coal Miners Federation was established in 1908 and began to organise a series of strikes in mines along the coast as part of efforts to improve miners pay and work conditions (Bayley 2002: 20).

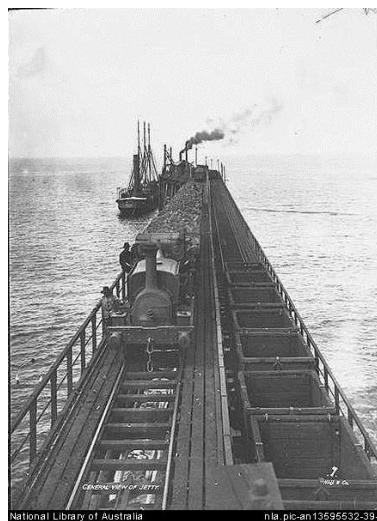
German shipping lines were major buyers of the South Bulli Mine coal and business depressed during World War One with the mine briefly closing between 1916 and 1917 (GML 2004: 13). The mine reopened in 1917 and the first underground transport system for miners in New South Wales was installed (Austen and Bulta 1991: 2). Increased public and political awareness of coal mining conditions saw a number of reform movements emerge during the 1920s to increase mine safety and improved working conditions of miners. A rescue station was established in 1927 beside the Princes Highway near its crossing of the South Bulli coal tramline. The rescue station included equipment for the recovery of miners trapped underground and specialised resuscitation equipment (Bayley 2002: 20).

NSW Member for Parliament W. Davies pushed for the installation of improved washing facilities in the coastal collieries in the early 1920s after being impressed with hot and cold shower facilities he viewed at coal mines in Broken Hill (Bayley 2002: 20). Bathhouses were subsequently installed to much satisfaction of the coal mining workforce, the bathhouse at the South Bulli Colliery being constructed in 1928 next to the upper workshops and 1887 portal. As the coalmine continued to expand considerations were made for adequate ventilation and an application was submitted in 1923 to construct a ventilation shaft in the catchment. Approval was received and the shaft was constructed in 1929 meeting the underground workings at a depth of 323m (GML 2004: 13).

Fred Hart retired in 1924 and from 1924 till 1962 the Russell Vale house was occupied by the Pears family with William Pears taking over as ostler. On Williams death in 1962, the Pears family moved out from the house which was then briefly occupied by another mines employee until the demolition of the house in 1966 (Osborne 1992).



**Plate 5: S.S. Bellambi loading coal at Bellambi Point ca. 1906. National Library nla.pic-an13595532-20 PIC P694/1-47 LOC Album 918**



**Plate 6: General view of Bellambi Point Jetty ca. 1906. National Library nla.pic-an13595532-39 P694/1-47 LOC Album 918**





**Plate 7: New screens, workshops, etc., South Bulli ca. 1906. National Library nla.pic-an13595532-17 PIC P694/1-47 LOC Album 918**



**Plate 8: Gibson's Portal 1915. Wollongong City Library P02/P02407 Broadhurst Photos**



**Plate 9: South Bulli Colliery pit ponies and miners ca. 1906. National Library nla.pic-an13595532-1 PIC P694/1-47 LOC Album 918**

### 2.3.5 Mechanisation

Mechanisation of the South Bulli Colliery began in 1935 with the introduction of an arcwall cutter, with a second cutter being introduced a year later (Austen and Butta 1991: 3, Plate 10). The arcwall cutters were CA12 type cutters mounted on tracks and replaced hand mining on the face (GML 2004: 13). Improvements to the ventilation and underground transport system continued in the early 1940s Two D type scrapper loaders were introduced in 1947 and four Maver and Coulson loading Machines were installed in 1949, greatly increasing productivity (Austen and Butta 1991: 3). The scrapper loaders were replaced in 1954 by a track mounted L600 loading machine, 20U mechanised cutter and two electric battery locomotives of Jeffery manufacture (Austen and Butta 1991: 3).

During the early 1950s Port Kembla Declining increasingly became the port of choice for moving coal and Bellambi Point Jetty and its associated crushing plant was closed between 1952 and 1953 (GML 2004: 14). The skip incline system from the pit top to coast was replaced with a conveyor belt system. A second L600 loading machine was added in 1956 and a Lee-Norse Continuous miner, the first in Australia, in 1959 (GML 2004 14, Plate 11). As the demand for coking coal increased, particularly from Japan, the operations and layout of the colliery were reassessed and a large scale rebuilding program pursued in the early 1960s.

In late 1960 a Joy continuous miner and roof bolting machine with four Jeffery shuttle cars were introduced and followed by an additional continuous miner, roof bolting machine and two shuttle cars in 1962 (Austen and Butta 1991: 3). Surface works were undertaken between late 1960 and 1962 and included the addition of a new coal preparation plant (washery), coal handling facilities, stockpile and recovery facilities below the escarpment. Underground, new storage, transportation and ventilation facilities and systems were put in place. Coal was transported from underground storage bins via a conveyer belt to the surface storage and



handling facilities (GML 2004: 14). In 1962 the first shipment of coking coal was made to Japan under contract.

New office building and lower work sheds were officially opened in 1965 by Sir George Harvie-Watt in 1965 (Australian Coal Association 1965: 22). During the mid to late 1960s longwall mining in Australia was pioneered at the South Bulli Colliery. Specialist equipment was commissioned in 1965 consisting of Gillick chocks, Mecol face conveyor and Anderson Bergs coal shearer (Austen and Butta 1991: 4). A second longwall unit was installed in 1970, but it was not until a new Japanese system from Taiheyo Engineering Incorporated was introduced in 1975 that the process had significant outcomes (Austen and Butta 1991, Plate 12).

As operations continued to expand in the early 1960s, the mine expanded the coal stockpiling areas south of the Washery. The Russell Vale house and its associated buildings were demolished in 1966 (Illawarra Mercury 1966). The Russell Vale house had gained a reputation as being haunted, with oral tradition suggesting that the ghost was Russell MacCabe, a son of Francis MacCabe who died on the property (Illawarra Historical Society). Relics from the house, including the stained glass window showing the MacCabe Coat of Arms were given to the Illawarra Historical Society and are now held in the Illawarra Museum.



**Plate 10: Short-wall Coal Cutter 2011. Biosis.**





**Plate 11: Lee Norse Continuous Miner in the Illawarra ca. Unknown. Illawarra Coal.**



**Plate 12: Japanese Taiheyo Engineering Incorporated Super Dynamic SD System 1975. Wollongong City Library P19/P19253.**

### **2.3.6 Austen and Butta Limited**

Austen and Butta Ltd purchased the Bellambi Coal Company Pty Ltd in 1985 and took over operations at the South Bulli Colliery (Austen and Butta 1991: 5). On the 24<sup>th</sup> July 1991 a gas explosion occurred at the W12 panel, killing three miners (Harvey and Singh 1998: 653-654). Austen and Butta Ltd were purchased by the Shell Company, who took over operations at the South Bulli Colliery (GML 2004: 15).

### 2.3.7 Shell

Shell operated the South Bulli Colliery from 1992 to 2004 although the workforce was reduced dramatically and production was limited (GML 2004: 15).

### 2.3.8 Gujarat NRE

Gujarat NRE purchased the South Bulli Colliery from Shell in 2004. In 2008 Gujarat NRE announced a series of proposals to upgrade the existing facilities and approvals for the NRE No. 1 Colliery Preliminary Works were granted in October 2011.

## 2.4 Summary of Documentary Evidence

The surviving components of the South Bulli Colliery reflect the changes in coal mining and social conditions for workers over nearly a hundred years. As such not all functions, historic themes or activities are represented from all periods. The site reflects the combination of some surviving features from earlier activities, either modified and adapted or obsolete and abandoned, as well as items from later periods which have replaced evidence of earlier forms. There are also items which were new to the site, not being represented in earlier forms. Therefore the following table has been prepared to understand the layering of history in relation to the surviving fabric, and to summarise the relevance of each component in demonstrating one or more aspect of the site's history.

**Table 3: Timeline of European Activities at the Study Site.**

Owners	Period	Development
<b>Harriett (nee Overington) and James Spearing</b>	1827 to 1830s	First land grant and agricultural land use.
<b>Robert and Charles Campbell</b>	1841 to ?	Agricultural land use.
<b>Francis Peter MacCabe</b>	1856 to 1897	Agricultural land use in combination with mining during his period of ownership.
<b>Taylor and Walker Company</b>	1858-1859	First attempt at mining near study site.
	1862-1864	Second mining attempt by Taylor and Walker.
<b>MacCabe</b>	1884-1887	L MacCabe buys mine but proposal to reopen the mine fails.
<b>South Bulli Mining Company</b>	1887	Mine is bought by syndicate associated with Thomas Saywell. New Works include surface works include the construction of the 1887 portal entrance, the erection of a large boiler house and steam engine, sawmill and a new jetty at Bellambi Point
	1890	Ebeneza Vickery buys mine
	1891	Small gas explosion occurs and one miner dies as a result.
	1897	Francis Peter MacCabe dies and the Russell Vale Estate is purchased by the company.

Owners	Period	Development
<b>Bellambi Coal Company</b>	1901	The Bellambi Coal Company purchases the South Bulli Colliery in 1901, combining operations with the Bellambi Colliery. The Bellambi Point jetty is expanded and a standard-gauge skip haulage-incline is constructed up to Gibson's Portal which has a endless rope haulage system installed.
	1904	Russell Vale Estate is broken up in two large land sales.
	1908	The Bellambi Coal Company shipping line is operating 4 coastal colliers. Coal Miners Federation is formed.
	1909	Mine output reaches 2,200 tonnes a day. First major coal miners strike in the Illawarra.
	1913	Power station built above Gibson's Portal. Lighting underground is electric and the mine is operating day and night.
	1916-1917	Mine closure as German business is lost during World War One.
	1917	Mine is reopened and first underground miner transport system in NSW is installed.
	1923	First application for catchment ventilation shaft.
	1927	Rescue station installed on the junction of Princes Highway and the South Bulli Coal Tramline
	1928	Bathhouse installed.
	1929	First catchment ventilation shaft installed.
	1935	Introduction of arcwall cutter.
	1936	Introduction of second arc-wall cutter.
	1940	Aeroto Fan installed at No. 1 Shaft.
	1943	Underground Transport System extended
	1947	Installation of two scraper loaders
	1949	Installation of four Maver and Coulson loading machines
	1952-1953	Bellambi Point Jetty gradually shut down, including crushing plant.
	1954	Scraper loaders replaced with a track mounted L600 loading machine.
	1955	Skip incline system replaced with conveyer belt system.
	1956	Introduction of second L600 loading machine.
	1959	Introduction of Lee-Norse continuous miner.



Owners	Period	Development
<b>Bellambi Coal Company</b>	1960-1962	Major upgrades including installation of the Main Haulage System, introduction of another Lee-Norse continuous miner, Joy roof bolting machine and two Jeffrey shuttle-cars. Other underground upgrades included the installation of storage bins new transport systems and a conveyer system linking the storage pins to the surface coal handling facilities. Surface upgrades included a new coal preparation plant (washery), new coal handling and stockpile areas and, upgrades to the ventilation systems.
	1962	Export contract signed with Japan to supply 410,000 tonnes of coking coal over two years.
	1965	Installation of longwall mining equipment, pioneering longwall mining in Australia. New surface workshop and office building officially opened.
	1966	Russell Vale House demolished.
	1970	Second longwall mining unit installed.
	1975	Japanese Taiheyo Engineering Incorporated Super Dynamic SD System longwall mining unit installed.
	1976	Additional ventilation shaft sunk outside of the study site.
<b>Austen and Butta Ltd</b>	1985	Austen and Butta Ltd purchase the Bellambi Coal Company.
	1991	Gas explosion kills three workers.
<b>Shell</b>	1992	Shell purchases Austen and Butta Ltd.
<b>Gujarat NRE</b>	2004	Gujarat NRE purchases the South Bulli Colliery and renames it NRE No. 1
	2008	Gujarat NRE announces a series of upgrades to NRE No. 1.
	2011	NRE No. 1 Colliery Preliminary Works conditional Project Approval granted in October 2011

## 3 Physical Evidence

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### 3.1 Description of the Colliery

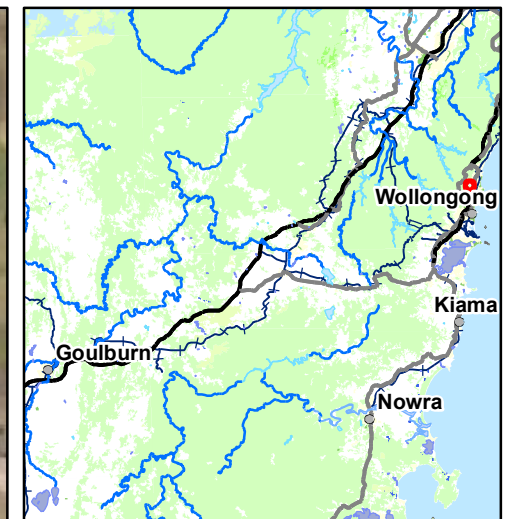
The site of the South Bulli Colliery comprises buildings, structures and landscape features relating to mining operations from the mid nineteenth to late twentieth centuries. These can be said to be comprised of a series of historical 'layers' representing the cumulative changes of many stages of construction, demolition and reconstruction.

The physical elements of the site are described in the GML 2004 CMP and briefly reviewed in the ERM 2011 HHA. GML grouped the elements into seven Precincts and three features or aspects of the site as follows:

- The Power House Precinct;
- The Administration Precinct;
- The Old Portal Precinct;
- The Main Portal Precinct;
- The Extraction Portal Precinct;
- Gibson's Portal Precinct;
- The Washery Precinct;
- Rail Tracks, Signal Box and Associated Elements;
- Moveable Heritage; and,
- Landscapes and Vistas.

The locations of the mine areas are shown in Figure 2 and the detailed layout of the features is shown in Figure 4. A description of the precincts and their associated site elements is provided following. These descriptions have been updated based on the results of the 2011 site visits by Biosis particularly in regards to changes in condition or removal of specific elements.





#### Legend

Study Area

**Figure 4: Site Elements Detail**

0 25 50 75 100 125  
Metres

Scale: 1:2,500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Ballarat, Brisbane, Canberra, Melbourne,  
Sydney, Wangaratta & Wollongong

Matter: 15606  
Date: 01 February 2013,  
Checked by: ASF, Drawn by: jshepherd  
Location: P:\15600s\15606\Mapping\15606\_F4\_Detail



### 3.1.1 Power House Precinct

#### Elements

The following elements in the Power House Precinct were identified in the GML 2004 report:

- Ventilation fan unit and flue;
- Square concrete vents;
- Small and large iron pipes;
- Terraced landform;
- Brick structure to the northeast of the fan unit with associated pipes; and,
- Two water tanks.

#### Description

The Power House Precinct is located on a terrace situated above the Administration Precinct (**Error! Reference source not found.**). While the power house has been removed, GML identified a former ventilation fan and associated housing connecting to a brick flue covering the shaft to the underground workings (GML 2004: 32). A 2 m to 3 m high brick retaining wall was noted as running the length of the terrace as well as the remains of various concrete and metal footings, flues and brick building material remains. Two circular brick water reservoirs were noted as south as the access road (GML 2004: 41).

#### Condition

While GML identified a number of structural and archaeological features (GML 2004: 32-33), ERM noted little change apart from the installation of channels for stormwater management in 2009 (ERM 2011a: 20). Elements were further obscured by vegetation regrowth in the late 2011 inspection. Reference by GML or ERM was not made to the brick-lined tunnel (for water supply) which extends easterly towards mine portals. The power house components of the site appears likely to be related to an upper bench area shown in early photographs (upper sections of **Error! Reference source not found.**).

**Plate 13: South Bulli Mine ca. 1900 (photo from NRE No 1)**

### 3.1.2 Administration Precinct

#### Elements

The following elements in the Administration Precinct were identified by GML:

- Administration building;
- Pathways and landscape elements; and,
- Car parks.

#### Description

The administration building is a two story brick building providing office space and scientific facilities to the colliery and was officially opened in 1965 (Australian Coal Association 1965: 22). The lower car park has been terraced using coal wash, while the upper car park is part of the administration building bench. Concrete pathways direct foot traffic across the site and some landscaping has been undertaken for the front lawns.

#### Condition

The administration building was not in use during the GML 2004 assessment but since ownership has changed to Gujarat NRE it has subsequently been reopened. The building is currently used as the administrative centre for the mine and the condition of the precinct remains largely unchanged from the GML 2004 assessment.

### 3.1.3 Old Portal Precinct

#### Elements

GML identified the following elements in the Old Portal Precinct:

- Lower Bench Workshops, including:
  - Diesel shelter;
  - Main workshop;
  - Sheltered workshop and hay shed;
  - Storage area and sand bins; and,
  - Belt repairs shed.
- Upper Bench Workshops including:
  - Carpenters and locomotive workshops;
  - Workshop offices;
  - Diesel workshop and diesel fuel tanks; and,
  - Remnants of demolished buildings.
- 1887 Portal including:
  - Pair of brick lined adits; and,
  - Brick retaining wall.

## Lower Bench Workshops

### Description

The lower bench workshops are located south of the administration building and are generally of 1960s and later construction. The main workshop and diesel shelter run north to south and are large steel framed rectangular sheds with gable roofs (**Error! Reference source not found.**). The sheltered workshop and hay shed are located further southeast of the main workshop and consist of steel framed corrugated iron/ profile steel sheeted sheds (GML 2004: 44). The belt repairs shed, a corrugated tin shed, is located south of the Main Workshop. The lower bench workshops provide the major industrial scale buildings on the site and are of relevance as evidence of on-going mining, and by providing a visual context for the more significant elements in other areas of the study site.



**Plate 14: Main Workshop (left) and Diesel Shelter (right) looking south. 2011 Biosis**

### Condition

The lower bench workshops are actively in use and are in good condition.

## Upper Bench Workshops

### Description

The upper bench workshops consists of the carpenter and locomotive workshops, with the workshop offices contained to the rear of these workshops on an elevated bench reflecting the joint functions of the building (**Error! Reference source not found.**). The workshops consist of steel-framed corrugated iron clad sheds with three gable roofs. The sheds are all interconnected with no interior partitioning (**Error! Reference source not found.**). The workshops appear to have been adapted to several functions, and retain track work related to both the underground workings, and probably from use of the buildings as rail vehicle maintenance facilities.



The workshop offices are brick and timber structures with sash windows and a veranda/walkway. The workshops also contain the adits associated with the 1887 Portal and brick retaining wall. Directly south of the works are the remnants of demolished buildings and further to the south are located the diesel workshop and diesel fuel tanks (GML 2004: 44). A concrete stairway leads to the remnants of demolished buildings, primarily consisting of footings, however the area is heavily overgrown. The diesel workshop and diesel fuel tanks are corrugated iron sheds located on separate terraces. While GML's assessment is that the workshops 'have no identifiable heritage significance', their structural form, location and evident age strongly suggest a relatively early date. The riveted metal trusses and combination of timber and steel framework would put the building to 1920s to 40s, and therefore probably the oldest major buildings on the site. As such they demonstrate the critical mid 20<sup>th</sup> century period when the mine was at its peak and having the greatest social and economic impact.



**Plate 15: Upper Bench Workshops 2011 Biosis**



**Plate 16: Upper Bench Workshops interior 2011 Biosis**

## Condition

The upper bench workshops are no longer operational and the workshops are used primarily for storage. Vegetation has been pruned back since the 2004 GML assessment, however large areas remain overgrown. As recorded by GML the roof of the workshop offices has collapsed and timber structures have degraded. Brick, steel and concrete structures remain in fair condition. The upper bench workshops remain in fair to poor condition as assessed by GML in 2004.

## 1887 Portal

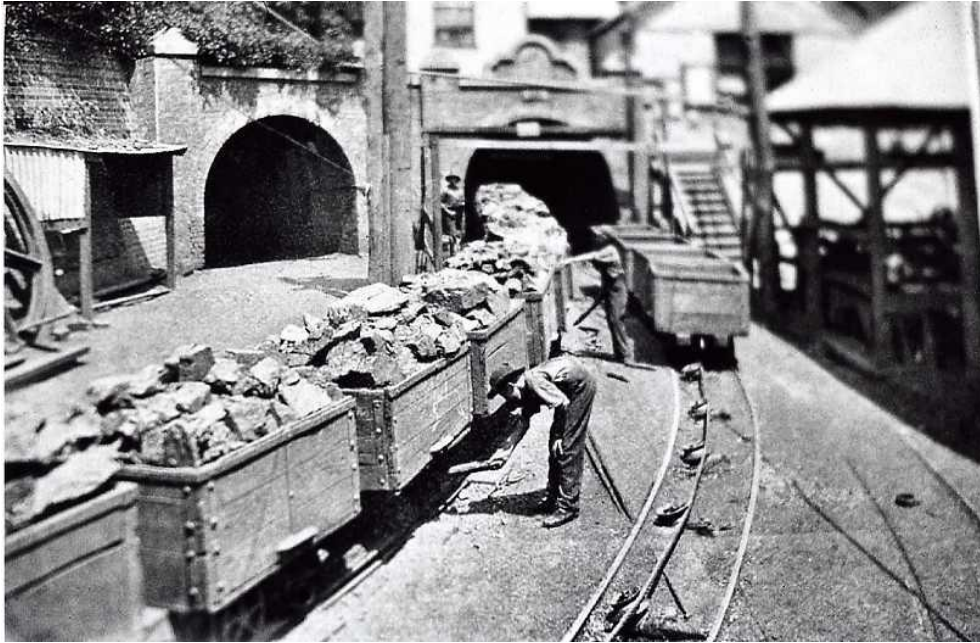
### Description

Now located inside the Carpenters and Locomotive workshops, the 1887 Portal is one of a pair of semi-circular arched brick lined adit entrances (**Error! Reference source not found.**). The second portal to the outh (left) of the 1887 Portal is shown in the earliest photographs (Plate 18), but was much shorter in length than the 1887 Portal. Now bricked over, this portal is referred to as the “Old Man’s Hole” as it was used by older miners to mine coal to sell on the local market. Before pensions were introduced, this allowed older miners to support themselves once they were no longer able to work on the main face (personal communication Don Jeffcott, former Gujarat NRE Employee). A brick retaining wall curves east and then south from the 1887 Portal and “Old Man’s Hole”, which is also visible in early photographs of the 1887 Portal (Plate 18 and Plate 19). There is an additional adit located behind the workshops and north of the office buildings, it has been bricked off with concrete blocks. To control water drainage issues with the 1887 Portal, three concrete block walls and drainage channels have been installed (**Error! Reference source not found.**).



**Plate 17: 1887 Portal 2011 Biosis**





**Plate 18: 1887 Portal, with second portal to left and workshops behind.ca. 1904.**  
Wollongong City Library BRN: 339706



**Plate 19: Brick retaining wall, 1887 Portal 2011 Biosis**

### Condition

The 2004 GML assessment recorded the 1887 Portal and other adits as in intact and fair condition although some dilapidation was noted (GML 2004: 49). The retaining wall was recorded as being in poor condition with cracking and bulging of the brickwork (GML 2004: 50). The current assessment did not observe any further deterioration of the precinct.



### 3.1.4 The Main Portal Precinct

#### Elements

GML identified the following elements in the Main Portal Precinct:

- The Main Portal;
- New Bathhouse; and,
- Crib and First Aid Rooms and Storeroom.

#### Description

The Main Portal Precinct consists of the Main Portal, new bathhouse, crib, first aid rooms and storeroom, which are clustered on the lower bench (Plate 20). The Main Portal appears to date from the mid 20<sup>th</sup> century and with the adjacent new bathhouse, crib room, etc. helps interpret the dramatic expansion of mining on the site in the second part of the 20<sup>th</sup> century. The location of the building directly over the portal entrance is highly unusual, and reflects the particular difficulties of utilising all available space for construction on the steep Illawarra escarpment site, which is a special characteristic of the Wollongong region mines. The style of the crib room/lamp room is also indicative of mid 20<sup>th</sup> century construction, and so like the upper bench workshops, the buildings demonstrate a critical period in the mine's history.



**Plate 20: Left to right – main portal, new bathroom above, crib room, first aid station (former Lamp room) store room. 2011 Biosis.**

#### Condition

Some maintenance work has been carried out to buildings within the Main Portal Precinct since the 2004 GML assessment, including repainting, the installation of bollards, new signage and the addition of demountable buildings. The Main Portal Precinct is in active use and is in fair condition.

### 3.1.5 Extraction Portal Precinct

#### Elements

GML identified the following elements in the Extraction Portal Precinct:

- The Extraction Portal;
- Main Downhill Conveyor(decline conveyor); and,

- Closed Adits.

### Description

The group of structures within the Extraction Portal Precinct relate to the 1960s mechanised mining operations and include the Extraction Portal, decline conveyor and closed adits. The Extraction Portal is a steel and corrugated iron structure located approximately 1 km south of the Main Portal. The decline conveyor runs from the Extraction Portal to the coal storage bins in the Washery Precinct (Plate 21). The 2004 GML assessment identified two closed adits within the Precinct, but an unknown number of “lost” adits are also present.



**Plate 21: Looking up along the decline conveyor from Coal Storage Bin 1. 2011 Biosis.**

### Condition

The Extraction Portal Precinct is currently in use and although some operational maintenance has been undertaken the fabric recorded by GML in 2004 remains largely intact and is in fair condition.

## 3.1.6 Gibson’s Portal Precinct

### Elements

The following elements were located in the Gibson’s Portal Precinct during the 2004 GML assessment:

- Gibson’s Portal(s);
- Sandstone Retaining wall;
- Fan House (now removed);
- Gibson’s Sublease Portal and associated area;
- Electrical substation; and,
- Electrical switchroom.



## Description

This group of structures are primarily of value for the remaining twin portals (Gibson's Portal is either one or both portal) which like the 1887 portal has only been identified in previous studies in the singular. Since the 2004 GML assessment the fan house has been demolished and one adit opened with new grating installed over the entrance. Vegetation in the Precinct has also been cleared to allow operations to take place (**Error! eference source not found.**). The portals and sandstone retaining wall remain largely intact to their original condition although their height of the portal entrances have been reduced due to either the build up or placement of fill at their base (compare **Error! Reference source not found.** with **Error! Reference source not found.** from 1915).

The concrete block fan house (now removed) and the substation/switchyard is of minimal significance. A small electrical switchroom probably from mid 20th century contributes to the more consistent built character of the upper bench (Plate 23).

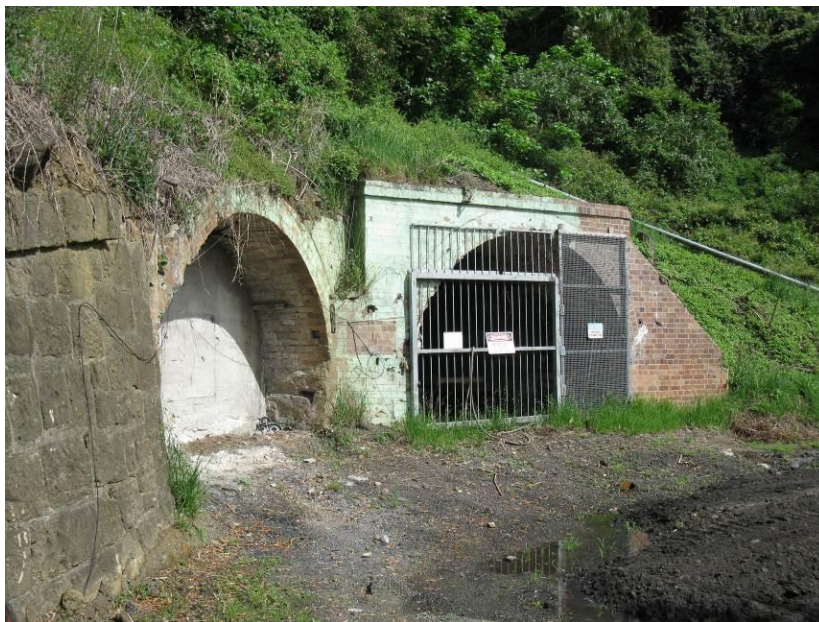


Plate 22: Gibson's Portal 2011 Biosis.





**Plate 23: Electric switch room with switchyard to left rear. 2011 Biosis.****Condition**

While some elements from the Gibson's Portal Precinct have been removed, these were intrusive and the significant elements remain in good condition.

**3.1.7 Washery Precinct****Elements**

The following elements were located in the Washery Precinct during the 2004 GML assessment:

- The Preparation Plant;
- Conveyor system (now upgraded);
- Storage silos (now replaced);
- Truck loader; and,
- Former mines office (lower area) demolished.

**Description**

The Old Washery was constructed in the 1960s and included a large steel framed corrugated iron clad Preparation Plant, conveyer system (part of the decline conveyer), concrete coal storage bins and a truck loader. The remnant structures from the 1960s (Plate 24 and Plate 25) are among the only elements which convey the major processing activities on the site during that period. Most of the 1960s have been demolished and the remainder of any standing fabric will be demolished in due course under existing planning approvals and permits as part of upgrades to existing operations. It is understood that archival recording and analysis of these structures have been undertaken by Paul Reinberger as a permit condition.

An inspection of the Washery area was undertaken by Biosis in August 2012 to confirm the presence or absence of any remains of the Russell Vale House. Using 1955 aerials to locate the position of the house site, the area was inspected for the remains of footings, foundations or potential archaeological deposits. However the area in which the Russell Vale House had been located had been stripped back to subsoils. No foundations or footings could be identified and there is a low potential for archaeological to remain.



**Plate 24: Remnants of coal gantries, 2011 Biosis.****Plate 25: Remnants of the Washery and coal gantries, 2011 Biosis.**

### Condition

While the Washery Precinct elements that remain are in fair condition, they are scheduled to be removed.

## 3.1.8 Coal Stockpiles and Reject Material

### Elements

The following elements form the Coal Stockpiles and Reject Material:

- Coal stockpiles;
- Reject materials emplacement;
- Settling dams; and,
- Other dams.

### Description

Landfill areas, comprising of reject material, are located north and east of the Administration Precinct and are in active use. Coal stockpiles are located around the coal storage bins located in the Washery Precinct and to storage areas directly south of this location (Plate 26). Settling and other dams are located across the site.

### Condition

Stockpile and landfill areas generally consist of active landscaping works and do not have readily identifiable fabric elements. Dams also consist mainly of landscaping works, although some brick, concrete and metal pipe fabric does exist. Dams within the site are still in use and in fair condition.



**Plate 26: Coal stockpile area south of the coal storage bins. 2011 Biosis.**

### **3.1.9 Rail Tracks, Signal Box and associated elements**

#### **Elements**

The following elements form the site rail system:

- Rail tracks and system; and,
- Signal box.

#### **Description**

The signal box has been restored since the 2004 GML assessment, when it would be recorded as being subject to vandalism. The roof and upper parts of the walls and the external stairs have been reconstructed, and some internal fittings also remade (Plate 27). The gate wheel and points levers (and presumably at least some of the linkages) are intact, as is the brick lower storey. While some rail track does remain, the majority has been removed by 2004 (by GML 2004).

#### **Condition**

Most rail track has been removed and the visible remains are in poor condition. The signal box remains intact and is in good condition.





**Plate 27: Restored signal box, 2011 Biosis.**

### 3.1.10 Moveable Heritage Items

#### Elements

Two moveable heritage elements are located in a grassed area near the restored signal box and include:

- Coal wagon; and,
- Coal cutter.

#### Description

GML recorded that historical mining equipment was put in an open air display in conjunction with the restoration of the signal box in 1988. The display included a steel framed timber-sided hopper wagon (a coal wagon type commonly used in the 20<sup>th</sup> Century) and a short wall coal cutter (**Error! Reference source not found.** and Plate 28).

#### Condition

These items of portable heritage are placed near the mine entrance for display purposes. While the coal cutter looks reasonably intact it is subject to severe corrosion. The coal wagon has deteriorated substantially since first photographed and is at risk of losing all its timber and is suffering metal corrosion. It would appear that the wagon was originally one of three retained and/or displayed to reflect the evolution of coal wagons at the mine.



**Plate 28: Coal wagon. 2011 Biosis.**

### 3.1.11 Landscapes and vistas

The 2004 GML assessment discussed two significant vistas associated with the study site:

- Remnant Incline Haulage Alignments; and,
- Original Haulage Line Vistas.

#### Description

The original Incline Haulage Alignment ran from Gibson's Portal to the bottom of the escarpment and this route has been incorporated as part of the current main access road. GML assessed this view as being important in the interpretation of rail tracks and coal distribution; however the majority of infrastructure associated with the rail tracks has subsequently been removed. Views east from the Main Portal and Old Portal benches incorporate vistas of the Colliery operations set across artificial terraces as well as the Russell Vale and Bellambi suburbs and coastline.

#### Condition

While operational upgrades have altered the vistas of the Incline Haulage Alignment and from the benches, these views can still be appreciated and provide important context to understanding the relationship between site elements and past and present transport routes associated with coal movement.

## 3.2 Related Historical Items

There are two historical items recorded in relation to the South Bulli Colliery phase of the study site, the South Bulli Colliery – Bellambi Creek Dam (Illawarra REP No.1: Database number 19165) and the South Bulli – Concrete Base (Illawarra REP No.1: Database number 19166). The Bellambi Creek Dam was constructed by the mine for a reliable water supply, probably in the early 20<sup>th</sup> Century, and reconstructed c1930. The Bellambi Creek Dam is located outside of the study site. The South Bulli – Concrete Base cannot be relocated and has probably been removed or buried in the last 10-20 years.

## 4 Cultural Significance

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### 4.1 Basis of Assessment

An assessment of significance encompasses a range of heritage criteria and values. The heritage values of a site or place are broadly defined in the Burra Charter as the 'aesthetic, historic, scientific or social values for past, present or future generations' (Marquis-Kyle & Walker 1992, Australia ICOMOS 1999). This means a place can have different levels of heritage value and significance to different groups of people.

Cultural heritage is managed as a two-tiered system in NSW: items on the State Heritage Register and relics are managed through the *Heritage Act 1977*. All other items of identified heritage significance are managed through the *Environmental Protection and Assessment Act 1979* (EP&A Act) through local planning instruments. The Heritage Branch (in lieu of the Heritage Council) of the Office of Environment and Heritage administers the *Heritage Act*; local councils approve changes in accordance with their respective planning instruments.

Heritage assessment criteria in NSW are based on the significance values outlined in the Australia ICOMOS (International Council on Monuments and Sites) *Burra Charter*<sup>1</sup> and built upon by the NSW Heritage Council criteria A - E, which add the values of "rare" and "representative" to the discussion as criteria F and G. This approach to heritage has been adopted by cultural heritage managers and government agencies as the set of guidelines for best practice heritage management in Australia. The criteria and guidelines are presented in (Section 4.1.2).

This assessment is intended to enable decisions on the future management of the place to be based on an understanding of its significance. It is important that the future decisions do not jeopardise the cultural significance of the place.

A Statement of Significance has been developed for the site as a whole, and for the individual buildings assessed as being significant, which contribute to the group.

#### 4.1.1 Conservation Principles

##### **The Burra Charter**

Article 26.1 of the Burra Charter states that:

"Work on a place should be preceded by studies to understand of the place which should include analysis of physical, documentary and other evidence, drawing on appropriate knowledge, skills and disciplines."

Once the place has been studied, the cultural significance can be assessed.

Article 1.2 of the Burra Charter defines cultural significance as the "aesthetic, historic, scientific social or spiritual value for past, present or future generations."

#### 4.1.2 Methodology for Assessing Significance

The evaluation criteria for the assessment of cultural significance were developed by the NSW Heritage Council in association with amendments to the *Heritage Act 1977*. The State Heritage Register (SHR) criteria

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<sup>1</sup> *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (1999)*, Australia ICOMOS Incorporated 2000.



were gazetted following amendments to the Heritage Act and have been in force since April 1999. Assessments in this Conservation Management Plan were made using these criteria.

Criteria are outlined in the publication Assessing Heritage Significance – Heritage Office 2000. Under each criterion a place is assessed to be of STATE or LOCAL or NO heritage significance.

HISTORIC	<p>Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).</p> <p>Criterion (b): An item has strong or special association with the life or works of a person or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).</p>
AESTHETIC	Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
SOCIAL	Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area).for social, cultural or spiritual reasons.
SCIENTIFIC	Criterion (e): An item has the potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
RARE	Criterion (f): An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history (or the cultural or natural history of the local area).
REPRESENTATIVE	Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments. (or a class of the local area's cultural or natural places, or cultural or natural environments.)

#### 4.1.3 Grading of Significance

A five-tier system has been adopted to clarify the significance of elements within the site and is based upon the grading listed in "Assessing Heritage Significance" (NSW Heritage Office 2001, Table 4). In this context, an element is a specific heritage item that contributes to the overall heritage significance of the site. The recommended treatment for each level of significance is explained in the General Conservation Policies (**Error! Reference source not found.**). The term interpretation or interpretability is used in the sense of the ability to explain the meaning of the place/item, so as the significance of the place understood.

**Table 4: Grading of Significance**

NSW HO Grading	Justification	Status
<b>EXCEPTIONAL</b>	Rare or outstanding element directly contributing to an item's local or State listing.	Fulfil criteria for local and State significance.
<b>HIGH</b>	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfil criteria for local or State listing.
<b>MODERATE</b>	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfil criteria for local or State listing.
<b>LITTLE</b>	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.

NSW HO Grading	Justification	Status
INTRUSIVE	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

**Table 5: Implications of Assessment**

Grading	Numerical Scale	Implication
EXCEPTIONAL	5	Elements to be conserved in terms of the <i>Burra Charter</i> .
HIGH	4	Elements to be conserved in terms of the <i>Burra Charter</i> , but conservation is to be balanced by an assessment of the practical consequences for the continued conservation and use of the item.
MODERATE	3	Acceptable options include retention, recycling and replacement by new construction in a way that has minimal adverse effect on, and enhances the significance of <i>Exceptional</i> and <i>High</i> elements.
LITTLE	2	Acceptable options include removal, modification replacement by new construction in order that the significance of related <i>Exceptional</i> , <i>High</i> or <i>Moderate</i> elements are enhanced.
INTRUSIVE	1	The preferred option is for the removal of the element or its modification in such a way so that its adverse impact is eliminated

## 4.2 Significance Assessment

### 4.2.1 Results of Significance Assessment of Site Elements/Precincts

Significance grading for each element or Precinct is presented in **Error! Reference source not found.** and an overall statement of significance is provided in Section 4.2.4. The significance assessment has used the GML 2004 significance assessment as a baseline with some modifications to represent changes to the study site since 2004.

**Table 6: Schedule of Element Significance for the Site**

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Power House Precinct</b>				
<b>Remnant Power House Features</b>	a) Historic	<i>As the Power House and the elements that made up the Power House Precinct are not intact, however their form and function cannot be demonstrated or interpreted through its existing elements, spatial configuration or material remains. In its current state, the Power House Precinct only makes a minor contribution to the history and significance of the site. (GML 2004: 87).</i>	Moderate	Moderate
<b>Administration Precinct</b>				
<b>Administration Building</b>	None	<i>In the light of its limited function and relatively recent history, the building cannot be considered to be important to the site's history. It has a low heritage value, as it contributes in a minor way to the significance of the site as a whole. (GML 2004: 88).</i>	Little	None
<b>Pathways and Landscape Elements</b>	None	<i>The Pathways and Landscape Elements in the vicinity of the Administration Building represent distinctly non-mining elements that indicate initiatives to lessen the industrial appearance of this particular area of the South Bulli Colliery. The Pathways and Landscape Elements do not possess or embody heritage significance in their own right. (GML 2004: 88).</i>	Little	None
<b>Car park</b>	None	<i>The Car park located to the immediate east of the Administration Building is an open-spaced vehicular parking area that has no heritage value. (GML 2003: 88)</i>	Intrusive	Intrusive



Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
Old Portal Precinct				
<b>Lower Bench Workshops</b>	None	<i>The workshops located on the Lower Bench contribute to some understanding of the site's recent operational context but, as grouped or individual elements, have low to no identifiable heritage significance. (GML 2004: 88)</i>	Little	None
<b>Upper bench Workshops</b>	Historic	<i>Individually, the sheds have low heritage value but they are illustrative of the continual expansion and development of the colliery as a whole. (GML 2004: 89)</i>	Moderate	Moderate
<b>Workshop Offices</b>	Historic	<i>These offices are relics of daily administration activities that occurred in association with the workshops (Upper Bench), Their historic value relates to their contextual relationship to the workshop and evidence of on-going operations and development at the Colliery. (GML 2004: 89).</i>	Moderate	Moderate
<b>Brick Retaining Wall</b>	Historic	<i>The curved Brick retaining Wall adjacent to the 1887 Portals is important for its association with the adits and stabilisation of the surrounding earth to prevent land-slippage onto the rails tracks and workshop area. The retaining wall has also been used to support roofing attachments for the Carpenters Shops. While the wall may have no strong significance in its own right, it forms, with the rail track and the Portals, an easily recognisable and interpreted ensemble that clearly illustrates the physical process necessary to gain access to the coal deposits and to transport the output to market. (GML 2004: 90)</i>	High	High

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>1887 Portal</b>	a) Historic c) Aesthetic e) Scientific f) Rarity	<p>The 1887 [Portal and associated] Adits are extant and identifiable key elements of the early mine workings. They are part of the earliest mining episodes on the site and, in association with the rail track immediately to their east, clearly illustrate the relationship between the underground workings and the early rail system that transported coal to the jetty. They are an integral part of the site's history. Their formal design is aesthetically imposing and evidences a level of long-term investment and pride in the establishment of mining activities. The Adits demonstrate the construction of the entrances to underground workings.</p> <p>They are in good external condition, although they may require some stabilisation, and are rare examples of the industrial culture of the nineteenth century which frequently expressed the virtues of investment and stability with decorative industrial elements. (GML 2004: 89-90)</p>	Exceptional	Exceptional
<b>Main Portal Precinct</b>				
<b>The Main Portal</b>	None	<p><i>The Main Portal is a relic of the expansion of mining during the 1960s and provides a functioning example of a mine entrance. It is representative example of specific phase of mining operation and demonstrates the regular renewal of mining operations characteristic of the Illawarra coal industry. It is of only minor contributory significance. (GML 2004: 90).</i></p>	Little	Little
<b>The New Bathhouse</b>	None	<p><i>The bathroom over the Main Portal replaced an earlier bathroom facility that was located nearby. It contributes to the significance of the site as a whole as a representative example of improved worker amenities but, as it is not the original facility at South Bulli, it has minor historical importance. It is representative of a typical and necessary amenity facility found at all mining sites after the early twentieth century. (GML 2004: 91)</i></p>	Little	Little

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Crib Room and First Aid Station</b>	a) Historic c) Aesthetic	<p><i>The Crib Room and First Aid Station (formerly the Lamp Room, for replenishment, service and storage of portable lamps used by miners underground) is a relic of early mining operations at South Bulli. Whilst the associated equipment has been removed and no lamps are located within the building, it nevertheless represents an evocative relic of mining practices. The Crib Room and First Aid Station is one of the few surviving buildings at the Colliery that date to the early phases of mining operation and it has value in providing visual evidence of the long periods of operations at the site.</i></p> <p><i>The heritage significance of the building is in its association with replaced lighting technology, its location immediately adjacent to the Main Portal, with which it forms an interpretable ensemble, and its ability for its form to reflect the era in which it was constructed. (GML 2004: 91)</i></p>	High	High
<b>Storeroom</b>	a) Historic c) Aesthetic	<p><i>The heritage significance of the building is in its close physical association with the Crib Room and First Aid Station, its location immediately adjacent to the Main Portal, with which it forms an interpretable ensemble, and its ability for its form to reflect the era in which it was constructed. (GML 2004: 91).</i></p>	High	High
<b>The Extraction Portal Precinct</b>				
<b>The Extraction Portal</b>	None	<p><i>The Extraction Portal is representative of the phase of mining commenced during the 1960s and provides a functioning example of a mine entrance. The Extraction Portal has some heritage significance as a representative example of a specific phase of mining operation and as an indicator of how Adit locations and configuration changed over time. (GML 2004: 92)</i></p>	Little	Little



Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Main Downhill Conveyor</b>	None	<i>The Main Downhill Conveyor, including the screening plant, is associated with the Extraction Portal but is only significant as a representative example of specific phase of mining operations and as a representative collection of propriety mining equipment. (GML 2004: 92).</i>	Little	Little
<b>Closed Adits</b>	a) Historic	<i>The remnant landforms indicating the location of closed adits are evidence of the intensity and extent of mining activity in this vicinity. The existing signage associated with these adits is important to the interpretation of the history of its use and are historical relics which authenticate and reference documentary records. They are significant for their existing and potential contribution to knowledge concerning the site as a whole. (GML 2004: 92)</i>	Moderate	Moderate
<b>Gibson's Portal Precinct</b>				
<b>Gibson's Portal</b>	a) Historic e) Scientific	<i>Gibson's Portal is a relic of early-twentieth century mining operations and illustrates in the early development of independent pits which eventually amalgamated both underground and in their pit-top processing works. The close association of Gibson's Portal with the Main and 1887 Portals at South Bulli illustrates the growth and change inherent in long-term mining and its history of use demonstrates the expansion of underground ventilation requirements as both safety standards were raised and the extent of underground working increased. (GML 2004: 93).</i>	High	High
<b>Sandstone Retaining Wall</b>	None	<i>While the wall may have no strong significance in its own right, it forms, with the portal, an easily recognisable ensemble that illustrates the physical processes necessary to gain access to the coal deposits and to transport the output to market. (GML 2004: 93)</i>	Moderate	Moderate

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Fan House</b>	None	<i>The Fan House is a relic of one of the recent phases of operations at South Bulli Colliery. It demonstrates, in proximity to other pit-top relics, the requirement for mechanical ventilation of the underground workings but is a distinctly mundane building, whose form bears little relation to its use, leaving it difficult to interpret in the absence of the ventilation equipment. Its location in front of the Portal is intrusive and it has been an empty shell for longer than it has actually housed any fan equipment. (GML 2004: 93)</i> The fan was removed in 2011. Prior to removal, archival recording of this element was undertaken by Biosis	Little	None
<b>Gibson's Sublease Portal and Associated Area</b>	None	<i>This Portal represents the most recent phase of mining at the South Bulli mine and is a current extraction portal for a sub-lessee. It demonstrates the on-going nature of mining underground and illustrates an aspect of the administration of mining leases. Insofar as it is less than five years old, it has minimal heritage significance. (GML 2004: 93).</i>	Little	Little
<b>Electrical Sub-Station</b>	None	<i>The Electrical Substation is located north of the Administration Block and contains the transformers and switchgear to distribute electrical power to the South Bulli Mine. This complex of equipment relates to the post 1960's phase in power supply at the mine. It is largely comprised of standard electrical components by common manufacturers and has low heritage significance. (GML 2004: 94).</i>	Little	None
<b>Electrical Switchroom</b>	None	<i>The Electrical Switchroom is located adjacent to the northwestern corner of the Administration Building near the Electrical Substation. The Electrical Switchroom relates to the post-1960s phase in power supply to the mine and is technically inseparable from the Substation. It is largely comprised of standard electrical components by common manufacturers and has low heritage significance. (GML 2004: 94).</i>	Little	None

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>The Washery Precinct</b>				
<b>The Preparation Plant</b>	None	<p><i>A Heritage Impact Statement was prepared by Godden Mackay Logan for the demolition of the Preparation Plant in 2004. It concluded that the Preparation Plant was significant for its representation of a late-twentieth century coal production process but that its demolition was required for safety reasons. (GML 2004: 94).</i></p> <p>The majority of the Preparation Plant has been removed with the remainder also scheduled for removal. Archival recording of the element has been undertaken by Paul Reinberger.</p>	Moderate	None
<b>Conveyor Systems</b>	None	<p><i>The Conveyor Systems are associated with the late-twentieth century phase of mining operations at South Bulli Mine. They are comprised of standard components by common manufacturers and are representative of common proprietary mining and industrial equipment. The Conveyor system is only of minor contributory significance. (GML 2004: 94).</i></p> <p>The majority of the Conveyor System has been removed. Archival recording of the Conveyor System associated with the Storage Silos was being undertaken by Biosis in 2011</p>	Little	None
<b>Storage Silos</b>	None	<p><i>The Storage Silos are a relic of the process of coal transportation in the late-twentieth century phase of mining operations at South Bulli Mine. They are of unremarkable reinforced concrete construction and their fittings are comprised of standard components by common manufacturers. They are representative of common proprietary mining and industrial equipment. The Storage Silos are only of minor contributory significance. (GML 2004: 95).</i></p> <p>The Storage Silos were removed in 2011 and archival recording was undertaken by Biosis.</p>	Little	None



Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Truck Loader</b>	None	<i>The Truck Loader is associated with the Preparation Plant complex and is a relic of the process of coal transportation in the late-twentieth century phase of mining operations at South Bulli Mine. They are of unremarkable reinforced concrete construction and their fittings are comprised of standard components by common manufacturers. They are representative of common proprietary mining and industrial equipment. The Truck Loader is only of minor contributory significance. (GML 2004: 95).</i>	Little	Little
<b>Coal Stockpiles and Reject Material</b>				
<b>Coal Stockpiles</b>	None	<i>They demonstrate the process of coal delivery through the processing plant at South Bulli but are otherwise conceptual spaces of land upon which emplacements are temporarily made. They are only of minor contributory significance. (GML 2004: 95)</i>	Little	Little
<b>Reject Material Emplacements</b>	None	<i>The stockpiles of reject material are located in two primary areas of the Colliery, on the northern terrace adjacent to the golf course and against the escarpment below the Main Portal Precinct. They represent landfill emplacements which are an opportunistic utilisation of unusable product of the mine. They demonstrate the associated problems of coal mining but are otherwise conceptual space of land upon which emplacements are temporarily and/or permanently made. They are only of minor contributory significance. (GML 2004: 95).</i>	Little	Little

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Settling Dams</b>	None	<i>The Settling Dams, both the larger dam on the southern side of the entrance roadway and the smaller one on the northern side, are repositories for coal-wash waste water and stormwater runoff from across the site, allowing coal particles in suspension to settle out and, ultimately, be recovered for marketing. The dams, while serving to illustrate one aspect of the process of the coal preparation, are a utilitarian element of minor heritage value, as they are significant for their use rather than their particular form, which is common to most similar water retention structures. They make a minor contribution to the significance of the site as a whole. (GML 2004: 96).</i>	Little	Little
<b>Other Dams</b>	None	These items, which included the Bellambi Creek Dam and other agricultural dams are no longer associated with Colliery and are outside of the study site.	Little	N/A

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
Rail Tracks, Signal Box and Associated Elements				
<b>Rail Tracks and System</b>	a) Historic c) Aesthetic	<p><i>The rail track system, with its associated points and switches and supporting elements (while modified) is a relic of the coal transport system that was an aspect of the Colliery for most of its operating life. They are remnants of a transport system that moved coal from the mine underground to the Portals on the escarpment, through the various processing stages, then through the township to the loading jetty at Bellambi Point.</i></p> <p><i>The rail system influenced the spatial and working arrangements of the site throughout the major part of its history, with buildings and other services located to service its requirements or to avoid interference in its operations. It utilised, for the most part, two separate interconnected systems, that operating to bring coal to the surface and that operating from the mine to the jetty.</i></p> <p><i>The rail system however, is now fragmentary, with the only relatively intact sections of track surviving immediately outside the 1887 Portal at the Upper Bench. Owing to the incomplete nature of the track system and associated infrastructure, the system does not demonstrate the technical configuration and details of the rail system. Those remaining areas of relatively intact track on the Upper Bench, however, remain as significant features that illustrate the coal transport system associated with the mining activities from 1887 onwards to the 1970s when rail was replaced by road transport. (GML 2004: 96-97)</i></p>	Moderate/High	Rail Tracks and System - Upper Bench - High  Rail Tracks and Systems - other areas - Moderate



Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Signal Box</b>	a) Historic c) Aesthetic	<p><i>The Signal Box is the most evocative remnant of the rail transport system at the South Bulli Colliery. It is positioned adjacent to the Pacific Highway at the entrance to the site and it once controlled the level crossing of the Colliery railway line across the Pacific Highway. The Signal Box retains its basic lever frame and it remains an interesting technical feature of rail operations at the site.</i></p> <p><i>The Signal Box is significant as one of the very few surviving features in the district of the once-numerous Colliery railways and tramways that crossed the Pacific Highway on their way between mine and jetty. It is also an important element of the South Bulli Colliery, providing evidence of the original transportation system to Bellambi Jetty. (GML 2004: 97).</i></p>	High	High
<b>Moveable Heritage Items</b>				
<b>Coal Wagon</b>	a) Historic	<p><i>The timber Coal Wagon is significant as an example of the wagons utilised by the South Bulli Colliery for approximately eighty years and is representative of the wagons used throughout the Illawarra district for coal transportation. Although numerous examples of similar coal wagons exist in various situations, this wagon displays signage which identifies it as a South Bulli Colliery wagon (its actual provenance is unknown) and this provides a strong association with its location. (GML 2004: 97).</i></p>	High	High
<b>Coal Cutter</b>	a) Historic	<p><i>The Coal Cutter Head is a remnant item of underground coal mining machinery which is believed to have been utilised at South Bulli. Although relatively complete, it is detached from the assemblage of machines with which it would normally operate and missing power and transport mechanisms. It is an interesting example of coal machinery which is relevant to South Bulli. (GML 2004: 98)</i></p>	Moderate	Moderate

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
Landscape and Vista				
<b>Original Haulage Line Vistas</b>	a) Historic c) Aesthetic	<i>The converse aspect of the sight from the haulage lines in the vegetation of the escarpment are the vistas from the mine Portals and terraces down the alignment of the inclines and across the coastal flats to the ocean in the east. The vista extends towards Bellambi Point, where the loading jetty for the Colliery was located and access to this view is an important visual link between the Colliery and the townships of Russell Vale and Bellambi. While the haulage systems no longer exist, the view lines from the Old and Gibson's Portals are important vistas for the interpretation and understanding of the site. (GML 2004: 99).</i>	High	High

Site Element/Feature	Applicable NSW Heritage Assessment Criteria	Significance Assessment	GML 2004 Significance Grading	Revised Significance Grading
<b>Remnant Incline Haulage Alignments</b>	d) Historic c) Aesthetic	<p><i>The original haulage line from the Old Portal is now only visible at the Lower level, where the roadway between the Washery Office building and the associated stores sheds follows the alignment of the original tramway line. A second, isolated remnant occurs between the Pacific Highway and the western extent of Broker Street, which itself is curved to reflect the original curve of the tramway line in the vicinity.</i></p> <p><i>The Gibson's Portal haulage line is replicated by the present main roadway up the escarpment. The line of roadway forms a clear landscape delineator between the now northern and southern areas of the site and, notwithstanding the absence of surviving haulage equipment, is a strong visual entity and landscape element in its own right.</i></p> <p><i>The Incline Haulage Alignments are also the only tangible remaining aspect of the haulage system, and embody both the historical and technical aspects of the coal haulage systems that were so important in the history, growth and success of the South Bulli mine. The incline haulage alignments are evocative of the process of transportation of coal from the mine mouth to the market and important indicators of the operations of the mine, where extraction from underground was a mere preliminary stage. In their conversion to lines of conveyors and vehicular roads, the operational associations of the alignments have been maintained through the technical evolution of transport technologies and the alignments are representative of most of the phases of mining that has occurred at South Bulli. (GML 2004: 98).</i></p>	High	High



#### 4.2.2 Comparative assessment

A comparative analysis is undertaken with similar heritage sites and/or places in order to help establish and validate the significance and values of a heritage item or feature. The comparative assessment considers the study site against other coal mining associated heritage in the Wollongong LGA area the SHR. In addition the comparative assessment considers information provided for listed and unlisted coal mining heritage sites in the *Illawarra in the Strategic Management Plan for Historic Coal Mining Sites of the Illawarra* (O.H.M Consultants 2006).

Excluding the heritage items in the study site itself, a number of coal mining associated heritage items are on the LEPs within the Wollongong LGA and include:

- Bulli Colliery - Shaft 1 excluding fan from Nebo;
- Coke Ovens, Coalcliff Colliery
- Corrimal No. 1 headframe
- Kembla Heights Conservation Area
- Metropolitan Colliery
- Metropolitan Colliery - Shaft 2 fan evase
- Mine Air Shaft
- Mount Kembla Mine Portal
- Pit Pony Stables (Port Kembla No.2 Colliery)
- Remains of smelting works (former Dapto smelter)
- Shaft 2 (Old Bulli Colliery)
- Site of Mount Kembla Mine Workings
- Site of Pioneer Kerosene Works
- Slow's cottage (Mount Kembla)

These items encompass not only coal mines but also industries associated with coal production and the coal production chain. Items such as the Kembla Heights Conservation Area and Slow's cottage also demonstrate the domestic life and structures associated with the coal mining community. Of the listed items, the heritage items and groups associated with the Metropolitan Colliery (1886 – still operating), Bulli Colliery (1861-1988), Corrimal Colliery (1870 – 1986) and Mount Kembla Colliery (1883-1970) are most comparable to the study site. The condition of these mine sites is highly variable and only the Metropolitan Colliery has a collection of heritage elements that demonstrates the evolution of coal mining process and working conditions from the late 19<sup>th</sup> Century onwards. In comparison to Bulli Colliery, Corrimal Colliery and Mount Kembla Colliery, the remaining fabric at the study site demonstrating the entire mining process better and is in equal or better condition.

There are three heritage items listed on the SHR that are associated with coal mining the:

- Richmond Main Colliery;
- Lithgow Valley Colliery & Pottery Site; and,
- The Glenrock early coalmining sites.

Of these three sites only the Richmond Main Colliery and the Glenrock early coalmining sites are comparable to the study site. The Lithgow Valley Colliery & Pottery Site is a ceramic industry site with coal mine associations, rather than being directly related to coal mining.

The Glenrock early coalmining sites includes site complexes for the Burwood Colliery Remains, Coastal Railway, North Flaggy Collieries, Murdering Gully Collieries and Merewether Escarpment Collieries which demonstrate coal mining features and technology from the 19<sup>th</sup> to 20<sup>th</sup> Centuries. Coalmining in this area is representative of industrial coalmining initiated with the end of the coal monopoly held by the Australian Agricultural Company in 1847. Although coal mining infrastructure was tentatively constructed before this date in connection with a copper smelter, momentum for industrial coalmining began at the site in 1854 with the formation of the Newcastle Coal and Copper Company (Griffin 2003). Coal mining in the Glenrock early coalmining sites area continued under various mining companies up to 1986 when it became a reserve (NIHA 2012).

The remaining coalmining fabric at the Glenrock early coalmining site is generally in poor condition and consists predominantly of building and infrastructure foundations (Griffin 2003: 4-27 to 4-31). In regards to coalmining heritage values the Glenrock site was assessed as meeting the SHR criteria for Criteria a) historical, Criteria a) historical association, Criteria c) aesthetic, Criteria e) research potential, Criteria f) rarity and Criteria g) representativeness and was assessed as hold State and local significance (Griffin 2003: 6-30).

The Richmond Main Colliery was constructed between 1908 and 1913 and operated until 1967. The surviving fabric of the site includes a wide range of structures associated with the colliery that are in good or restored condition, although industrial equipment has been removed. Civic and Civic assessed the Richmond Main Colliery as met the SHR criteria for Criteria a) historical, Criteria c) aesthetic, Criteria d) social and Criteria e) research potential. Civic and Civic assessed that *"The cultural significance of the former Richmond Main Colliery in its surviving condition relies more on the complex as an expression of a particular era of region, industrial and social history than on the integrity of the remaining empty structures."* (Civic & Civic 1983: 104).

The City of Wollongong commissioned a thematic heritage assessment for coal mining in the Illawarra by O.H.M. Consultants in 2006. The assessment considered eleven colliery sites across the Illawarra, with the assessment for the study site relying on the GML 2004 assessment. Discussions with the consultant on the report (David McBeath of OHM Consultants) and the Manager of Strategic Planning at the City of Wollongong (Peter Crystal) indicate an outcome of this study is the preparation of a new Local Environment Plan component covering the coal mines across the length of the Illawarra escarpment. This addresses the conservation management of historic mine sites based on their relative significance in the local and regional context. It is in this context that the South Bulli Colliery site might meet the local significance threshold.

When compared with similar examples in the Illawarra and Newcastle, the surviving fabric of the study site is favourable or superior to other regional and state examples. The SHR listed sites, Richmond Main Colliery and Glenrock early coalmining sites encapsulate definitive coal mining periods in the 19<sup>th</sup> and 20<sup>th</sup> Century that are no longer operating, while the study site is comparable to other Illawarra coalmining sites that continue to operate and exhibit ongoing technological changes. The study site is of high historic significance on a social and aesthetic level in comparison to other surviving examples of coalmining operations in NSW and the local region. Coalmining has been a major industry in NSW and the number of surviving mine sites from similar timelines indicates that the study site is not rare at a State or local level.

### 4.2.3 Assessment of Significance

#### NSW Heritage Assessment Criteria

The study site has been previously assessed using the NSW Heritage Council criteria (listed in Section 4.1.2) by GML in 2004. Despite some removal of fabric from the site, the major elements contributing to the heritage values of the site have been unaltered. However additional historical research has been undertaken since the 2004 assessment and the 2004 GML statement of significance has been altered as appropriate below.

#### Criteria A (Historic Significance)

The Russell Vale Colliery site as a whole is important in the course of the Illawarra's and the state's history because it is one of the earliest established, the South Bulli Colliery, and longest running coal mining operations in Australia. Its curtilage, extant structures, industrial features and machinery, landform modifications and internal spatial pattern are physical representations of its expansion, contraction and modification over time.

The site contains some of the oldest structural remains of coal mining activity in the state including the 1887 Portals, rail track alignments and Lamp Room (now Crib Room and First-Aid Station). It also contains features and structures that demonstrate the cumulative and sequential update of colliery operations over a period of more than 100 years in response to technical changes, market and workforce demands and the increasing need for efficiency in a competitive market. These include the introduction of items such as the arc-wall cutter in 1935, scraper loaders in 1947 and longwall mining in 1965.

The site is also important because, during its operating life, it introduced the first mechanised underground transport system installed for employees in New South Wales (1917) and it pioneered Longwall extraction mining in the New South Wales coal fields (1965). The colliery holds the Australian record for underground coal extraction (between 1887 and 1990 the mine produced 2,949,903 tonnes of coal) and this reflects both its extended operating history and its history of investment in technical innovation.

The site as a whole is important in the course of the Illawarra's history because it was important in providing the employment and investment that catalysed population growth and established the pattern of settlement of Russell Vale town ship and the north Wollongong area. Along with other mines, employment generators like South Bulli Colliery played a key part in the economic health of the locality and many families were for many generations solely dependent on the work made available through mining.

Russell Vale Colliery as a whole satisfies this criterion at local and State levels.

#### Criteria B (Historic Association Significance)

The Russell Vale Colliery had a peripheral association with a number of identities notable on the Illawarra coast, the Russell Vale community and, to a lesser extent, New South Wales as a whole. Some of the earliest identities associated with the site during the South Bulli Colliery period are Henry Osborne, Francis Peter MacCabe and Henry Osborne MacCabe, who were all leading figures in the Illawarra coal industry and local and state politics in the 1800s. The suburb of Russell Vale takes its name from the Russell Vale House and wider estate, well known locally as the seat of Francis Peter MacCabe.

Thomas Saywell, a merchant and developer, was prominent in forming the South Bulli Mining Company in 1887 with W Wilson as manager. Saywell was notable in his role for expanding the South Bulli mine and constructing Bellambi jetty.

W Wilson, a manager at the South Bulli Colliery, was notable as the owner and developer of Bellambi Hotel in 1889, on the corner of Bellambi Lane and Brompton Road. It was considered luxurious at the time for a working town and comprised 21 rooms including twelve bedrooms. Wilson also refitted a carriage that could



be attached to the South Bulli colliery trains to transport his hotel guests to Bellambi Beach via the company jetty.

Another owner was Ebenezer Vickery, a prominent New South Wales merchant and capitalist, whose ownership was, typically for the industry, remote from the actual operations at the colliery.

The Russell Vale Colliery satisfies this criterion a local level, particularly in regards to the MacCabe family and the association of the site as the historical seat of this family in Russell Vale.

### **Criteria C (Aesthetic Significance)**

Henry Grant Lloyd painted the study site in 1897, capturing the dramatic backdrop of the Illawarra Escarpment and agricultural landscape of Russell Vale at this time. The landscape vista presented in Lloyd's painting has subsequently been altered dramatically by coalmining and suburban build up around the site, in particular the hill slopes below the escarpment have been altered by coal and refuse stockpiles.

The dramatic backdrop of the Illawarra Escarpment, the landform benches, stockpiles and dams and remnant coal mining structures and machinery create the impression that Russell Vale Colliery is a vigorous and active industrial site.

In this regard, the site as a whole demonstrates aesthetic qualities of significance to the local area. Its location and form continue to be defined to fit into the site's location and landform. The mine site as a whole is a striking and unusual landscape that has become a characteristic and, to a degree, identifying feature of the area.

Russell Vale Colliery as a whole satisfies this criterion at a local level.

### **Criterion D (Social Significance)**

The Russell Vale Colliery site has strong cultural associations with the local community and, to a lesser degree, the broader (previous and current) coal mining community of the Russell Vale, Wollongong and general Illawarra area. The associations relate predominantly to the site's long history as one of the primary employment and investment generators in the area and because coal mining is an industry which is traditionally associated with labour movement and workplace safety issues and initiatives.

The resolution of these issues brings the workforce into closer association with the workplace than would occur in other industries, especially as many deal with life and death safety concerns.

The Russell Vale Colliery was not removed from mining tragedies that plagued other mines in the area, including the nearby Bulli Mine. In 1891, one mine worker was killed following a build-up of gas that resulted in a small explosion. In July 1991, a further three workers were killed when a gas explosion occurred following the restarting of coal cutting after a pause in work while roof supports were installed. Following this, a Coronial Inquest, conducted in July, 1992, resulted in recommendations that all mines prone to outburst develop management plans to prevent such situations from occurring.

The Union movement on the Illawarra Coast had its earliest beginnings from the 1870s with various smaller groups setting up, but, in 1886, the National Miners Union was founded and included the miners from the Lithgow and Hunter region. Union membership and activism was an important aspect of working life for the workers at South Bulli and, in 1909, they were involved in a major strike on the Illawarra fields that included picketing by miners and their families. This demonstrates the close ties between communities in the area, the mine workers and their families and associated social groups such as the Women's Auxiliary, was important in this role.

The Russell Vale Colliery as a whole satisfies this criterion at the local level.

### Criterion E (Research Significance)

The Russell Vale Colliery site has only limited potential to yield information that would contribute to a further understanding of the local area's coal mining cultural history, however, it is likely that information would only complement and expand information that is generally known. Some investigation of individual structures and technology may provide more information about how the site functioned and what processes and changes occurred over time but most of this information is available in existing documents.

The site itself is not likely to reveal any social, technical or other information that would substantially expand or alter its existing history and significance. While an archaeological assessment has not been carried out, the long history of coal stockpile movement and removal, benching, infrastructure construction and dam building suggest that the archaeological resource is also unlikely to be sufficiently intact to provide information that would contribute in a meaningful way to the current history and cultural value of the site.

Russell Vale Colliery as a whole does not satisfy this criterion.

### Criterion F (Rarity)

The Russell Vale Colliery is one of the longest continuously-running coal mines in New South Wales and holds Australia records for total extraction from an underground mine.

While it possess some very rare individual elements (such as the 1887 Portals and the incline haulage alignment), coal mining and remnant coal mining sites are not rare or uncommon in New South Wales and the site as a whole cannot be considered rare.

Its function and use as a coal mine is an important aspect of the whole site's historical significance. However, coal mining is not an endangered aspect of the local area or New South Wales' cultural or industrial history.

The Russell Vale Colliery satisfies this criterion in regards to the time of its *continuous* use as a coal mine and as the underground mine with the largest total output.

### Criterion G (Representativeness)

While the Russell Vale Colliery possesses some unique locational and landscape attributes and some rare individual elements, it is one of many collieries in the region exploiting the coal seam of the Illawarra Escarpment. It has a long history of extraction that has utilised various techniques and technologies, some of which are still apparent at the site. Consequently, in that regard, it demonstrates change and adaptation over time, which is a characteristic of most colliery (and most industrial) sites.

This change and adaptation, however, means that the site is not an exemplar representative of a particular era or episode in coal mining history and technology, nor is its current remnant state necessarily representative of many coal mines as a class of New South Wales cultural places. This is principally due to the unique and site specific nature of change and adaptation over time at collieries in general – none could really represent others as a 'class' of places.

The Russell Vale Colliery as a whole does not satisfy this criterion.

## 4.2.4 Statement of Significance

The Russell Vale Colliery site is an important place in the Illawarra's and the state's history because it is one of the earliest established and longest-running coal mining operations in Australia and because it retains structures, machinery, landform and spatial configurations that illustrate and embody its history.

The site is also important because, during its operating life, it introduced the first underground transport system installed for employees in New South Wales (1917) and it pioneered longwall mining in the New South

Wales coal fields (1965). The colliery holds the Australian record for underground coal extraction and this reflects both its long period of operations and its history of investment in technical innovation.

The site as a whole is important in the course of the Illawarra's history because it was important in providing the employment and investment that catalysed population growth and established the pattern of settlement of Russell Vale Township and the north Wollongong area.

The site has cultural associations with the local community and the broader coal mining community because of its long history, historically-pivotal social and economic role in the area and because it was, at various times, a centre for labour movement and workplace reform activity.

The above assessment indicates that the Russell Vale Colliery as a whole is of State significance on historical grounds and of local significance on historic association, social, aesthetic, and historical grounds. Overall this indicates that the as a whole is of State level significance.

### **4.3 Curtilage**

The extent of the elements and precincts of significance are mapped in Figures 5 to 11 following. In general a curtilage is drawn around each element with at least a 5 metres buffer, although in most cases these have been combined where buildings are in close proximity to form Precinct curtilages. The curtilages defined in the 2004 GML CMP has been amended to incorporate elements which should be considered integral for stabilisation or interpretation of an ensemble of items – for example the bath house over the main portal is an intrinsic part of the development of the Main Portal Precinct in the mid 20<sup>th</sup> century. Similarly the upper bench workshops which cover the 1887 and adjacent portal and are likely the oldest buildings on the site should be incorporated in curtilage in their entirety.

#### **4.3.1 Power House Precinct Curtilage**

The Power House Precinct curtilage is shown in Figure 5 and includes all the remaining footings and features remaining from the power house and its associated elements.

#### **4.3.2 Old Portal Precinct Curtilage**

The Old Portal Precinct curtilage is shown in Figure 6 and has been expanded from the 2004 GML curtilage to include the Upper Bench Workshop in its entirety. This curtilage includes the 1887 Portals, Brick Retaining Wall, Workshop Offices and associated Rail Infrastructure.

#### **4.3.3 Main Portal Precinct Curtilage**

The Main Portal Precinct curtilage is shown in Figure 7 and has been expanded from the 2004 GML curtilage to include the New Bathhouse. Other elements included in the curtilage include the Main Portal, Crib Room and First Aid Station and the Storeroom.

#### **4.3.4 Extraction Portal Precinct Curtilage**

The Extraction Portal Precinct curtilage is shown in Figure 8 and has been expanded from three separate curtilages shown in the GML 2004 CMP to one overall curtilage. The Decline Conveyor has been excluding from the curtilage as it has little contributing significance.

#### **4.3.5 Gibson's Portal Precinct Curtilage**

The Gibson's Portal Precinct curtilage is shown in Figure 9 and is not substantially changed from the 2004 GML curtilage, however the fan house has subsequently been removed.



#### **4.3.6 Signal Box Curtilage**

The Signal Box curtilage is shown in Figure 10 and is not substantially changed from the 2004 GML curtilage.



#### **4.3.7 Views and Vistas**

View lines are generally not critical, apart from that along the Remnant Incline Haulage Alignment, which has been identified in Figure 11.

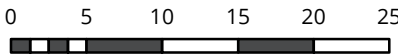




**Legend**

-  Curtilages
-  Study Site

**Figure 5: Power House  
Precinct Curtilage**



Metres  
Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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Matter: 15606  
Date: 01 February 2013,  
Checked by: ASF, Drawn by: jshepherd  
Location: P:\15600s\15606\Mapping\  
15606 ES-11 curtilage

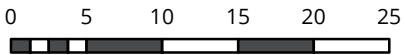




**Legend**

-  Curtilages
-  Study Site

**Figure 6: Old Portal Precinct Curtilage**



Metres  
Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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15606\_F5-11\_curtilage





**Legend**

-  Curtilages
-  Study Site

**Figure 7: Main Portal Precinct Curtilage**

0 5 10 15 20 25  
Metres

Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56





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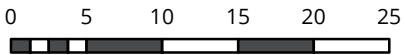




**Legend**

-  Curtilages
-  Study Site

**Figure 8: Extraction Portal  
Precinct Curtilage**



Metres  
Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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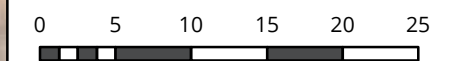




**Legend**

-  Curtilages
-  Study Site

**Figure 9: Gibson's Portal Curtilage**



Metres  
Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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#### Legend

-  Curtilages
-  Study Site

**Figure 10: Signal Box Curtilage**

0 5 10 15 20 25

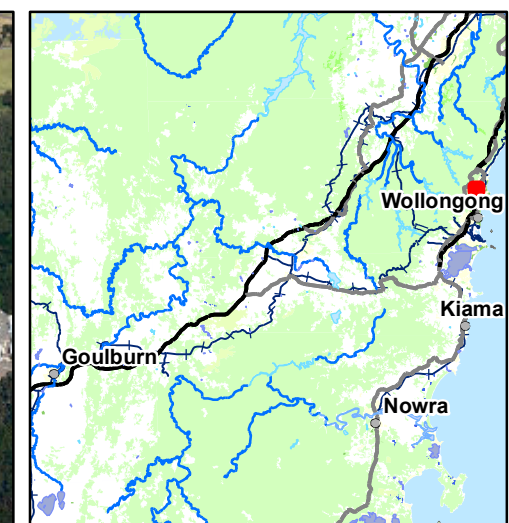
Metres  
Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



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Matter: 15606  
Date: 01 February 2013,  
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Location: P:\15600s\15606\Mapping\15606\_F5-11\_curtilage





#### Legend

- Study Site
- Vistas
- Curtilages

**Figure 11: Landscape and Vistas**

0 50 100 150 200 250  
Metres

Scale: 1:5,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Ballarat, Brisbane, Canberra, Melbourne,  
Sydney, Wangaratta & Wollongong

Matter: 15606  
Date: 01 February 2013,  
Checked by: ASF, Drawn by: jshepherd  
Location: P:\15600s\15606\Mapping\15606\_F11\_Vistas



## 5 Constraints and Opportunities

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This Conservation Management Plan (CMP) has been prepared to guide planned future changes by the Gujarat NRE that may affect the South Bulli Colliery buildings. The listing of the site on the Wollongong City Council's Local Environmental Plan (2009; 2010) as an item of Local heritage significance, including the associated LEP provisions, are likely to require specialist heritage consultant input for future changes on the site.

### 5.1 Statutory Obligations

#### 5.1.1 Heritage Act 1977

The SHR, managed by the Heritage Branch, (OEH), contains items that are of State Significance to New South Wales. Items that appear on the SHR have undergone a rigorous assessment process and are protected by the *Heritage Act 1977*. Changes made to State Heritage Register listed items can only be made with approval from the Heritage Council; demolition is not permitted except in certain circumstances. No items in the study site are currently listed on the SHR.

Relics, that is, historical archaeological sites of local or State significance are also protected by the *Heritage Act 1977*. Disturbance to relics is not permitted except with an approved excavation permit or exception notification from the Heritage Council.

#### 5.1.2 National Parks and Wildlife Act 1974

Aboriginal sites are protected under the *National Parks and Wildlife Act 1974*; which states:

*A person who, without first obtaining the consent of the Director-General, knowingly destroys, defaces or damages, or knowingly causes or permits the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place is guilty of an offence against this Act.*

The potential for Aboriginal archaeological relics in the mine areas is extremely low. The only potential for Aboriginal sites is in the areas above and below the mine site where mine excavation and benching have neither excavated natural ground nor buried under fill. Natural land slippage and erosion may have disturbed any Aboriginal archaeological material in these areas in any case due to the extreme steepness and instability of the slopes. Recommendations are therefore made for confining works to areas with no Aboriginal archaeological potential.

#### 5.1.3 Local Planning Context

There are a number of duplicate entries for site elements reflecting dual listings on the Wollongong LEP 1990 and the Wollongong Regional Environmental Plan 1986 (see **Error! Reference source not found.**). These separate elements were combined as one item as part of the 2006 assessment of coal mining sites by O.H.M Consultants that then informed the Wollongong LEP 2009. The Wollongong LEP 2009 consolidated the separate elements as the South Bulli Colliery listed on Environmental Heritage schedule as Item 5928.



**Table 7: Listed Heritage Sites in the Study Site**

Item name	Illawarra REP No.1 (1986)	Wollongong LEP 1990	Wollongong LEP 2009	Significance Rating
South Bulli Colliery (whole site)	2700806	2700806	5928	State
Power House Precinct	19135	2700060		Moderate
Administration Precinct				
Administration building				Little
Pathways and Landscape				Little
Car park				Intrusive
Old Portal Precinct				
Workshops lower bench				Little
Workshops upper bench				Moderate
Workshops offices	19164			Moderate
1887 Portal	19169	2700091		Exceptional
Brick Retaining Wall				High
Main Portal Precinct				
The main portal				Little
New bathroom				Little
Crib room & first Aid Station				High
Store room				High
Extraction Portal Precinct				
Extraction portal				Little
Main downhill conveyor (decline conveyor)				Little
Closed Adits				Moderate
Gibson's Portal Precinct				
Gibson's Portal(s)	19168	2700090		High
Sandstone Retaining wall				Moderate
Fan House				Little
Gibson's Sublease and associated area				Little
Electrical substation				Little
Electrical switchroom				Little
Washery Precinct				

Item name	Illawarra REP No.1 (1986)	Wollongong LEP 1990	Wollongong LEP 2009	Significance Rating
Old Washery 1960 (mostly demolished and permits for completion of demolition)	19167	2700089		
The Preparation Plant				Moderate
Conveyor system				Little
Storage silos				Little
Truck loader				Little
Former mines office (lower area) demolished	19164	1990		
Coal stockpiles and reject material				
Coal stockpiles				Little
Reject materials emplacement				Little
Settling dams				Little
Other dams				Little
Rail Tracks and associated elements				
Rail Tracks and System				High/Moderate
Signal Box	5001162			High
Moveable heritage items				
Coal Wagon				High
Coal Cutter				Moderate
Landscapes and vistas				
Remnant Incline Haulage Alignments				High
Original Haulage vista				High
Other Heritage Items				
Concrete Base for ball mill – mapped inaccurately and cannot be relocated	19166	2700088		

## 5.2 Current Uses

The study site is currently in use as an active mine site, including the extraction, stockpiling and transportation of coal, landfill of reject material and ongoing maintenance of existing infrastructure.

## 5.3 Proposed works

Proposed works for the Stage 2 upgrade of surface facilities at the NRE No. 1 Colliery Russell Vale Site include the following:

- The addition of two 140 000t coal stockpiling areas (SP2 and SP3), east of the current stockpiling area below the coal storage bins (SP1);
- The construction of an overhead conveyor and tripper arrangement to deliver coal to the new stockpiles;
- The construction of a reclaim conveyor connecting SP2 and SP1;
- The construction of a retaining wall to contain the exposed toe of SP2 and SP3;
- The construction of a new access road to SP 2 and SP3;
- Renewal of the existing reclaim tunnel and reclaim belt under SP1;
- The construction of a new truck loading facility;
- The installation of a new truck washing facility;
- Sealing of truck access roads and parks;
- The construction of a 3m high bund wall north of the main access road to control, visual, noise and dust issues;
- Construction of a new Bellambi Gully Creek Channel;
- Construction of a new decline conveyor crossing; and
- Improvements to escarpment drainage and creek stabilisation.

## 5.4 Expected Impacts of Mine Operations

### 5.4.1 Aboriginal site impacts

The area of proposed works has no potential for the survival of Aboriginal archaeological material, due to the impact of former mining activities and the effect of the excavation of the portals, and considerable rock falls and land slips in the vicinity.

Therefore, there are **no further requirements** for managing Aboriginal archaeological sites as long as any proposed works are confined to the existing areas of the mine benches, works areas and access tracks.

### 5.4.2 Historic Site Impacts

The proposed works do not have direct impacts on any of the heritage curtilages described in Section 4.3. While the construction of additional infrastructure will alter vistas from the upper and lower benches it will impeded the overall view that makes these vistas significant. The construction of the 3 m bund wall will alter the view of the Remnant Incline Haulage Alignment but will not alter the alignment.



The proposed works will significantly remove and alter sections within the current Washery Precinct, although approvals have already been received for the removal of this infrastructure and archival recording has been undertaken. As the mine is currently continuing to operate, and there appears no immediate imperative to undertake demolition work on an extensive scale, there is an opportunity to conserve and manage exceptional and high significance heritage elements and formulate practical conservation policies for their future retention.

### **5.4.3 Managing change**

Where changes to the study site have the potential to impact on heritage items, a SoHI should be prepared. Using this CMP as a guiding document, SoHIs should be prepared in accordance with Heritage Council guidelines for SoHI (Appendix 1) and should only be as detailed as required by the proposed work. Acceptable change should be based on Table 8.

## 6 Conservation Policy

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### 6.1 Introduction

#### 6.1.1 Objective

The objective of the policies in this plan are to achieve the conservation of the cultural heritage significance of the South Bulli Colliery and associated structures consistent with the ongoing operation of the place as a working mine. The statements of significance set out in Section 4.2.4 have been used as a principal basis for future management planning and work.

#### 6.1.2 Basis of Approach

That South Bulli Colliery, Russell Vale, New South Wales is regarded as being primarily significant for historical associations with development of the Illawarra coal industry and surrounding Russell Vale and north Wollongong areas from 1887 to c.1960. The study site is also strongly associated with the introduction of new mining technologies, such as longwall mining in 1965, and the surviving fabric of the site demonstrates technical change and innovation over more than 100 years of coal mining operations.

The challenge for heritage conservation at this site is to incorporate sound conservation policy with the requirements of ongoing mining operations. The underlying philosophy in the management of cultural heritage is based on the ICOMOS Burra Charter, which is to do as much as necessary and as little as possible. The approach to the development of the conservation policy is to retain and conserve the site elements of exceptional and high significance and develop policies to guide the ongoing use and development of the mine in order to retain its relationship with its historical operations.

#### 6.1.3 Statutory Compliance

Historical relics and features within the study site are protected by the *Heritage Act 1977* and the Wollongong LEP 2009. A statement of heritage impact (SoHI) should be prepared elements of the site that are of moderate to exceptional significance, if an action is likely to impact the fabric or setting of the element. The document can use the history in this CMP and address the policies to ensure that change is managed to ensure that significance of the site is not compromised. The detail in the statement of heritage impact should be guided by the significance of the element and the level of change proposed. Proposals to introduce change should be made with the guidance of a qualified heritage practitioner to reduce delays in obtaining approvals.

Aboriginal objects and places within the study site are protected by the *National Parks and Wildlife Act 1974*. There are no recorded Aboriginal sites, objects or places within the study site, however if Aboriginal sites, objects or places are subsequently identified, then further investigation will be required. Contingency plans detailing the actions required if Aboriginal sites, objects or places are encountered in the study site are contained in the *NRE No.1 Colliery: Heritage Management Plan* (Biosis 2012).

### 6.2 Statement of Conservation Policy

The following policies are recommended for the conservation and future development.

The implications of each policy for individual site elements (individual buildings, features, relics, moveable heritage items, important views and vistas) that contribute to the overall significance of the place are shown in **Table 8**.

## 6.2.1 Management Policies

### Policy 1 – Adoption of this Conservation Management Plan

Gujarat NRE should adopt the CMP for the NRE No. 1 Colliery site as the document guiding appropriate change to the significance of the site. The CMP sets out a strategy for managing the place to best maintain its cultural significance whilst ensuring high operational standards.

The management of the property, its future development, and ongoing maintenance, must be undertaken in a manner which permits the Conservation Policy to be implemented. It is important that the Conservation Policy is retained by the owners and/or tenants of the property and understood by all those connected with the use, future development and maintenance of the property. This includes the property owners and management, as well as any consultants and contractors involved with work on the site.

### Policy 2 – Review of Policy

That the Conservation Plan should be reviewed on a regular basis, preferably at least once every ten years, or when new material which has the potential to supplant a present policy, is discovered. A reviewed CMP would also be required if operations on the site ceased and the use changed. This will ensure that new material or analysis can be properly assessed and if necessary incorporated into revisions of the CMP.

## 6.2.2 General Policies

### Policy 3 – Retention of Key Heritage Elements

Elements of exceptional, high and moderate significance must be managed in accordance with their level of significance. That is:

- Elements/items of exceptional or high significance should be retained, maintained and preferably utilised; some change is acceptable and should be guided by a SoHI; and,
- Elements/items of moderate significance should be retained, maintained and utilised. Changes to these items is acceptable as long as those changes are guided by a SoHI and do not detract from the significance.

In addition, key elements/items of significance should not be demolished or removed and maintenance actions should be undertaken to stabilise their condition. Such works need only involve ensuring the buildings remain structurally sound and have adequate external integrity to prevent ingress of rain. These are the buildings which most closely relate to the significant historical periods of the mine's operation, and provide the best opportunities for future interpretation if public access is ever to be provided to the mine site.

Elements of little, intrusive or no significance need only be retained and conserved where required. However, if demolition or removal is required, then consideration should be given to the impact of this action on the potential future use and conservation of the exceptional, high and moderate significance site elements. Demolition or removal of elements of little, intrusive or no significance do not require heritage documentation; however the date of removal should be recorded in the CMP.

Development consent has been received for the removal of elements in the Washery Precinct and removal of these elements should proceed in accordance with the conditions of the consent.

### Policy 4 – Maintenance of Existing Fabric

All work to the identified significant elements and within the curtilage of significant elements on the property, whether subject to planning permit conditions or not, will be required to be undertaken in accordance with



the provisions of the Burra Charter. Any action which has the potential to alter fabric of exceptional, high or moderate elements will require the preparation of a SoHI.

In general, maintenance schedules should ensure that the physical appearance of the building elements should principally reflect the appearance around the time of operation during its period of greatest social and economic impact c 1930 - 1960. Features from c. 1880, particularly the 1887 Portal, should be retained and protected as they reflect rare examples of industrial and investment culture from the late 19<sup>th</sup> Century.

### **Policy 5 – Sealing Mine Portals**

One aspect of the rehabilitation of redundant mines that can come into conflict with heritage values is the sealing of adits, shafts and portals, and in particular sealing them in such a way that no evidence of the structure remains. This approach has been used on Illawarra escarpment particularly on some mines where they are within or adjacent to the Escarpment Conservation Areas. It is understood that this is a preferred approach of NSW National Parks.

DPI guidelines for the backfilling and sealing of adits and drifts (established under Section 92 – Section 97 inclusive of the Coal Mine Health and Safety Act 2002) suggest that as part of making safe and sealing disused mine entrances, earth may be mounded over the portal to remove any visible evidence of the structures. These guidelines are intended to ensure safety at disused mine sites. However, the guideline for burying the portal under earth, as opposed to sealing the portal internally, would appear to be optional rather than obligatory. It states: “Where possibly, the adit bulkhead and surrounds should be completely covered by mounding earth over the area”. The guideline also states that: “any man-made structures or fittings in the adit, which can be safely removed, should be removed”. The guidelines would therefore appear to be sufficiently flexible to allow the retention of historic surface features where this is consistent with the safe sealing of the adit.

Wollongong Council (and various heritage bodies - see Pearson & McGowan 2000, Mining Heritage Manual) recognises the important contribution coal mining has made to the history of the region, and that each mining site has a story to tell. The *Strategic Management Plan for Historic Coal Mining Sites of the Illawarra*, also confirms local heritage policy is to retain evidence of historic coal mining activity in the Illawarra region (OHM Consultants/McBeath 2006).

Therefore all existing portals in the vicinity of the Upper Bench should be treated so that there is minimal disturbance to the surface structures and immediate surrounding area as far as practical considering health and safety regulations. The retention of surface features will ensure that the heritage significance of the sites, as evidence of early coal mining and prospecting, will be retained.

In line with proposed procedures for sealing portals (Sheldon 2005: 9), the recording and surveying of the site should be carried out on completion of the works, a plaque placed in a clearly visible location at each portal, indicating the colliery name, adit name and date of sealing. The plaque should also include the historical date of operation. Copies of documentation, including this report, should be provided to the Local Studies Section of the Wollongong City Library.

### **Policy 6 – Interpretation & Access to Information**

Items of moveable heritage, photographs, plans and historical information should be displayed in a location accessible to visitors to the place. Interpretative material should also be displayed with, within were applicable, elements of exceptional, high or moderate significance to demonstrate their former use and appearance. Copies of historical documentation for the place should be retained on site for future reference and lodged with the Local Studies Library at Wollongong City Council.

## Policy 7 – Moveable Heritage Items

Potential and identified moveable cultural heritage are intrinsic to the cultural heritage of the South Bulli colliery site. Such items range from the mechanical coal cutter displayed at the lower car park entrance, to hand tools and plans found in some redundant buildings.

Historically significant moveable heritage items including objects, photographs, plans and documents, should be retained on site where possible and an inventory of the items should be prepared and maintained. In the event that they are no longer required by the mine company, historically significant moveable heritage items should be offered to a suitable archive or museum (for example the Local Studies section of the Wollongong City Library).

The coal wagon and coal cutter should be relocated to a dry covered or preferably weatherproof location to arrest decay, and options for further conservation, such as treatment of rust and dry rot should be investigated. Failing this, offering the items to an organisation such as local historical society or museum, that might be able to carry out the conservation works would be an alternative.

## Policy 8 – Recording Heritage Items

Where an item or element is to be altered or removed, a record of the physical condition should be prepared prior to any works commencing. This record should entail existing conditions architectural drawings, photographs and an inventory of components, finishes, fittings, moveable items and other details. It is likely that recording of the modification or removal of significant fabric will be a part of the DA conditions of consent.

### 6.2.3 Policies for Managing Change

## Policy 9 – New Works or Buildings

The undertaking of new works or buildings should not dominate or compromise significant aspects of elements of exceptional, high and moderate significance. To achieve this:

- New structures must be designed to be respectful in scale, form and detail to the existing early to mid century buildings where they are in visual proximity;
- New structures or works must not obscure important vistas or views from elements of exceptional, high and moderate significance;
- That only limited physical intervention to the fabric of the significant elements of exceptional, high and moderate significance be permitted and if possible, be reversible;;
- Openings connecting existing building and new structures should be limited in size and number. Existing openings should be utilised when possible; and
- If fabric of elements of exceptional, high and moderate significance will be altered or impacted than a SoHI must be prepared.

## Policy 10 – Adaptive Reuse

Opportunities for compatible reuse of buildings must be investigated in the event of buildings becoming redundant, or mining cease on the site. In determining potential for adaptive reuse of buildings identified with exceptional, high or moderate significance, the following constraints should be observed:

- External envelope should be maintained;
- New openings should be limited to unobtrusive locations;

- Existing wall and roof cladding and finishes should be retained and conserved;
- Internal spaces and dividing walls of buildings identified with exceptional significance should be retained where possible, if spaces require enlarging or subdividing, such work should be reversible and identifiable;
- Internal spaces and dividing walls of buildings identified with high or moderate significance can be modified in accordance with operational requirements and a SoHI; and
- If fabric of elements of exceptional, high and moderate significance will be altered or impacted then a SoHI must be prepared.

## **Policy 11 – Archaeology**

### **Discovery of Unanticipated Aboriginal Cultural Material**

The following contingency plan describes the actions that must be taken in instances where Aboriginal cultural material is discovered or unearthed:

- **Discovery:** Should unanticipated Aboriginal cultural material be identified during any works, works must cease in the vicinity of the find.
- **Notification:** OEH must be notified of the find.
- **Management:** In consultation with OEH, registered Aboriginal parties and a qualified archaeologist, an impact assessment should be undertaken and management strategy developed to manage the identified Aboriginal cultural material. A subsidence monitoring program may be required for Aboriginal sites, using a methodology consistent with that outlined in Section 6.
- **Recording:** The find will be recorded in accordance with the requirements of the National Parks and Wildlife Act 1974 and OEH guidelines.

### **Discovery of Unanticipated Historical Relics**

The following contingency plan describes the actions that must be taken in instances where historical cultural material is discovered or unearthed:

- **Discovery:** Should unanticipated historical material be identified during any works, works must cease in the vicinity of the find.
- **Notification:** OEH must be notified of the find.
- **Management:** In consultation with OEH and a qualified archaeologist, an impact assessment should be undertaken and management strategy developed to manage the identified historical cultural material. A subsidence monitoring program may be required for historical sites.
- **Recording:** The find will be recorded in accordance with the requirements of Heritage Branch and OEH guidelines.

### **Discovery of Unanticipated Human Remains**

The following contingency plan describes the actions that will be taken in instances where human remains or suspected human remains are discovered. Any such discovery in the study area will follow these steps.

- **Discovery:** If suspected human remains are discovered all activity in the vicinity of the human remains must stop (to ensure minimal damage is caused to the remains), and the remains must be left in place and protected from harm or damage.



- Notification: Once suspected human skeletal remains have been found, the Coroners Office and the NSW Police must be notified immediately. Following this, the find must be reported to OEH and it is recommended that it is also reported to the Illawarra Local Aboriginal Land Council.
- Management:
  - If the human remains are of Aboriginal ancestral origin an appropriate management strategy will be developed in consultation with a heritage specialist, registered Aboriginal parties and OEH.
  - If the human remains are identified as historical relics then an appropriate management strategy will be developed in accordance with a heritage specialist and NSW Heritage Council.
  - If the exhumation of human remains is subsequently required, these works may require a permit under the *Public Health Act 1991* and advice should be sought from an appropriate heritage specialist.
- Recording: The find will be recorded in accordance with the requirements of the National Parks and Wildlife Act 1974 and OEH guidelines as applicable and registered on AHIMS (if applicable).
- Recommencement of works: Works are to recommence only after all previous steps have been taken, an adequate management strategy is in place and authorisation has been received from DoPI.

**Table 8: Summary of site elements and their conservation requirements**

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
1. Power House Precinct	Remnant Power House Features	Moderate	X	X		X		X	X		X	U	C	Y	-
2. Administration Precinct	Administration Building	Little	X					X			X	N	N	N	N
	Pathways and Landscape Elements	Little	X					X			X	N	N	N	-
	Car park	Intrusive	X					X			X	N	N	N	-
3. Old Portal Precinct	Lower Bench Workshops	Little						X			X	N	N	N	N
	Upper bench Workshops	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Workshop Offices	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Brick Retaining Wall	High	X	X		X		X	X	X	X	U	C	Y	Y
	1887 Portal Area	Exceptional	X	X	X	X		X	X	X	X	U	C	Y	Y
4. Main Portal Precinct	The Main Portal	Little	X		X			X			X	N	N	N	N
	The New Bathhouse	Little	X					X			X	N	N	N	N
	Crib Room and First Aid Station	High	X	X		X		X	X	X	X	U	C	Y	Y
	Storeroom	High	X	X		X		X	X	X	X	U	C	Y	Y
5. Extraction Portal Precinct	The Extraction Portal	Little	X		X			X			X	N	N	N	N
	Main Downhill Conveyor	Little	X					X			X	N	N	N	-

Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
	Closed Adits	Moderate	X			X		X			X	U	C	Y	Y
6. Gibson’s Portal Precinct	Gibson’s Portal	High	X	X	X	X		X	X	X	X	U	C	Y	Y
	Sandstone Retaining Wall	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Fan House	Little	X					X			X	N	N	N	N/A
	Gibson’s Sublease Portal and Associated Area	Little	X					X			X	N	N	N	N/A
	Electrical Sub-Station	Little	X					X			X	N	N	N	N/A
	Electrical Switchroom	Little	X					X			X	N	N	N	N/A
7. The Washery Precinct*	The Preparation Plant	Moderate						X			X	N*	N*	N*	N*
	Conveyor Systems	None						X			X	N	N	N	N/A
	Storage Silos	None						X			X	N	N	N	N/A
	Truck Loader	Little						X			X	N	N	N	N/A
8. Coal Stockpiles and Reject Material	Coal Stockpiles	Little									X	N	N	N	N/A
	Reject Material Emplacements	Little									X	N	N	N	N/A
	Settling Dams	Little									X	N	N	N	N/A
9. Rail Tracks, Signal Box and Associated Elements	Rail Tracks and System - Upper Bench	High	X	X		X		X	X	X	X	U	C	Y	Y



Precinct	Element	Significance	Applicable Conservation Policies (marked with X if applicable)									Statement of Heritage Impact Required (Y = Yes, N = No, U = Unacceptable action, C = acceptable for conservation purposes only, N/A = Non applicable)			
			Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9	Policy 10	Policy 11	Demolition or Removal	Alteration of fabric	New Buildings	Adaptive Reuse
	Rail Tracks and System – Other Areas	Moderate	X	X		X		X	X	X	X	U	C	Y	Y
	Signal Box	High	X	X		X		X	X	X	X	U	C	Y	Y
10. Moveable Heritage Items	Coal Wagon	High	X	X		X	X	X	X		X	U	C	Y	N/A
	Coal Cutter	Moderate	X	X		X	X	X	X		X	U	C	Y	N/A
11. Views and Vistas	Original Haulage Line Vistas	High	X			X		X	X		X	U	C	Y	N/A
	Remnant Incline Haulage Alignments	High	X			X		X	X		X	U	C	Y	N/A
*Conditional consent for the removal of this item has been approved under DA D2004/32.															

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## APPENDIX 1: How to prepare a statement of heritage impact

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# Statements of Heritage Impact

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## INTRODUCTION

This guideline has been prepared to assist people who wish to carry out work that could impact on a heritage item<sup>(1)</sup>. They will also assist councils who must consider whether to approve such development.

A statement of heritage impact (SOHI) is meant to convey what the impact or impacts of a proposal would be. When considered along with a policy or plan for conservation and management, an informed decision can be made whether to allow the development to proceed. This guideline explains what comprises a SOHI, when it is needed, and the level of detail to be provided.

The guideline supports the Heritage Council's view that a SOHI become a regular part of the approval process.<sup>(2)</sup> A SOHI might form part of a statement of environmental effects, a review of environmental factors or an environmental impact statement.

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(1) Heritage items can be buildings, structures, places, relics or other works of historical, aesthetic, social, technical/research or natural heritage significance. 'Places' include conservation areas, sites, precincts, gardens, landscapes and areas of archaeological potential.

(2) See *Altering Heritage Assets* in the NSW Heritage Manual.



## STATEMENTS OF HERITAGE IMPACT

### WHAT IS A STATEMENT OF HERITAGE IMPACT?

A SOHI, together with supporting information, addresses:

- why the item is of heritage significance
- what impact the proposed works will have on that significance
- what measures are proposed to mitigate negative impacts
- why more sympathetic solutions are not viable.

### WHEN IS A STATEMENT OF HERITAGE IMPACT NEEDED?

The Heritage Council requests that every development proposal it is required to consider be accompanied by a SOHI. Similarly, local councils and other development approval bodies are encouraged to require such a statement. This requirement could be viewed as a logical extension to a statement of environmental effects, which most councils commonly require.

### WHAT INFORMATION IS REQUIRED TO PREPARE A STATEMENT OF HERITAGE IMPACT?

Proposals need to be supported by information that will assist the council to make an informed decision. Where the work involved is minor, or involves an item of local significance, the SOHI can be based simply on a statement of significance or a conservation policy. However, for a complex proposal that affects an item of State significance, a more detailed conservation management plan would be required to support the application. The publications *Heritage Approvals* and *Conservation Management Documents* in the NSW Heritage Manual, explain what these various documents are and how to prepare them.

*Table 1* on pages 5 to 8, shows when a conservation management plan is needed for particular types of development, or when a conservation policy would suffice.

### WHAT NEEDS TO BE EXPLAINED BY THE STATEMENT?

A SOHI needs to explain how the heritage value of an item is to be conserved, or preferably enhanced, by the proposed development. This could involve stabilisation and repair work, restoration, reconstruction or redevelopment for a new use.

The Heritage Council does not advocate the reproduction of heritage forms and finishes; rather, it supports quality new design that is sympathetic in form and finish and is respectful of its context.

The steps to be taken should be noted and in doing this, it is helpful to refer to the seven criteria used to define heritage significance (criteria can be downloaded from the Heritage Office website) in order to explain how the item's heritage value is to be retained.

Where the effect of proposed work is likely to be detrimental to the heritage significance of the item or area, a SOHI needs to argue why such action is the only viable solution and explain why alternatives are not. The works that will have a negative impact should be listed, with statements made under each point as to why the impact/s cannot be avoided, and what steps have been taken to minimise their effect/s. It might also be useful to consider these in relation to the criteria of heritage significance.

*Table 1* outlines some of the questions that need to be answered in a SOHI for various types of development proposals.

### HOW IS THE INFORMATION TO BE PRESENTED?

The SOHI should be concise. Pertinent reports such as the statement of heritage significance, analysis of significance and, where they exist, conservation policies, conservation management plans, physical condition reports and any other specialist consultant reports, are simply referred to in the statement, then attached.



# Statement of Heritage Impact

. . . . .

## A Model

**Statement of heritage impact for:**  
  
*[Name of heritage item, item within a conservation area or site in the vicinity of a heritage item.]*  
  
**This statement forms part of the statement of environmental effects for:**  
  
*[A brief description of proposal.]*

**Date:**  
  
**Reference:**  
  
*[Reference number/s for the heritage item and/or conservation area (name the area), taken from LEP or REP schedule, or heritage study inventory.]*

**Address and property description:**  
  
*[of heritage item, item within a conservation area or site in the vicinity of a heritage item.]*

**Prepared by:**  
  
*[Name, address, phone and fax of author.]*

**For:**  
*[Name of client or owner, where manager or owner*



## STATEMENTS OF HERITAGE IMPACT

*is not the author.]*

**The following aspects of the proposal respect or enhance the heritage significance of the item or conservation area for the following reasons:**

*[List in point form. List also, any other completed or proposed future works, such as the implementation of maintenance plans, interpretation strategies or archival recording.]*

**The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:**

*[List the ways in which the item or area is significant and the way/s they could be affected; why the work is necessary for the ongoing viability; and, the steps taken to minimise negative impacts. (Consider addressing significance under each of the seven criteria used to define heritage significance)]*

**The following sympathetic solutions have been considered and discounted for the following reasons:**

*[List alternatives (especially those identified in a conservation management plan or other study) and clearly argue why these cannot be implemented.]*

**Attachments:**

*[List. For example, statement of heritage significance, study, State Heritage Inventory form, conservation policy or conservation management plan, building condition report, engineer's report and/or archaeologist's report.]*

**References:**

*[List. For example, heritage studies, conservation management plans, archaeological zoning plans, or environmental impact statements.]*

# Table 1

## Some Questions to be Answered in a Statement of Heritage Impact and Supporting Information Required

.....

The following are some of the questions that need to be answered in a statement of heritage impact. They offer guidance as to whether a conservation management plan, conservation policy or a statement of heritage significance would be necessary.

The following abbreviations are used in the table:  
**SOS** statement of heritage significance  
**CP** conservation policy  
**CMP** conservation management plan.

Depending on the degree of impact and the complexity of the proposal, in some circumstances the local council or Heritage Council may require a conservation management plan to be prepared for an item of local significance. (This would usually only be required for work that affects an item of State significance.)





# STATEMENTS OF HERITAGE IMPACT

**TABLE 1**

<b>Proposed Change to Heritage Item</b>	<b>Some Questions to be Answered in a Statement of Heritage Impact</b>	<b>Minimum Supporting Information Required</b>
<b>Demolition of a building or structure</b>	<ul style="list-style-type: none"> <li>• Have all options for retention and adaptive re-use been explored?</li> <li>• Can all of the significant elements of the heritage item be kept and any new development be located elsewhere on the site?</li> <li>• Is demolition essential at this time or can it be postponed in case future circumstances make its retention and conservation more feasible?</li> <li>• Has the advice of a heritage consultant been sought? Have the consultant's recommendations been implemented? If not, why not?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP
<b>Minor partial demolition</b> (including internal elements)	<ul style="list-style-type: none"> <li>• Is the demolition essential for the heritage item to function?</li> <li>• Are important features of the item affected by the demolition (e.g. fireplaces in buildings)?</li> <li>• Is the resolution to partially demolish sympathetic to the heritage significance of the item?</li> <li>• If the partial demolition is a result of the condition of the fabric, is it certain that the fabric cannot be repaired?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP
<b>Major partial demolition</b> (including internal elements)	<ul style="list-style-type: none"> <li>• Is the demolition essential for the heritage item to function?</li> <li>• Are particular features of the item affected by the demolition (e.g. fireplaces in buildings)?</li> <li>• Is the detailing of the partial demolition sympathetic to the heritage significance of the item (e.g. creating large square openings in internal walls rather than removing the wall altogether)?</li> <li>• If the partial demolition is a result of the condition of the fabric, is it certain that the fabric cannot be repaired?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP
<b>Change of use</b>	<ul style="list-style-type: none"> <li>• Has the advice of a heritage consultant or structural engineer been sought? Has the consultant's advice been implemented? If not, why not?</li> <li>• Does the existing use contribute to the significance of the heritage item?</li> <li>• Why does the use need to be changed?</li> <li>• What changes to the fabric are required as a result of the change of use?</li> <li>• What changes to the site are required as a result of the change of use?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP



## STATEMENTS OF HERITAGE IMPACT

Proposed Change to Heritage Item	Some Questions to be Answered in a Statement of Heritage Impact	Minimum Supporting Information Required
<b>Minor additions</b> (see also minor partial demolition)	<ul style="list-style-type: none"> <li>• How is the impact of the addition on the heritage significance of the item to be minimised?</li> <li>• Can the additional area be located within an existing structure? If no, why not?</li> <li>• Will the additions visually dominate the heritage item?</li> <li>• Is the addition sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?</li> <li>• Are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP
<b>Major additions</b> (see also major partial demolition)	<ul style="list-style-type: none"> <li>• How is the impact of the addition on the heritage significance of the item to be minimised?</li> <li>• Can the additional area be located within an existing structure? If not, why not?</li> <li>• Will the additions tend to visually dominate the heritage item?</li> <li>• Are the additions sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?</li> <li>• Are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP
<b>New development adjacent to a heritage item</b> (including additional buildings and dual occupancies)  <i>Note: Most planning instruments (such as local and regional environmental plans) require the approval authority to take into account the impact of new development on adjacent heritage items or conservation areas.</i>	<ul style="list-style-type: none"> <li>• How is the impact of the new development on the heritage significance of the item or area to be minimised?</li> <li>• Why is the new development required to be adjacent to a heritage item?</li> <li>• How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?</li> <li>• How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?</li> <li>• Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?</li> <li>• Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?</li> <li>• Will the additions visually dominate the heritage item? How has this been minimised?</li> <li>• Will the public, and users of the item, still be able to view and appreciate its significance?</li> </ul>	<b>Local:</b> CP  <b>State:</b> CMP



## STATEMENTS OF HERITAGE IMPACT

Proposed Change to Heritage Item	Some Questions to be Answered in a Statement of Heritage Impact	Minimum Supporting Information Required
<b>Subdivision</b> <i>Note: Impacts on heritage values related to new subdivision can often be minimised through development control plans (DCPs). Refer to the Best Practice Guideline on preparing DCPs published by the Department of Planning.</i>	<ul style="list-style-type: none"> <li>How is the proposed curtilage allowed around the heritage item appropriate?</li> <li>Could future development that results from this subdivision compromise the significance of the heritage item? How has this been minimised?</li> <li>Could future development that results from this subdivision affect views to, and from, the heritage item? How are negative impacts to be minimised?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP
<b>Repainting</b> using new colour schemes	<ul style="list-style-type: none"> <li>Have previous (including original) colour schemes been investigated? Are previous schemes being reinstated?</li> <li>Will the repainting effect the conservation of the fabric of the heritage item?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP
<b>Re-roofing/re-cladding</b>	<ul style="list-style-type: none"> <li>Have previous (including original) roofing/cladding materials been investigated (through archival and physical research)?</li> <li>Is a previous material being reinstated?</li> <li>Will the re-cladding effect the conservation of the fabric of the heritage item?</li> <li>Are all details in keeping with the heritage significance of the item (e.g. guttering, cladding profiles)?</li> <li>Has the advice of a heritage consultant or skilled tradesperson (e.g. slate roofer) been sought?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP
<b>New services</b> (e.g. air conditioning, plumbing)	<ul style="list-style-type: none"> <li>How has the impact of the new services on the heritage significance of the item been minimised?</li> <li>Are any of the existing services of heritage significance? In what way? Are they affected by the new work?</li> <li>Has the advice of a conservation consultant (e.g. architect) been sought? Has the consultant's advice been implemented?</li> <li>Are any known or potential archaeological deposits (underground and under floor) affected by the proposed new services?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP (CMP for a major services upgrade)
<b>Fire upgrading</b> <i>Note: Where agreement cannot be reached between the local council and your consultants on suitable fire-upgrading you may seek the advice of the Fire, Access &amp; Services Panel, a subcommittee of the Heritage Council of NSW. Contact the Heritage Office for further information on (02) 9391 2115.</i>	<ul style="list-style-type: none"> <li>How has the impact of the upgrading on the heritage significance of the item been minimised?</li> <li>Are any of the existing services of heritage significance? In what way? Are they affected by the new work?</li> <li>Has the advice of a conservation consultant (e.g. architect) been sought? Has their advice been implemented?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP

*Continued*



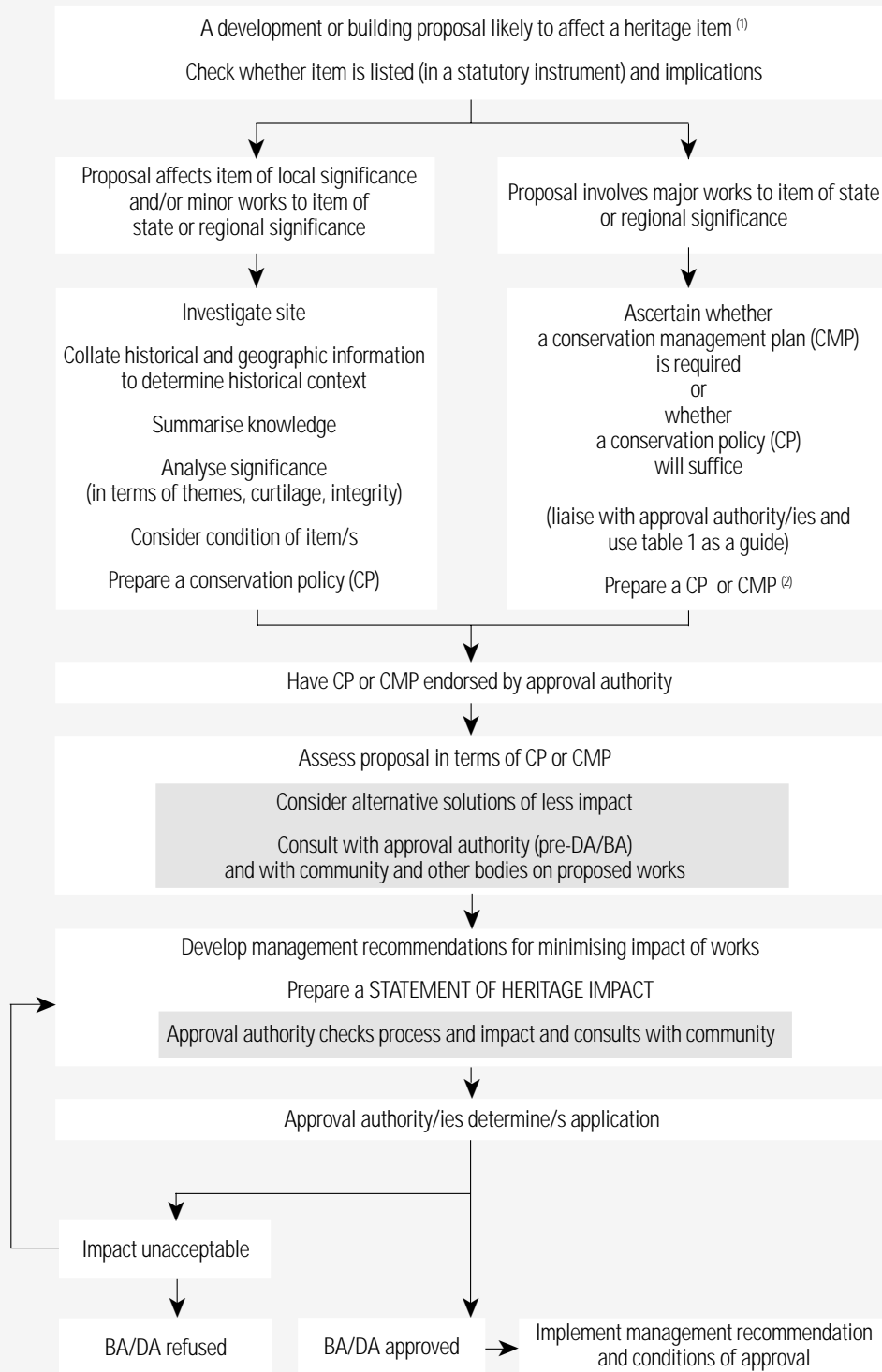


## STATEMENTS OF HERITAGE IMPACT

Proposed Change to Heritage Item	Some Questions to be Answered in a Statement of Heritage Impact	Minimum Supporting Information Required
<b>Fire upgrading</b> (continued)	<ul style="list-style-type: none"> <li>Are any known or potential archaeological deposits (underground or under floor) affected by the proposed new services?</li> <li>Has the advice of a fire consultant been sought to look for options that would have less impact on the heritage item? Will this advice be implemented? How?</li> </ul>	
<b>New landscape works and features</b> (including carpark and fences)	<ul style="list-style-type: none"> <li>How has the impact of the new work on the heritage significance of the existing landscape been minimised?</li> <li>Has evidence (archival and physical) of previous landscape work been investigated? Are previous works being reinstated?</li> <li>Has the advice of a consultant skilled in the conservation of heritage landscapes been sought? If so, have their recommendations been implemented?</li> <li>Are any known or potential archaeological deposits affected by the landscape works? If so, what alternatives have been considered?</li> <li>How does the work impact on views to, and from, adjacent heritage items?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CMP (CP will suffice for minor works)
<b>Tree removal or replacement</b>  <i>Note: Always check the tree preservation provisions of your local council when proposing removal of trees</i>	<ul style="list-style-type: none"> <li>Does the tree contribute to the heritage significance of the item or landscape?</li> <li>Why is the tree being removed?</li> <li>Has the advice of a tree surgeon or horticultural specialist been obtained?</li> <li>Is the tree being replaced? Why? With the same or a different species?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP
<b>New signage</b>  <i>Note: Check whether the local council has a signage policy or design guidelines</i>	<ul style="list-style-type: none"> <li>How has the impact of the new signage on the heritage significance of the item been minimised?</li> <li>Have alternative signage forms been considered (e.g. free standing or shingle signs). Why were they rejected?</li> <li>Is the signage in accordance with section 6, 'Areas of Heritage Significance', in <i>Outdoor Advertising: An Urban Design-Based Approach</i>?<sup>(1)</sup> How?</li> <li>Will the signage visually dominate the heritage item/ heritage conservation area or heritage streetscape?</li> <li>Can the sign be remotely illuminated rather than internally illuminated?</li> </ul>	<b>Local:</b> SOS  <b>State:</b> CP

(1) A joint publication by the Department of Planning (NSW) & Department of Planning and Housing (Victoria). Published by Department of Planning (NSW), Sydney, 1991.

## DEVELOPMENT AND BUILDING APPROVAL FLOW CHART



Note:

 Indicates public participation.

(1) Items may be cultural landscapes, places, conservation areas, buildings, structures, relics or other work of heritage significance. They may be positioned on or adjacent to the development site

(2) See Conservation Management Documents in the NSW Heritage Manual for information on preparing policies and plans



<b>Site</b>	Russell Vale Colliery	<b>DOC ID</b>	RVC EC PLN 016
<b>Type</b>	Management Plan	<b>Date Published</b>	17/8/2021
<b>Doc Title</b>	Heritage Management Plan		

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## APPENDIX F – ARCHIVAL RECORDING

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# Russell Vale East UEP Pit Top: Archival Report

FINAL REPORT

Prepared for Wollongong Coal Limited

16 July 2021

## Biosis offices

### NEW SOUTH WALES

#### Albury

Phone: (02) 6069 9200  
Email: [albury@biosis.com.au](mailto:albury@biosis.com.au)

#### Newcastle

Phone: (02) 4911 4040  
Email: [newcastle@biosis.com.au](mailto:newcastle@biosis.com.au)

#### Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Western Sydney

Phone: (02) 9101 8700  
Email: [sydney@biosis.com.au](mailto:sydney@biosis.com.au)

#### Wollongong

Phone: (02) 4201 1090  
Email: [wollongong@biosis.com.au](mailto:wollongong@biosis.com.au)

### VICTORIA

#### Ballarat

Phone: (03) 5304 4250  
Email: [ballarat@biosis.com.au](mailto:ballarat@biosis.com.au)

#### Melbourne

Phone: (03) 8686 4800  
Email: [melbourne@biosis.com.au](mailto:melbourne@biosis.com.au)

#### Wangaratta

Phone: (03) 5718 6900  
Email: [wangaratta@biosis.com.au](mailto:wangaratta@biosis.com.au)

## Document information

<b>Report to:</b>	Wollongong Coal Limited
<b>Prepared by:</b>	Samantha Keats
<b>Biosis project no.:</b>	34553
<b>File name:</b>	34553.RVC.Archival.Report.FIN01.20210716
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<b>LGA:</b>	Wollongong

## Document control

Version	Internal reviewer	Date issued
Draft 01	Maggie Butcher	01/06/2021
Final 01	Samantha Keats	15/07/2021

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- Wollongong Coal Limited: Richard Sheehan and Sasa Cugalj.

Biosis staff involved in this project were:

- Lauren Harley – mapping.

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# Contents

<b>Glossary.....</b>	<b>1</b>
<b>1 Introduction .....</b>	<b>2</b>
1.1 Project background .....	2
1.2 Study area.....	2
<b>2 Methodology .....</b>	<b>8</b>
1.1 Archival recording method .....	8
1.2 Report structure .....	9
1.3 Limitations .....	10
<b>3 Archival findings.....</b>	<b>11</b>
1.4 South Bulli Colliery (Item no.5928).....	11
3.1.1 Historical context.....	11
3.1.2 Photographic index.....	13
3.1.3 Photographic plan and catalogue .....	19

## Tables

Table 1	Minimum requirements for digital photographic report .....	8
Table 2	Minimum requirements for printing of digital materials .....	8
Table 3	Checklist for archival recording .....	9
Table 4	Historical summary, site description and statement of significance for South Bulli Colliery (Item no.5928) .....	11
Table 5	South Bulli Colliery (Item no. 5928) .....	13
Table 6	External photographic index for South Bulli Colliery (Item no. 5928) .....	13

## Figures

Figure 1	Location of the study area .....	4
Figure 2	Study area .....	5
Figure 3	Historic precinct plan .....	6
Figure 4	Site element details .....	7
Figure 5	Photo location .....	20

## Photos

Photo 1	Photographic catalogue for South Bulli Colliery (Item No. 5928).....	29
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## Glossary

<b>AR</b>	Archival report
<b>Biosis</b>	Biosis Pty Ltd
<b>CBD</b>	Central Business District
<b>DA</b>	Determining Authority
<b>EMM</b>	Environmental Management Measures
<b>Heritage NSW</b>	Heritage NSW, Department of Premier and Cabinet (DPC)
<b>Historical context</b>	Physical description, historical outline and statement of significance for the heritage item.
<b>LGA</b>	Local Government Area
<b>LW</b>	Longwall
<b>Mt</b>	Million tonnes
<b>NSW</b>	New South Wales
<b>Photographic index</b>	Method of photography and index of photographs comprising archival recording detailing the aspect, description, date.
<b>Photographic plan</b>	Details of location and aspect of photographs taken overlying a modern aerial image of the heritage item. Photographic numbers depicted in the plan are cross-referenced with the Photographic index.
<b>Photographic catalogue</b>	Proofs of each digital image taken for the heritage item with corresponding number depicted on the photographic plan and detailed in the photographic index
<b>UEP</b>	Underground Expansion Project
<b>PAC</b>	Planning Assessment Commission
<b>ROM</b>	Run-of-mine
<b>RVC</b>	Russell Vale Colliery
<b>WCL</b>	Wollongong Coal Limited

# 1 Introduction

---

## 1.1 Project background

Biosis Pty Ltd (Biosis) has been commissioned by Wollongong Coal Limited (WCL) to undertake an archival recording of historical heritage sites within the Pit Top of Russell Vale Colliery (RVC), New South Wales (NSW) (the project).

WCL operates the RVC in the Southern Coalfield of NSW. The mine is located at Russell Vale approximately 8 kilometres north of Wollongong and 70 kilometres south of Sydney, within the local government areas of Wollongong and Wollondilly in the Illawarra region of NSW. RVC is within the Sydney Catchment Authority controlled Metropolitan Catchment area, which is used to provide drinking water to Sydney and Wollongong. It also occurs within the Dam Safety Committee Notification Area for Cataract Reservoir.

RVC comprises an existing underground coal mine under project approval (10\_0046) granted by the Planning Assessment Commission (PAC) on 13 October 2011. The project approval was modified (PA 10\_0046 MOD1) by the PAC in 2012 to allow:

- Extraction of coal using longwall mining techniques in the Wongawilli Seam for Longwall 4 (LW 4) and Longwall 5 (LW 5).
- Development of the main gate roads for Longwall 6 (LW 6).

A second modification to the project approval (PA 10\_0046 MOD2) was granted by the PAC on 19 November 2014 to authorise:

- Secondary extraction of the first 365 metres of LW 6.
- Extension of the duration of mining until 31 December 2015.

A time extension comprising three years from the date of the approval (PA 10\_0046 MOD3) was also granted by the PAC on 19 November 2014. The most recent modification to the project approval for the Russell Vale East Revised Underground Expansion Project (UEP) (MP09\_0013) was granted by the NSW Independent Planning Commission on 8 December 2020 to allow:

- Mining using first working mining techniques within the RVE UEP area, with the workings targeting the Wongawilli Seam designed to be long-term stable with imperceptible subsidence impacts. No longwall mining is proposed.
- Extraction of approximately 3.7 Million tonnes (Mt) of run-of-mine (ROM) coal over a period of five years at a rate not exceeding 1.2 Mt of ROM coal per year and a production rate not exceeding one Mt of product coal per year.

The mine plan has been designed to be long term stable and to address potential subsidence-related mining impacts on surface cracking within the Cataract Reservoir catchment.

## 1.2 Study area

The study area is located in Russell Vale in the Wollongong City Council local government area (LGA), approximately seven kilometres north of the Wollongong CBD (see Figure 1 and Figure 2). The study area extends from Princess Highway to the east up the base of the escarpment to the west. As a working colliery

for over a century and a half, the study site has a variety of infrastructure that is spread out over a wide area (Figure 3 and Figure 4).

Condition B26 (f) (ii.) of the project approval MP09\_0013 requires that a photographic/archival recording of any items of heritage significance predicted to be impacted by the development, prior to disturbance should be undertaken. Works associated with the planned upgrade are all located within the existing disturbance footprint of the study area at the RVC Pit Top. The only impacts to occur are the decommissioning and removal of the Coal Washery Plant, which has been approved under Wollongong City Council DA D2004/32. However, Biosis have undertaken an archival recording to document the current condition of the South Bulli Colliery prior to works commencing.

This report presents archival recordings collected on 2 February 2021 within the study area. The archival record has been prepared in accordance with the Heritage Division guidelines *How to Prepare Archival Records of Heritage Items* (Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage Office 2006). The work was undertaken by Samantha Keats and Mathew Smith, archaeologists with over five years' experience in the heritage industry. A curriculum vita has been provided in Appendix 2.



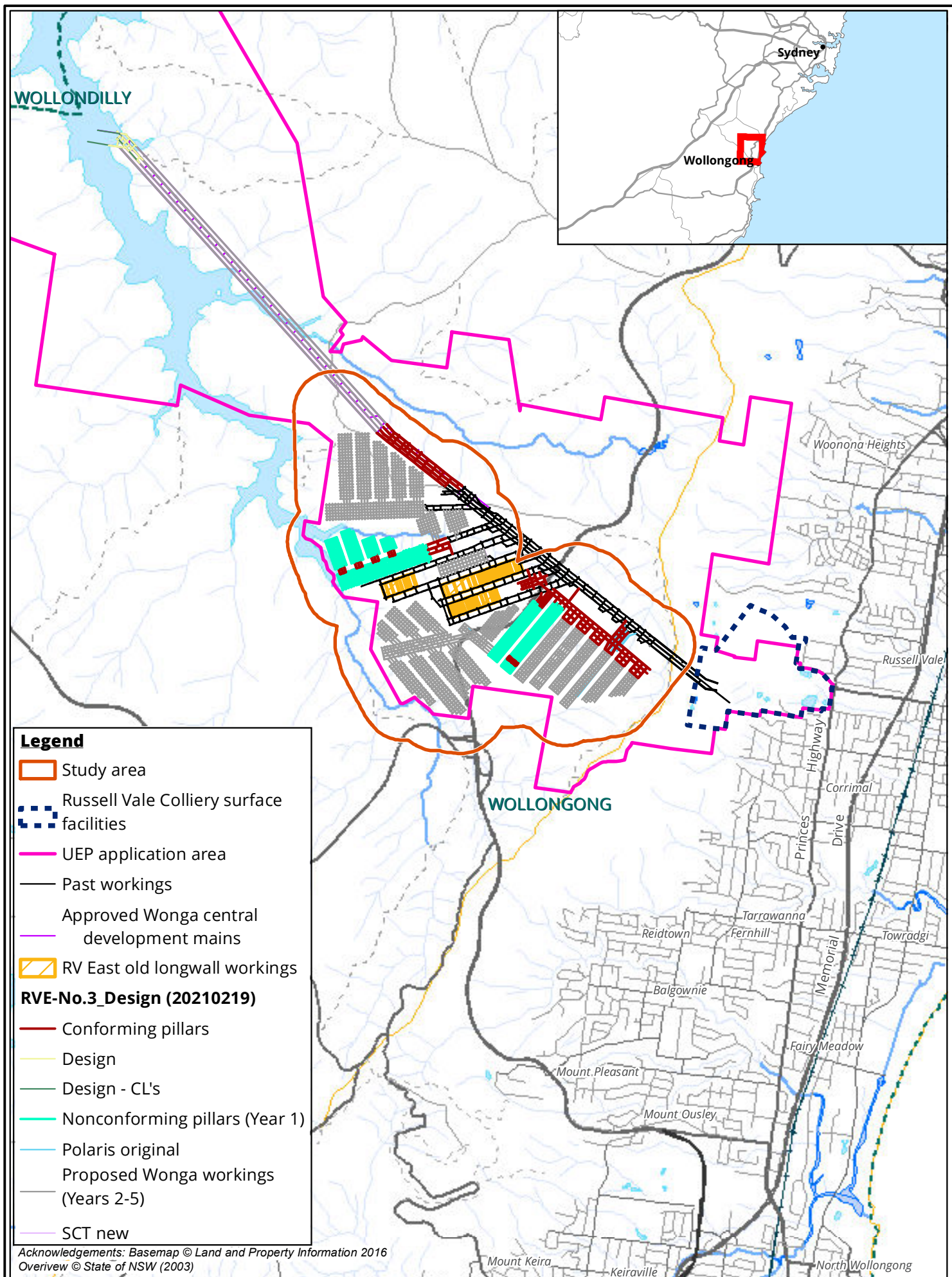
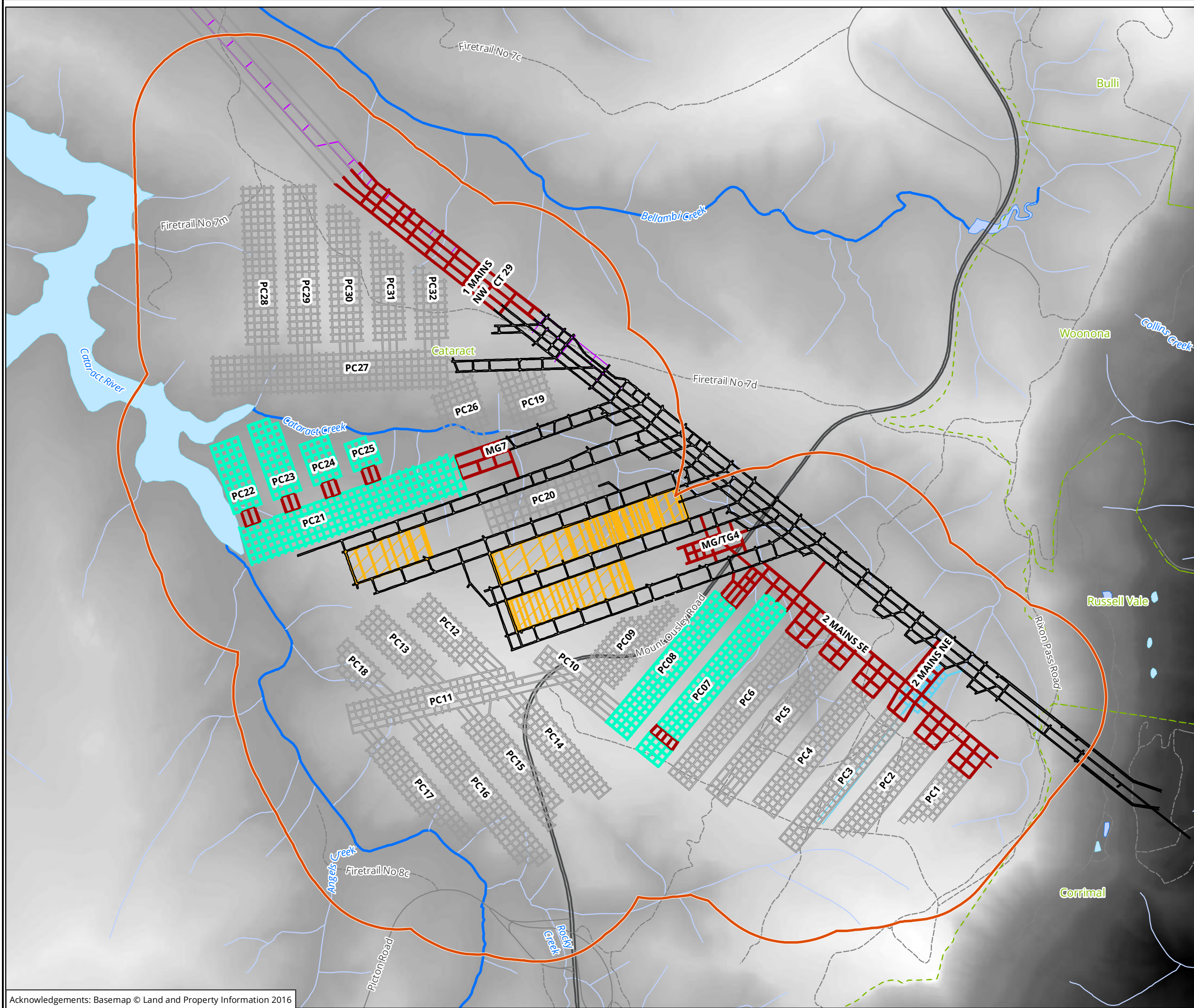


Figure 1 Location of the study area





#### Legend

- Study area
- Past workings
- Approved Wonga central development mains
- RV East old longwall workings
- RVE-No.3\_Design (20210219)**
- Conforming pillars
- Nonconforming pillars (Year 1)
- Polaris original
- Proposed Wonga workings (Years 2-5)
- SCT new

**Figure 2 Study area**

0 200 400 600 800  
Metres

Scale: 1:15,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Albury, Ballarat, Melbourne,  
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 34553  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharry  
Location: P:\34500s\34553\Mapping\34553\_F2\_StudyArea





# Legend

- Russell Vale Colliery surface facilities
- Precincts

**Figure 3 Historical Precinct Plan**



Scale: 1:5,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F6\_HistoricalPrecincts.mxd

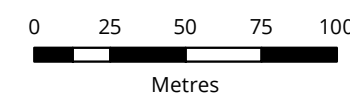




**Legend**

 Russell Vale Colliery surface facilities

**Figure 4 Site elements**



Scale: 1:2,500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



Matter: 34553,  
Date: 28 April 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_F7\_SiteElements.mxd



## 2 Methodology

### 1.1 Archival recording method

This archival report (AR) has been prepared in accordance with the following NSW Heritage Branch guidelines as a best practice approach to archival photographic recordings:

- *How to Prepare Archival Recordings of Heritage Items* (Heritage Office 1998).
- *Photographic Recording of Heritage Items using Film or Digital Capture* (Heritage Office 2006).

Archival recordings were collected on 2 February 2021 by Mathew Smith of Biosis. The archival recording consists of a photographic recording which encompasses views to and from the item from several angles, in detail and showing its relationship to its surrounding landscape. Views of each are recorded along with other significant details. Where applicable, photographs include a scale.

The tables following are the requirements for digital recording and reporting as per the guidelines which have been followed by this report.

**Table 1 Minimum requirements for digital photographic report**

Guideline requirements	Where addressed
A very brief report or introduction which explains the purposes of the report and gives a brief description of the subject, as well as details of the sequence in which images were taken. The report may also address the limitations of the photographic record and may make recommendations for future work.	Addressed in the historical context sections of this report.
The report should include all technical details including camera and lenses, image file size and format, technical metadata associated with the images, and colour information.	Addressed in the photographic index sections of this report.
The report should also contain the catalogue sheets, photographic plan, and supplementary maps or plans.	Addressed in the photographic plan and index sections of this report.

**Table 2 Minimum requirements for printing of digital materials**

Guideline requirements	Where addressed
Three hard (paper) copies of the photographic report including catalogue sheets, photographic plan and supplementary maps.	The printing and dissemination of the report will follow these guidelines once acceptance of the final version of the report has been received by the client.
Three sets of thumbnail image sheets (e.g. A4 photographic paper with six images by six images) showing images and file numbers. Thumbnail image sheets should be processed with archival stable inks using approved archival photographic papers and cross referenced to catalogue sheets.	The printing and dissemination of the report will follow these guidelines once acceptance of the final version of the report has been received by the client.

Guideline requirements	Where addressed
Three copies of archival quality CD-R discs containing electronic images files and associated metadata, cross-referenced to catalogue sheets. If there are a large number of images, then DVD media can be used.	The printing and dissemination of the report will follow these guidelines once acceptance of the final version of the report has been received by the client.
One set of 10.5 x 14.8cm (A6), prints using archival quality paper and archival stable inks. If the study is very large and includes a considerable number of digital images, key or representative images may be selected for reproduction at 10.5 x 14.8cm.	The printing and dissemination of the report will follow these guidelines once acceptance of the final version of the report has been received by the client.

**Table 3 Checklist for archival recording**

Digital studies	Yes	No
Is there a hardcopy report?	X	
Does the hardcopy report contain:		
a) Thumbnail proof sheet processed in an archival acceptable method?	X	
b) Proof sheet properly sleeved in archival protective pages?	X	
c) Appropriate electronic storage media with report and images?	X	
d) Cameras, lenses, and accessories details?	X	
e) Map showing image location and details?	X	
f) List of all images, correctly numbered and described?	X	
Is there an electronic report?	X	
How is the information stored?		
a) CD Rom – what type		
b) DVD – what type	X - DVD-R	
c) Other		
Can the storage media be opened?	X	
Is the information the same as that contained in the hardcopy report?	X	
Are the images saved as TIFF files, contain metadata and follow guidelines?	X	
If not, what is the file format and where have they diverted from guidelines?		
Is the storage media filed in an acceptable container?		
Is there a back-up copy stored with the hardcopy report?	X	
Is there a full set of 10.5 x 14.8 (A6) images processed with archival stable inks and paper?	X	
Comments for either film and/or digital reports:		

Source: *Photographic Recording of Heritage Items Using Film or Digital capture* (Heritage Office 2006).

## 1.2 Report structure

This AR has been prepared in accordance with NSW Heritage Office guidelines and includes:



- A title page.
- A brief introduction that outlines the reasons and purposes of the archival record.
- A brief section on the location of the study area, a brief history and any other information available on existing significance assessments.
- A methodology that describes the process of photography and the limitations of the study.
- Technical details associated with the photography, including a description of the cross referencing system employed.
- A photographic catalogue that references the photographic plan.
- A photographic plan that references the photographic catalogue.

The catalogue includes information relating to the photographer, subject, direction and lens. The number of each photograph has a corresponding number on the base plan showing the location and direction of the photograph. The information on the plans shows the sequence in which the photographs were taken.

### **1.3 Limitations**

Photographic recording of sections of the study was limited due to inaccessibility, such as thick vegetation surroundings some adits. All historical information and statements of significance have been sourced from the Conservation Management Plan for the RCV Pit Top.

## 3 Archival findings

### 1.4 South Bulli Colliery (Item no.5928)

#### 3.1.1 Historical context

**Table 4 Historical summary, site description and statement of significance for South Bulli Colliery (Item no.5928)**

#### Historical summary

Coalmining in the Bellambi area was first initiated by Thomas Hale in the late 1850's on land leased from Henry Osborne south of the study area. A rough bush track was built between the mine and a jetty built at Bellambi Point, with coal being transported by horses. The Taylor and Walker Company opened a mine north of Hales in 1858 but ceased mining after only a year as they hit a fault at 300 feet (Bayley 2002, pp. 7–9). Hales mine closed in 1863 at a loss due to the drops in the price of coal and ongoing difficulties with loading coal at the Bellambi Jetty in open water.

The Taylor and Walker Company opened the Russel Vale Colliery in 1862 but were forced to close in 1864 after difficulties were encountered with extraction and a depression in coal prices (GML 2004, pp. 11–12). MacCabe bought the mine in 1884 but moves to reopen the mine floundered. In 1887 the mine was bought by a syndicate associated with Thomas Saywell forming the South Bulli Mining Company. A series of surface works were undertaken which included the construction of the 1887 portal entrance, the erection of a large boiler house and steam engine, sawmill and a new jetty at Bellambi Point.

The South Bulli Mining Company was sold to Ebeneza Vickery in 1890 who continued to expand operations. This included the introduction of endless rope haulage in the mine and possibly the introduction of locomotives to haul coal from the pit top to the jetty (Bayley 2002, pp. 10). A small gas explosion occurred in 1891, but no other major incidents occurred. While transport continued to be improved between the pit top and jetties, horse transport within the mine would continue well into the 20th Century.

The Bellambi Coal Company purchased the South Bulli Colliery in 1901, combining the South Bulli and Bellambi mining operations (Bayley 2002, pp. 10). Operations continued to expand with the introduction of the company's own shipping line which was operating four coastal colliers by 1908, including the custom built S.S. Bellambi. The jetty was again expanded, new workshops and screens were added and a standard-gauge skip haulage-incline was constructed up to Gibsons Portal which had its own endless rope system (GML 2004, pp. 12). Over 1000 men were employed on the mine and transport system and the mine had reached an output of 2,200 tonnes per day in 1909 (Bayley 2002, pp. 10, GML 2004, pp. 12).

A power station for the mine was built in 1913 above Gibsons Portal which also supplied the Bulli Township until 1957 (GML 2004, pp. 12). Electrical lighting was installed underground and the mine was operating both day and night. The demand for coke increased at the beginning of the 20th Century, and coking ovens were installed along the coastal mines to meet this demand. One oven was located on the South Bulli tramline below the study site (Bayley 2002, pp. 19). Coastal coke ovens would produce the majority of coke in the region until 1927 when production was directed to the newly built Port Kembla steelworks which had superior coking facilities. The Coal Miners Federation was established in 1908 and began to organise a series of strikes in mines along the coast as part of efforts to improve miners pay and work conditions (Bayley 2002, pp. 20).

German shipping lines were major buyers of the South Bulli Mine coal and business depressed during World War One with the mine briefly closing between 1916 and 1917 (GML 2004, pp. 13). The mine reopened in 1917 and the first underground transport system for miners in New South Wales was installed. Increased public and political awareness of coal mining conditions saw a number of reform movements emerge during the 1920's to increase mine safety and

## Historical summary

improved working conditions of miners. A rescue station was established in 1927 beside the Princes Highway near its crossing of the South Bulli coal tramline. The rescue station included equipment for the recovery of miners trapped underground and specialised resuscitation equipment (Bayley 2002, pp. 20).

NSW Member for Parliament W. Davies pushed for the installation of improved washing facilities in the coastal collieries in the early 1920's after being impressed with hot and cold shower facilities he viewed at coal mines in Broken Hill (Bayley 2002, pp. 20). Bathhouses were subsequently installed to much satisfaction of the coal mining workforce, the bathhouse at the South Bulli Colliery being constructed in 1928 next to the upper workshops and 1887 portal. As the coalmine continued to expand considerations were made for adequate ventilation and an application was submitted in 1923 to construct a ventilation shaft in the catchment. Approval was received and the shaft was constructed in 1929 meeting the underground workings at a depth of 323 metres (GML 2004, pp. 13).

Mechanisation of the South Bulli Colliery began in 1935 with the introduction of an arcwall cutter, with a second cutter being introduced a year later. The arcwall cutters were CA12 type cutters mounted on tracks and replaced hand mining on the face. Improvements to the ventilation and underground transport system continued in the early 1940's. Two D type scrapper loaders were introduced in 1947 and four Maver and Coulson loading Machines were installed in 1949, greatly increasing productivity. The scrapper loaders were replaced in 1954 by a track mounted L600 loading machine, 20U mechanised cutter and two electric battery locomotives of Jeffery manufacture (GML 2004, pp. 13).

During the early 1950's Port Kembla Declining increasingly became the port of choice for moving coal and Bellambi Point Jetty and its associated crushing plant was closed between 1952 and 1953 (GML 2004, pp. 14). The skip incline system from the pit top to coast was replaced with a conveyor belt system. A second L600 loading machine was added in 1956 and a Lee-Norse Continuous miner, the first in Australia, in 1959. As the demand for coking coal increased, particularly from Japan, the operations and layout of the colliery were reassessed and a large scale rebuilding program pursued in the early 1960's.

In late 1960 a Joy continuous miner and roof bolting machine with four Jeffery shuttle cars were introduced and followed by an additional continuous miner, roof bolting machine and two shuttle cars in 1962. Surface works were undertaken between late 1960 and 1962 and included the addition of a new coal preparation plant (washery), coal handling facilities, stockpile and recovery facilities below the escarpment. Underground, new storage, transportation and ventilation facilities and systems were put in place. Coal was transported from underground storage bins via a conveyer belt to the surface storage and handling facilities. In 1962 the first shipment of coking coal was made to Japan under contract. (GML 2004, pp. 14).

New office building and lower work sheds were officially opened in 1965 by Sir George Harvie-Watt in 1965 (Australian Coal Association 1965: 22). During the mid to late 1960's longwall mining in Australia was pioneered at the colliery. Specialist equipment was commissioned in 1965 consisting of Gillick chocks, Meco face conveyor and Anderson Berge's coal shearer. A second longwall unit was installed in 1970, but it was not until a new Japanese system from Taiheyo Engineering Incorporated was introduced in 1975 that the process had significant outcomes.

Austen and Butta Ltd purchased the Bellambi Coal Company Pty Ltd in 1985 and took over operations at the South Bulli Colliery. On the 24th July 1991 a gas explosion occurred at the W12 panel, killing three miners (Harvey and Singh 1998: 653-654). Austen and Butta Ltd were purchased by the Shell Company, who took over operations at the South Bulli Colliery (GML 2004, pp. 15). Shell operated the South Bulli Colliery from 1992 to 2004 although the workforce was reduced dramatically and production was limited. Gujarat NRE purchased the South Bulli Colliery from Shell in 2004. In 2008 Gujarat NRE announced a series of proposals to upgrade the existing facilities and approvals for the NRE No. 1 Colliery Preliminary Works were granted in October 2011.



### Site description

The site of the South Bulli Colliery comprises buildings, structures and landscape features relating to mining operations from the mid nineteenth to late twentieth centuries. These can be said to be comprised of a series of historical 'layers' representing the cumulative changes of many stages of construction, demolition and reconstruction. Infrastructure associated with this pre -coalmining phase of the study area have largely been destroyed by the subsequent construction of coalmining infrastructure in the 1960s, however relics from Russell Vale House and the MacCabe family, who played an important role in the early coalmining history of the Illawarra, are held by the IHS. A more detailed discussion of the MacCabe family is provided in the 2012 conservation management plan.

### Statement of significance

The South Bulli Colliery site is an important place in the Illawarra's and the state's history because it is one of the earliest established and longest-running coal mining operations in Australia and because it retains structures, machinery, landform and spatial configurations that illustrate and embody its history.

The site is also important because, during its operating life, it introduced the first underground transport system installed for employees in New South Wales (1917) and it pioneered longwall mining in the New South Wales coal fields (1965). The colliery holds the Australian record for underground coal extraction and this reflects both its long period of operations and its history of investment in technical innovation.

The site as a whole is important in the course of the Illawarra's history because [it] was important in providing the employment and investment that catalysed population growth and established the pattern of settlement of Russell Vale Township and the north Wollongong area.

The site has cultural associations with the local community and the broader coal mining community because of its long history, historically-pivotal social and economic role in the area and because it was, at various times, a centre for labour movement and workplace reform activity (GML 2004, pp. 82–83).

## 3.1.2 Photographic index

**Table 5 South Bulli Colliery (Item no. 5928)**

### Archival photography digital image catalogue sheet

<b>Study name</b>	South Bulli Colliery		
<b>Camera</b>	Canon EOS 350D	Lenses	18–55 mm
<b>Sensor size</b>	1.5	35 mm Lens Equivalent	1:3.5–5.6
<b>Proof #</b>	1	Photographer	Mathew Smith

**Table 6 External photographic index for South Bulli Colliery (Item no. 5928)**

Image file no.	Date	Description
IMG_4070	02/02/2021	Balgownie Portal
IMG_4071	02/02/2021	Administration Buildings
IMG_4072	02/02/2021	Crib Room and First Aid Station
IMG_4073	02/02/2021	Crib Room and First Aid Station
IMG_4074	02/02/2021	Crib Room and First Aid Station

Image file no.	Date	Description
IMG_4075	02/02/2021	Crib Room and First Aid Station
IMG_4076	02/02/2021	Lower Bench Workshops
IMG_4077	02/02/2021	Lower Bench Workshops
IMG_4078	02/02/2021	Lower Bench Workshops
IMG_4079	02/02/2021	Lower Bench Workshops
IMG_4080	02/02/2021	Store Room
IMG_4081	02/02/2021	Store Room
IMG_4082	02/02/2021	Store Room
IMG_4083	02/02/2021	Administration Buildings
IMG_4084	02/02/2021	Administration Buildings
IMG_4085	02/02/2021	Store Room
IMG_4086	02/02/2021	Store Room
IMG_4087	02/02/2021	Store Room
IMG_4088	02/02/2021	Crib Room and First Aid Station
IMG_4089	02/02/2021	Crib Room and First Aid Station
IMG_4090	02/02/2021	Crib Room and First Aid Station
IMG_4091	02/02/2021	Crib Room and First Aid Station
IMG_4092	02/02/2021	Exterior of buildings associated with Store Room
IMG_4093	02/02/2021	Lower Bench Workshops
IMG_4094	02/02/2021	Lower Bench Workshops
IMG_4095	02/02/2021	Lower Bench Workshops
IMG_4096	02/02/2021	Lower Bench Workshops
IMG_4097	02/02/2021	Lower Bench Workshops
IMG_4098	02/02/2021	Main Portal
IMG_4099	02/02/2021	Main Portal
IMG_4100	02/02/2021	Main Portal
IMG_4101	02/02/2021	Main Portal
IMG_4102	02/02/2021	Main Portal
IMG_4103	02/02/2021	Lower Bench Workshops

Image file no.	Date	Description
IMG_4104	02/02/2021	Location of Closed Adits
IMG_4105	02/02/2021	Location of Closed Adits
IMG_4106	02/02/2021	Road to Closed Adits
IMG_4107	02/02/2021	Extraction Portal
IMG_4108	02/02/2021	Extraction Portal
IMG_4109	02/02/2021	Extraction Portal
IMG_4110	02/02/2021	Extraction Portal
IMG_4111	02/02/2021	Extraction Portal
IMG_4112	02/02/2021	Extraction Portal
IMG_4113	02/02/2021	Extraction Portal
IMG_4114	02/02/2021	Extraction Portal
IMG_4115	02/02/2021	Extraction Portal
IMG_4116	02/02/2021	Road to Closed Adits
IMG_4117	02/02/2021	Road to Closed Adits
IMG_4118	02/02/2021	Lower Bench Workshops
IMG_4119	02/02/2021	Lower Bench Workshops
IMG_4120	02/02/2021	Lower Bench Workshops
IMG_4121	02/02/2021	Main Portal
IMG_4122	02/02/2021	Upper Bench Workshops
IMG_4123	02/02/2021	Upper Bench Workshops
IMG_4124	02/02/2021	Upper Bench Workshops
IMG_4125	02/02/2021	View down towards Administration Buildings
IMG_4126	02/02/2021	View down towards Administration Buildings
IMG_4127	02/02/2021	View down towards Administration Buildings
IMG_4128	02/02/2021	View towards Lower Bench Workshops
IMG_4129	02/02/2021	Exterior Brick Retaining Wall
IMG_4130	02/02/2021	Exterior Brick Retaining Wall
IMG_4131	02/02/2021	1887 Portal
IMG_4132	02/02/2021	1887 Portal



Image file no.	Date	Description
IMG_4133	02/02/2021	1887 Portal
IMG_4134	02/02/2021	1887 Portal
IMG_4135	02/02/2021	1887 Portal
IMG_4136	02/02/2021	1887 Portal
IMG_4137	02/02/2021	1887 Portal
IMG_4138	02/02/2021	1887 Portal
IMG_4139	02/02/2021	1887 Portal
IMG_4140	02/02/2021	1887 Portal
IMG_4141	02/02/2021	1887 Portal
IMG_4142	02/02/2021	1887 Portal
IMG_4143	02/02/2021	Interior Brick Retaining Wall
IMG_4144	02/02/2021	Interior Brick Retaining Wall
IMG_4145	02/02/2021	Interior Brick Retaining Wall
IMG_4146	02/02/2021	Interior Brick Retaining Wall
IMG_4147	02/02/2021	Interior Brick Retaining Wall
IMG_4148	02/02/2021	Interior Brick Retaining Wall
IMG_4149	02/02/2021	Interior Brick Retaining Wall
IMG_4150	02/02/2021	Landscape near Workshop Offices
IMG_4151	02/02/2021	Rear of Lower Bench Workshops
IMG_4152	02/02/2021	Landscape near Workshop Offices
IMG_4153	02/02/2021	Parking area near Workshop Offices
IMG_4154	02/02/2021	Parking area near Workshop Offices
IMG_4155	02/02/2021	Upper Bench Workshops
IMG_4156	02/02/2021	Landscape near Upper Bench Workshops
IMG_4157	02/02/2021	Landscape near Upper Bench Workshops
IMG_4158	02/02/2021	Landscape near Upper Bench Workshops
IMG_4159	02/02/2021	Landscape near Upper Bench Workshops
IMG_4160	02/02/2021	Landscape near Upper Bench Workshops
IMG_4161	02/02/2021	Landscape near Upper Bench Workshops

Image file no.	Date	Description
IMG_4162	02/02/2021	Landscape near Powerhouse Remains
IMG_4163	02/02/2021	Landscape near Powerhouse Remains
IMG_4164	02/02/2021	Landscape near Powerhouse Remains
IMG_4165	02/02/2021	Landscape near Powerhouse Remains
IMG_4166	02/02/2021	Landscape near Powerhouse Remains
IMG_4167	02/02/2021	Landscape near Powerhouse Remains
IMG_4168	02/02/2021	Landscape near Powerhouse Remains
IMG_4169	02/02/2021	Landscape near Powerhouse Remains
IMG_4170	02/02/2021	Landscape near Powerhouse Remains
IMG_4171	02/02/2021	Landscape near Powerhouse Remains
IMG_4172	02/02/2021	Landscape near Powerhouse Remains
IMG_4173	02/02/2021	Landscape near Powerhouse Remains
IMG_4174	02/02/2021	Landscape near Powerhouse Remains
IMG_4175	02/02/2021	Gibsons Portal
IMG_4176	02/02/2021	Sandstone Retaining Wall
IMG_4177	02/02/2021	Sandstone Retaining Wall
IMG_4178	02/02/2021	Sandstone Retaining Wall
IMG_4179	02/02/2021	Sandstone Retaining Wall
IMG_4180	02/02/2021	Sandstone Retaining Wall
IMG_4181	02/02/2021	Sandstone Retaining Wall
IMG_4182	02/02/2021	Sandstone Retaining Wall
IMG_4183	02/02/2021	Sandstone Retaining Wall
IMG_4184	02/02/2021	Electrical Switch Room
IMG_4185	02/02/2021	Administration Building Landscape
IMG_4186	02/02/2021	Administration Building Landscape
IMG_4187	02/02/2021	View towards Administration Building from Administration Building carpark
IMG_4188	02/02/2021	Remnant Incline Haulage Alignment
IMG_4189	02/02/2021	View from Administration Building carpark
IMG_4190	02/02/2021	View from Administration Building carpark

Image file no.	Date	Description
IMG_4190	02/02/2021	
IMG_4191	02/02/2021	View towards Lower Bench Workshops from Administration Building carpark
IMG_4192	02/02/2021	View towards Lower Bench Workshops from Administration Building carpark
IMG_4193	02/02/2021	View towards Administration Building from Administration Building carpark
IMG_4194	02/02/2021	View towards Administration Building from Administration Building carpark
IMG_4195	02/02/2021	View towards Administration Building from Administration Building carpark
IMG_4196	02/02/2021	View towards Administration Building from Administration Building carpark
IMG_4197	02/02/2021	View towards Escarpment from Administration Building carpark
IMG_4198	02/02/2021	Electrical Substation
IMG_4199	02/02/2021	Preparation Plant
IMG_4200	02/02/2021	Landscape near Preparation Plant and Former Mines Office
IMG_4201	02/02/2021	Landscape near Preparation Plant and Former Mines Office
IMG_4202	02/02/2021	Landscape near Preparation Plant and Former Mines Office
IMG_4203	02/02/2021	Landscape near Preparation Plant and Former Mines Office
IMG_4204	02/02/2021	Preparation Plant
IMG_4205	02/02/2021	Preparation Plant
IMG_4206	02/02/2021	Preparation Plant
IMG_4207	02/02/2021	Preparation Plant
IMG_4208	02/02/2021	Preparation Plant
IMG_4209	02/02/2021	Preparation Plant
IMG_4210	02/02/2021	Preparation Plant
IMG_4211	02/02/2021	Truck Loader
IMG_4212	02/02/2021	Truck Loader
IMG_4213	02/02/2021	Truck Loader
IMG_4214	02/02/2021	Truck Loader
IMG_4215	02/02/2021	Truck Loader
IMG_4216	02/02/2021	Truck Loader
IMG_4217	02/02/2021	Truck Loader
IMG_4218	02/02/2021	Coal Wagon

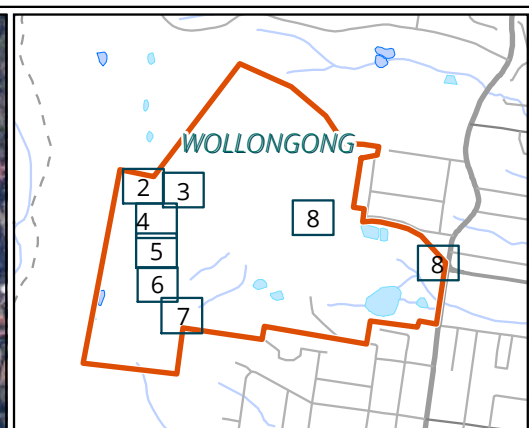


Image file no.	Date	Description
IMG_4219	02/02/2021	Coal Wagon
IMG_4220	02/02/2021	Coal Wagon
IMG_4221	02/02/2021	Coal Wagon
IMG_4222	02/02/2021	Remnant machinery near Coal Wagon
IMG_4223	02/02/2021	Remnant machinery near Coal Wagon
IMG_4224	02/02/2021	Signal Box
IMG_4225	02/02/2021	Remnant machinery near Coal Wagon
IMG_4226	02/02/2021	Remnant machinery near Coal Wagon
IMG_4227	02/02/2021	Remnant machinery near Coal Wagon
IMG_4228	02/02/2021	Signal Box
IMG_4229	02/02/2021	Signal Box
IMG_4230	02/02/2021	Signal Box
IMG_4231	02/02/2021	Signal Box
IMG_4232	02/02/2021	Signal Box
IMG_4233	02/02/2021	Remnant machinery near Coal Wagon

### 3.1.3 Photographic plan and catalogue

The following section contains maps showing the locations of the exterior photographs (Figure 5). This section is followed by a photographic catalogue of all images taken of the site referenced against the photographic index and maps.





- Legend**
- Study area
  - Photo point
  - Precincts

**Figure 5.1 Photo locations**

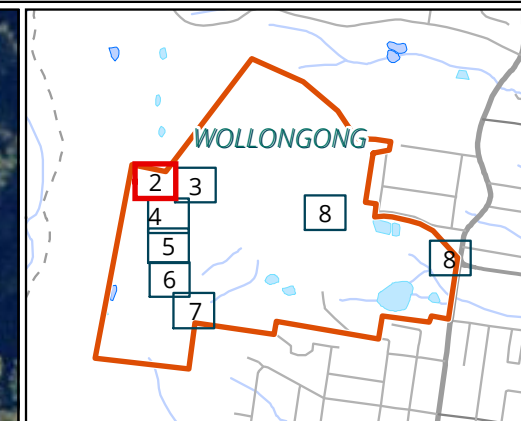
0 40 80 120 160 200  
Metres

Scale: 1:5,800 @ A3  
Coordinate System: GDA 1994 MGA Zone 56




**biosis**

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Date: 31 March 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_Archival\_F3\_PhotoPoints.mxd

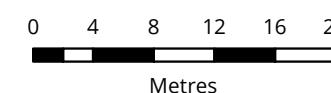




**Legend**

-  Study area
-  Photo point
-  Precincts

**Figure 5.2 Photo locations**

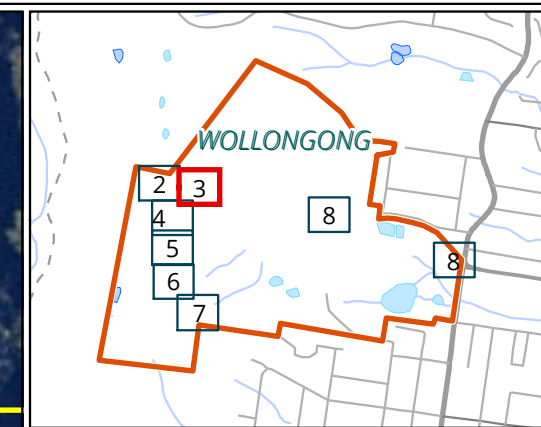


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Coordinate System: GDA 1994 MGA Zone 56






Matter: 34553,  
Date: 31 March 2021,  
Checked by: SK, Drawn by: AM, Last edited by: Iharley  
Location: P:\34500s\34553\Mapping\34553\_Archival\_F3\_PhotoPoints.mxd





**Legend**

-  Study area
-  Photo point
-  Precincts

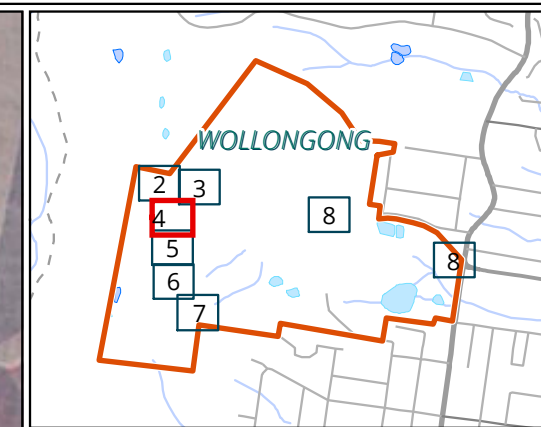
**Figure 5.3 Photo locations**



Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56



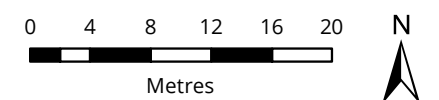




### Legend

- Study area
- Photo point
- Precincts

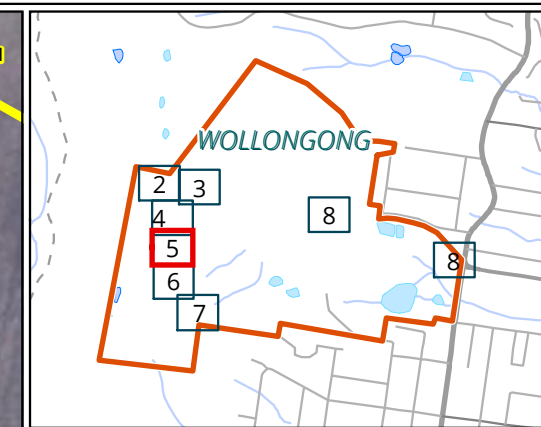
**Figure 3.4 Photo locations**



Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56

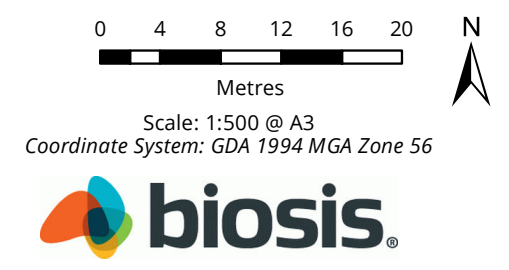




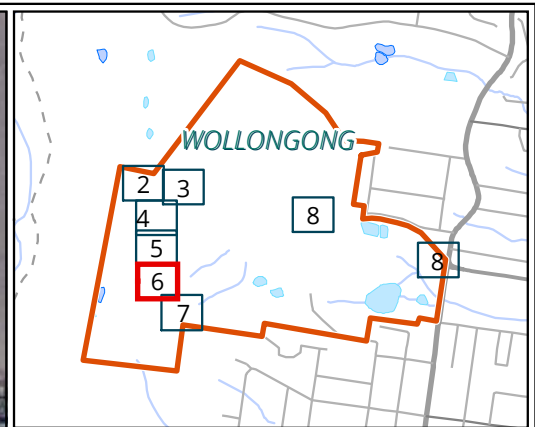


- Legend**
- Study area
  - ↑ Photo point
  - Precincts

**Figure 5.5 Photo locations**







**Legend**

- Study area
- Photo point
- Precincts

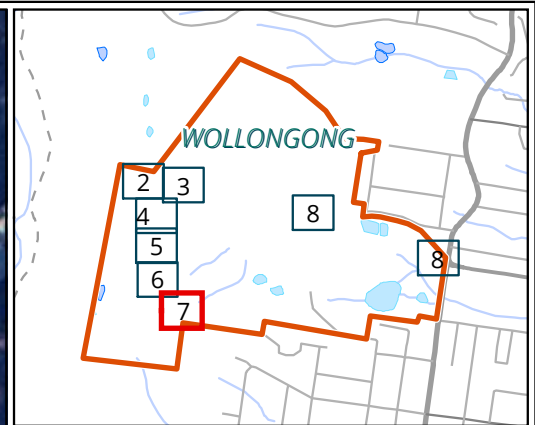
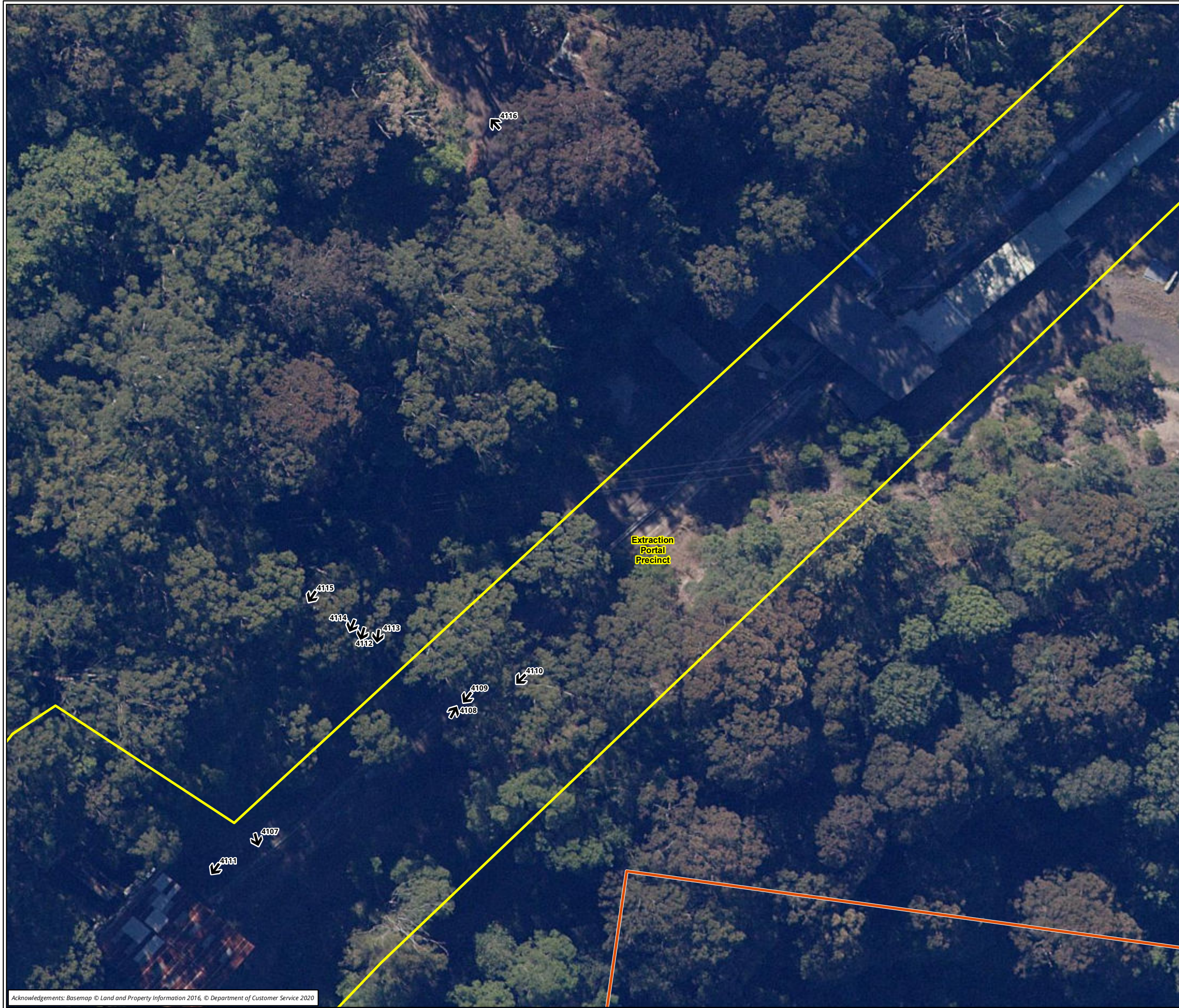
**Figure 5.6 Photo locations**



Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56

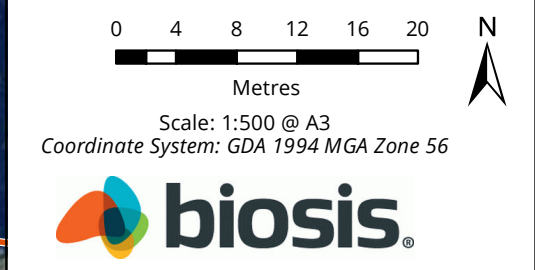




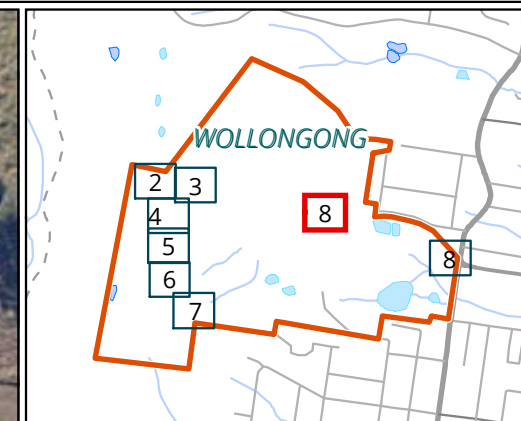


- Legend**
- Study area
  - Photo point
  - Precincts




**Figure 5.7 Photo locations**



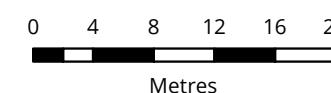




**Legend**

-  Study area
-  Photo point
-  Precincts

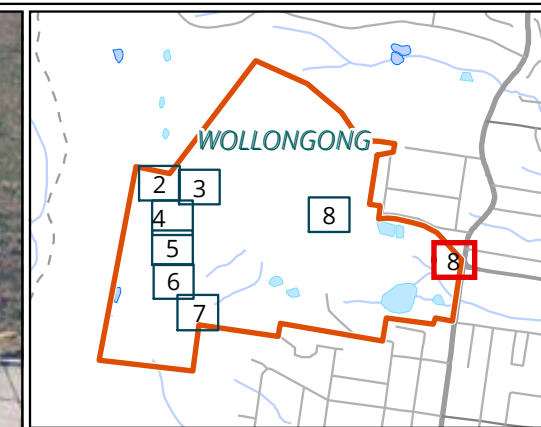
**Figure 5.8 Photo locations**



Scale: 1:500 @ A3  
Coordinate System: GDA 1994 MGA Zone 56







- Legend**
- Study area
  - Photo point
  - Precincts

**Figure 5.9 Photo locations**

0 4 8 12 16 20

Metres

Scale: 1:500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

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**Photo 1    Photographic catalogue for South Bulli Colliery (Item No. 5928)**





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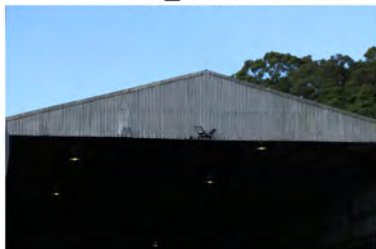
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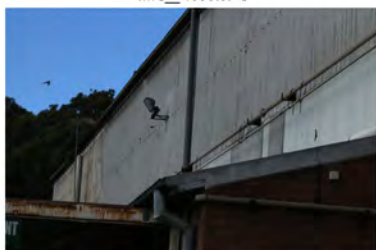
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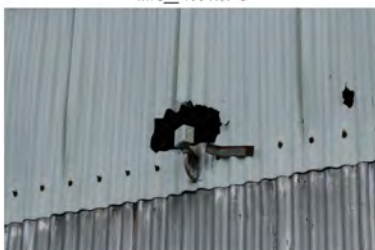
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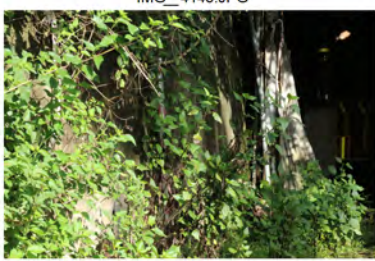
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## Appendices

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## Appendix 1    High resolution images containing metadata relating to each archival recording

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## Appendix 2    Curricula vitae

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# Mathew Smith

## Position

Consultant Archaeologist

## Qualifications

BA, BSc (Hons)



## Professional experience

Mathew is an archaeologist with over 5 years' experience in the consulting industry. Mathew is currently based out of Wollongong and has extensive experience in Western NSW and the South Coast. Mathew has also managed and completed a range of Aboriginal cultural heritage and historical heritage projects across NSW, including the Sydney Basin, Hunter Valley, Central and Northern NSW regions.

Mathew has experience working with large scale water infrastructure and linear projects, urban development projects, renewable and non-renewable energy projects, and mineral resource projects. As part of these projects Mathew has interacted with a diverse client base and is adept at managing proponent/regulator relations, particularly with resource extraction companies, architectural firms, engineering firms, and private developers. Mathew has also developed strong relations with Local and State Government agencies including Sydney Water, WaterNSW, Heritage NSW, the National Parks and Wildlife Service, and Department of Primary Industry and Water, and a number of local councils, including Wollongong, Wollondilly, Albury, Liverpool and Shoalhaven Councils.

Mathew focuses on Aboriginal archaeology and has successfully obtained project approvals for Aboriginal Heritage under the NSW National Parks and Wildlife Act 1974, including Aboriginal Heritage Impact Permits and State Significant Development approvals. As part of these approvals Mathew has authored a range of report types including due diligence assessments, Aboriginal cultural heritage assessments, heritage management plans and letters of advice which have supported review of environmental factors, Environmental Impact Statements and development applications.

Mathew's key areas of expertise include project management, field surveys, archaeological excavation, Aboriginal community consultation, and preparation of technical reports. Mathew is also recognised by the Australian Association of Consulting Archaeologists Inc., as a specialist in the recording and analysis of Aboriginal artefacts.

## Key project experience

<b>Project manager/Archaeologist</b>	North Beach Seawall, Wollongong Aboriginal Cultural Heritage Assessment for Wollongong City Council
<b>Project manager/Archaeologist</b>	Brooklyn Fields and Lipsett Sewer extensions Albury Aboriginal Cultural Heritage Assessment for Albury City Council

<b>Project manager/Archaeologist</b>	Waniora Point Precinct Upgrades, Wollongong Aboriginal Cultural Heritage Assessment for Wollongong City Council
<b>Project manager/Archaeologist</b>	124 Lilkar Rd Goulburn, Aboriginal Cultural Heritage Assessment for Croft Developments
<b>Project manager/Archaeologist</b>	Hayes Lane, Dapto Aboriginal Cultural Heritage Assessment for Cardno

### **Other qualifications and training**

General Induction for Construction Work in NSW, Work Cover

Provide first aid –St John Ambulance Australia

Advanced 4WD driving and vehicle recovery

AACAI usewear and residue analysis professional development workshop

Working with children check

### **Professional affiliations and memberships**

Australian Archaeology Association (AAA)

Full member - Australian Association of Consulting Archaeologists Inc. (AACAI)

# Samantha Keats

## Position

Team Leader – Heritage (NSW)

Senior Archaeologist

## Qualifications

BA (Hons)



## Professional experience

Samantha is an archaeologist with Biosis Wollongong office and has over five years of experience as an archaeologist. Samantha has had experience working as an archaeologist and project manager on a number of Aboriginal and European heritage projects across New South Wales, including water infrastructure and linear projects, residential development projects, renewable energy projects, and telecommunications projects. As part of these project Samantha has interacted with a diverse client base including Local Government, National Parks and Wildlife Service, Department of Primary Industry and Water, resource companies, architectural firms, engineering firms, and private developers.

Samantha has experience in undertaking remote Aboriginal archaeological surveys and large scale archaeological testing excavation programs and has served as a key team member and project manager on a number of projects in the Illawarra, the South Coast, Canberra, and Far Western NSW. These projects have seen her take part in Aboriginal community consultation, background research, archaeological excavation and survey, and has authored numerous Aboriginal heritage assessments and Statement of Heritage Impact reports. Samantha is also accomplished in obtaining approvals under the NSW National Parks and Wildlife Act 1974.

Samantha has a particular focus on rock art assemblages and ochre in the north-west Kimberley region of Australia and is currently undertaking a PhD in this region.

## Key project experience

### Project Manager/Archaeologist

Princes Highway Upgrade Program: Milton Ulladulla Bypass archaeological services for Transport for NSW.

### Archaeologist

Canberra Mountain Bike Trails, Heritage Constraints Assessment for World Trail.

### Project Manager/Archaeologist

Toorale National Park Environmental Water Delivery Scheme, Aboriginal Heritage Impact Permit (AHIP), Aboriginal cultural heritage assessment, archaeological test excavations and cultural heritage management plan for Department Planning, Industry and Environment (DPIE).



**Project Manager/Archaeologist**

North West Mains modification, Wongawilli Colliery Aboriginal cultural heritage assessment for Wollongong Coal Pty Ltd.

**Archaeologist**

Menindee to Pooncarie Road 60 kilometres road upgrade, Aboriginal cultural heritage assessment for Green Edge Environmental on behalf of Central Darling Shire.

**Other qualifications and training**

General Induction for Construction Work in NSW, Work Cover

Provide first aid, St. John's Ambulance Australia

Lithics Masterclass, University of Sydney

Zooarchaeology unit, University of New England

**Professional affiliations and memberships**

Australian Archaeological Association (AAA)

**Publications**

Moore, M.W., Westaway, K., Ross, J., Newman, K., Perston, Y., Huntley, J., **Keats, S.**, Kandiwal Aboriginal Corporation and M.J. Morwood 2020 *Archaeology and art in context: Excavations at the Gunu Site Complex, Northwest Kimberley, Western Australia*. PLoS ONE 15(2): e0226628.  
<https://doi.org/10.1371/journal.pone.0226628>

# Maggie Butcher

## Position

Consultant Archaeologist

## Qualifications

**BA (Archaeology) / BSc (Physics) from The University of Sydney**

**BA Hons (Archaeology) from the University of New England**



## Professional experience

Maggie has over six years' archaeological consultancy experience, as well as extensive volunteering experience on archaeological research projects both in Australia and overseas. Maggie has had experience working as an archaeologist on a number of European and Aboriginal heritage projects across New South Wales and is skilled in report preparation, excavations and field recording.

Her areas of expertise include archaeological and heritage management advice, archaeological excavation and survey, artefact analysis and technical report writing. Maggie has managed a range of different projects for a diverse client base including Local and State Government, architectural firms, engineering firms, private developers and Defence. These include projects which require Historical Heritage Assessments, Statement of Heritage Impacts, Aboriginal Due Diligence Assessments, Aboriginal Cultural Heritage Assessments, Conservation Management Plans, Heritage Interpretation Plans, Constraints Analysis, Heritage Impact Assessments and permits for both Aboriginal and European archaeology.

Maggie has well developed skills in both European and Aboriginal archaeology, serving as a key team member on a number of projects throughout NSW. This has seen her take part in project management of complex projects involving both European and Aboriginal heritage, excavation, planning, site recording, supervising subcontractors, assisting on open days and the subsequent analysis of artefacts including written artefact analysis reports. She has extensive experience working on major State significance projects as well as locally significant sites.

## Key project experience

<b>Project Manager/Archaeologist</b>	Historical archaeological excavations and monitoring – 8 Phillip Street Parramatta. For Coronation Property.
<b>Project Manager/Archaeologist</b>	Aboriginal Cultural Heritage Assessment - South Kiama Planning Proposal. For Unicomb Development Pty Ltd.
<b>Project Manager/Archaeologist</b>	Historical archaeological excavations and Excavation report – Wollongong Public School. For Hansen Yuncken on behalf of School Infrastructure

<b>Project Manager/Archaeologist</b>	Conservation management plan - Liverpool Pioneer Memorial Park. For Liverpool City Council.
<b>Project Manager/Archaeologist</b>	Historical archaeological assessment and statement of heritage impact – Water NSW Bridge Remediation Project. For Cardno. The sites are on the State Heritage Register.
<b>Project Manager/Archaeologist</b>	Historical archaeological assessment and statement of heritage impact – Coffs Harbour Bypass Project. For Arup Pty Ltd.

### Other qualifications and training

Construction white card

Current first aid certificate

Current NSW driver's licence

FWPCOT3260 Recover four wheel drive vehicles from Getabout Training Services

FWPCOT3259 Operate a four wheel drive on unsealed roads from Getabout Training Services



## Appendix 3 Representative set of selected images









