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Environmental Management System

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Rix's Creek Mine

**BLAST MANAGEMENT PLAN**

Doc No:	Blast Management Plan
Doc Owner:	Environmental Superintendent – Rix's Creek Pty Ltd

Approval: Environmental Superintendent – The Bloomfield Group

Signed: C Quinn

Date: 15/07/2025

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1.7	29/06/2020	Updated for SSD 6300 and DA 49/94 IEA RTR	Kirstin Blaikie	Dianne Munro	Chris Knight
1.8	8/12/2020	Updated in Response to review by DPIE	Kirstin Blaikie	Dianne Munro	Chris Knight
1.9	12/05/2021	RCN MOD 9 update and 2020 Annual Review	Chris Knight	Chris Quinn	Chris Knight
2.0	15/07/2025	RCN MOD 10 update	Chris Quinn	David Holmes	Chris Quinn

## Table of Contents

1	Introduction .....	5
1.1	Background .....	5
1.1.1	RCN .....	5
1.1.2	RCS .....	6
1.2	Local Setting.....	6
1.3	Document Structure .....	7
2	Statutory Requirements .....	11
2.1	Blast Management Plan Conditions.....	11
2.1.1	Rix's Creek North .....	11
2.1.2	Rix's Creek South .....	15
2.2	Environmental Impact Statement Commitments.....	21
2.3	Environmental Protection Licence.....	21
2.4	Other Requirements .....	22
2.5	Plan Objectives and Performance Indicators.....	23
3	Stakeholder Consultation .....	25
3.1	Department of Planning, Industry and Environment .....	25
3.2	Environment Protection Authority- SSD 6300- Rix's Creek South Continuation .....	25
3.3	Office of Environment and Heritage - DA 49/94 Rix's Creek South & PA 08_0102- Rix's Creek North .....	25
4	Management Measures .....	26
4.1	Preventative Measures .....	26
4.1.1	Information System .....	26
4.1.2	Infrastructure .....	27
4.1.3	Environmental Blast Design .....	28
4.1.4	Design Implementation .....	33
4.2	Postponing a Blast .....	33
4.3	Corrective Measures .....	33
4.4	Blast Management Coordination and Cumulative Protocol .....	34
4.5	Heritage Coke Oven Blasting Considerations.....	35
5	Monitoring .....	36
6	Compliance Protocol .....	38
6.1	Compliance Reporting.....	38
6.2	Complaints Handling.....	39

Document Title:	<b>Blast Management Plan – Rix's Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	C Quinn	Print Date:	15/07/2025	Version No:	2.0
Reviewed By:	D Holmes		<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/07/2025
Approved By:	Chris Quinn	Review Frequency:		Page No:	2 of 72

---

7	Landholder Notifications and Property Inspections .....	40
7.1	Landholder Notifications.....	40
7.2	Notifications of Exceedances or Incidents .....	40
7.3	Property Inspections and Investigations .....	40
7.4	Independent Review .....	41
8	Reporting and Review.....	42
8.1	Annual Review .....	42
8.2	Monthly Reporting .....	42
8.3	Auditing .....	42
8.4	Management Plan Review .....	43
9	Roles and Responsibilities .....	44
10	References .....	47
11	Glossary .....	48

## List of Tables

Table 1	RCN PA 08_0102 Management Plan Conditions.....	11
Table 2	RCS SSD 6300 Management Plan Conditions .....	15
Table 3	Plan Objectives and Performance Indicators .....	23
Table 4	Compliance Blast Monitors .....	36
Table 5	Roles and Responsibilities .....	44

## List of Figures

Figure 1	Locality.....	8
Figure 2	Conceptual Approved Rix's Creek North Mine.....	9
Figure 3	Conceptual Approved Rix's Creek South Mine .....	10
Figure 4	EnvMet Overpressure Enhancement Model Output.....	30
Figure 5	Dust and Fume Plume Predictive Model Output .....	32
Figure 6	Rix's Creek Mine Blast Monitoring Locations .....	37

Document Title:	<b>Blast Management Plan – Rix's Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	C Quinn	Print Date:	15/07/2025	Version No:	2.0
Reviewed By:	D Holmes		<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/07/2025
Approved By:	Chris Quinn	Review Frequency:		Page No:	3 of 72

---

## List of Appendices

- Appendix A    Development Consent Conditions
- Appendix B    Regulatory Correspondence
- Appendix C    Road Closure Plan
- Appendix D    Blast Fume Management Plan
- Appendix E    Environmental Commitments

Document Title:	<b>Blast Management Plan – Rix's Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	C Quinn	Print Date:	15/07/2025	Version No:	2.0
Reviewed By:	D Holmes			Issue Date:	15/07/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	4 of 72

# 1 Introduction

The Rix's Creek Mine (RCM) is an open cut coal mine owned and operated by Bloomfield Collieries Pty Ltd (Bloomfield). RCM comprises the original Rix's Creek Mine, now known as Rix's Creek South (RCS) and the former Integra Open Cut Mine now known as Rix's Creek North (RCN).

RCM is located approximately 5 to 10 km north-west of Singleton both east and west of the New England Highway (NEH) (**Figure 1**).

This Blast Management Plan (BMP) forms part of a series of Environmental Management Plans for the Rix's Creek Mine encompassing the RCS operation and RCN operation.

This BMP is dynamic and changes will be made as warranted over time, The document will be reviewed and amended as outlined in **Section 8.4**.

## 1.1 Background

Approved operations within RCM are shown on **Figure 2** and **Figure 3** and include:

- For RCS: (State Significant Development (SSD) 6300) North Pit, Pit 2 and West Pit (previously known as Pit 3), rail load-out infrastructure and CHPP; and,
- For RCN: (Project Approval (PA) 08\_0102, as modified) Falbrook Pit (previously known as North Open Cut), Camberwell Pit (previously known as the western extension to South Pit or West Open Cut), CHPP and the rail load-out infrastructure.

Relevant infrastructure associated with RCM includes open cut pits and mobile plant, CHPP, rail loading infrastructure, tailings dams and associated clean and dirty water storage facilities.

Blasting operations planned under this BMP will occur at RCN in the Camberwell Pit and at RCS in the West Pit.

### 1.1.1 RCN

Operations at RCN commenced in 1991 as the Camberwell Coal Project. The original North and South pits have been completed and backfilled, with the areas being mostly rehabilitated. Mining in the Falbrook Pit was approved in 2008 under Development Approval (DA) 06\_0073, and the western extension of the Camberwell Pit was approved in 2010 under PA 08\_0102, which consolidated all previous approvals.

PA 08\_0102 was granted on 26 November 2010, has been modified on nine occasions, and allows mining operations to 31 December 2035 for the following:

- Falbrook Pit and associated overburden emplacement areas (OEA);

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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- Camberwell Pit and associated OEAs;
- RCN Coal Handling and Processing Plant (CHPP) and stockpiles;
- Rail loop and rail load-out facilities; and
- Associated maintenance and administration buildings.

Falbrook Pit is subject to restricted operating hours in accordance with Schedule 2 Condition 10 (a) of PA 08\_0102. Falbrook Pit will remain in care and maintenance for the foreseeable future and is therefore omitted from this BMP. Should operations in Falbrook Pit recommence, this plan will be updated to incorporate the required management actions.

### 1.1.2 RCS

Operations at RCS commenced in 1990. Mining has been completed in the original Pit 1 and Pit 2 areas in line with Development Approval DA 49/94 on the east side of the New England Highway (NEH), which have been mostly backfilled and rehabilitated. RCS received approval for SSD 6300 on 12 October 2019 which allows expansion of the West Pit and mining of a small unmined section on the eastern side of the highway.

RCS is approved under SSD 6300 until 12 October 2040 for the following operations:

- West Pit and associated OEAs;
- North Pit (on the eastern side of the New England Highway);
- RCS CHPP;
- Train loading facility located on the RCN rail loop and clean coal stockpiles; and
- Associated maintenance and administration buildings.

## 1.2 Local Setting

RCM is located in the Hunter Valley region of New South Wales (NSW), northwest of Singleton and southeast of Camberwell (see **Figure 1**).

The area surrounding RCM typically comprises various open cut and underground coal mining operations, agricultural operations, industrial and commercial activities and a mix of rural residences and urban residential areas.

The majority of land to the north-west of RCM is owned by Mount Owen and Ashton mines. A number of private residences are located surrounding RCM, as shown in **Figure 2**. The highest density of private residences is located to the south-east and an industrial precinct is located to the south of RCM. The private residences are more sparsely located in areas to the west, north and northeast.

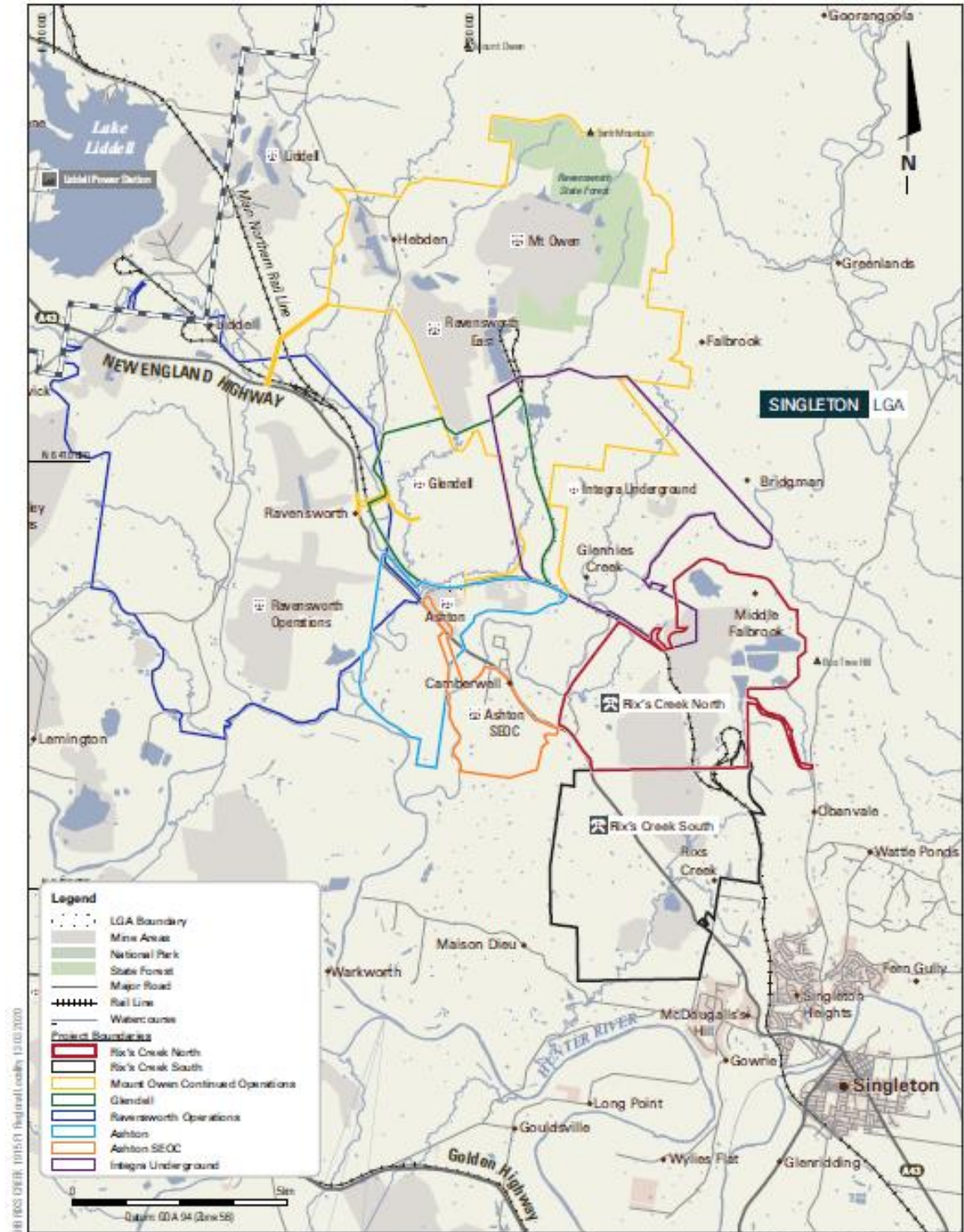
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Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
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Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	6 of 72

### 1.3 Document Structure

The remainder of the BMP is structured as follows:

- Section 2: Outlines the statutory requirements applicable to the BMP including relevant blasting criteria.
- Section 3: Outlines Stakeholder consultation undertaken.
- Section 4: Outlines management measures relevant to RCM's operations.
- Section 5: Outlines the blast monitoring program components.
- Section 6: Describes the management and reporting of incidents, complaints and non-compliances.
- Section 7: Outlines the process for notification to landholders
- Section 8: Provides details for the review and improvement of the environmental performance process.
- Section 9: Provides a summary of responsibilities relevant to this BMP.
- Section 10: Provides the references cited in the BMP.

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Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	7 of 72

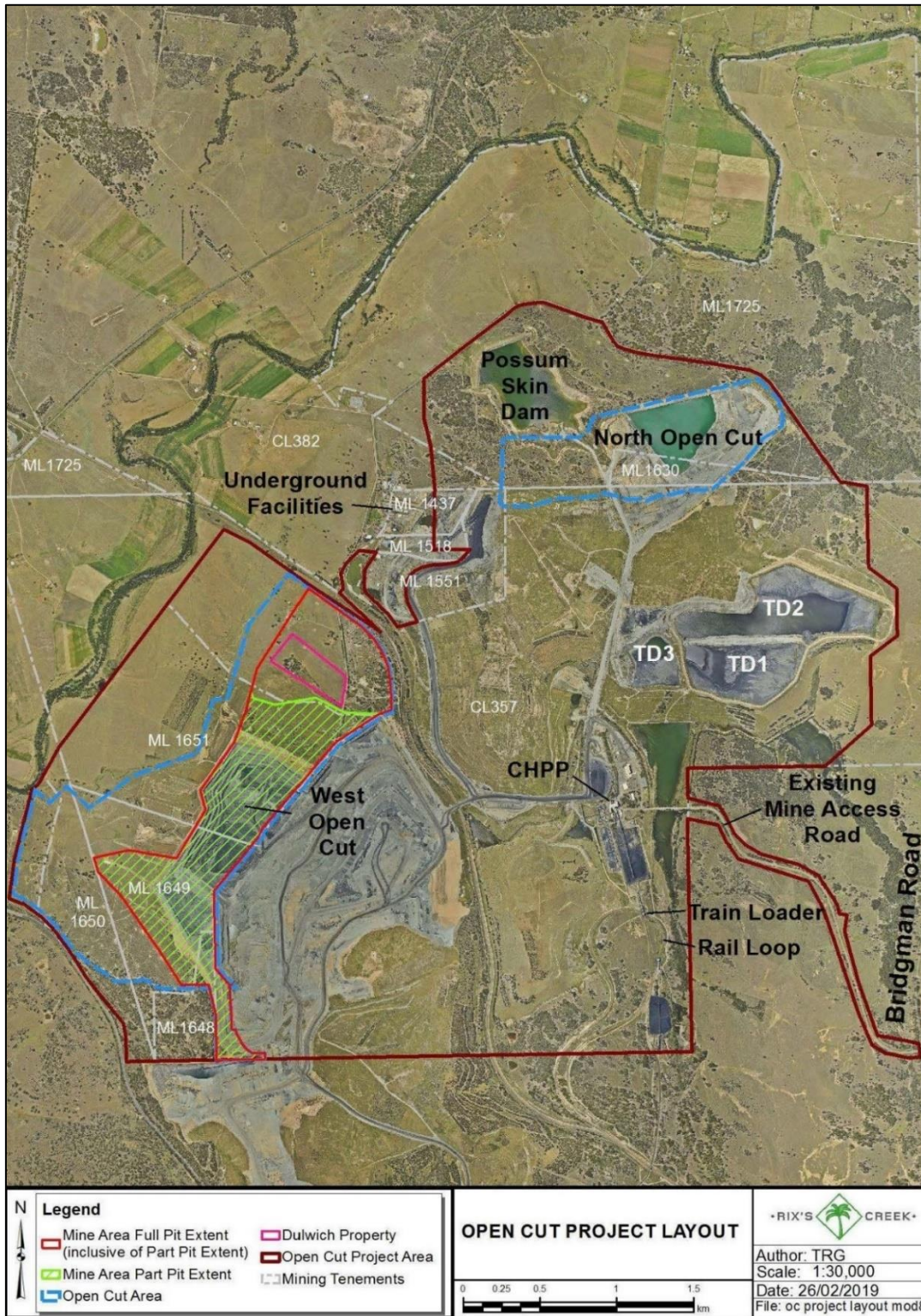


RIXS CREEK COAL MINE

Regional Locality

FIGURE 1

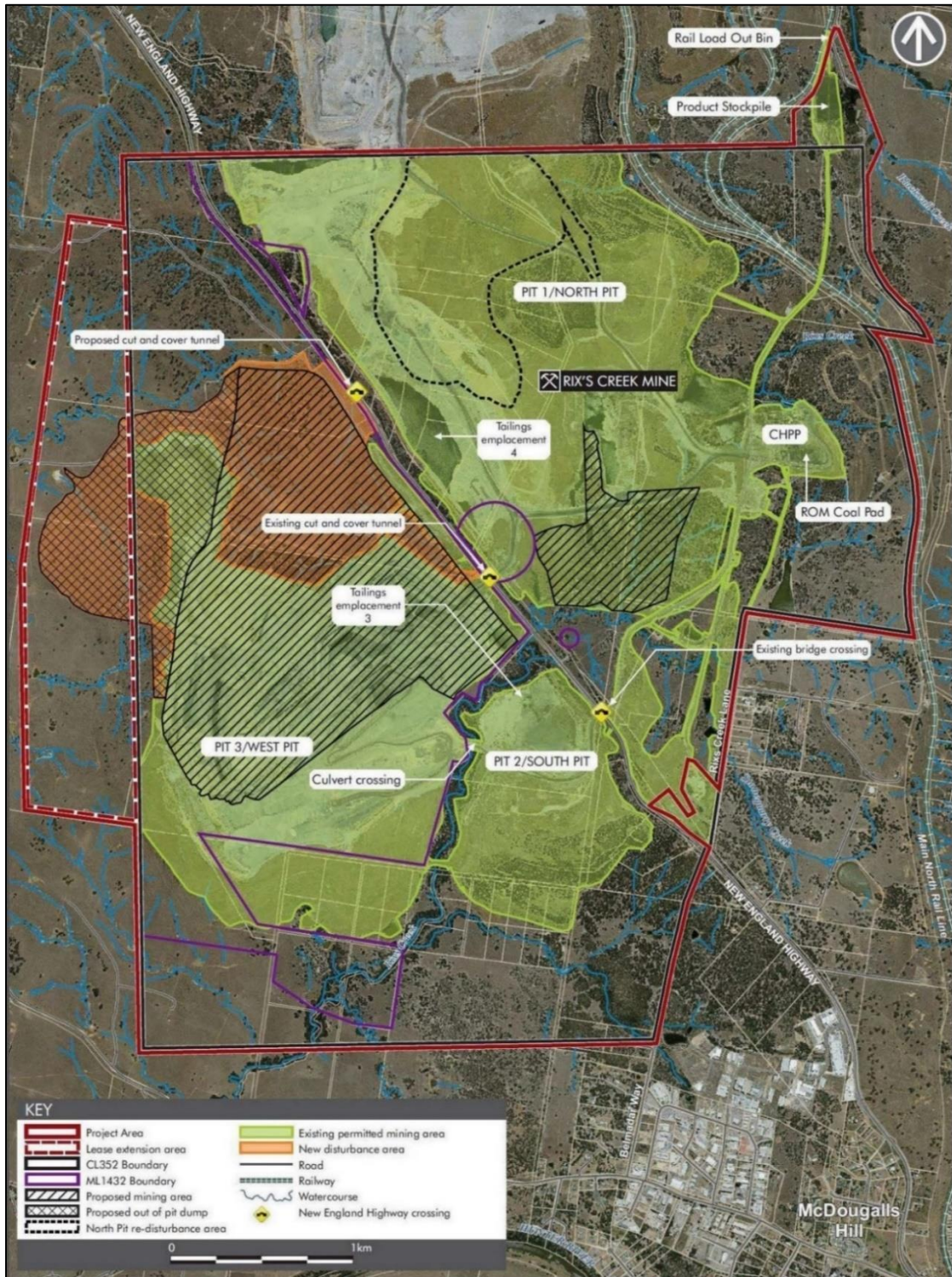
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Approved By:	Chris Knight	Review Frequency:	See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102	Page No:	8 of 72



Source: Appendix 3 PA 08\_0102

**Figure 2**  
**Conceptual Approved Rix's Creek North Mine**

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
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Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	9 of 72



Source: Appendix 2 SSD 6300

**Figure 3**  
**Conceptual Approved Rix's Creek South Mine**

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	10 of 72

## 2 Statutory Requirements

SSD 6300 and PA 08\_0102 (as modified) contain conditions that specifically relate to the management of blasting at the development, including the preparation and implementation of the BMP and the blasting criteria (see **Table 1** and **Table 2** in **Section 2.1**). Other relevant conditions are provided in **Appendix A**.

### 2.1 Blast Management Plan Conditions

#### 2.1.1 Rix's Creek North

The operations at RCN are subject to the conditions contained in the PA 08\_0102 (as modified) dated 5 March 2025.

Schedule 5 Condition 3 of PA 08\_0102 allows existing approved management plans to remain in place until an updated version is approved.

The specific requirements for the BMP and where each condition is addressed within the plan are provided in **Table 1** as follows:

**Table 1**  
**RCN PA 08\_0102 Management Plan Conditions**

Ref	Condition	Section											
Schedule 3, Condition 11	<p><b>Blasting Criteria</b></p> <p>The Applicant must ensure that the blasting on site does not cause exceedances of the criteria in Table 9.</p>												
	<p><i>Table 9: Blasting criteria</i></p> <table border="1"> <thead> <tr> <th>Receiver</th> <th>Airblast Overpressure (dB(Lin Peak))</th> <th>Ground Vibration (ppv(mm/s))</th> <th>Allowable Exceedance</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Residence on privately-owned land</td> <td>115</td> <td>5</td> <td>5% of the total number of blasts over a period of 12 months</td> </tr> <tr> <td>120</td> <td>10</td> <td>0%</td> </tr> </tbody> </table>	Receiver	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (ppv(mm/s))	Allowable Exceedance	Residence on privately-owned land	115	5	5% of the total number of blasts over a period of 12 months	120	10	0%	<b>4</b>
Receiver	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (ppv(mm/s))	Allowable Exceedance										
Residence on privately-owned land	115	5	5% of the total number of blasts over a period of 12 months										
	120	10	0%										

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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Ref	Condition				Section
	Main Northern Railway culverts and	-	25	0%	
	All public infrastructure	-	50	0%	
	However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner or infrastructure owner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.				<b>2.5</b>
Schedule 3, Condition 12	<p><b>Blasting Hours</b></p> <p>The Applicant must only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Secretary.</p>				<b>4</b>
Schedule 3, Condition 13	<p><b>Blasting Frequency</b></p> <p>The Applicant must not carry out more than:</p> <p>(a) 3 blasts a day across the northern and western mining areas unless an additional blast is required following a blast misfire; and</p> <p>(b) 10 blasts a week on site, averaged over a 12 month period.</p>				<b>4</b>
Schedule 3, Condition 14	<p><b>Property Inspections</b></p> <p>If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pits on site for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary to:</p> <ul style="list-style-type: none"> <li>• establish the baseline condition of the buildings and/or structures on the land or update the previous property inspection report; and</li> <li>• identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and</li> </ul> <p>(b) give the landowner a copy of the new or updated property inspection report.</p>				<b>7.3</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	12 of 72

Ref	Condition	Section
Schedule 3, Condition 15	<p><b>Property Investigations</b></p> <p>If any landowner of privately-owned land within 2 kilometres of any approved open cut mining pit on site claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this request the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to investigate the claim; and</p> <p>(b) give the landowner a copy of the property investigation report.</p> <p>If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damages to the satisfaction of the Secretary.</p> <p>If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.</p>	7.3
Schedule 3, Condition 16	<p><b>Operating Conditions</b></p> <p>The Applicant must:</p> <p>(a) implement best blasting management practice on site to:</p> <ul style="list-style-type: none"> <li>• protect the safety of people and livestock in the surrounding area;</li> <li>• protect private or public property in the surrounding area;</li> <li>• minimise the dust and fume emissions of the blasting; and</li> </ul> <p>(b) co-ordinate the blasting on site with the blasting at nearby mines (including Ashton, Rix's Creek South and the Mount Owen Complex) to minimise cumulative blasting impacts;</p> <p>(c) co-ordinate the blasting on site with nearby underground mines (including Integra Underground) to minimise operational disturbance and to ensure the safety of underground personnel; and</p> <p>(d) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Secretary.</p>	<p>4</p> <p>4.4</p> <p>4.4</p> <p>4.1.1</p>
Schedule 3, Condition 17	<p>The Applicant must not undertake blasting within 500 metres of:</p> <p>(a) Middle Falbrook Road or Stony Creek Road without the approval of Council;</p>	4.1.2

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	13 of 72

Ref	Condition	Section
	(b) the New England Highway without the approval of the RMS; and	<b>4.1.2</b>
	(c) the Main Northern Railway without the approval of the ARTC.	<b>4.1.2</b>
Schedule 3, Condition 18	The Applicant must not carry out blasting in the northern or western mining areas that is within 500 metres of any privately-owned land or land not owned by the Proponent unless:	<b>4.1.2</b>
	(a) the Applicant has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Applicant has advised the Department in writing of the terms of this agreement; or	
	(b) the Applicant has: <ul style="list-style-type: none"> <li>demonstrated to the satisfaction of the Secretary that the blasting can be carried out without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and</li> <li>updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.</li> </ul>	<b>4.1.2</b>
Schedule 3, Condition 19	The Applicant must prepare a Blast Management Plan for the project to the satisfaction of the Secretary.  This plan must:	
	(a) be prepared in consultation with EPA, and then submitted to the Secretary for approval;	<b>Appendix B</b>
	(b) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant condition of this consent;	<b>4</b>
	(c) describe the measures that would be implemented to ensure that the public can get up-to-date information on the proposed blasting schedule on site;	<b>4.1.1</b>
	(d) include an agreed strategy for the management of potential blast interactions with Integra Underground, including details of agreed: <ul style="list-style-type: none"> <li>systems for the prior and timely notification of scheduled blasting and subsidence activities;</li> <li>personnel evacuation and safety protocols for specific blast events; and</li> <li>procedures and protocols for managing the interaction of the two mines; and</li> </ul>	<b>4.4</b>

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Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	14 of 72

Ref	Condition	Section
	(e) include a blast monitoring program to evaluate the performance of the project; and	5
	(f) include a protocol that has been prepared in consultation with the owners of the nearby mines (including Ashton, Rix's Creek South and the Mount Owen Complex) for minimising and managing the cumulative blasting impacts of the mines.	4.4
	The Applicant must implement the management plan as approved from time to time by the Secretary.”	

The mining areas referred to in Schedule 3 Condition 13 and their current names are:

- 'northern mining area' is the Falbrook Pit;
- 'Camberwell south pit' is the old South Pit which has been completed and is being backfilled;
- 'western mining area' is the current Camberwell Pit.

### 2.1.2 Rix's Creek South

The operations in RCS are subject to the conditions of development consent SSD 6300. The specific requirements relating to blasting and the BMP are presented in **Table 2** :

**Table 2**  
**RCS SSD 6300 Management Plan Conditions**

Ref	Condition	Section											
Condition B7	The Applicant must ensure that blasting on the site does not cause exceedances of the criteria at the locations <sup>a</sup> in Table 2.												
	<p><i>Table 2: Blasting Criteria</i></p> <table border="1"> <thead> <tr> <th>Receiver</th> <th>Airblast Overpressure (dB(Lin Peak))</th> <th>Ground Vibration (ppv(mm/s))</th> <th>Allowable Exceedance</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Residence on privately- owned land</td> <td>120</td> <td>10</td> <td>0%</td> </tr> <tr> <td>120</td> <td>5</td> <td>5% of the total number of blasts over a calendar year</td> </tr> </tbody> </table>	Receiver	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (ppv(mm/s))	Allowable Exceedance	Residence on privately- owned land	120	10	0%	120	5	5% of the total number of blasts over a calendar year	4
Receiver	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (ppv(mm/s))	Allowable Exceedance										
Residence on privately- owned land	120	10	0%										
	120	5	5% of the total number of blasts over a calendar year										

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Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	15 of 72

Ref	Condition				Section
	Coke Ovens		10 <i>(unless surveys under condition B19(i)(ii) identify a more appropriate criterion)</i>	0%	
	Main Northern Railway Line	-	25	0%	
	Public Roads		100	0%	
	All other public infrastructure	-	50 <i>(or a limit determined by the structural design methodology in AS 2187.2 – 2006, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary)</i>	0%	
<p><sup>a</sup> The locations referred to in Table 2 are shown in Appendix 3 and Appendix 6.</p>					
Condition B8	The blasting criteria in Table 2 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.				2.5
Condition B9	<p><b>Blasting Hours</b></p> <p>The Applicant must only carry out blasting on the site between 9 am and 5 pm (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.</p>				4.1
Condition B10	<p><b>Blasting Frequency</b></p> <p>The Applicant may carry out a maximum of:</p> <p>(a) 3 single blast events<sup>a</sup> a day; and</p> <p>(b) 10 single blast events<sup>a</sup> a week, averaged over a calendar year.</p>				4.1
Condition B11	Condition B10 does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.				4.1

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
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Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	16 of 72

Ref	Condition	Section
	<p><sup>a</sup> Within conditions B10 and B11, a 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.</p>	
Condition B12	<p><b>Property Inspections</b></p> <p>If the Applicant receives a written request from the owner of any privately-owned land within 3 kilometres of any approved open cut mining pit on the site for a property inspection to establish the baseline condition of any buildings and structures on their land, or to have a previous property inspection updated, then within two months of receiving this request the Applicant must:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:</p> <p>(i) establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and</p> <p>(ii) identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and structures; and</p> <p>(b) give the landowner a copy of the new or updated property inspection report.</p>	7.3
Condition B13	<p>If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the property inspection report, either party may refer the matter to the Planning Secretary for resolution.</p>	7.3
Condition B14	<p><b>Property Investigations</b></p> <p>If the owner of any privately-owned land within 3 kilometres of any approved open cut mining pit on the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within two months of receiving this written claim the Applicant must:</p>	7.3

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	17 of 72

Ref	Condition	Section
	(a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and  (b) give the landowner a copy of the property investigation report.	
Condition B15	If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Planning Secretary.	7.3
Condition B16	If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.	7.3
Condition B17	<b>Blast Operating Conditions</b>  The Applicant must:  (a) take all reasonable steps to:  (i) ensure the safety of people and livestock from blasting impacts of the development;  (ii) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and  (iii) minimise the dust and fume emissions of any blasting;	4
	(b) ensure that blasting on the site does not damage heritage items <sup>a</sup> , except in accordance with the predictions in the document/s listed in condition A2(c), and develop specific measures to protect heritage items outside the approved disturbance areas from any blasting damage associated with the development;	<b>Heritage Management Plan + Section 4.5</b>
	(c) operate a comprehensive blast management system that uses a combination of meteorological forecasts and predictive blast modelling to guide the planning of blasts to minimise blasting impacts;	4.1

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	18 of 72

Ref	Condition	Section
	(d) minimise the frequency and duration of any public road closures for blasting, and use all reasonable efforts to avoid road closures during peak traffic periods;	<b>Appendix C</b>
	(e) operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and any associated public road closures, including notification via SMS message of the blasting schedule and associated road closures for that day and any variations to that schedule and closures;	<b>4.1.1</b>
	(f) use all reasonable efforts to co-ordinate the timing of blasting at the site with nearby mines to minimise cumulative blasting impacts; and	<b>4.4</b>
	(g) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.  <i><sup>a</sup> The locations of the heritage items referred to in paragraph (b) are shown in Appendix 6.</i>	<b>5</b>
Condition B18	The Applicant must not undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the blast generates ground vibration of 0.5 mm/s or less, or the Applicant has:  (a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement; or  (b) demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.	<b>4.1.2</b>
Condition B19	<b>Blast Management Plan</b>  The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	19 of 72

Ref	Condition	Section
	(a) be prepared by a suitably qualified and experienced person/s;	<b>Title page</b>
	(b) be prepared in consultation with the EPA;	<b>Appendix B</b>
	(c) be submitted to the Planning Secretary for approval within six months of commencing development under this consent;	<b>Appendix B</b>
	(d) describe the blast management system and the measures that will be implemented to ensure compliance with the blasting criteria and conditions of this consent;	<b>4</b>
	(e) include a Blast Fume Management Strategy for: <ul style="list-style-type: none"> <li>(i) minimising blast fume emissions;</li> <li>(ii) rating and recording blast fume events in accordance with Visual NOx Fume Rating Scale (AEISG, 2011), or equivalent monitoring technique; and</li> <li>(iii) reporting significant blast fume events to the Department and the EPA;</li> </ul>	<b>Appendix D</b>
	(f) include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant roads authorities and includes provisions for: <ul style="list-style-type: none"> <li>(i) minimising the duration of closures, both on a per event basis and weekly basis;</li> <li>(ii) avoiding peak traffic periods as far as reasonable; and</li> <li>(iii) co-ordinating closures with nearby mines to minimise the cumulative effect of road closures;</li> </ul>	<b>Appendix C</b>
	(g) identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant);	<b>4.1.2</b>
	(h) include a strategy to manage potential blast interactions with nearby mines;	<b>4.4</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	20 of 72

Ref	Condition	Section
	(i) include a strategy to monitor, mitigate and manage the effects of blasting on the Coke Ovens, including: <ul style="list-style-type: none"> <li>(i) undertaking annual dilapidation surveys (or as otherwise agreed with the Planning Secretary) by a suitably qualified structural engineer, the first of which must be undertaken prior to any blasting in the North Pit and the last of which must be undertaken within one year after blasting is completed in the North Pit;</li> <li>(ii) reviewing and establishing final ground vibration criteria and tailoring blast design to comply with these criteria; and</li> <li>(iii) remediating any blasting-related damage to the satisfaction of Council and the Heritage Division; and</li> </ul>	<b>Heritage Management Plan + Section 4.5</b>
	(j) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent.	<b>5</b>

## 2.2 Environmental Impact Statement Commitments

**Appendix E (Table E2)** lists the blast management commitments made in the *Environmental Assessment Integra Open Cut Project* (URS, 2009) (Integra EA) (and subsequent SEEs) and the *Rix's Creek Continuation of Mining Environmental Impact Statement* (AECOM, 2015) (RCS EIS) and indicates where each is addressed in this BMP.

## 2.3 Environmental Protection Licence

Bloomfield operates under the Environmental Protection Licence (EPL) 3391. Conditions P1, L4 and M7 of the EPL details the blast requirements (as at April 2020), and all activities at RCM are conducted in accordance with these requirements. The EPL conditions may be updated from time to time.

A copy of EPL 3391 can be found on the Bloomfield public website:

<https://www.bloomcoll.com.au/sustainability/environmental-management/rixs-creek-assessments/environment-protection-licence>.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	21 of 72

## 2.4 Other Requirements

Surface Blasting operations at the Mine must also be conducted in accordance with the provisions of:

- Work Health and Safety Act 2011;
- Work Health and Safety Regulation 2011;
- Work Health and Safety (Mines) Act 2013;
- Work Health and Safety (Mines) Regulation 2014;
- Dams Safety Act 2015;
- Explosives Act 2003;
- Explosives Regulations 2013;
- AS 2187.1 - 1998: Explosives – Storage, Transport and Use, Part 1 – Storage;
- AS 2187.2 – 2006: Explosives – Storage, Transport and Use, Part 2 – Use of Explosives;
- AS 2187.0 –1983: Storage transport and use – Terminology;
- Australian Explosives Code – Third Edition – April, 2009;
- The Bloomfield Group Explosives Principal Control Plan;
- Australian Explosives Industry and Safety Group Inc (AEISG) Code of Practice.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	22 of 72

## 2.5 Plan Objectives and Performance Indicators

The objectives of the BMP and the associated performance indicators are set out in **Table 3**.

**Table 3**  
**Plan Objectives and Performance Indicators**

Objectives	Performance Indicators
Compliance with legislative requirements.	<ul style="list-style-type: none"> <li>Airblast or ground vibration not to exceed criteria nominated in <b>Table 1</b> and <b>Table 2</b></li> <li>Blasting to be conducted in accordance with blasting and operating criteria listed in <b>Table 1</b> and <b>Table 2</b>;</li> <li>No flyrock beyond mine boundary, or unplanned flyrock events;</li> <li>Minimisation of off-site odour, dust and fume emissions.</li> </ul>
Control the blast process from design to implementation, initiation and evaluation.	Comply with development consent requirements.
Identify the risks and hazards associated with blasting, including control and/or mitigation.	Safely blast and comply with development consent requirements.
Implement best practice measures for the management and minimisation of dust and noxious fumes from surface blasting.	Mitigation of dust and fumes.
Ensure the safety of the public, site personnel and surrounding properties from flyrock.	No flyrock incidents resulting in personal injury or property damage.
Establish effective communications and active links with surrounding mining operations in regard to blast scheduling	Effective communication with surrounding mines through established email notifications to nominated mine personnel.
Ensure the safe operation of the Integra Underground during blasting activities.	<ul style="list-style-type: none"> <li>Effective communication.</li> <li>No blast related incidents involving Integra Underground.</li> </ul>
Comply with relevant coal industry legislation	Compliance with legislation.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	23 of 72

Objectives	Performance Indicators
<p>Limit the risk of damage to surface infrastructure by controlling blast vibration and flyrock at:</p> <ul style="list-style-type: none"> <li>• Possum Skin Dam;</li> <li>• Tailings Dams;</li> <li>• Envirogen Power Generation Site;</li> <li>• Overland Conveyor Belts;</li> <li>• Underground portal and surrounding highwall;</li> <li>• ARTC Main Northern Rail Line cuttings, embankments and infrastructure; and</li> <li>• New England Highway and Local Public Roads.</li> </ul>	<p>No blast vibration exceedances or flyrock incidents.</p>

**Table 1** and **Table 2** outline the development consent blasting criteria, however, these criteria do not apply if the Applicant has a written agreement with the relevant landowner or infrastructure owner to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	24 of 72

### 3 Stakeholder Consultation

#### 3.1 Department of Planning, Industry and Environment

Condition B5(c) of SSD 6300 requires Bloomfield to submit the BMP to the Secretary of DPIE (Planning Secretary) for approval within six months of commencing development.

The final BMP was submitted to DPIE for approval on 29/6/2020. A copy of the approval of this plan from DPIE is provided in **Appendix B**.

A copy of regulatory correspondence is provided in **Appendix B**.

#### 3.2 Environment Protection Authority- SSD 6300- Rix's Creek South Continuation

The draft BMP was provided to the Environmental Protection Authority (EPA) on 18/6/2020 for consultation and comment. In its response dated 26/6/2020, EPA noted that they did not review the Plan and provided no further comment. A copy of this consultation is provided in Appendix B

#### 3.3 Office of Environment and Heritage - DA 49/94 Rix's Creek South & PA 08\_0102- Rix's Creek North

The draft BMP was provided to the Office of Environment and Heritage (OEH) on 22/3/2017 for consultation and comment. No response from OEH has been received at this time. A copy of this consultation is provided in Appendix B.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	25 of 72

## 4 Management Measures

Blast management measures have been implemented to minimise the impact of ground vibration, airblast overpressure, flyrock, blast fume, dust and odour. The procedures aim to minimise impacts to human safety, livestock, property and public infrastructure as generally shown on **Figure 2** and **Figure 3**, including:

- Dulwich Homestead;
- ARTC Rail Line and Infrastructure;
- New England Highway (NEH);
- Bridge over New England Highway; and
- Cut & Cover Tunnel under New England Highway.

Internal Procedures described in this document that assist the management measures are updated from time to time and the latest version should be confirmed with Bloomfield.

### 4.1 Preventative Measures

#### 4.1.1 Information System

In accordance with Schedule 3 Condition 19 of PA 08\_0102 and Condition B17 of SSD 6300, Bloomfield ensures up-to-date information on proposed blasting is provided through:

- The Community and Blasting Hotline (02 4930 2665) which is also advertised on the Bloomfield Group website (<https://www.bloomcoll.com.au/sustainability/environmental-management/rixs-creek-assessments/blasting-information>);
- Prior to blasts, notifying relevant neighbours via SMS on a contact list to minimise the 'startling' effect of blasts;
- An SMS notification service to which interested parties can register as detailed on the Bloomfield website; and
- Updating blast notification signs prior to a blast event.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	26 of 72

**4.1.2 Infrastructure**

**RCN**

Under Schedule 3 Condition 17, no blasting can occur within 500m of:

- Middle Falbrook Road or Stony Creek Road without the approval of Council;
- The NEH without the approval of Roads and Maritime Services (RMS); and
- The main Northern Railway without the approval of the Australian Rail Track Corporation (ARTC).

Blasting at RCN is currently confined to the Camberwell Pit which is greater than 500 m from the roads and railway as shown on **Figure 2**.

Blasting at RCN is also restricted to greater than 500 m from privately owned land unless:

- the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement; or
- the Proponent has:
  - demonstrated to the satisfaction of the Secretary that the blasting can be carried out without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
  - updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

**RCS**

As required under Condition B18 of SSD 6300, no blasting will be undertaken within 500 m of any public road unless:

- The blast generates ground vibration of 0.5 mm/s or less; or
- Bloomfield has either:
  - Written agreement from the owner to allow blasting and DPIE has been advised of this agreement; or
  - Demonstrated that blasting can be carried out closer than 500 m without compromising the safety of people or damaging the road and updated this BMP appropriately.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	27 of 72

In 2020, RCS received approval from DPIE to blast within 500m of the New England Highway and a small number of privately owned and crown land. A copy of this approval is included in **Appendix B**.

Blasting at RCS will occur within 500 m of the New England Highway and Bloomfield currently hold a Road Occupancy Licence and Speed Zone authorisation with RMS to close the NEH when blasting within 500 m of the Highway. This is reviewed annually.

#### 4.1.3 Environmental Blast Design

Each blast is designed by a suitably qualified and experienced blasting engineer and/or shot firer according to the internal Blast Design Flowchart. The blast specification for each blast is designed to meet compliance with ground vibration and air blast limits and ensure the safety of site personnel, the public, livestock and public and private infrastructure.

Blasting is limited to between 9 am and 5 pm Monday to Saturday with a maximum of three blast events a day at RCS, and a maximum of three blast events a day at RCN. The maximum number of blasts events a week at RCS and RCN is limited to an annual average of 10 blast events a week at each site.

Blasting at RCM is conducted using internal nominal blasting specifications such as the use of aggregate as stemming material. The specifications are altered to comply with accepted vibration limits at privately owned houses and public/private infrastructure as discussed in **Section 4.1.2**, and where required by the geology of the pit.

At RCN the current blast area resides within Camberwell Pit. Integra Underground mine falls well outside the 500m exclusion zone when RCN blasts within Camberwell Pit. Currently the surface facilities of the Integra Underground is about 2.2km from blasting within the Camberwell pit with vibration predicted to be low at approximately 1mm / sec.

Initiation of blasts is made by both electronic detonating cord and pyrotechnic products. The initiation timing and direction of each blast is considered on its individual merits to ensure minimised impact to neighbouring residences and infrastructure.

Bloomfield ensures all personnel involved in the design, loading and initiation of a blast are appropriately trained and experienced.

##### 4.1.3.1 Ground Vibration

The aim of ground vibration design is the limitation of charge mass to control the ground vibration to within the regulatory limits for all privately owned houses and private/public infrastructure as listed in **Table 1** and **Table 2**. The Mining Engineer designs all blasts to meet ground vibration limits.

##### 4.1.3.2 Airblast Overpressure

Airblast from open pit blasting is a pressure wave that is transmitted through the air at the speed of sound. The airblast is measured as decibels Linear (dBL). Airblast limit criteria are defined in **Table 1** and **Table 2**.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	28 of 72

The airblast resulting from a blast can be affected by meteorological reinforcement. Under certain meteorological conditions at the time of a blast, the air blast levels may be increased by up to 20 dBL at distances beyond about 1 kilometre from a blast. The conditions that may cause this increase are:

- Temperature inversion;
- Wind speed increasing with altitude; and
- Change of wind direction above the surface.

Bloomfield utilises the “EnvMet” predictive forecast tool that predicts overpressure enhancement due to meteorological conditions. **Figure 4** shows an example of the overpressure enhancement model output. Parameters specific to the blast are fed into the predictive model. If weather predictions are unfavourable, the blast is rescheduled when more favourable meteorological conditions are prevailing.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>		
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9	
Reviewed By:	D Munro			Issue Date:	12/05/2021	
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>		Page No:	29 of 72

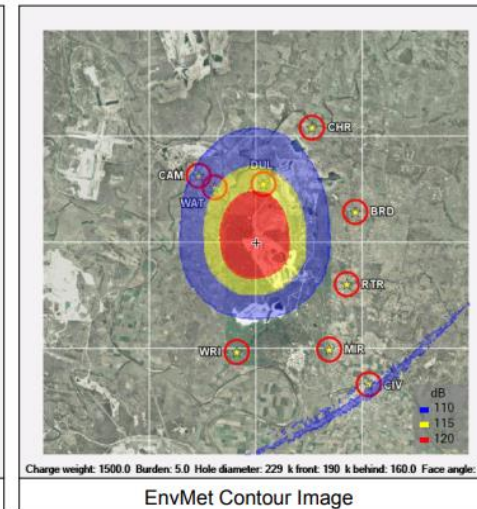
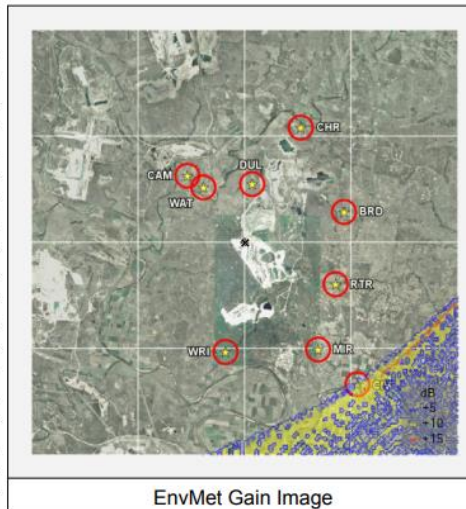
# EnvMet Research Project

envmet.terrock.com.au

## ENVMET PREDICTIONS

Site: Rixs Creek - North  
 Date: 2017-12-18  
 Time: 1030

Altitude (m)	Temperature (C)	Wind Speed (m/s)	Wind Direction (Degrees)
11.475	27.378	1.376	295.064
45.930	26.606	1.507	300.903
91.968	26.095	1.590	305.044
137.742	25.644	1.666	308.039
183.687	25.212	1.754	310.233
230.237	24.782	1.865	311.961
276.531	24.361	2.010	313.139
323.004	23.935	2.208	314.032
370.091	23.516	2.501	314.606
416.923	23.107	2.964	314.996
463.939	22.731	3.835	315.533
511.585	22.451	5.807	319.028
559.449	22.435	7.854	322.692
607.562	22.510	9.035	322.624
659.529	22.416	9.715	320.807
719.909	22.253	10.347	318.151
789.312	22.182	11.167	314.914
867.500	22.222	11.775	311.151
950.510	22.182	11.527	308.136
1034.240	21.990	11.014	306.852
1118.690	21.742	10.711	307.673
1290.360	21.092	9.862	308.109
1643.510	19.270	7.931	298.301



**Figure 4**  
**EnvMet Overpressure Enhancement Model Output**

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro		<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	12/05/2021
Approved By:	Chris Knight	Review Frequency:		Page No:	30 of 72

**4.1.3.3 Flyrock**

The impacts from flyrock are managed through:

- Stopping traffic on any road for all blasts within 500m of the road in accordance with the Road Closure Plan (**Appendix C**);
- Internal *Procedure 2029 – Blasting Adjacent to the Main Northern Railway* (Bloomfield, 2020) for blasting near ARTC rails and infrastructure;
- Exclusion zones for the evacuation of personnel (determination of the exclusion zone will take into account “line of sight” and ensure a conservative standoff where line of sight cannot be avoided). Exclusion zone distances may be varied at the discretion of the Drill and Blast Engineer or Open Cut Examiner (OCE);
- Safe clearance distance for mobile plant and fixed infrastructure;
- Possible increase in stemming height when blasting near adjoining properties; and
- Statutory reporting of any flyrock that lands outside of the exclusion zone.

A 500m exclusion zone requiring traffic to be stopped on any road is very conservative, however may be increased at the instruction of responsible blast personnel to ensure where line of sight presents an increased likelihood of flyrock damage.

**4.1.3.4 Dust and Fumes**

A dust and fume dispersion model is used to schedule blasting activities to minimise the impact to surrounding sensitive receptors with an example of the model output displayed in **Figure 5**. This model is used as one component in the decision making process for scheduling blasts.

Blast fume and plume model predictions indicate the paths that Nitrous Oxide fumes and dust clouds potentially generated from a blast are likely to traverse. The model predicts three levels of NOx production - High, Medium and Low (**Figure 5**).

The Blast Fume Management Strategy required under Condition B19(e) of SSD 6300 is attached as **Appendix D**.

**4.1.3.5 Refires or Misfires**

Where a misfire occurs the shotfirer will seek to address the misfire and refire as soon as is safely possible.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	31 of 72

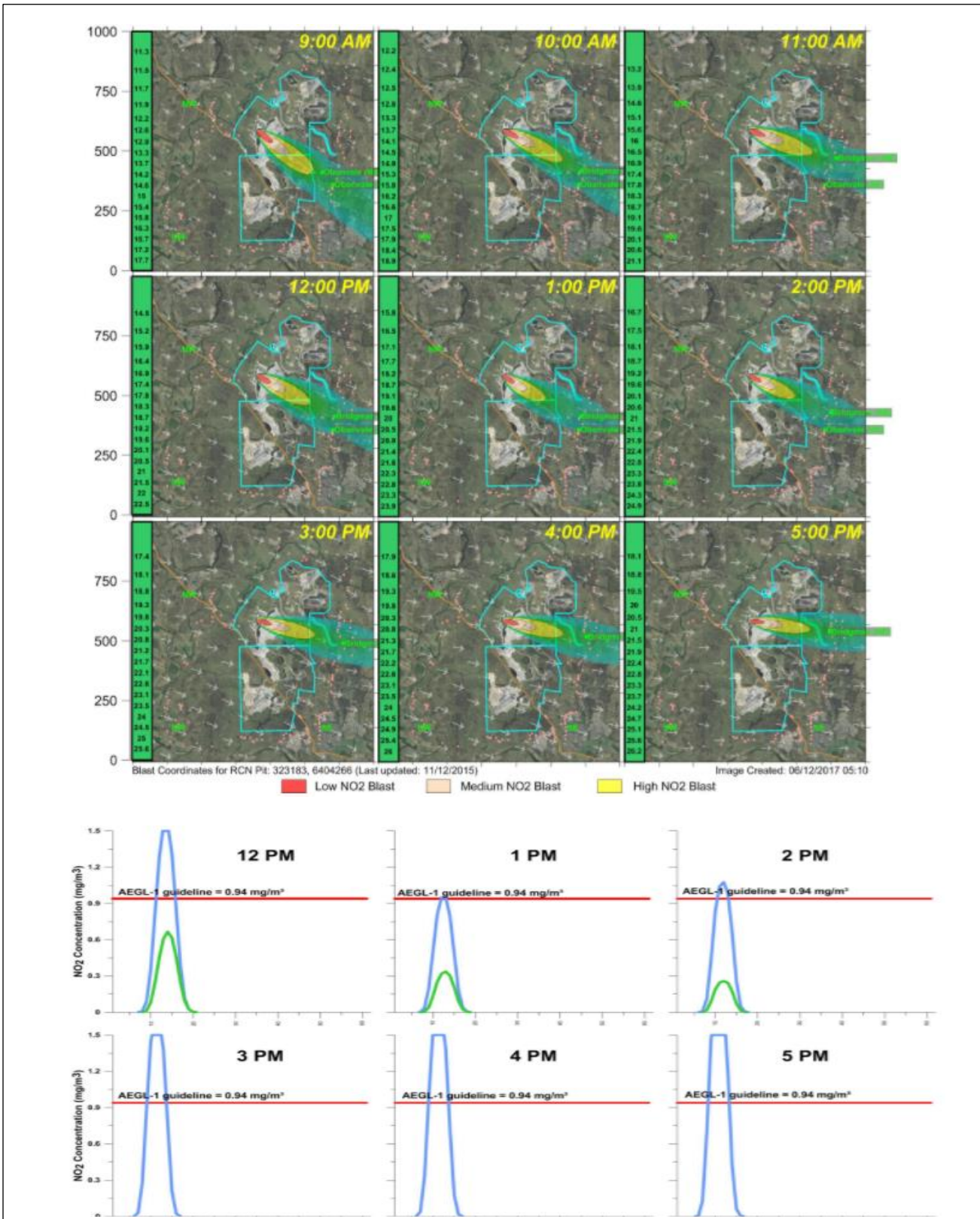


Figure 5  
Dust and Fume Plume Predictive Model Output

Document Title:	Blast Management Plan – Rixs Creek Mine		Document Owner:	Chris Knight	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102	Page No:	32 of 72

#### 4.1.4 Design Implementation

The blast is drilled, loaded and blasted in accordance with the design for the particular blast and procedures outlined in *The Bloomfield Group Integrated Management System Explosives Principal Control Plan (2017)* & *The Bloomfield Group Integrated Management Fume Management Strategy (2017)* attached in Appendix D.

An essential component of the blast design is monitoring the environmental outcomes, assessment and analysis of the results and a review loop to progressively upgrade and refine the predictive models used in the design. This includes the review of monitoring wave traces and video of the blast.

#### 4.2 Postponing a Blast

Under weather conditions which are likely to result in unacceptable blasting impacts a blast will be postponed.

Following a review of the predictive model described in **Section 4.1.3** for overpressure enhancement and blast fume & plume, the Drill & Blast Engineer will determine if a blast will proceed or be postponed.

#### 4.3 Corrective Measures

Monitoring is conducted as outlined in **Section 5**.

Should the air blast readings exceed 115 dBL or the ground vibration readings exceed 5 mm/s at any monitor, internal incident investigations are conducted to ascertain the cause of the elevated reading and a report compiled for senior management. The incident will be reported externally when required as outlined in **Section 6.1**.

When the air blast reading is in excess of 115 dBL, the following analyses are conducted to establish:

- If the high reading was a blast event or some other event, such as wind, by examination of the wave trace record for:
  - Characteristic air blast wave shape;
  - Elapsed time between P wave and air blast arrivals;
  - Blast duration; and
  - Where in the blast the peak value occurs;
- Any visible evidence of high velocity gas emissions by examination of video replay;
- The possible effects of wind using regression analysis to compare airblast levels at wind affected and non-wind affected monitors;

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	33 of 72

- Wavefront reinforcement analysis to determine the possible effects of drill pattern and initiation sequence; and
- Meteorological reinforcement analysis to determine any role of meteorological conditions.

When the ground vibration exceeds 5 mm/s the following analyses are conducted to determine if the peak value was a form of blast event or some other extraneous vibration source:

- Examination of the wave trace for characteristic wave shape and frequency;
- Time of the trigger;
- Time of the peak reading relative to the ground vibration arrival; and
- Wavefront reinforcement analyses.

The analysis outlined will determine if the peak readings were the blast event or not. If they were not, predictions can be made of the peak air blast and/or ground vibration. If the peak readings were from the blast, the section of the blast responsible may be identified and the blast design and loading reviewed to ascertain the cause. If the elevated air blast levels were due to deficient blast design and/or loading practices, these can be corrected for future blasts.

Observation and characterisation of fume emissions should lead to a correlation to blasting practice, and strategies developed for modification that may lead to mitigation.

#### 4.4 Blast Management Coordination and Cumulative Protocol

Schedule 3 Condition 16 of PA 08\_0102 and Condition B17(f) of SSD 6300 require Bloomfield to coordinate the timing of blasting with nearby mines to minimise the impacts of cumulative blasting.

Prior to firing a blast at RCM, an email notification is sent by the Environment department to nearby mines including Integra Underground, Ashton, Ravensworth Complex and Mount Owen Complex with the schedule of the approximate time that the blast is to be released and the approximate location of the blast within the open cut operations. Also included with this email is information regarding road closures if required.

Nearby mines also provide the scheduled times of the blasts to be fired at their operations. The RCM Environmental Department or Drill and Blast Engineer review the nearby mines' scheduled blast information to ensure that it doesn't align with RCM scheduled blast times.

A protocol between the Mining companies has been developed where nominated Environmental personnel from each mine meet periodically to discuss the noise, blasting, road closure for blasting and air quality management at each site and methods to address cumulative impacts.

The protocol also includes the following Mining Operations:

- Ashton Coal;

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	34 of 72

- Mount Owen Complex;
- Ravensworth Operations; and
- Integra Underground.

#### 4.5 Heritage Coke Oven Blasting Considerations

Blasting during the development of the North Pit could cause impacts on the Coke Ovens through ground vibration. Mining in the North Pit will not occur until approximately 2038.

The report *Effects of Blasting in the Rix's Creek Continuation Project Area* (Terrock, 2018) (Blasting Report) was provided in response to the first Independent Planning Commission review. The Blasting Report noted that blasting had been conducted in 1991 within 150 m of the coke ovens. Assessment reports of the Coke Ovens from 1992 (McCarthy and Brassil, 1992) and 2007 (Lonergan, 2007) show no deterioration of the Coke Ovens following this blasting.

The Blasting Report proposed an interim ground vibration limit of 10 mm/s for all blasts and recommended ongoing blast measurement and monitoring of the Coke Ovens when blasting in North Pit. The control of ground vibration is achieved by environmental blast design section 4.1.3 above.

Appendix C of the Rix's Creek South Heritage Management Plan notes that mining in the North Pit will not occur until approximately 2038, and a baseline assessment by a heritage specialist and vibration specialist will be completed at least 12 months prior to mining starting in this area. This assessment will provide recommendations for the management of any vibration impacts. The internal Explosive Management Plan will be updated at this time to include methodology for calculating blast limits in close proximity to the Coke Ovens.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	35 of 72

## 5 Monitoring

The airblast and ground vibration from all blasts are monitored with an automatic triggering system at the locations shown in **Figure 6** and listed in **Table 4**.

Blast monitors will be installed, serviced and calibrated by a qualified service provider. The equipment will meet Australian Standards for blast monitoring. (AS 2187.2-2006).

The wave traces of the measurements recorded are inspected to ensure they reflect a blast event and are not due to a false (non-blast) trigger such as a wind or person/animal induced event. The peak values measured of blast events are compared to compliance limits.

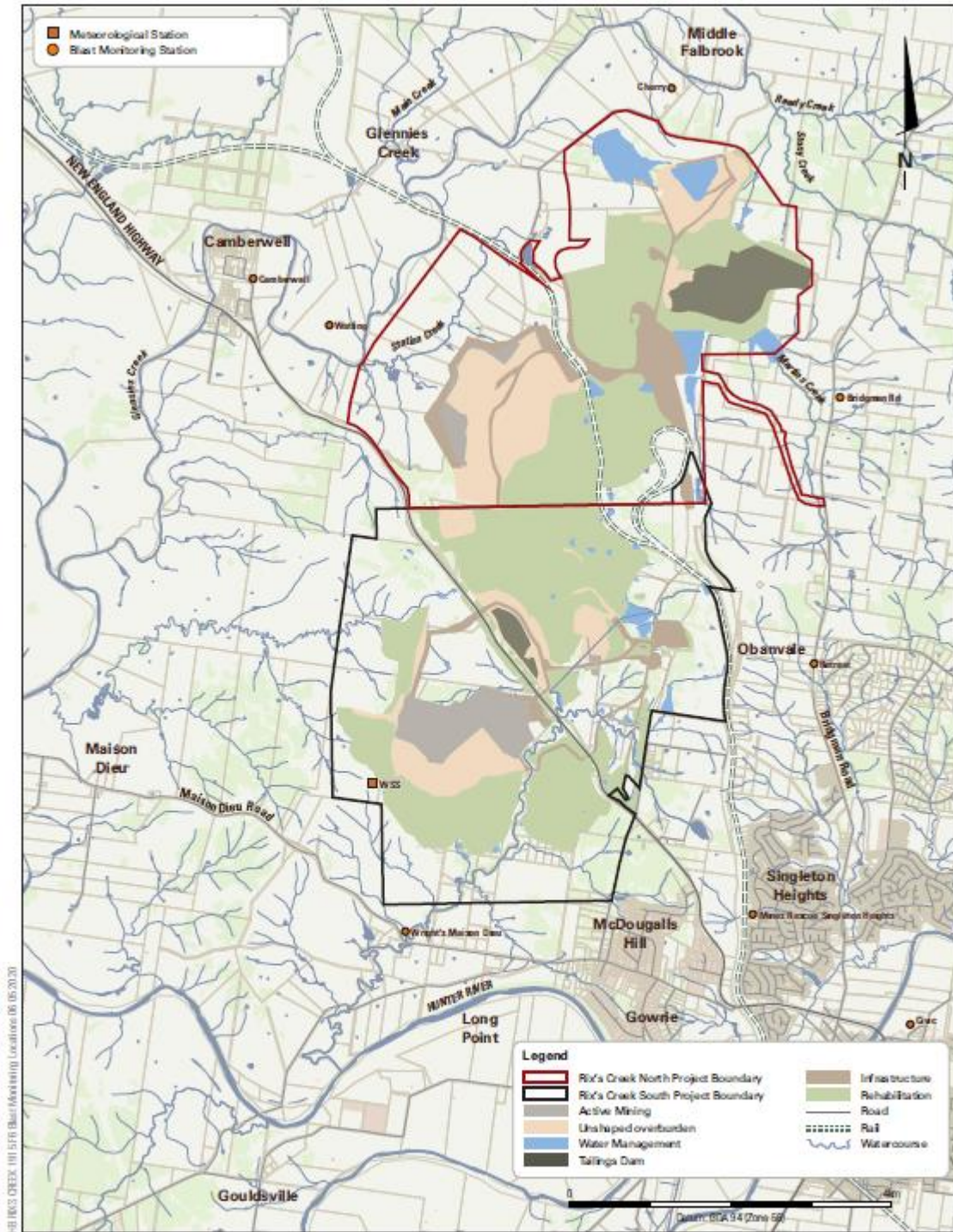
Each blast will be video recorded for later analysis. This will be used in the assessment of blast performance including fume, dust, fly rock, fragmentation and face burst.

**Table 4  
Compliance Blast Monitors**

Blast Monitor Name	Easting	Northing
Bridgman Road	327985	6404125
Camberwell	320685	6405605
Cherry	325890	6407975
Mines Rescue, Singleton Heights	326900	6397690
Retreat	327665	6400815
Watling	321630	6405025
Wright's Maison Dieu	322575	6397475
Civic	328860	6396317

A number of portable CJ6 Blast Monitors may also be used in sensitive locations (ie Heritage listed Coke Ovens) or where monitoring is not required for every blast. (ie for areas of public infrastructure within 500m such as the rail corridor infrastructure at Rix's Creek North or the cut and cover tunnel at Rix's Creek South). All portable monitors will be calibrated and used in accordance with the Australian Standards for blast monitoring. (AS 2187.2-2006).

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Knight</b>	
Prepared By:	K Blaikie	Print Date:	12/05/2021	Version No:	1.9
Reviewed By:	D Munro			Issue Date:	12/5/2021
Approved By:	Chris Knight	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	36 of 72



RIXS CREEK COAL MINE

Blast Monitoring Locations

FIGURE 6

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	37 of 72

## 6 Compliance Protocol

### 6.1 Compliance Reporting

Condition E7 of SSD 6300 and Schedule 5 Condition 8 of PA 08\_0102 require Bloomfield to immediately report any incidents to DPHI and any other relevant agencies. An incident is defined as:

*“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.”*

An incident report includes:

- Identification of the development (including development application number and name);
- Location and nature of the incident;

Bloomfield is required to report any non-compliances to DPHI in writing within seven (7) days of becoming aware of the non-compliance under Condition E8 of SSD 6300 and Schedule 5 Condition 9 of PA 08\_0102. A non-compliance is defined as:

*“An occurrence, set of circumstances or development that is a breach of this consent.”*

A non-compliance report includes:

- Identification of the development (including development application number and name);
- Set out the condition of this approval that the development is non-compliant with;
- The way in which it does not comply and the reasons for the non-compliance (if known)
- What actions have been, or will be, undertaken to address the non-compliance.

EPL 3391 Condition R5 requires any exceedance of the blasting limits to be reported to the EPA as soon as practicable. Within 14 days of the exceedance, an investigation must be undertaken and a report provided to the EPA which includes:

- a) the date and time of blast;
- b) the location of the blast on the premises;
- c) the blast monitoring results at each blast monitoring station;
- d) an explanation of why blast limits were exceeded; and
- e) an explanation of how the Licensee will avoid future blast limit exceedances

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	38 of 72

## 6.2 Complaints Handling

RCM has a 24-hour telephone hotline (02 4930 2665) for the members of the public to lodge complaints and concerns or to raise issues associated with the operations. This service aims to promptly and effectively address community concerns and environmental matters.

The hotline number is advertised on the Bloomfield Group web site (<https://www.bloomcoll.com.au/>) and members of the community are encouraged to contact the hotline if they need to highlight any environmental issues or seek information regarding environmental aspects associated with RCM.

In addition, a member of the community can contact an RCM Environmental Advisor or Manager in person, by phone, e-mail or letter. Any person that is likely to be in a position to receive concerns is trained to deal with complaints in a professional and effective manner.

All complaints received are recorded in accordance with the *Privacy Act 1988* and lodged in the complaint register. The complaint register is only viewable by environmental personnel and is protected to prevent others viewing recorded information. All complainants are questioned if they would like their complaint and details recorded. Information which may be recorded includes:

- Date and time the complaint was lodged;
- The method by which the complaint was made;
- Personal details provided by the complainant;
- Nature of the complaint;
- Action taken or if no action was taken, the reason why; and
- Follow up contact with the complainant following investigation.

All anonymous complaints will be received, investigated and actioned (if required). However, if no details are provided RCM will not be able to provide feedback to the complainant. The outcome of the complaint will be recorded in the register.

Only generalised, non-personal information is published in the monthly complaint register on the Company website. No personal details such as name, address, phone number are published or any other information which may allow the complainant to be identified. A summary of complaints also will be reported in the EPL Annual Return and Annual Review and presented at the CCC meetings.

Following a complaint related to a blast at RCM, a review of the blast event will be conducted. Should the review identify any improvement to site practices, this will be implemented as required.

The complaint record will be kept for at least four years after the complaint was made.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>			Document Owner:	<b>Chris Quinn</b>
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	39 of 72

## 7 Landholder Notifications and Property Inspections

### 7.1 Landholder Notifications

Under Schedule 4, Condition 1 of PA 08\_0102 and Condition D4 of SSD 6300, Bloomfield were required to notify landowners within 2 km (RCN) or 3 km (RCS) the site of their entitlement for a baseline inspection of the condition of any buildings or structures on their land, or to have a previous property inspection report updated. For SSD 6300, these notifications were s hand delivered to residences over the period from 28 October 2019 – 8 November 2019.

### 7.2 Notifications of Exceedances or Incidents

Where the protocol in **Section 4.3** identifies an exceedance of relevant criteria, notification in writing to affected land owners, tenants and the CCC will occur as soon as practical in accordance with Schedule 4, Condition 3 of PA 08\_0102 and Conditions D6 of SSD 6300.

### 7.3 Property Inspections and Investigations

Schedule 3, Condition 14 of PA 08\_0102 and Conditions B12 and B13 of SSD 6300 allow owners of any privately owned land within 2 km of RCN and 3 km of RCS to write to Bloomfield and request an inspection to establish the baseline condition of any buildings and structures on their land or have a previous inspection report updated. Within two months of receiving a request, Bloomfield will commission a suitably qualified, experienced and independent person to complete the inspection and identify any reasonable mitigation measures. A copy of this report will be provided to the landowner.

Under Schedule 3, Condition 15 of PA 08\_0102, if any landowner within 2 km of RCN claims in writing that buildings or structures on their land have been damaged as a result of blasting, then within two months of receiving this claim, Bloomfield will commission a suitably qualified, experienced and independent person to investigate the claim, whose appointment has been approved by the Secretary.

Under Conditions B14 to B16 of SSD 6300, if any landowner within 3 km of RCS, or any other landowner where the Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting, then within two months of receiving this claim, Bloomfield will commission a suitably qualified, experienced and independent person to investigate the claim whose appointment is acceptable to both parties.

A copy of the investigation report will be provided to the landowner. If the investigation confirms the landowner's claim, Bloomfield will repair the damage to the satisfaction of the Secretary.

If there is a dispute over the selection of the suitable person, or the landowner or Bloomfield disagrees with the findings of the inspection or investigation, then either party may refer the matter to the Secretary for resolution.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	40 of 72

## 7.4 Independent Review

In accordance with Schedule 4 Condition 4 of PA 08\_0102 and Condition D8 of SSD 6300, if an owner of privately-owned land considers RCM to be exceeding the relevant criteria in PA 08\_0102 Schedule 3 or SSD 6300 Part B they may ask the Secretary of DPIE in writing for an independent review of the impacts of the development on their land.

Bloomfield will progress this review in accordance with Schedule 4, Condition 4 of PA 08\_0102 and Condition D10 of SSD 6300 as required.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	41 of 72

## 8 Reporting and Review

### 8.1 Annual Review

By the end of March each year, Bloomfield will provide an Annual Review required under Schedule 5 Condition 10 of PA 08\_0102 and Condition E9 of SSD 6300 to the Planning Secretary. The Annual Review will

- Describe the development over the previous calendar year and that proposed for the next calendar year;
- Report on actual versus proposed surface disturbance;
- Summarise the environmental performance of RCM for the previous calendar year, including compliance with relevant criteria;
- Include the presentation and analysis of the results of monitoring, including any relevant trends;
- Discuss any non-compliances, incidents, complaints and any management actions implemented at RCM over the reporting period;
- Identify any discrepancies between the predicted and actual impact of the development and analyse the potential cause of any significant discrepancy; and
- Include a description of what measures will be implemented over the coming year to improve the environmental performance of the development.

The Annual Review will be made publicly available through placement on Bloomfield's website <http://www.bloomcoll.com.au/> and will be provided to the CCC.

### 8.2 Monthly Reporting

Blast monitoring results will be reported monthly on the public website as required by the EPL and Schedule 5, Condition 13 of PA 08\_0102 and Condition E14 of SSD 6300.

### 8.3 Auditing

Under Condition E10 of SSD 6300 and Schedule 5 Condition 11 of PA 08\_0102, an independent environmental audit of the RCN and RCS operations will be conducted every three years and the results reported to the Secretary DPIE and made available on the website. This audit will consider blast monitoring results and Bloomfield's responses.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	42 of 72

Actions and recommendations are communicated to senior management and actioned as necessary. Any relevant findings are considered in the planning processes as part of the Environmental Management System.

## 8.4 Management Plan Review

Schedule 5, Condition 5 of PA 08\_0102 (as modified) and Condition E5 of SSD 6300 require that, within three months of the submission of the following documents, Bloomfield will review, and if necessary, revise the BMP to the satisfaction of the Planning Secretary:

- Annual Review in accordance with Schedule 5, Condition 10 and Condition E9;
- Incident report under Schedule 5, Condition 8 and Condition E7;
- Audit report under Schedule 5, Condition 11 and Condition E10; or
- Modification to the conditions of PA 08\_0102 or SSD 6300 (unless the conditions require otherwise).

When a review leads to revision in the BMP, then within six weeks of the review decision, unless the Secretary agrees otherwise, the revised BMP will be submitted to the Secretary for approval.

Any major amendments to the BMP that affect its application will be undertaken in consultation with the appropriate regulatory authorities and stakeholders. Minor changes such as formatting edits may be made with version control.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	43 of 72

## 9 Roles and Responsibilities

The roles and responsibilities of the Mine staff in respect of this BMP are presented in **Table 5**.

**Table 5**  
**Roles and Responsibilities**

Role	Responsibilities	Section
Mine Manager	<ul style="list-style-type: none"> <li>Ensure adequate resources are available to enable effective implementation of this BMP</li> </ul>	<b>4.1</b>
	<ul style="list-style-type: none"> <li>Ensure implementation of the BMP and</li> </ul>	
	<ul style="list-style-type: none"> <li>Authorise the BMP and future amendments</li> </ul>	<b>8.4</b>
Environment Manager (or delegate)	<ul style="list-style-type: none"> <li>Review the BMP as required</li> </ul>	<b>8.4</b>
	<ul style="list-style-type: none"> <li>Act as the interface for environmental matters between government authorities, private industry, contractors, community groups and the wider community</li> </ul>	<b>6</b>
	<ul style="list-style-type: none"> <li>Manage and respond to complaints in a timely manner</li> </ul>	<b>6.2</b>
	<ul style="list-style-type: none"> <li>Provide notification and information to landholders and tenants and provide inspections and investigations as required.</li> </ul>	<b>7</b>
	<ul style="list-style-type: none"> <li>Attend periodic environment meetings with nearby mine sites</li> </ul>	<b>4.4</b>
	<ul style="list-style-type: none"> <li>Ensure correct notification is provided to potentially affected persons as nominated on the list of neighbours to be contacted prior to blasting, including information relating to blast location and safe area for blast evacuation</li> </ul>	<b>4.1.1</b>
	<ul style="list-style-type: none"> <li>Review scheduled blasts for nearby mines</li> </ul>	<b>4.4</b>
	<ul style="list-style-type: none"> <li>Inform site management of blasting exceedances</li> </ul>	<b>4.3</b>
	<ul style="list-style-type: none"> <li>Promptly notify the relevant regulatory agencies of any incidents or non-compliances</li> </ul>	<b>6</b>
	<ul style="list-style-type: none"> <li>Assist in incident investigations</li> </ul>	

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	44 of 72

Role	Responsibilities	Section
	<ul style="list-style-type: none"> <li>Ensure that all individuals from the open cut workforce with responsibilities under this Plan are competent to carry out those responsibilities</li> <li>Ensure that all relevant open cut personnel are aware of, and understand, their responsibilities as stated in the BMP</li> <li>Co-ordinate blasting on site (email notification) with the blasting at nearby mines to minimise the cumulative blasting impacts of the mines</li> <li>Manage the blast monitoring programme</li> <li>Manage annual reporting and independent auditing requirements</li> </ul>	<p>4.3</p> <p>4.1.3</p> <p>4.1.3</p> <p>4.4</p> <p>5</p> <p>8</p>
Drill and Blast Engineer	<ul style="list-style-type: none"> <li>Design blast to meet blasting specifications</li> <li>Review scheduled blasts for nearby mines</li> <li>Ensure pre blast notifications have been conducted</li> <li>Implement the Road Closure Standard Work Procedure</li> <li>Review weather conditions and blast in accordance with the Blast Fume Management Strategy</li> <li>Postpone a blast if the weather forecast is unfavourable</li> <li>Assist in incident investigations</li> </ul>	<p>4.1.3</p> <p>4.4</p> <p>4.1.1</p> <p>Appendix C</p> <p>Appendix D</p> <p>4.2</p> <p>4.3</p>
OCE	<ul style="list-style-type: none"> <li>Ensure exclusion zones are adequate to prevent harm to personnel and infrastructure.</li> </ul>	<p>4.1.3.3</p>
Shot firer	<ul style="list-style-type: none"> <li>Implement the Road Closure Standard Work Procedure.</li> <li>Address misfires as soon as safely possible</li> <li>Assist in incident investigations</li> </ul>	<p>Appendix C</p> <p>4.1.3.5</p> <p>4.3</p>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>	Document Owner:	<b>Chris Quinn</b>
Prepared By:	C Quinn	Print Date:	15/7/2025
Reviewed By:	D Homes	Version No:	1.9
Approved By:	Chris Quinn	Review Frequency:	15/7/2025
		<p>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</p>	Page No: 45 of 72

Role	Responsibilities	Section
Employees and Contractors	<ul style="list-style-type: none"> <li>Work in accordance with standards and requirements of the BMP and associated standards and procedures.</li> </ul>	<b>4.1.3</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner: <b>Chris Quinn</b>
Prepared By:	C Quinn	Print Date: 15/7/2025	Version No: 1.9
Reviewed By:	D Homes	<div style="background-color: #00FF00; padding: 2px;"> <b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b> </div>	Issue Date: 15/7/2025
Approved By:	Chris Quinn	Review Frequency:	Page No: 46 of 72

## 10 References

AECOM, 2015, *Rix's Creek Continuation of Mining Environmental Impact Statement*

Bloomfield (2017), *The Bloomfield Group Integrated Management System Explosives Management Plan*

Bloomfield (2020), *Procedure 2029 – Blasting Adjacent to the Main Northern Railway*

URS (2009), *Environmental Assessment Integra Open Cut Project*

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	47 of 72

## 11 Glossary

Term	Definition
<i>AEISG</i>	Australian Explosive Industry and Safety Group (Inc)
<i>ARTC</i>	Australian Rail Track Corporation
<i>Blasting Operations</i>	<p>Include:</p> <ul style="list-style-type: none"> <li>• Priming a cartridge;</li> <li>• Charging and stemming a hole;</li> <li>• Connecting the detonator into a round of shots;</li> <li>• Coupling a shotfiring cable or lead-in line into a detonator circuit, circuit tester or exploder;</li> <li>• Testing a shotfiring circuit; or</li> <li>• Firing a shot or round of shots</li> </ul>
<i>Exploder</i>	Any electrical apparatus approved for the purpose of initiating detonators in a mine.
<i>Explosive</i>	Includes detonation cord, detonators, relays, signal tubes, signal tube starters, primed cartridge or similar devices.
<i>Misfire</i>	<p>An occurrence where:</p> <ul style="list-style-type: none"> <li>• Testing before firing a shot reveals broken continuity which cannot be rectified; or</li> <li>• Any shot, or whole or part of a round, fails to explode when an attempt is made to fire it.</li> </ul>
<i>Shot</i>	A charge of explosive (in a cartridge) placed in a shot hole in coal or other rock (or stone) for the purpose of breaking the coal or rock (or Stone).
<i>Shotfirer</i>	A person appointed by Mine Management to conduct shotfiring as part of the Shotfiring and Explosives Management System.
<i>Stemming Height</i>	The appropriate length of stemming material loaded on top of the explosive column in a blast hole to control fly rock and limit air blast.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102	Page No:	48 of 72

Term	Definition
<i>Stemming Material</i>	Inert coarse material, such as crushed gravel about 1/10 <sup>th</sup> hole diameter, loaded into the blast hole to confine the gaseous energy and prevent it from venting into the atmosphere.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>
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Reviewed By:	D Homes	<div style="background-color: #00FF00; padding: 2px;"> <b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b> </div>	Issue Date:	15/7/2025
Approved By:	Chris Quinn		Review Frequency:	Page No:

# Appendix A – Development Consent Conditions

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	50 of 72

**Table A1  
PA 08\_0102 Consent Conditions**

Ref	Legal Requirement	Section
Schedule 5 Condition 2	The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:  (a) detailed baseline data;	<b>Not applicable for this plan</b>
	(b) a description of: <ul style="list-style-type: none"> <li>the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>any relevant limits or performance measures/criteria; and</li> <li>the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;</li> </ul>	<b>2</b>  <b>2.1</b>  <b>2.5</b>
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	<b>4</b>
	(d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>impacts and environmental performance of the project; and</li> <li>effectiveness of any management measures (see (c) above);</li> </ul>	<b>5, 8</b>
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	<b>4.3</b>
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	<b>4.3</b>
	(g) a program to regularly review management practices to align with contemporary best practice industry standards;	<b>8</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Page No:	51 of 72

Ref	Legal Requirement	Section
	(h) a protocol for managing and reporting any: <ul style="list-style-type: none"> <li>• incidents;</li> <li>• complaints;</li> <li>• non-compliances with the conditions of Applicant and statutory requirements; and</li> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul>	<b>6</b>
	(i) a protocol for periodic review of the plan.  <i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	<b>8.4</b>
Schedule 5 Condition 3	<b>Preparation of Management Plans</b>  Prior to approval of management plans required under Schedule 3, all existing management plans, monitoring programs, strategies, programs, protocols, etc approved as at the date of approval of Modification 6 shall continue to have full force and effect, and may be revised under the requirements of condition 5 below as if subject to the conditions of this consent that applied prior to the approval of Modification 6, or otherwise with the approval of the Secretary.	<b>2.1.1</b>
Schedule 5 Condition 4	<b>Relationships between Management Plans</b>  With the agreement of the Secretary, the Applicant may combine any strategy, plan or program required by this consent with any similar strategy, plan or program required for Rix's Creek.	<b>Appendix B</b>
Schedule 5 Condition 5	<b>Revision of Strategies, Plans &amp; Programs</b>  Within 3 months of: <ul style="list-style-type: none"> <li>(a) the submission of an incident report under condition 8 below;</li> <li>(b) the submission of an annual review under condition 10 below;</li> <li>(c) the submission of an audit report under condition 11 below, or</li> <li>(d) any modification of the conditions of this consent (unless the conditions require otherwise),</li> </ul>	<b>8.4</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	52 of 72

Ref	Legal Requirement	Section
	<p>the Applicant must review, and if necessary, revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. The Applicant must notify the Department in writing of any such review being undertaken. Where this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.</i></p>	
Schedule 5 Condition 8	<p><b>Incident Notification</b></p> <p>The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident.</p>	<b>6.1</b>
Schedule 5 Condition 9	<p><b>Non-compliance Notification</b></p> <p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this approval that the development is non-compliant with, the way in which it does not comply and the reasons for the noncompliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p><i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</i></p>	<b>6.1</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	53 of 72

**Table A 2**  
**SSD 6300 Consent Conditions**

Ref	Legal Requirement	Section
Condition A21 (d)	<p>With the approval of the Planning Secretary, the Applicant may:</p> <ul style="list-style-type: none"> <li>combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by a consent or approval for any adjoining mine subject to common, shared or related ownership or management.</li> </ul>	<b>Appendix B</b>
Part E Condition E4	<p>Management plans required under this consent must be prepared in accordance with any relevant guidelines, and include:</p> <p>(a) a summary of relevant background or baseline data;</p>	<b>Not applicable for this plan</b>
	<p>(b) details of:</p> <p>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</p> <p>(ii) any relevant limits or performance measures/criteria; and</p> <p>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;</p>	<b>2</b> <b>2.1</b> <b>2.5</b>
	<p>(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c)</p>	<b>Appendix E</b>
	<p>(d) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p>	<b>4</b>
	<p>(e) a program to monitor and report on the:</p> <p>(i) impacts and environmental performance of the project; and</p> <p>(ii) effectiveness of any management measures (see (c) above);</p>	<b>4.3, 5</b>

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
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Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	54 of 72

Ref	Legal Requirement	Section
	(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;	4.3
	(g) a program to investigate and implement ways to improve the environmental performance of the project over time;	4.3
	(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 criteria or performance measure;</li> <li>(ii) complaint; or</li> <li>(iii) failure to comply with other statutory requirements;</li> </ul>	6
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	4.1.1
	(j) a protocol for periodic review of the plan.  <i>Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	8.4
Condition E5	Revision of Strategies, Plans & Programs  Within 3 months of: <ul style="list-style-type: none"> <li>(a) the submission of an incident report under condition E7;</li> <li>(b) the submission of an annual review under condition E9;</li> <li>(c) the submission of an Independent Environmental Audit under condition E10, or</li> <li>(d) the modification of the conditions of this consent (unless the conditions require otherwise),</li> </ul> The suitability of existing strategies, plans, and programs required under this consent must be reviewed by the Applicant.	8.4

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Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	55 of 72

Ref	Legal Requirement	Section
Condition E6	<p><b>Revision of Strategies, Plans &amp; Programs</b></p> <p>If necessary, to either improve the environmental performance of the development or cater for a modification, 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 document must be submitted to the Planning Secretary for approval within 6 weeks of the review.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.</i></p>	8.4
Condition E7	<p><b>Incident Notification</b></p> <p>The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name) and set out the location and nature of the incident.</p>	6.1
Condition E8	<p><b>Non-compliance Notification</b></p> <p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this approval that the development is non-compliant with, the way in which 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.</p> <p><i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</i></p>	6.1

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Reviewed By:	D Homes			Issue Date:	15/7/2025
Approved By:	Chris Quinn	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Page No:	56 of 72

# Appendix B – Regulatory Correspondence

## PA 08 0102- Rix's Creek North.- Consultation

### **Christopher Knight**

**From:** John Hindmarsh  
**Sent:** Wednesday, 22 March 2017 9:18 AM  
**To:** 'rog.hcc@environment.nsw.gov.au'  
**Cc:** Luke Murray (lmurray@rixs.com.au); Garry Bailey; Chris Quinn; Hannah Bowe  
**Subject:** Rix Creek -Management Plan to be prepared in consultation with DEH  
**Attachments:** BMP Rixs Creek Mine V1-2 Final 170321.pdf

Dear Sir,

Rixs Creek is required to consult with OEH in the preparation of the Blast Management Plan as a requirement of DA 49/94 Mod 8 which come into effect December 2016.

Extracts from the consent are as follows:-

#### **Blast Management Plan**

- 12D. The Applicant must prepare a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must:
- (i) be prepared in consultation with OEH, and then submitted to the Secretary for approval by 30 April 2017;
  - (ii) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant condition of this approval;
  - (iii) describe the measures that would be implemented to ensure that the public can get up-to-date information on the proposed blasting schedule on site;
  - (iv) include a blast monitoring program to evaluate the performance of the project; and
  - (v) include a protocol that has been prepared in consultation with the owners of the nearby mines (including Ashton, Rix's Creek North and the Mount Owen Complex) for minimising and managing the cumulative blasting impacts of the mines.

The Applicant must implement the approved management plan as approved from time to time by the Secretary.

In complying with these requirements please find attached the following Management Plan provided for consultation with the OEH.

- Blast Management Plan

If OEH has any comments please provide them to me so they may be incorporated into the plans to allow the plans to be submitted to DPE for approval by 30<sup>th</sup> April 2017.

Thanking you.

John Hindmarsh  
Senior Environmental Officer



Rix's Creek Mine  
PO Box 4, EAST MAITLAND NSW 2323

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	57 of 72

**SSD 6300- Rix's Creek South Continuation.- Consultation**



DOC20/483220-2

Bloomfield Collieries Pty Ltd  
Returned via the Major Projects Portal

26 June 2020

Dear Sir/Madam,

**Post Approval Management Plan Consultation  
Rix's Creek Coal Extension (SSD-6300)**

Thank you for consulting with the Environment Protection Authority (EPA) in regard to the Post Approval Consultation on the Blast Management Plan for the Rix's Creek Coal Extension (SSD-6300).

The EPA encourages the development of such plans to ensure that licensees have determined how they will meet their statutory obligations and designated environmental objectives.

Being a regulatory authority, the EPA's role is to set environmental management objectives rather than being directly involved in the development of strategies to achieve those objectives. Accordingly, the EPA has not reviewed this management plan.

If you have any questions about this matter, please contact Jenny Rushton on 02 6883 5301 or by email to [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au)

Yours sincerely

**Mitchell Bennett**

Unit Head - Regulatory Operations

NSW Environment Protection Authority

+61 2 4908 6800

[mitchell.bennett@epa.nsw.gov.au](mailto:mitchell.bennett@epa.nsw.gov.au) [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au) @NSW\_EPA EPA YouTube

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 Phone 02 4908 6800 TTY 133 677 Newcastle Newcastle West [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au)  
 ABN 43 692 285 758 NSW 2300 Australia NSW 2302 Australia

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
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Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	58 of 72

**SSD 6300- Approval to combine Blast Management Plan. Sch.2 Condition A21(d).**



Mr Chris Knight  
 Environment Manager  
 The Bloomfield Group  
 PO Box 4  
 East Maitland, NSW, 2323

18/02/2020

Dear Mr Knight

**Rix's Creek South Continuation Project (SSD 6300)  
 Post Approval Requirements**

I refer to your correspondence dated 10 February 2020, requesting the Secretary's approval to combine environmental management plans and strategies and the Community Consultative Committee (CCC) required by Rix's Creek North (MP 08\_0102) and Rix's Creek South (DA 49/94) approvals, with those required for the Rix's Creek South Continuation Project (SSD 6300).

I note that Rix's Creek North and Rix's Creek South are now owned and operated by the Bloomfield Group. Consequently, under condition A21(d) the Secretary approves combining the following management plans and strategies required by the relevant conditions of MP 08\_0102, DA 49/94 and SSD 6300:

- Environmental Management Strategy;
- Blast Management Plan;
- Water Management Plan;
- Air Quality and Greenhouse Gas Management Plan;
- Noise Management Plan;
- Rehabilitation Management Plan; and
- Bushfire Management Plan.

The Secretary also agrees to combine the CCC required under condition A19 of SSD 6300 with the existing combined CCC operating under the requirements of MP 08\_0102 and DA 49/94.

Lastly, I acknowledge that a Bushfire Management Plan has been prepared in accordance with condition B67. I note that this plan does not require approval from the Secretary.

If you wish to discuss the matter further, please contact Melanie Hollis on 8217 2043.

Yours sincerely

Matthew Spratt  
 A/Director  
 Resource Assessments (Coal & Quarries)  
as nominee of the Planning Secretary

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Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	59 of 72

**SSD 6300- Approval to Blast within 500m- Sch.2 Condition B18(b).**



Mr Chris Knight  
 Environment Manager  
 PO Box 4  
 East Maitland, NSW, 2323

08/02/2020

Dear Mr Knight

**Rix's Creek South Continuation Project (SSD 6300)  
 Blasting within 500 metres of a public road or land**

I refer to your letter, dated 17 December 2019, providing information to demonstrate that blasting can be carried out within 500 metres of a public road or land, in accordance with Condition B18(b) of Schedule 2 of the consent for the Rix's Creek South Continuation Project (SSD 6300).

The Department notes that there are three land parcels and one public road within 500 metres of the blasting zone for SSD 6300. The Department understands that the land parcels owned by Singleton Council and Crown Lands are unoccupied; that Bloomfield has an agreement with the owner of the third land parcel; and that Bloomfield has a Road Occupancy Licence to allow for road closures during blasting.

The Department also understands that procedures for carrying out blasting within these zones are outlined in the existing approved Blast Management Plan, required in accordance with the existing development consent for Rix's Creek Coal Mine (DA 49/94).

Accordingly, the Secretary is satisfied that blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging buildings and infrastructure.

If you wish to discuss the matter further, please contact Melanie Hollis on 8127 2043.

Yours sincerely

Matthew Sprott  
 A/Director  
 Resource Assessments (Coal & Quarries)

As nominee of the Secretary

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Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	60 of 72

Copy of request for further information from DPIE- November 2020.

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	61 of 72

# Blast Management Plan

## Rix's Creek Mine

### Rix's Creek SSD-6300-PA-19 Post Approval Review



Document: Blasting Management Plan

Revision: Final June 2020

Reviewed: Charissa Pillay on "November 2020"

Blasting Management Plan, Condition B19, Schedule 2	Sufficient (Yes/No/Partial)	Document reference and comment	Action Required	Company Response
The Applicant must:				
(a) be prepared by a suitable qualified and experienced person/s	Yes	The Title page with details of the originator, reviewer and approver are noted.	-	-
<b>B5d</b> (b) be prepared in consultation with EPA	Yes	No further action from the recent 2020 EPA review. A draft BMP was provided to OEHL on the 23/3/2017 for consultation and comment.	Provide evidence that the plan (PA-19) for SSD 6300 was submitted to OEHL as per the condition B17(b) and B59 (b).	SSD 6300 Condition B17(b) does not require submission of the Blast Management Plan to OEHL. SSD 6300 Condition B59 (b) relates to the Historic Heritage Management Plan and not the Blast Management Plan. The plans was submitted to OEHL for consultation during preparation of the Plan as required under Condition 19 (a) of Rix's Creek North PA 08_0102. see email to OEHL dated 22 March 2017 in appendix B. No response from OEHL has been received to date.  Note incorrect reference in Column 1 to B50 ( Biodiversity Mgt Plan in RED)
(c) be submitted to the planning Secretary for approval within six months of commencing development under this consent	Yes	Plan submitted within the six months	-	-
(d) describe the blast management system and the measures that will be implemented to ensure	Yes	Section 4		-

## Blast Management Plan

### Rix's Creek Mine

Rix's Creek SSD-6300-PA-19  
Post Approval Review



Document: Blasting Management Plan

Revision: Final June 2020

Reviewed: Charissa Pillay on "November 2020"

Blasting Management Plan, Condition B19, Schedule 2	Sufficient (Yes/No/Partial)	Document reference and comment	Action Required	Company Response
compliance with the blasting criteria and conditions of consent				
(e) include a Blast Fume Management Strategy for: <ul style="list-style-type: none"> <li>(i) Minimising blast fume emissions</li> <li>(ii) Rating and recording blast fume events in accordance with visual NOx Fume Rating Scale (AEISG, 2011) or equivalent monitoring technique and,</li> <li>(iii) Reporting significant blast fumes to the Department and EPA</li> </ul>	Yes	Appendix E addresses the condition	-	-
(f) Include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant road authorities and includes provisions for: <ul style="list-style-type: none"> <li>(i) minimising the duration of closures both on a per event basis and weekly basis</li> <li>(ii) avoiding peak traffic periods as far as reasonable and;</li> </ul>	Partial	Appendix C describes a Standard Work Procedure for New England Highway Road Closure	Revise the Road Closure Management Plan or update the Blast Management plan to demonstrate: <ol style="list-style-type: none"> <li>1. consultation to be carried out with road authorities and nearby mines to minimise the cumulative effect of road closures</li> <li>2. demonstrate provisions made to minimise the duration of closures both</li> </ol>	1- Consultation in regard to Road Closure is discussed annually with RMS during renewal of the Road Occupancy Licence. The Licence only allows closure during the hours of 9am – 3pm Monday to Friday and Saturday 9am – 5pm. These approved times are outside Peak Traffic periods. See Road Occupancy Licence No: 1427076 in Appendix C. Furthermore the Traffic Control Plan, see pages 10 and 11 of the

# Blast Management Plan

## Rix's Creek Mine

Rix's Creek SSD-6300-PA-19  
Post Approval Review



Document: Blasting Management Plan

Revision: Final June 2020

Reviewed: Charissa Pillay on "November 2020"

<i>Blasting Management Plan, Condition B19, Schedule 2</i>	Sufficient (Yes/No/Partial)	Document reference and comment	Action Required	Company Response
(iii) Co-ordinating closures with nearby mines to minimise the cumulative effect of road closures			on a per event basis and weekly basis 3. provisions made to avoid peak traffic periods as far as reasonable	<p>Standard Work Procedure has been developed in accordance with RMS standards and approved by RMS.</p> <p>The duration of each closure is minimised through the requirements of the Standard Work Procedure which notes the process and requirements around vehicle stoppages and duration as well as other considerations- see page 2 of the Standard Work Procedure. Appendix C</p> <p>Road closures required for blasting are noted to nearby Mines on the day of firing. Road Closure and blasting is discussed as the quarterly protocol meetings. See update in yellow section 4.4 pp35</p> <p>No other Mines undertake closure of the New England Highway at this time and therefore the condition is not considered relevant. ( although addressed in Section 4.4)</p>

# Blast Management Plan

## Rix's Creek Mine

Rix's Creek SSD-6300-PA-19  
Post Approval Review



Document: Blasting Management Plan

Revision: Final June 2020

Reviewed: Charissa Pillay on "November 2020"

<i>Blasting Management Plan, Condition B19, Schedule 2</i>	Sufficient (Yes/No/Partial)	Document reference and comment	Action Required	Company Response
(g) Identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant)	Yes	Section 4.1.2	-	-
(h) Include a strategy to manage potential blast interactions with nearby mines	Yes	Section 4.4 mentions a protocol has been developed and which mines area included	-	
(i) Include a strategy to monitor, mitigate and manage the effects of blasting on the Coke Ovens, including: (i) undertaking annual dilapidation surveys (or as otherwise agreed with the Planning Secretary) by a suitably qualified structural engineer, the first of which must be undertaken prior to any blasting in the North Pit and the last of which must be undertaken within one year after blasting is completed in the North Pit (ii) reviewing and establishing final ground vibration criteria	Partial	A reference is made to the Heritage Management Plan in Table 2.	Include a summary of the Coke Oven monitoring, mitigation and management and retain the and reference to the Heritage Management Plan.	See Section 4.5 now included to address concerns. Please note that mining in the North Pit is not expected to occur till 2038.

# Blast Management Plan

## Rix's Creek Mine

Rix's Creek SSD-6300-PA-19  
Post Approval Review



Document: Blasting Management Plan  
Revision: Final June 2020  
Reviewed: Charissa Pillay on "November 2020"

Blasting Management Plan, Condition B19, Schedule 2	Sufficient (Yes/No/Partial)	Document reference and comment	Action Required	Company Response
and tailoring blast design to comply with these criteria; and (iii)remediating any blasting-related damage to the satisfaction of Council and the Heritage Division; and				
(j)include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent	Partial	Section 5 describes the monitoring that will be conducted in accordance with "Australian standards" and locations of where monitors are located.	Include the relevant Australian standards to be used for blast monitoring and the monitoring methodology to be used for public infrastructure within 500m.	Updated Section 5 to include monitoring on public infrastructure and use of portable monitors. Also included is reference to Australian Standard 2187.2 (2006) Storage and Use of Explosives.



Chris Knight  
Environment Manager  
Four Mile Creek Rd  
Ashtonfield, NSW 2323

23/12/2020

Dear Mr Chris Knight

**Rix's Creek Coal Extension (SSD-6300-PA-19)  
Blast Management Plan**

I refer to the Blast Management Plan which was submitted in accordance with Condition B19 of Schedule 2 of the Conditions of Consent for the Rix's Creek Coal Extension (SSD-6300-PA-19).

The Department has carefully reviewed the document and is satisfied that it addresses the recent RFI issued.

Accordingly, the Planning Secretary has approved the Blast Management Plan (Revision 1.8, dated December 2020). Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 0299955944.

Yours sincerely

Matthew Sprott  
Director  
Resource Assessments (Coal & Quarries)  
As nominee of the Planning Secretary

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	67 of 72

# Appendix C – Road Closure Management Plan

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	68 of 72



**WE CARE. WE DELIVER.**

Document Title	New England Highway Road Closure SWP
Document Owner/s	Tim Gentle
Prepared by	Tim Gentle
Reviewed by	Brendon Clements
Approved by	Brendon Clements
Version No.	1.4
Last Review Date	17/11/2023
Review Frequency	36 MONTHS

## 1. Purpose

This procedure is designed so a person is able to safely perform the task of Road Closure, when conducting blasting activities at Rix's Creek.

## 2. Definitions

- **Road Occupancy Licence:** allows a proponent to use a specified road space at approved times.
- **Speed Zone Authorisation:** allows a proponent to temporarily alter speed limit during approved times
- **RMS:** SW Roads and Maritime Services.
- **Team Leader/ Traffic Control Manager:** person on-site full time who directly manages other workers.
- **Traffic Controller:** trained person whose duty it is to control traffic at a work site. This control is exercised by use of Stop/ Slow bats, but may be by manual control of traffic signals or other devices.
- **Road Sentry:** a trained person whose duty it is to ensure the work site is clear prior to a blast being initiated. They will also ensure the road condition is sufficient prior to reopening the road to traffic.
- **Traffic Guidance Scheme (TGS):** a diagram showing signs and devices arranged to warn and guide traffic around, past or, if necessary through a work site or temporary hazard. TGS shall detail the location, spacing & sizes of all signs & devices, the location & lengths of tapers, all pavement markings & delineators, any containment or safety fencing, flashing arrow signs, portable traffic signals, varied message signs, roadwork speed zones &, if necessary, pedestrian routes.
- **Prepare a Work Zone Traffic Management Plan (PWZ) qualification:** Enables holder to prepare TMPs & conduct inspections on TMPs RIICWD503D
- **Implement Traffic Management Plans (IMP) qualification:** Enables holder to implement Traffic Guidance Schemes / TCPs in accordance with approved TMPs RIIWHS302D
- **Traffic Controller (TCR) qualification:** Enables the holder to direct traffic with a stop / slow bat or similar control device through or past a roadwork site RIIWHS205DThe extent of the area or subject matter this is relevant too)

## 3. Licence

RMS have issued a Road Occupancy Licence and Speed Zone Authorisation governing short term shot firing at Rix's Creek. All requirements of the licence must be adhered to – see details of Licencing in the section below.

## 4. Control Person

Team Leader/ Traffic Control Manager

Document Title:	New England Highway Road Closure SWP		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No:	2

## 5. Tasks pre-assessments

- Shot must be fired within approved time parameters (Mon-Fri 9:00am - 3:00pm & Sat 9:00am - 5:00pm). Please note, the above times are subject to change and the latest Road Occupancy Licence and Speed Zone Authorisation should be referred and adhered to.
- Shift activation must be done using web address <https://myrol.transport.nsw.gov.au>
- The traffic control plan is to comply with AS1742.3 and the RMS traffic control at worksites manual 2010
- A shoulder closure, that is at no time a trafficable lane, may be closed during the licensed period(s) on the condition that there is negligible impact on adjacent traffic flow and that the licensee ensures that worksite traffic arrangements provide adequate facilities for pedestrians and bicyclists including a route and/or signage through or around the worksite in accordance with the RMS traffic control at worksites manual.
- Short intermittent traffic stoppages may occur on the condition that no stoppage occurs while any traffic is delayed by general congestion or any traffic is still delayed by a previous stoppage
- Traffic control arrangements must specifically address end of queue management to ensure that motorists are adequately warned before arrival at the end of any queue arising from the traffic control.
- Compliant signage at the designated closure points must indicate the time and day of the next proposed traffic stoppage
- Emergency services should be notified on the morning of the blast by activating a shift on the Transport NSW website <https://myrol.transport.nsw.gov.au>; and given priority access through the closed portion of road in the event of an emergency
- Adequate and proximate equipment must be available to clear the roadway of any debris or fly rock that results from the blast

### a. Fit for purpose – Tools and Equipment

- Road Signage, witches hats, portable traffic lights
- Two-way radio tuned into Rix’s Creek “Ch.5 – Sth Mining 1” & mobile phone
- High Vis Clothing, Safety Boots, Hard Hat, Glasses, Gloves
- Sunscreen, Brim for hard hat, hydration (water bottles)
- First Aid kit (including burn & snake bite)
- Vehicle Fire extinguisher

### b. Specific Training Requirements

#### Pre-requisites:

- RIIWHS201D work safely and follow WHS policies and work procedures
- RIICOM201D communicate in the workplace
- People Implementing the TCP require - RIIWHS302D implement traffic management plan
- People controlling traffic require - RIIWHS205D control traffic with a stop/slow bat
- Control Person:
- Team Leader / Traffic Control Manager

Document Title:	New England Highway Road Closure SWP		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No:	3

## c. Energy Isolation and Control

- Collision with LV & HV vehicles, cattle, personnel
- Poor ground conditions (can result in roll over, loss of control, slip, trip & fall)
- Unseen debris in paddocks
- Working remotely / in isolation from other personnel

## d. Reference Material

- Traffic Guidance Scheme
- Explosives Management Plan
- Road Occupancy Licence
- Speed Zone Authorisation
- Traffic Control at Work Site Manual
- Traffic Engineering Manual
- Explosives Management Plan
- Blasting Checklist
- Incident Notification Procedures
- AS1742.3

## e. Other Requirements

Repeater speed limit and release speed zone road signs are not required to be incorporated into the TCP as there are sufficient speed limit signs along the road that will return traffic to the correct speed outside the closed area.

'End Roadworks' signs are not required to be incorporated into the TCP as they are not relevant to road closures for blasting purposes.

Document Title:	New England Highway Road Closure SWP		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No:	4

## 6. Risk Assessment

Identified Hazards	Implemented Controls
<ul style="list-style-type: none"> <li>○ Disruption to traffic on public road (New England Highway, from <b>McInemey Road to Magpie Street</b>)</li> <li>○ Speeding</li> <li>○ Irate road user</li> <li>○ Extended delay</li> <li>○ Collision</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Traffic Guidance Scheme</b></li> <li>○ Road signage</li> <li>○ Two-way radio</li> <li>○ <b>Traffic lights</b></li> <li>○ Hi visibility clothing</li> <li>○ Incident Reporting Flow Chart</li> <li>○ Traffic Control Training</li> </ul>
<ul style="list-style-type: none"> <li>○ Injury / damage to person / property from blasting activities – i.e. fly rock</li> </ul>	<ul style="list-style-type: none"> <li>○ Sentries securing Blasting Exclusion Zone</li> </ul>
<ul style="list-style-type: none"> <li>○ Slipping, Tripping (Uneven/ Slippery Surface)</li> </ul>	<ul style="list-style-type: none"> <li>○ Well fitted safety boots</li> </ul>
<ul style="list-style-type: none"> <li>○ Fatigue</li> </ul>	<ul style="list-style-type: none"> <li>○ Fitness for Work Management System</li> </ul>

Document Title:	<b>New England Highway Road Closure SWP</b>		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	<b>36 MONTHS</b>	Page No:	5

## 7. Work instructions

### Process 1.

#### 1. Blasting Activities Prior To Road Closure:

- 1.1 All blasting should be conducted in accordance with the Explosives Management Plan.
- 1.2 RMS Transport Management Centre is notified before occupying the road by activating a shift using the web address <https://myrol.transport.nsw.gov.au> - see current Road Occupancy Licence and Speed Zone Authorisation for details
- 1.3 The Shot Firer completes the pre-blasting section of the Blasting Checklist.
- 1.4 The Traffic Control Manager completes the road closure form.

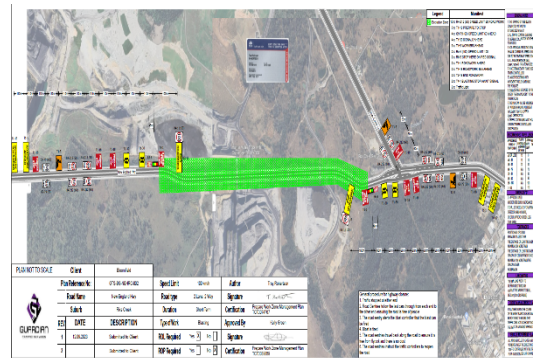
The image shows a 'Rix's Creek Blasting Checklist' form. It is divided into two main sections: 'Pre-Blasting Section' and 'Post-Blasting Section'. The 'Pre-Blasting Section' includes fields for 'Blasting Information' (Shot Number, Date, Time), 'Pre-Blasting Section' (Coordinates, Safety, etc.), and 'Shot Details' (Shot 1, Shot 2, Shot 3). The 'Post-Blasting Section' includes 'Shot Details' (Shot 1, Shot 2, Shot 3), 'Post-Blasting Section' (Shot Details, Shot Details), and 'Shot Details' (Shot 1, Shot 2, Shot 3). The form is titled 'Rix's Creek Blasting Checklist' and includes a logo for 'Rix's Creek'.

### Process 2.

#### 2. Closing The Road:

- 2.1 An appropriate risk assessment i.e. My Safe Job is completed.

2.2 The Traffic Control Manager, Traffic Controllers and Road Sentries travel to the road closure points. Designated Traffic Controllers holding an IMP qualification erect all necessary signage as per the Traffic Guidance Scheme (Appendix 2). Any variations to the TGS must be marked on the TGS and signed by a person holding a PWZ qualification. Note: All Traffic Controllers should have suitable traffic control qualifications.



2.3 Traffic control stations are established on the Singleton and Muswellbrook approaches on the New England Highway (Highway 9) in accordance with the TGS.



Document Title:	New England Highway Road Closure SWP	Version No:	1.6
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS
		Page No:	6

2.4 Once the blast is ready to be fired, the Traffic Controller is directed via two-way radio communication to close the road. The road is to be closed as per the requirements of the Road Occupancy Licence and Speed Zone Authorisation.



2.5 The Road Sentries inspect the route to ensure it is clear.



2.6 The blast is fired in accordance with Road Occupancy Licence.



## Process 3.

3. Once The Blasting Has Occurred:

3.1 Once the blast has been fired the Road Sentries inspect the route for damage or fly rock. Any fly rock that impacts the road is removed. The dust / fume cloud from the blast is to be monitored to ensure it will not pose a hazard to traffic on the highway



3.2 When satisfied the highway can be reopened the Traffic Control Manager notifies the Traffic Controllers via two-way radio communication to reopen the road. The road is to be opened as per the requirements of the Road Occupancy Licence and Speed Zone Authorisation



3.3 The Traffic Control Manager notes the speed limit set start and finish times, the road closure start and finish times and the number of vehicles queued during the road closure.



Document Title:	New England Highway Road Closure SWP		Version No:	1.6
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No: 7

3.4 The Traffic Controllers remove the erected temporary signage.



3.5 RMS Transport Management Centre is notified immediately after vacating the road by deactivating the shift using the web address <https://myrol.transport.nsw.gov.au>

3.6 The Shot Firer completes the post-blasting section of the Blasting Checklist.

3.7 The Traffic Control Manager completes the road closure form.

## 8. Other Comments

The Traffic Control Manager can also act as a Road Sentry

Document Title:	New England Highway Road Closure SWP		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No:	8

## 9. Evaluation and Ongoing Review

The ongoing effectiveness and efficiency of this Management System is monitored as part of the operation's day-to-day management. Feedback from this and other more formal reviews and/ or following special occurrences, form the basis for System improvement and re-design.


Internal auditing of this document is carried out as per the *Internal Audit Management System*. Ongoing review of this document is as per the *Document and Records Management System*.

## 10. Revision History

6	Transferred SWP into new template, Updated use of stop / slow bats to traffic lights, revised road closure procedures	17/11/2023	Tim Gentle	Brendon Clements
5	Revised ROL requirements, update plans, update road closure form	17/11/2020	Tim Gentle	Brendon Clements
4	Road Closure Form	16/05/2017	Simon Dagg	Luke Murray
3	New template	21/11/2016	Simon Dagg	Luke Murray
2	Revised version, update to Blasting Activities Prior to Road Closure	07/07/2016	Simon Dagg	Luke Murray
1	Revised version into SWP template	31/07/2015	Simon Dagg	Luke Murray
0	Original Issue	04/01/2012	Simon Dagg	Luke Murray
<b>Rev.</b>	<b>Description</b>	<b>Date</b>	<b>Drawn</b>	<b>Approved</b>

Document Title:	New England Highway Road Closure SWP		Version No:	1.6	
Last Review Date:	17-Nov-23	Review Frequency	36 MONTHS	Page No:	9

## 11. Appendix One:

		<b>RIX'S CREEK MINE BLASTING ROAD CLOSURE FORM</b>	
<i>WE CARE. WE DELIVER.</i>			
<i>This form is used when a road closure of the New England Highway is conducted.</i>			
Road Closure Date	__ / __ / ____	Road Occupancy Licence no.	
Road Closure Start Time	<input type="checkbox"/> AM <input type="checkbox"/> PM	Speed Limit Set Start Time	<input type="checkbox"/> AM <input type="checkbox"/> PM
Road Closure Finish Time	<input type="checkbox"/> AM <input type="checkbox"/> PM	Speed Limit Set Finish Time	<input type="checkbox"/> AM <input type="checkbox"/> PM
Traffic Control Manager			
Traffic Control Plan	<input type="checkbox"/> 83 Mod. (2 lane 2 way)		
	<input type="checkbox"/> 88 & 47 Mod (3 lane 2 way)		
Additional briefing items discussed: <i>(Team Leader/ Site Supervisor will carry out inspections before, during and post closure. Any deficiencies identified, corrective actions, changes or modifications made to the site are recorded below)</i>			
Implement TCP Singleton side:			
Implement TCP Muswellbrook side:			
<b>Locations and Traffic Controllers:</b> <i>(please tick relevant locations and list assigned Traffic Controllers)</i>			
<b>Location</b>	<b>Traffic Controller</b>		
<input type="checkbox"/> Camberwell end driveway			
<input type="checkbox"/> Muswellbrook end blast sign			
<input type="checkbox"/> Deadman's gully			
<input type="checkbox"/> MB19 area			
<input type="checkbox"/> Old Rix's Creek rest Area			
<input type="checkbox"/> Rix's Creek Lane			
<input type="checkbox"/> RMS truck stop			
<b>Road Sentries</b>			
1. Singleton side:			
2. Muswellbrook side:			
<b>Car Stopped for Road Closure</b>			
1. Singleton side:		2. Muswellbrook side:	

Document Title:	<b>New England Highway Road Closure SWP</b>	Version No:	1.6
Last Review Date:	17-Nov-23	Review Frequency	<b>36 MONTHS</b>
		Page No:	10



# Appendix D – Blast Fume Management Plan

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08 0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	69 of 72



**WE CARE. WE DELIVER.**

Document Title	Blast Fume Management Strategy
Document Owner/s	Mick Innes
Prepared by	Mick Innes
Reviewed by	Brendon Clements
Approved by	Brendon Clements
Version No.	1.4
Last Review Date	22/02/2023
Review Frequency	36 MONTHS

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# QUICK REFERENCE GUIDE: BLAST FUME MANAGEMENT STRATEGY

This guide intends to provide a summary of the delegated authorities and core activities in this document. It is not designed to be a replacement for the document it supports and should be read in conjunction with the document and any supporting resources.

## 1. System Overview



## 2. Critical Controls



## 3. Delegated Authority

Delegate	Activity	Further Details
Mine Manager	Review relevant blasting checklist where the risk of post-blast fume is identified above medium on the Blast Matrix	<a href="#">Rating and record keeping</a>
	Notification of the department of planning where high level of blast fume is produced	<a href="#">Incident reporting</a>
Drill and Blast Engineer	Blast design, including geology, product selection, hole depth, priming pattern and powder factor	<a href="#">Risk Mitigation</a>
Drill and Blast Supervisor	Review the blast design and loading plan. Completing relevant blasting checklists.	<a href="#">Risk Mitigation</a> <a href="#">Rating and Record keeping</a>
	Implement site emergency management control plan for high level blast fume events	<a href="#">Emergency Response</a>
Appointed Shot Firer	Completion and review of relevant blasting checklists.	<a href="#">Rating and Record keeping</a>
	Apply appropriate on bench practices Implement site emergency management control plan for high level blast fume events	<a href="#">Risk Mitigation</a> <a href="#">Emergency Response</a>

## 4. Definitions

**ANFO:** A mixture of ammonium nitrate and fuel oil with or without a dye colouring agent (Definition from AS2187.0).

**Customer:** The person with direct management responsibility for the surface blasting practices, including the selection of explosive products.

**Dewatered hole:** A blast hole which has had water removed using an in-hole pump or other mechanical means  
**Dry hole:** A blast hole which contains no detectable water.

**Dust:** Airborne particulate matter ranging in diameter from 10 to 50 microns.

**Dynamic water:** Water that is in motion (i.e. flowing water)

**Gas bag:** An inflatable bladder used to block off a blast hole and support explosives or stemming.

**Hole liner:** A flexible plastic tube which is placed into a blast hole before product is loaded into the tube, providing protection from water or broken ground

**Hole saver:** A plastic funnel which is placed in the collar of a hole, allowing product to be loaded, but preventing fallback of dirt or water ingress.

**NOx:** A multiple combinations of oxides of nitrogen (N<sub>2</sub>O, NO, NO<sub>2</sub>, N<sub>2</sub>O<sub>4</sub>, N<sub>2</sub>O<sub>3</sub>, N<sub>2</sub>O<sub>5</sub>) with nitrogen dioxide (NO<sub>2</sub>) being the principal hazardous nitrous gas.

**Post-blast gases:** Gases generated by the detonation of explosives during blasting.

**Precursor:** A material resulting from a chemical or physical change when two or more substances consisting of fuels and oxidisers are mixed and where the material is intended to be used exclusively in the production of an explosive. (Definition from AEMSC Code of Good Practice Precursors for Explosives.)

**Recharge:** A term used to describe the re-entry of water back into a blast hole after it has been dewatered

**Sleep time:** The time between explosives being loaded into a blast hole and their initiation (Definition from AS2187.0).

## 5. References

[Internal Audit Management System](#)

[Document & Records Management System](#)

[Communication & Consultation Management System](#)

[Rix's Creek Blasting Checklist](#)

[Bloomfield Blasting Checklist](#)

[Incident Investigating Procedures](#)

[Emergency Management Control Plan](#)

[Environmental Incident Emergency Response Management System](#)

[Rix's Creek Geological Information](#)

[The Prevention and Management of Blast Generated NOx Gases from Surface Blasting Operations- Australian Explosives Industry and Safety Group- August 2011](#)

Australian Standard - Explosives Storage, Transport and Use- AS 2187.

[Protection of the Environment Operations Act, \(1997\)](#)

[Pollution Incident Response Management Plan- Rix's Creek Mine](#)

[Pollution Incident Response Management Plan- Bloomfield Mine](#)

## 1. Introduction

This Blast Management Strategy addresses the likely causes of gases from blasting, the controls that should be used to mitigate excessive blast fumes and the procedure for the management of excessive blast fumes should they occur.

## 2. Impact of COVID-19

The intent of this System as drafted may have been impacted by COVID-19. As such, where there are any references to expectations of people gathering, meeting or generally being in the same vicinity, this is to be done with appropriate social distancing, personal hygiene, and effective respiratory hygiene measures applied. Workers must reference the COVID-19 Management Plan for guidance on effective prevention and control practices for all activities conducted at a Bloomfield Operation. Workers unsure of how to control the risk, should stop the job and report this to the Supervisor in line with the Risk Management System.

## 3. Scope

Blast Fumes across the Bloomfield Group are managed according to this Blast Fume Management Strategy.

## 4. Risk Mitigation

CONTRIBUTING FACTORS	POTENTIAL CONTROLS
<b>Meteorological Conditions</b>	
Weather Forecast	<input type="checkbox"/> Review rainfall forecasts for a planned sleep time of the shot and select products according to manufacturer's recommendations <input type="checkbox"/> Minimise sleep time for non-wet hole products if rain is predicted <input type="checkbox"/> Bench design for water runoff <input type="checkbox"/> Seal product column with water-resistant product <input type="checkbox"/> Seal top of stemmed holes with gasbag <input type="checkbox"/> Seal top of stemmed holes with drill cuttings to minimise water ingress <input type="checkbox"/> Consistent energy matched blast design for wet-hole products <input type="checkbox"/> Use hole savers to reduce runoff from bench entering holes
<b>Blast Design</b>	
Priming	<input type="checkbox"/> Review blast design and follow manufacturer's instructions on explosive product initiation
Hole depth	<input type="checkbox"/> Reduce bench height where applicable <input type="checkbox"/> Ensure adequate relief in deep holes <input type="checkbox"/> Follow manufacturer's recommendations on product selection and blast design for deep holes, for example, decking where appropriate
Decked holes	<input type="checkbox"/> Appropriate separation of explosive decks
Initiation of explosive quantities	<input type="checkbox"/> Reduce blast size in order to reduce the total explosive amount being initiated in the one blast event where applicable <input type="checkbox"/> Reduce powder factor where applicable

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	2

# BLAST FUME MANAGEMENT STRATEGY

CONTRIBUTING FACTORS	POTENTIAL CONTROLS
<b>Product Selection</b>	
Use of non-water-resistant products	<input type="checkbox"/> Follow manufacturer's recommendations on product selection <input type="checkbox"/> Regular education on product recommendations from the current supplier <input type="checkbox"/> Discipline in on-bench practices
Interaction with adjacent product columns	<input type="checkbox"/> Understand the geology of each shot and design blast (timing & product) to match, for example, reduction of powder factor where applicable <input type="checkbox"/> Follow manufacturer's recommendations on product selection <input type="checkbox"/> Obtain appropriate technical assistance if required to ensure an optimal result
Desensitisation of an explosive product	<input type="checkbox"/> Follow manufacturer's recommendations on the compatibility of initiating systems with explosives
<b>Geology</b>	
Strata condition	<input type="checkbox"/> Understand geology of each shot and design blast (timing & product) to ensure adequate relief in weak/soft strata, for example considering the incorporation of a free face, reduction of powder factor, modified timing <input type="checkbox"/> Minimise blast size and depth where applicable <input type="checkbox"/> Follow manufacturer's recommendations on product selection <input type="checkbox"/> Use of hole liners where applicable <input type="checkbox"/> Monitor holes which are slumped or require an excessive amount product to reach stemming height, but where water is not present
Presence of water in holes	<input type="checkbox"/> Minimise sleep time of the shot <input type="checkbox"/> Follow manufacturer's recommendations on product selection <input type="checkbox"/> Measure recharge rates if dewatering, and choose products according to manufacturer's recommendations <input type="checkbox"/> Monitor slumped holes to build an understanding of pit hydrology <input type="checkbox"/> Understand hydrology of pit and plan to blast to avoid interaction between explosives and dynamic water (either natural or from other pit operations) <input type="checkbox"/> Use of hole liners where applicable <input type="checkbox"/> Ensure appropriate loading practices during charging <input type="checkbox"/> Ensure primer is positioned in the undiluted product <input type="checkbox"/> Insert gas bag to separate mud/sediment from the explosive charge <input type="checkbox"/> Use hole savers to minimise runoff from bench entering holes
The timeframe between drilling & loading	<input type="checkbox"/> Minimise time between drilling & loading where applicable <input type="checkbox"/> Use blast hole cameras to ascertain hole condition in critical areas <input type="checkbox"/> Use hole savers <input type="checkbox"/> Mine planning to ensure benches are unaffected by the back break from earlier blasts, for example, pre splits, buffers <input type="checkbox"/> Optimise drilling practices to minimise hole damage through rock cracking

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	3

CONTRIBUTING FACTORS	POTENTIAL CONTROLS
Clay content	<ul style="list-style-type: none"> <li><input type="checkbox"/> Maintain a low powder factor where applicable, giving consideration to the water-resistance of the products used and how this may impact sleep time</li> <li><input type="checkbox"/> Use of hole liners where applicable</li> <li><input type="checkbox"/> Use of the <i>Rix's Creek Geological Information</i>, including a typical vertical cross-section diagram (see Attachment A)</li> <li><input type="checkbox"/> Use of the <i>Rix's Creek Geological Information</i>, including a typical vertical cross-section diagram (see Attachment A)</li> </ul>
<b>On Bench Practices</b>	
Knowledge of hole condition	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dip all holes before loading</li> <li><input type="checkbox"/> Identify wet, dewatered and dry holes during the loading process and use this information as a basis for product selection</li> <li><input type="checkbox"/> Measure recharge rate of dewatered holes and choose products according to manufacturer's recommendations</li> <li><input type="checkbox"/> Minimise time between drilling &amp; loading where applicable (i.e. in soft and clay strata). Note: Enough time should be allowed for any dynamic water in the hole to be identified</li> <li><input type="checkbox"/> Use blast hole cameras to ascertain hole condition in critical areas</li> <li><input type="checkbox"/> Minimise sleep time</li> </ul>
Drill plan	<ul style="list-style-type: none"> <li><input type="checkbox"/> Maintenance of accurate drilling records and review of blast design if required to compensate for inaccuracies</li> </ul>
Run-off design	<ul style="list-style-type: none"> <li><input type="checkbox"/> Load wet holes first and dip remaining holes before loading. Adjust product selection according to manufacturer's recommendations</li> </ul>

**Table 1 Risk Mitigation Table**

## 5. Rating and Record-Keeping

Blast Fume is assessed visually using a fume rating scale with reference to Appendix 2 and Appendix 3 of the Prevention and Management of Blast Generated NOx Gases from Surface Blasting Operations- Explosives Industry and Safety Group- August 2011- ( Figure 1 and 2).






The assessment of blast fume is recorded utilising the *Blasting Checklist* for each blast. Records of these ratings are kept on-site for at least two years.

Where a potential risk of post-blast fume is identified through the pre blast assessment, the blast is recorded via video for a minimum duration of one minute following the blast to capture any post-blast fume until it dissipates, leaves the site or leaves the view of the camera. Video footage is stored on a file server, which is backed up on a regular basis.

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	4

## APPENDIX 2 - VISUAL NO<sub>x</sub> GASES RATING SCALE

The following table, together with the Field Colour Chart in Appendix 3, details how NO<sub>x</sub> gases from a surface blast can be assessed.

Level	Typical Appearance
<b>Level 0</b> No NO <sub>x</sub> gas	
<b>Level 1</b> Slight NO <sub>x</sub> gas	
1A Localised	
1B Medium	
1C Extensive	
<b>Level 2</b> Minor yellow/orange gas	
2A Localised	
2B Medium	
2C Extensive	
<b>Level 3</b> Orange gas	
3A Localised	
3B Medium	
3C Extensive	
<b>Level 4</b> Orange/red gas	
4A Localised	
4B Medium	
4C Extensive	
<b>Level 5</b> Red/purple gas	
5A Localised	
5B Medium	
5C Extensive	

Assessing the amount of NO<sub>x</sub> gases produced from a blast will depend on the distance the observer is from the blast and the prevailing weather conditions. The intensity of the NO<sub>x</sub> gases produced in a blast should be measured on a simple scale from 0 to 5 based on the table above. The extent of the NO<sub>x</sub> gases also needs to be assessed and this should be done on a simple scale from A to C where:-






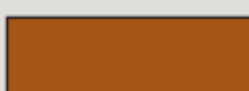
- A = Localised (ie NO<sub>x</sub> Gases localised across only a few blast holes)
- B = Medium (ie NO<sub>x</sub> Gases from up to 50% of blast holes in the shot)
- C = Extensive (ie Extensive generation of NO<sub>x</sub> Gases across the whole blast)

**Figure 1:** Visual NO<sub>x</sub> Gas Rating Scale (Source: Appendix 2 of the Prevention and Management of Blast Generated NO<sub>x</sub> Gases from Surface Blasting Operations- Explosives Industry and Safety Group- August 2011).

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	5

## APPENDIX 3 - FIELD COLOUR CHART

Pantone colour numbers have been included in the following Field Colour Chart to ensure colours will be produced correctly thereby ensuring a reasonable level of standardisation in reporting NOx gas events across the blasting industry.

Level	Colour	Pantone Number
Level 0 No NOx gas		Warm Grey 1C (RGB 244, 222, 217)
Level 1 Slight NOx gas		Pantone 155C (RGB 244, 219, 170)
Level 2 Minor yellow/orange gas		Pantone 157C (RGB 237, 160, 79)
Level 3 Orange gas		Pantone 158C (RGB 232, 117, 17)
Level 4 Orange/red gas		Pantone 1525C (RGB 181, 84, 0)
Level 5 Red/purple gases		Pantone 161C (RGB 99, 58, 17)

**Figure 2:** Field Colour Chart (Source: Appendix 3 of the Prevention and Management of Blast Generated NOx Gases from Surface Blasting Operations- Explosives Industry and Safety Group- August 2011).

## 6. Incident Reporting

In the event a blast produces a post blast fume rating of Level 3 at its highest extent and leaves the site, and any blast that rates 4 or 5, must be reported to the Department of Planning, Industry and Environment (DPIE) and NSW EPA. Any further reporting will be in accordance with Project Approval requirements or as required under the Environmental Protection Licence. If the incident is determined to be environmental harm as defined under the Protection of the Environment Operations Act, (1997) the incident will be reported as directed under the *Pollution Incident Response Management Plan* (PIRMP) for the site which is available on MOMS or the Bloomfield website ([www.bloomcoll.com.au](http://www.bloomcoll.com.au)) All blast fume incidents will be investigated as required in accordance with the Bloomfield Group *Incident Investigation Procedures*.

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	6

## 7. Emergency Response

Any Blasting Incident will be dealt with as per the *Emergency Management Control Plan* and if determined as environmental harm in accordance with the *Pollution Incident Response Management Plan (PIRMP)* for each site.

## 8. Training

Training & Competency requirements outlined in this management system will be provided in accordance with the *Training and Competency Management System*.

## 9. Evaluation and Ongoing Review

The ongoing effectiveness and efficiency of this Management System are monitored as part of the operation's day-to-day management. Feedback from this and other more formal reviews and/ or following unique occurrences form the basis for System improvement and re-design.

Internal auditing of this document is carried out as per the *Internal Audit Management System*. Ongoing review of this document is as per the *Document & Records Management System*.

## 10. Revision History

4	Document reviewed – no changes made	22/02/2023	Mick Innes	Brendon Clements
3	Additional Section on COVID-19	20/05/2020	Mick Innes	Brendon Clements/ Brad Donoghoe
2	Definitions included from the AEISG,additional references included,Rating Scale and Colour Charts included,document reviewed minor wording changes updated, Update to the template as per the BBP Project 1	03/02/2020	Mick Innes	Brendon Clements/ Brad Donoghoe
1	Identification of internal Document Change	01/02/2017	Scott Munro	Luke Murray
0	Removed for Explosives Management Plan	27/02/2013	Simon Dagg	Garry Bailey
<b>Rev.</b>	<b>Description</b>	<b>Date</b>	<b>Drawn</b>	<b>Approved</b>

Document Title:	<b>Blast Fume Management Strategy</b>		Version No:	1.4	
Last Review Date:	22-Feb-23	Review Frequency	<b>36 MONTHS</b>	Page No:	7

# Appendix E – Environmental Commitments

Document Title:	<b>Blast Management Plan – Rixs Creek Mine</b>		Document Owner:	<b>Chris Quinn</b>	
Prepared By:	C Quinn	Print Date:	15/7/2025	Version No:	1.9
Reviewed By:	D Homes	Review Frequency:	<b>See Cond E5 SSD 6300 / Sch2. Cond 5 PA 08_0102</b>	Issue Date:	15/7/2025
Approved By:	Chris Quinn			Page No:	70 of 72

Table E1 and Table E2 summarise the Blasting commitments made in the respective environmental assessment which form part of the PA 08\_0102 Appendix 9 and SSD 6300 definition of EIS (page 4).

**Table E1  
PA 08\_0102 Blasting Commitments**

Item	Mitigation Measure and Commitment	Implementation	Section
G8	Continued implementation of the existing Explosive Hazard Management Plan to ensure the safety of employees and the public during explosives handling and blasting operations	Continuous during operations	<b>Refer to Explosives Management Plan</b>
G9	Restrict blasting to between the hours of 9.00am and 5.00pm Monday to Saturday, unless blasts outside this time are required for misfire re-blast, emergency or safety reasons.	Continuous during operations	<b>4.1.3</b>
G10	Blast design and implementation to be undertaken by a suitably qualified blasting engineer and/or experienced shot-firer to ensure ANZEC Guidelines are met at all non-project related residences surrounding the Open Cut Project Area.	Continuous during operations	<b>4.1.3</b>
G11	Refine blast mitigation measures and operating procedures as required based on monitoring results.	Continuous during operations	<b>4.3</b>
G12	Provide notification on the morning prior to a blast of blast times to local residents and others who request to be included on the notification list.	Continuous during operations	<b>4.1.1</b>
G13	Use aggregate as the stemming material (not drill dust) in order to fully contain the explosives within the blasthole.	Continuous during operations	<b>4.1.3</b>
G14	In the case of the Part Pit Extent (ie. Rixs Creek North is unable to acquire Residence 153 or negotiate an agreement with the owner) blasting will not be undertaken within a 500m Exclusion Zone surrounding the 'Dulwich' residence and 200m from the property boundary until such time that it can demonstrate to the Director-General that blasting can be undertaken without an unacceptable risk to the resident, residents, their stock or residence.	Continuous during operations	<b>4.1.2</b>

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**Table E2  
SSD 6300 Blasting Commitments**

	<b>Factor</b>	<b>Management and Mitigation Measures</b>	<b>Section</b>
17	Vibration and Blasting	<i>The internal Explosive Management Plan will be updated to include established methodology for calculating blast limits for blasting in close proximity to the Rix's Creek Coke Ovens as well as blast monitoring.</i>	<b>Heritage Management Plan + Section 4.5</b>

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