Environmental Management System

Rix's Creek Mine

AIR QUALITY AND GREENHOUSE GAS MANAGEMENT PLAN

Doc No:	Air Quality and Greenhouse Gas Management Plan
Doc Owner:	Environmental Manager – Rix's Creek Pty Ltd

Approval: Group Environmental Manager – The Bloomfield Group

Signed: C Knight

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Draft	11/01/16	Original draft	P Henschke	Garry Bailey	Garry Bailey
1.0	22/01/16	Revision update	John Hindmarsh	Garry Bailey	Garry Bailey
1.1	10/2/16	Incorporated RCM operations	John Hindmarsh	Garry Bailey	Garry Bailey
1.2	9/1/17		John Hindmarsh	P Henschke	Garry Bailey
1.3	15/12/17	Section 2 condition tables and revised trigger actions	Chris Quinn	Chris Knight	Chris Knight
1.4	24/7/19	Updated to include protocol between mines	Chris Knight	Chris Quinn	Chris Knight
1.5	22/05/20	Updated for SSD 6300 Updated for DA-49/94 IEA RTR	Kirstin Blaikie	Dianne Munro	Chris Knight
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1 Introduction

Rix's Creek Mine (RCM) is an open cut coal mine owned and operated by The Bloomfield Group (Bloomfield). RCM comprises the original Rix's Creek Mine, now known as Rix's Creek South (RCS) and the former Integra Open Cut Project 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 Air Quality and Greenhouse Gas Management Plan (AQGMP) forms part of a series of Environmental Management Plans for RCM and is the primary tool that will be utilised to manage air emissions from the operation and ensure compliance at sensitive receptors.

1.1 Background

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

- For the Rix's Creek South Mine: North Pit, Pit 2 and Pit 3 (also known as West Pit), rail loadout infrastructure (approved but not constructed (DA 49/94 MOD 5) and CHPP; and,
- For the Rix's Creek North Mine: the North Open Cut, South Pit, the Extended South Pit (Western Extension), CHPP and the rail loadout 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.

The current RCM consists of the original Rix's Creek Mine (Rix's Creek South - prior to the addition of the former Integra Open Cut) and the Rix's Creek North (former Integra Open Cut Mine). The entire site is known collectively as the Rix's Creek Mine; however, as the two mines have separate development approvals and licences, it is necessary to refer to the two parts of RCM separately.

For the purpose of referring to the two previous mines in the AQGMP, the former Integra Open Cut Mine is referred to as Rix's Creek North (RCN) and the original Rix's Creek Mine is referred to as Rix's Creek South (RCS).

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 extension of the Camberwell Pit was approved in 2010 under Project Approval (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 (previously known as North Open Cut) and associated overburden emplacement areas (OEA);
- Camberwell Pit (previously known as South Pit) and associated OEAs;
- RCN Coal Handling and Processing Plant (CHPP) and stockpiles;

- Rail loop and rail loadout facilities; and
- Associated maintenance and administration buildings.

RCN includes the North Open Cut pit, (now known as Falbrook Pit), which is subject to restricted operating hours in accordance with Schedule 2 Condition 10 (a) of PA 08_0102. The Falbrook Pit will remain in care and maintenance for the foreseeable future, and is therefore omitted from this AQGMP.

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 (previously known as Pit 3) 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.

1.3 Document Structure

The remainder of the AQGMP is structured as follows:

Section 2: Outlines the statutory requirements applicable to the AQGMP including relevant air quality criteria.

Section 3: Outlines greenhouse gas management measures.

Section 4: Outlines activities with a potential to generate dust and air quality management measures relevant to RCM's operations.

Section 5: Outlines the air quality 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 AQGMP.

Section 10: Provides the references cited in the AQGMP.

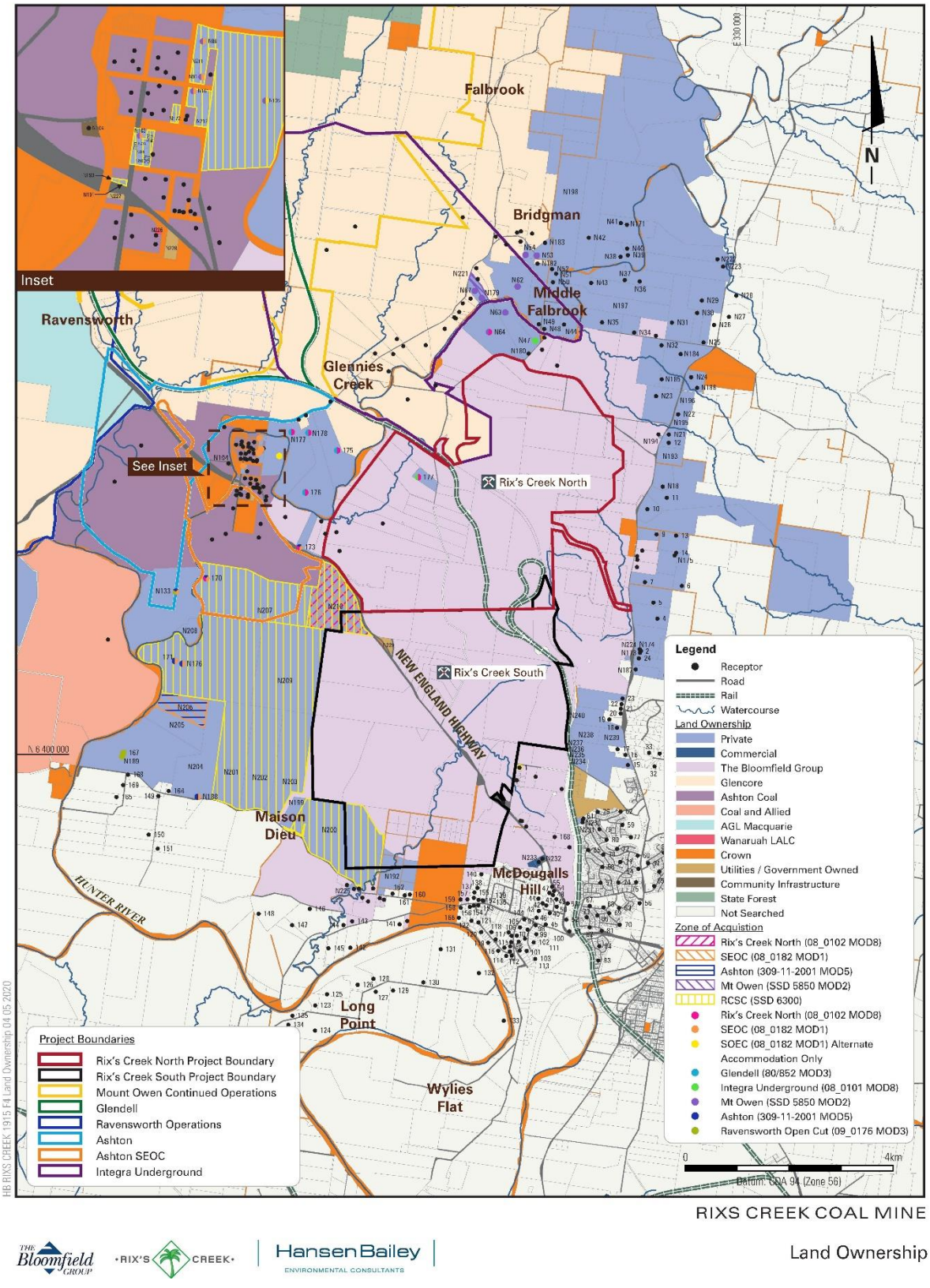


Figure 1- Locality

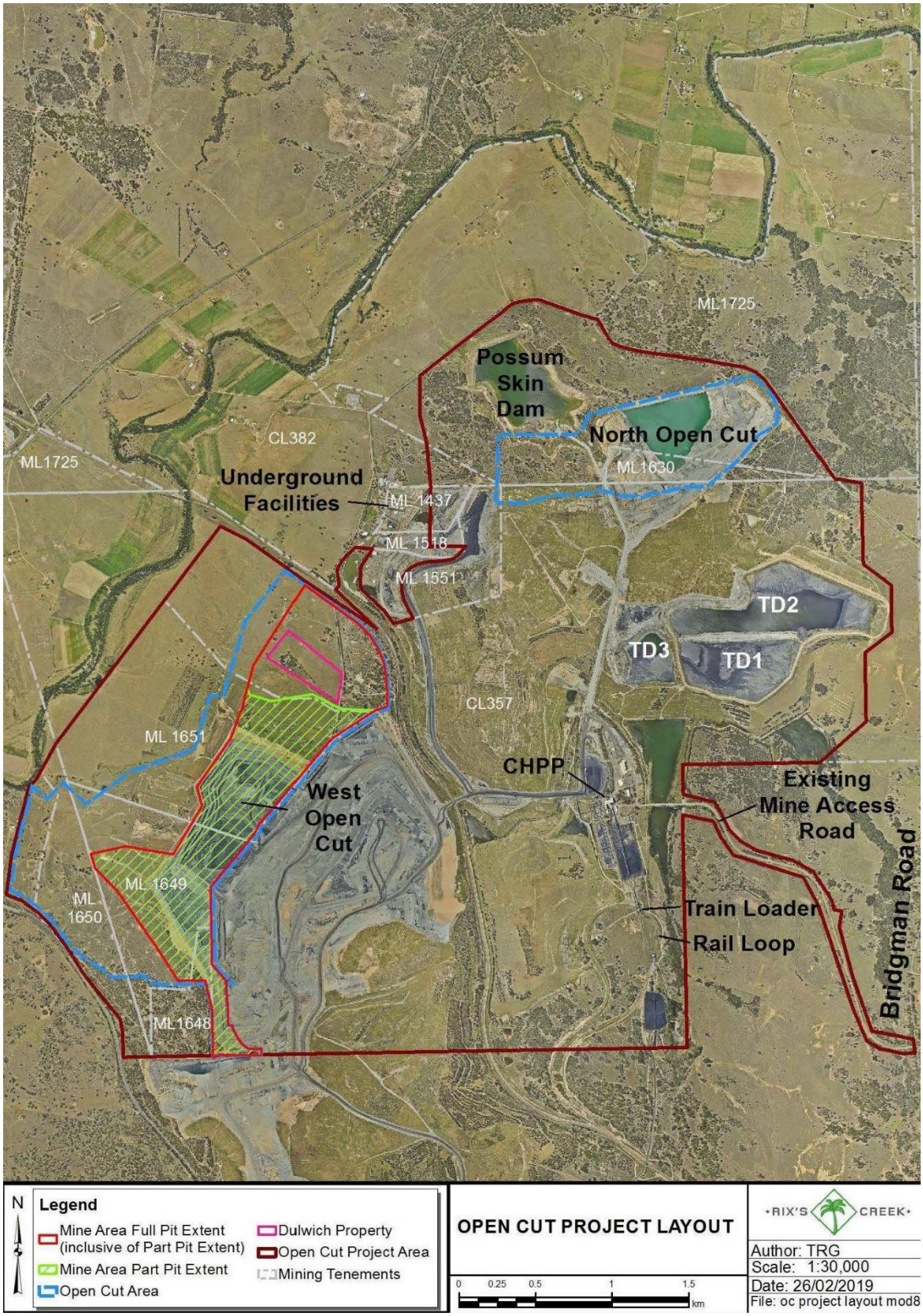


Figure 2
Conceptual Approved Rix's Creek North Mine

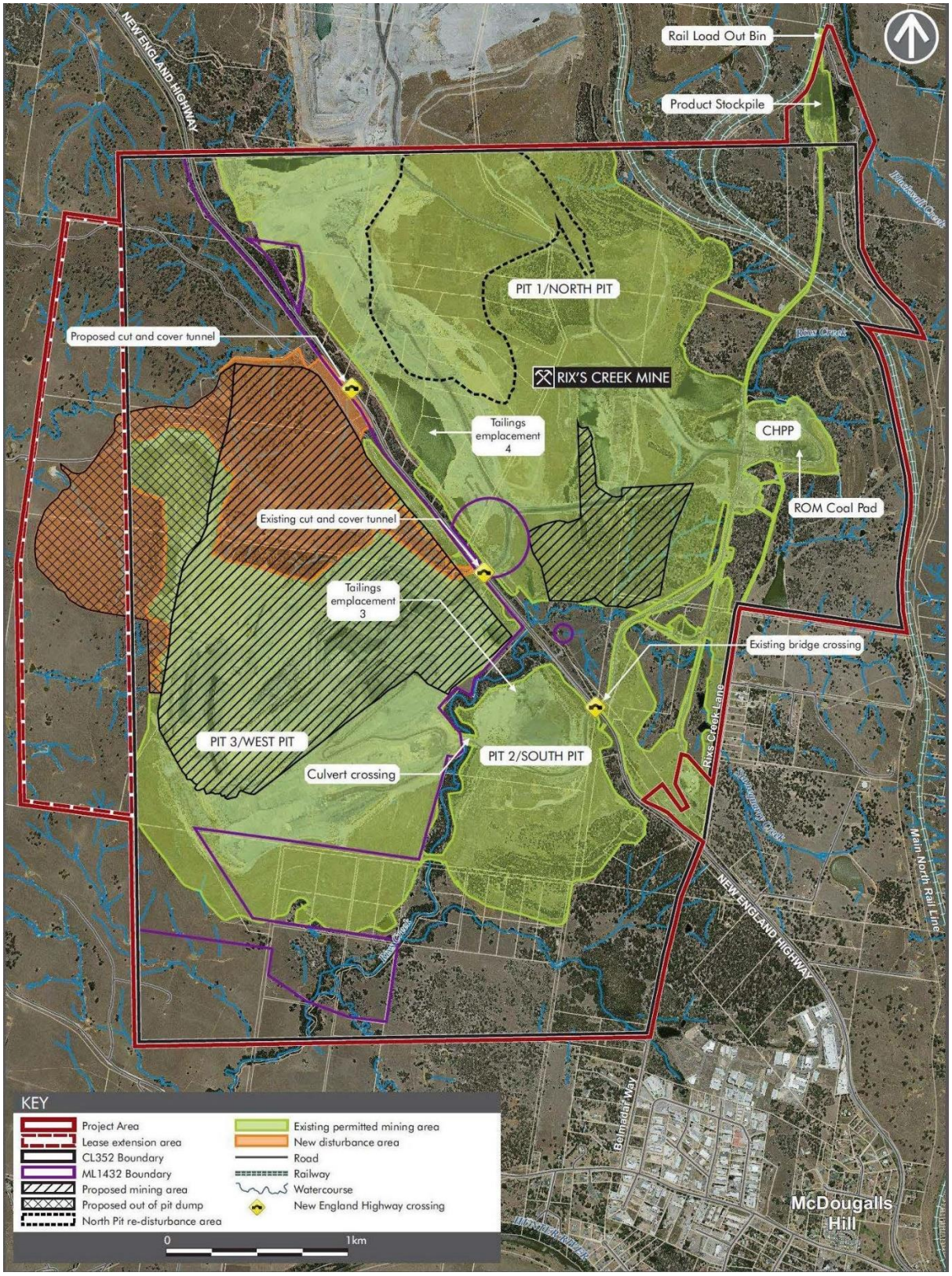


Figure 3
Conceptual Approved Rix's Creek South Mine

2 Statutory Requirements

SSD 6300 and PA 08_0102 (as modified) contain conditions that specifically relate to the management of air quality from the development, including the preparation and implementation of the AQGMP, the air quality criteria (see **Table 3 and Table 4** in **Section 2.3**) and the requirements for private land owner acquisition and mitigation. Other relevant conditions are provided in **Appendix A**.

2.1 Land Ownership

Figure 4 shows the land ownership within and around RCM. The majority of the land within the Project Boundaries for RCS and RCN is owned by Bloomfield under the trading names Rix's Creek Pty Ltd (RCPL), Four Mile Pty Ltd and Big Ben Holdings Pty Ltd. The exception to this includes:

2.1.1 RCN

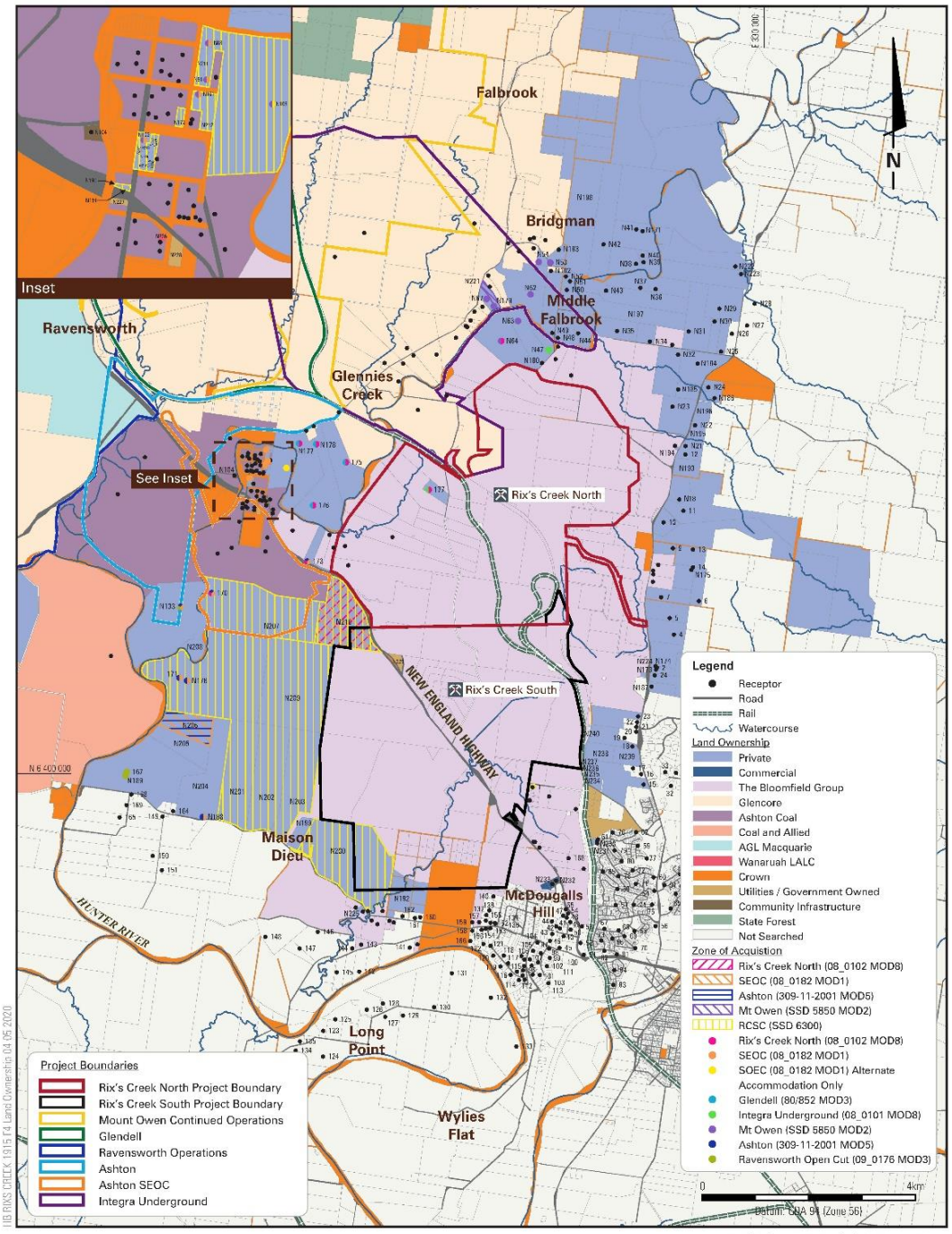
- Parcels of Crown land, roads and rail;
- A privately-owned property referred to as "Dulwich"; and
- Glencore owned land in the north associated with the Integra Underground operation.

2.1.2 RCS

- Parcels of Crown land, roads and rail;
- Approximately five privately-owned parcels in the south of the Project Boundary; and
- A privately-owned parcel of land in the north west corner of the Project Boundary.

Privately-owned land is located immediately west, east and north of the RCN Project Boundary and west, east and south of the RCS Project Boundary. Glencore owned land is also located immediately north of RCN associated with the Integra Underground. Yancoal (Ashton Mine) also owns land to the west of RCN.

Appendix B identifies the private properties with rights to acquisition or mitigation upon request as described in Schedule 3, Conditions 1, 6 and 12 of PA 08_0102 as at 3 April 2019 and in Condition D1 of SSD 6300 as at 21 October 2019.



RIXS CREEK COAL MINE

Land Ownership

FIGURE 4

2.2 Air Quality Management Plan Conditions

2.2.1 Rix's Creek North

The operations at RCN are subject to the conditions contained in the PA 08_0102 (as modified) dated February 2021.

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 AQGMP and where each condition is addressed within the plan are provided in **Table 1** as follows:

Table 1
PA 08_0102 Management Plan Conditions

Ref	Condition	Section
Schedule 3, Condition 26	The Applicant must:	
	(a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project, including those generated by spontaneous combustion;	**5.3**
	(b) maintain the site in a condition which minimises the emission of air pollution (including dust) from the premises;	**5.3**
	(c) operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;	**5.4**
	(d) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note in condition 22);	**5.4**
	(e) minimise surface disturbance on the site; and	**5.3**
	(f) co-ordinate the air quality management on site with the air quality management of nearby mines (including Integra Underground, Ashton, Rix's Creek South and the Mount Owen Complex) to minimise cumulative air quality impacts, and	**5.4.3**
	(g) ensure all plant and equipment installed at the site or used in connection with the project is • maintained in a proper and efficient condition; and • operated in a proper and efficient manner,	

Ref	Condition	Section
	to the satisfaction of the Secretary.	
Schedule 3, Condition 27	The Applicant must prepare an Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Secretary. The plan must:	
	(a) be prepared in consultation with EPA, and then submitted to the Secretary for approval;	**Appendix C**
	(b) describe the measures that would be implemented to ensure: • compliance with the air quality criteria and operating conditions of this consent; and • best practice air quality management is being employed;	**5.3**
	(c) describe the air quality management system in detail;	**5**
	(d) include an air quality monitoring program that: • uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the project; • includes a protocol for determining any exceedances of the relevant conditions of this consent; • adequately supports the proactive and reactive air quality management system; • includes $PM_{2.5}$ monitoring (although this obligation could be satisfied by the regional air quality monitoring network if sufficient justification is provided); • evaluates and reports on the effectiveness of the air quality management system and the best practice air quality management measures; and	**6.2** **7** **5.4** **6.2** **9**
	(e) include a protocol that has been prepared in consultation with the owners of nearby mines (including Integra Underground, Ashton, Rix's Creek South and the Mount Owen Complex) to minimise the cumulative air quality impacts of the mines, and	**5.4.3**
	(f) be reviewed, updated and submitted to the Secretary for approval within three months of the determination of MOD 9 to include: • monitoring methods, including location frequency and duration of monitoring; • triggers for the implementation of reactive management strategies which are clearly articulated, and auditable; and	**6** **Table 7**

Ref	Condition	Section
	• methods for documenting the implementation of proactive and reactive mitigation measures, to the satisfaction of the Secretary.	**5.4.1 & 5.4.2**
	The Applicant must implement the management plan as approved by the Secretary.	

2.2.2 Rix's Creek South

The operations in RCS are subject to the conditions of development consent SSD 6300. The specific requirements for air quality management and the AQGMP are presented in **Table 2**.

Table 2
SSD 6300 Management Plan Conditions

Ref	Condition	Section
Condition B25	The Applicant must:	
	(a) take all reasonable steps to:	
	(i) minimise odour, fume and particulate matter (including PM_{10} and $PM_{2.5}$) emissions of the development, paying particular attention to minimising wheel-generated haul road emissions;	**5.3**
	(ii) eliminate or minimise the risk of spontaneous combustion;	**5.5**
	(iii) improve energy efficiency and reduce greenhouse gas emissions of the development;	**3**
	(iv) minimise any visible off-site air pollution generated by the development; and	**5.3**
	(v) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;	**5.3**
	(b) ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;	**3**
	(c) operate a comprehensive air quality management system that uses a combination of meteorological forecasts and real-time monitoring to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;	**5.4**
	(d) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note c to Table 3 above);	**5.3**

Ref	Condition	Section
	(e) minimise air quality impacts of the development on air quality-affected land referred to in Table 7 and Table 8 for as long as the land remains privately-owned (i.e. until it is acquired);	**5**
	(f) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of this consent; and	**6**
	(g) regularly assess meteorological and air quality monitoring data, and modify operations on the site to ensure compliance with the relevant conditions of this consent.	**7**
Condition B26	The proponent must prepare an Air Quality and Greenhouse Gas Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	
	(a) be prepared by a suitably qualified and experienced person/s;	**Title page**
	(b) be prepared in consultation with the EPA;	**Appendix C**
	(c) be submitted to the Planning Secretary for approval within six months of commencing development under this consent;	**Appendix C**
	(d) describe the measures to be implemented to ensure: (i) compliance with the air quality criteria and operating conditions of this consent; and (ii) best practice management is being employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency); and (iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;	**5** **3** **5**
	(e) describe the air quality management system in detail; and	**6**
	(f) include an air quality monitoring program, undertaken in accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007), that: (i) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of mining operations; (ii) adequately supports air quality management system; and (iii) includes a protocol for identifying any exceedances, incident or non-compliance and for notifiying the Department and relevant stakeholders of these events.	**6**

Ref	Condition	Section
Condition B27	The Applicant must implement the Air Quality and Greenhouse Gas Management Plan as approved by the Planning Secretary.	

2.3 Air Quality Criteria

Air quality criteria are stipulated in Schedule 3, Condition 23 of PA 08_0102 and Condition B22 of SSD 6300 and are reproduced in **Table 3** and **Table 4**.

Table 3
PA 08_0102 Air Quality Criteria

Pollutant	Averaging Period	Criterion	
Particulate matter < 10 µg (PM_{10})	Annual	[a] 25 µg/m^3	
Particulate matter < 10 µg (PM_{10})	24 hour	[b] 50 µg/m^3	
Particulate matter < 2.5 µg ($PM_{2.5}$)	Annual	[a] 8 µg/m^3	
Particulate matter < 2.5 µg ($PM_{2.5}$)	24 hour	[b] 25 µg/m^3	
Total suspended particulates (TSP)	Annual	[a] 90 µg/m^3	
Deposited Dust	Annual	[b]2 g/m^2/month	[a]4 g/m^2/month

Notes to Table 3

[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
[c] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.
[d] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

Table 4
SSD 6300 Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µg (PM_{10})	Annual	[a, c] 25 µg/m^3
	24 hour	[b] 50 µg/m^3
Particulate matter < 2.5 µg ($PM_{2.5}$)	Annual	[a, c] 8 µg/m^3
	24 hour	[b] 25 µg/m^3
Total suspended particulate (TSP)	Annual	[a,c] 90 µg/m^3

Notes to Table 5:

[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all sources);
[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own);
Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.

Condition B23 of SSD 6300 states that the air quality in Table 3 of SSD 6300 do not apply if Bloomfield have an agreement with the owner/s of the relevant residence or land to exceed the criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

2.4 Environmental Impact Statement Commitments

Appendix D (Table D2) lists the air quality 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 AQMP.

2.5 Environmental Protection Licence

Bloomfield operates under the Environmental Protection Licence (EPL) 3391. Conditions P1, O3 and M2 of the EPL details the air quality requirements (as at January 2020), and all activities at RCM are conducted in accordance with these requirements.

Condition P1.1 of EPL 3391 provides approval for the use of data from the Upper Hunter Air Quality Monitoring Network monitors at Camberwell and Singleton North West to derive a differential between upwind and downwind PM10 concentrations.

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).

3 Stakeholder Consultation

3.1 Department of Planning, Industry and Environment

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

This AQMP includes other regulatory correspondence and consultation as described in **Section 3.2**. The final AQMP was submitted to DPIE for approval on 27 July 2020. A copy of regulatory correspondence is provided in **Appendix D**.

3.2 Environment Protection Authority

The draft AQMP was provided to the Environmental Protection Authority (EPA) on 9 July 2020 for consultation and comment. In its response dated 24 July 2020, EPA noted the following;

"The EPA encourages the development of Environmental Management Plans to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any Project and/or the conditions of an environment protection licence. However; the EPA does not review these plans (unless in circumstances deemed necessary) as the role of the EPA is to set conditions for environmental protection and management, not to be directly involved in the development of strategies to comply with such conditions.

The EPA has therefore not reviewed this management plan and offers no comments in relation to it."

No further changes have been made to this document following consultation with NSW EPA.

4 Greenhouse Gas

Bloomfield is committed to the reasonable and feasible best practice management of Greenhouse Gas (GHG) emissions from RCM.

4.1 Preamble

The generation and emission of GHG as a result of anthropogenic activities have the potential to impact the physical environment and the GHG reduction objectives of national and international governing bodies.

It is important that RCM contributes to climate change solutions by minimising its GHG emissions.

4.2 Sources of GHG Emissions

GHG emissions attributable to operations at RCM arise from the following sources:

Scope 1 Emissions:

- Fugitive emissions of carbon dioxide and methane released from coal seams when the coal is mined; and
- Combustion of diesel fuel, petrol, petroleum-based greases and oils, explosives, and gaseous fuels in the mine fleet, light vehicles and stationary diesel powered equipment and in explosives.

Scope 2 Emissions:

- Emissions at a power station from the generation of electricity purchased for use onsite.

Scope 3 Emissions:

- The transport of consumables to site, e.g. diesel and electricity;
- The transport of the product coal to the Port of Newcastle and the transport of the product coal overseas; and,
- The final use of the product coal, e.g. the combustion of the product coal in power generating facilities.

4.3 Greenhouse Gas Management

Bloomfield implements all reasonable and feasible measures to minimise the release of GHG emissions from the site. A summary of various mitigation and energy management measures to help reduce GHG emissions, are as follows:

- Monitoring the fuel efficiency of and regularly maintaining the diesel equipment;
- Minimise excess diesel use by scheduling operations to maximise efficiency and reduce vehicle kilometres travelled;
- Switch off engines when not in use;

- Adequate pollution reduction devices fitted to any new mine fleet;
- Monitoring the total site electricity consumption and investigate avenues to minimise the requirement;
- Conduct a review of alternative renewable energy sources;
- Development of targets for GHG emissions and energy use, as well as monitoring and reporting against these;
- Use of high efficiency electric motors;
- Investigating efficiency of transformers;
- Conducting energy awareness programs for staff;
- Minimising the production of waste generated on-site; and
- Efficient outdoor lighting systems with lux sensors and timers.

4.4 Greenhouse Gas Monitoring and Reporting

Bloomfield will continue to monitor and report greenhouse gas emissions from the site in accordance with the requirements of the *National Greenhouse and Energy Reporting Act 2007* (NGER, 2007) and the *National Greenhouse and Energy Reporting Regulations 2008* (NGER, 2008).

5 Air Quality Management Measures

Bloomfield manages particulate matter emissions from RCM with a potential to affect the general health and amenity of the community and surrounding environment.

5.1 Generation and Dispersion of Dust

Generation of dust emissions from open cut mining can occur through:

- Wind generated emissions (i.e. wind erosion of exposed surfaces, including stockpiles, overburden dumps and active pit areas);
- Wind sensitive emissions, such as loading transport and emplacement (essentially wherever material falls through the air); and
- Wind insensitive emissions, such as wheel generated dust from hauling, and dust from blasting and drilling (where the amount of dust does not predominantly depend on the wind speed at the time).

Significant particulate matter generating activities identified for RCM comprise:

- Hauling of materials along unsealed roads;
- Loading and unloading of materials;
- Dozers operating on material;
- Wind erosion from exposed areas;
- Topsoil and subsoil stripping;
- Drilling and blasting of materials;
- Grading roads; and,
- Processing and handling of coal.

Dispersion of the dust generated is dependent on weather conditions such as wind speed and humidity and the size of the dust particles. Stronger winds will create more wind sensitive emissions, and will carry particulates further than weaker winds. Smaller size fractions of dust will remain entrained in the air for longer than the larger fractions.

The four classes of particulates are:

- Deposited dust which relates to the largest dust particles in the air. These particles rarely travel far from the source as they rapidly settle under gravity;
- Total Suspended Particulate matter (TSP) which refers to the total dust particles that are suspended in the air and nominally defined with an upper size range of 30 micrometres (µm);
- PM_{10} which refers to particulate matter with an aerodynamic diameter less than 10µm; and
- $PM_{2.5}$ which refers to particulate matter with an aerodynamic diameter less than 2.5 µm.

Overall, there are two distinct weather conditions under which most short-term dust impacts can occur:

- Hot, high wind conditions, especially where winds are relatively constant – under these conditions the quantity of dust from an operation can be high, leading to high impacts; and,
- Stable atmospheric conditions where there is little vertical mixing of the air, and hence relatively low dispersion of the dust leaving the site.

Appendix E contains information on the baseline air quality data for RCM.

5.2 Cumulative Air Quality Impacts

Cumulative impacts include the dust emissions from the development, background dust levels and other open cut mining operations in the area.

Background dust levels will vary considerably in the wider area around a mine, and from day-to-day. The background levels at a monitoring site are affected by localised sources of dust including dirt roads, activities on, and wind erosion of, exposed or grazed agricultural land, burning, particles from urban areas, wood heating in winter and pollens. In addition, background levels will include effects due to regional events, such as extremely dry windy conditions, dust storms and bushfires.

Other significant mining operations in the area that may have an influence on cumulative air quality include as shown in **Figure 1**:

- Mount Owen Complex;
- Ravensworth Complex;
- Integra Underground;
- Hunter Valley Operations;
- Ashton Underground; and
- Ashton SEOC (once commenced).

5.3 Air Quality Control Measures

The air quality management measures described in this section are designed to minimise the impact on the surrounding environment due to on-site activities. The measures will be continually revised and updated as required based on operational changes and advancements in technologies.

The primary measures to control dust emissions for RCM are set out in **Table 5**.

Table 5
Summary of Air Quality Mitigation Measures

Activity	Air Quality mitigation measure
General	• Where applicable, make use of trees and shrubs as windbreaks around permanent areas that have potential for wind generated dust. • Site induction includes air quality requirements to ensure employee awareness of potential dust impacts, especially with respect to the Hunter area. • Provide regular awareness training including air quality requirements. • Operate a proactive system (see **Section 5.4.1**) to provide appropriate warning of adverse conditions when trigger levels may be achieved. • Follow the process for acting on the dust trigger action response plan in **Section 5.4.2**. • Development of minor roads will be limited and the locations of these will be clearly defined. • Minor roads used regularly for access etc. will be watered.
Drilling & blasting	• Use dust suppression systems on drill rigs. • Prevent disturbance of drill cuttings. • Application of water on dusty areas prior to drilling. • Stem blast holes to prevent venting of explosion gases. • Cease operations when visible dust is generated during drilling. • Conduct blasting during hours when dispersion is favourable, unless otherwise required for safety reasons. • Watering blast areas to suppress dispersion of drill cuttings. • Review meteorological and blast forecast prior to blasting as described in **Section 5.4**. • Optimise blast design to minimise dust generation. • Undertake blasting operations in accordance with the Blast Management Plan and the Integrated Blast Fume Management Strategy.
Hauling on unsealed roads	• Water haul road surfaces or apply an equally effective dust suppressant. • Prevent material being deposited / spilled on haul roads. • Impose speed limits on all roads. • Clearly mark trafficable areas and restrict vehicle movements to these areas. • Regularly maintain trafficable areas and vehicle manoeuvring areas. • Fleet optimisation to reduce vehicle kilometres travelled.

Activity	Air Quality mitigation measure
	• Rehabilitate disused roads as soon as practicable.
Material extraction/ unloading	• Preferentially undertake topsoil stripping when there is sufficient soil moisture to prevent or minimise significant dust lift-off. • Access tracks used by topsoil stripping equipment will be watered. • Long term topsoil stockpiles will be revegetated. • Apply water to dusty areas prior to extraction. • Dump in sheltered areas during periods of adverse weather. • Where possible, minimise the fall distance of materials during loading and unloading. • Minimise spillage from loading/ unloading and clean up any spillage as soon as practicable. • Relocate / reschedule or cease operations during high dust periods.
Dozer and grader operation	• Avoid use during unfavourable conditions. • Minimise travel speed in dusty conditions. • Travel on watered routes between work areas. • Water haul roads immediately after grading, where possible.
Exposed areas	• Minimise advance clearing/ site preparation to reduce wind erosion. Only disturb the minimum area necessary for mining. • Design overburden placement to minimise the disturbance area. • Rehabilitate obsolete roads and overburden emplacement areas as soon as feasible. • Apply interim stabilisation on areas inactive for long periods. • Consider temporary rehabilitation or application of chemical controls to unused areas or dump slopes if there is a delay with rehabilitation or the area may be used again. • Use cleared trees and branch material for stabilising rehabilitated landforms; this may include spreading of mulch branches on completed overburden landform. • Regularly water cleared areas where appropriate.
Rehabilitation	• Rehabilitation expedited to achieve maximum coverage rate. • Vegetation is actively managed.
CHPP	• Use automatic water sprays on ROM hopper when unloading ROM coal;

Activity	Air Quality mitigation measure
	• Minimise drop heights as far as practicable • Slow tipping at ROM hopper during adverse weather conditions. • Use visual triggers for implementation of further dust mitigation. • Enclosed facility with internal water sprays at feeder, crusher, conveyor and transfer points as necessary. • Enclosed conveyors and transfer points. • Conveyors fitted with appropriate cleaning and collection devices. • Regularly clean areas where spilt material can build up, e.g. under transfer chutes and conveyors.
ROM and product stockpiles	• Minimise drop heights when stacking. • Manual implementation of water sprays and/or water cart during dusty periods. • Visual surveillance of dust plumes during activity. • Minimisation of stockpiling and recovery of coal on ROM.
Rail Operations	• Ensure streamlined and consistent profiled coal surface within rail wagons. • Minimise spillage and parasitic loading. • Clean and collect any spillage on a regular basis.

5.4 Proactive and Reactive Management

The mitigation measures to be implemented under adverse conditions (**Table 6**) are aimed at preventing any potential exceedance of 24-hour average PM_{10} criteria and also to manage short-term visible or other such events. Proactive and reactive management measures employed for PM_{10} ensure that $PM_{2.5}$ dust is also managed. As such, additional controls for $PM_{2.5}$ are not required.

RCM implements measures to respond to changing air quality conditions using real-time weather and air quality monitoring data and a range of approved potential actions that can be taken at short notice.

5.4.1 Proactive Measures

The proactive system is primarily based on forecast weather data and mine emissions information and indicates the extent of dust emissions from RCM at regular time steps into the future (e.g. hourly for one to two days into the future).

The proactive system is primarily used as an alert of possible elevated dust levels due to RCM, allowing time to prepare and better respond to any actual issue based on measured data.

Proactive mitigation measures, such as changing blast times or increasing water cart usage in response to the daily meteorological forecast will be documented in the daily morning meeting minutes which are distributed via email to supervisors and other personnel,

5.4.2 Reactive Measures

The real-time monitoring data is used to identify when ambient levels of PM_{10} are elevated (potentially due to RCM) and require contingency action.

Trigger levels are summarised in **Table 6** and have been developed to identify when to investigate the most significant contributor(s) to elevated dust levels and actions to be implemented for each trigger as follows:

- **Trigger Level 1 – Alert level** applies when the 10-minute average PM_{10} concentration is greater than 150µg/m^3, and/or 1-hour average PM_{10} concentration is greater than 50µg/m^3.
    - Response actions include checking the forecast for that day, identifying risk areas and notifying the Operations Manager to be on alert.
- **Trigger Level 2 – Remedial action level** applies when rolling 1-hour average concentrations are above 50µg/m^3 for three consecutive hours or more and the wind is blowing from the Rix's Creek Mine towards sensitive receptors.
    - Response actions include increased watering, decreasing and / or relocating dust generating activities identified to be a source of impact on those areas at risk.
- **Trigger Level 3 – Extreme action level** applies when the rolling 24-hour concentration is above 50µg/m^3 for 6 consecutive hours or more or 1-hour concentrations are above 150µg/m^3 for three consecutive hours or more and the wind is blowing from the Rix's Creek Mine towards sensitive receptors.
    - Response Actions include cessation of dust generating activity at all, or parts of, the Rix's Creek Mine when the elevated PM_{10} concentrations are not caused by an external

regional pollution event such as bushfires, prescribed burning, dust storms or fire incidents.

- This situation is tested by examining the 24-hour PM_{10} concentrations at all of the Tapered Element Oscillating Mass balance (TEOM) instruments. If 24-hour PM_{10} levels are high at upwind TEOM sites, regional PM_{10} is elevated and RCM is not causing an exceedance. If not, appropriate action is needed.

The above trigger levels will be refined and modified on an ongoing basis as the actual performance is confirmed, operational experience increases and as mining operations change over time. It is anticipated that as operator experience with mine operations and surrounding influences develops, more appropriate trigger levels would be developed over time.

Further reactive controls may include operational measures such as scheduling certain operations during favourable meteorological conditions or to alternative areas and could, in extreme cases, require all dust generating activities to cease operations. Appropriate actions take into account the type of dust source (i.e. wind sensitive or wind insensitive) and the prevailing meteorological conditions in undertaking dust mitigating action.

Reactive mitigation measures will be recorded by the Open Cut Examiner in the daily shift report which is distributed to site supervisors and discussed at the morning meeting on the following day.

If the condition is noted at any monitor, then the actions are implemented. **Table 6** provides a summary of potential mitigation options applicable to the various trigger levels.

Table 6
Air Quality Management Actions for PM_{10} Trigger Actions

Trigger level	Averaging period	Value	Condition	Action
1	10- minute	150µg/m3	10-minute average PM_{10} concentration is greater than 150µg/m^3	Environmental Officer responds by: • Checking forecasts. • Examining upwind / downwind dust levels. • Notifying the Operations Manager to be on alert.
	1-hour	50µg/m3	1-hour average PM_{10} concentration is greater than 50µg/m^3	
2	1-hour	50µg/m3	1-hour average PM_{10} concentration is greater than 50µg/m^3 for more than three consecutive hours AND When winds are blowing from RCM in the general direction of the real-time dust monitor (representing a group of sensitive receptors), as	Increase dust control measures and/or modify activities. Assess weather conditions (i.e. strong winds or stable / calm) to identify most likely dust sources. Mitigation to include:

Trigger level	Averaging period	Value	Condition	Action
			recorded by the on-site weather station.	• Increase moisture content of haul roads, stockpiles and any other exposed areas. • Implementation of water sprays at the site where loading / unloading of materials occurs. • Relocation of activities.
3	Rolling 24-hour	50µg/m3	Rolling 24-hour concentration is above 50µg/m^3 for six consecutive hours OR 1-hour concentrations are above 150µg/m^3 for three consecutive hours AND When winds are blowing from RCM in the general direction of the real-time dust monitor (representing a group of sensitive receptors), as recorded by the on-site weather station. AND Corresponding PM_{10} concentrations at upwind monitors are significantly lower.	Cease dust generating operations on-site or parts of the site as necessary to reduce dust levels.
	1-hour	100µg/m^3		

5.4.3 Cooperation Protocol

The management of cumulative impacts requires RCM to establish communication and cooperate with adjacent mining operations. RCM informs adjacent mining operations when RCM's real time air quality monitors indicate excessive dust being generated at a particular site and will inform surrounding operators of the current measured air quality levels.

A protocol exists between the adjacent mining operations where nominated Environmental personnel from each mine meet quarterly to discuss the noise, blasting and air quality management at each site and methods to address cumulative impacts.

The protocol includes the following mining operations;

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

5.5 Odour

Measures are put in place to ensure, as far as practicable, that no offensive odours, as defined under the *Protection of the Environment Operations Act 1997* are emitted from RCM.

Spontaneous combustion is a possible source of odour from mines, however the coal seams mined at RCM are not susceptible to spontaneous combustion. Historically, RCM does not have a problem with spontaneous combustion, though it is included in routine mine inspections. Bloomfield have developed a *Spontaneous Combustion Principal Mining Hazard Management Plan* (internal document) including a *Management of Spontaneous Combustion Safe Work Procedure* (internal document) which contains a number of controls for the management of spon com should it occur. This includes dealing with spontaneous combustion in areas of drill and blast, waste dumps, overburden and coal, ROM and product coal stockpiles as well as train load out facilities.

The main source of odour from RCM is the spreading of biosolids.

The spreading of bio-solid material is conducted to assist with the rehabilitation of RCM. This activity can generate offensive odours which may impact the surrounding environment.

Measures to manage odour from the spreading of bio-solid material include:

- The odour intensity of the bio-solids material received is rated prior to delivery to site by the supplier. High malodorous material is only spread at areas distant from residential receivers.
- The odour intensity of the bio-solids material received is also rated on-site prior to any spreading activities. If the material is considered too odorous, the material is relocated and spread elsewhere, or spread during predominant wind directions away from receivers and immediately incorporated to reduce odours.
- Meteorological forecasts are analysed prior to bio-solid spreading activity with consideration of the location of nearby sensitive receptors. Spreading would only occur during favourable weather conditions, with winds tending to be generally from the majority of receptors towards the areas to be spread;
- Spreading generally occurs between the September to April period during favourable conditions with predominate winds from the southeast, away from the majority of residents.

6 Air Quality Monitoring Network

To assess compliance with the approval criteria performance indicators discussed in **Section 2.3**, and to meet the monitoring requirement of the EPL, air quality monitoring is conducted at various locations that are representative of residential receptors in areas that may be influenced by mining operations. **Figure 5** illustrates the locations of the air quality monitors discussed below.

6.1 Monitoring Methods

The monitoring methods used for current monitoring at RCM are described below.

6.1.1 Dust Deposition

Deposited dust is assessed as insoluble solids as defined by *Standards Australia AS/NZS 3580.10.1:2003: Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method.*

6.1.2 Total Suspended Particles (TSP)

TSP levels are inferred from the measured PM_{10} data assuming that the TSP level is 2.5 times the measured PM_{10} level. This inference is derived from measurements in the report '*Particle size distributions in dust from open cut mines in the Hunter Valley*' (SPCC, 1986).

6.1.3 PM10 – Real-time Monitoring

At Rix's Creek Mine PM_{10} is measured by two ways either via Tapered Element Oscillating Mass Balance (TEOM) or via DustTrack units.

PM_{10} is indirectly measured at three (3) sites at RCN using TEOMs. PM_{10} is assessed for the purpose of real-time environmental management as defined by *Standards Australia AS/NZS 3580.9.8.2008: Methods for sampling and analysis of ambient air – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*.

PM_{10} is measured at two sites at RCS using DustTrak units. As required by EPL 3391 monitoring using DustTraks is undertaken generally in accordance with the manufacturer's operating manual supplied with the continuous monitoring equipment and titled *Model 8530/8531/8532EP DustTrak II Operation and Service Manual,* or any updated version as published by the manufacturer.

In accordance with Condition P1.1 of EPL 3391, Bloomfield currently utilises the Upper Hunter Air Quality Monitoring Network (UHAQMN) Singleton NW and Camberwell for the calculation of upstream and downstream reporting for PM_{10} contribution from RCM. While RCM monitors PM_{10} at five other sites, Bloomfield requests to align the method of calculation for contribution of PM_{10} with the method used for reporting to NSW EPA.

P1.1 Note: *"The EPA notes that Licensee will also use monitoring data from the Upper Hunter Air Quality Monitoring Network monitors at Camberwell and Singleton North West when deriving a differential between upwind and downwind PM10 concentrations."*

6.1.4 PM2.5 – Real-time monitoring

$PM_{2.5}$ is a measurement of regional airshed and is reflective of air quality over a larger area than direct source emissions as specific upstream and downstream mine site contributions such as PM_{10}. In

accordance with Schedule 3 Condition 27 (d) of the RCN Project Approval and with the satisfaction of the Department, the obligation to monitor $PM_{2.5}$ via the regional air quality monitoring network, (Upper Hunter Air Quality Monitoring Network- (UHAQMN)) may be approved.

Bloomfield proposes that the UHAQMN site of Camberwell is utilised for the monitoring of $PM_{2.5}$ for compliance with the Project Approval requirements for SSD 6300. This location will exceed the criteria in **Table 4** as predicted in the *Air Quality and Greenhouse Gas Assessment: Rix's Creek Continuation of Mining Project* (TAS, 2015). When exceedances occur at this location, the RCM contribution will be calculated using the difference between upwind and downwind monitors. Compliance will be established as outlined in **Section 7.1**.

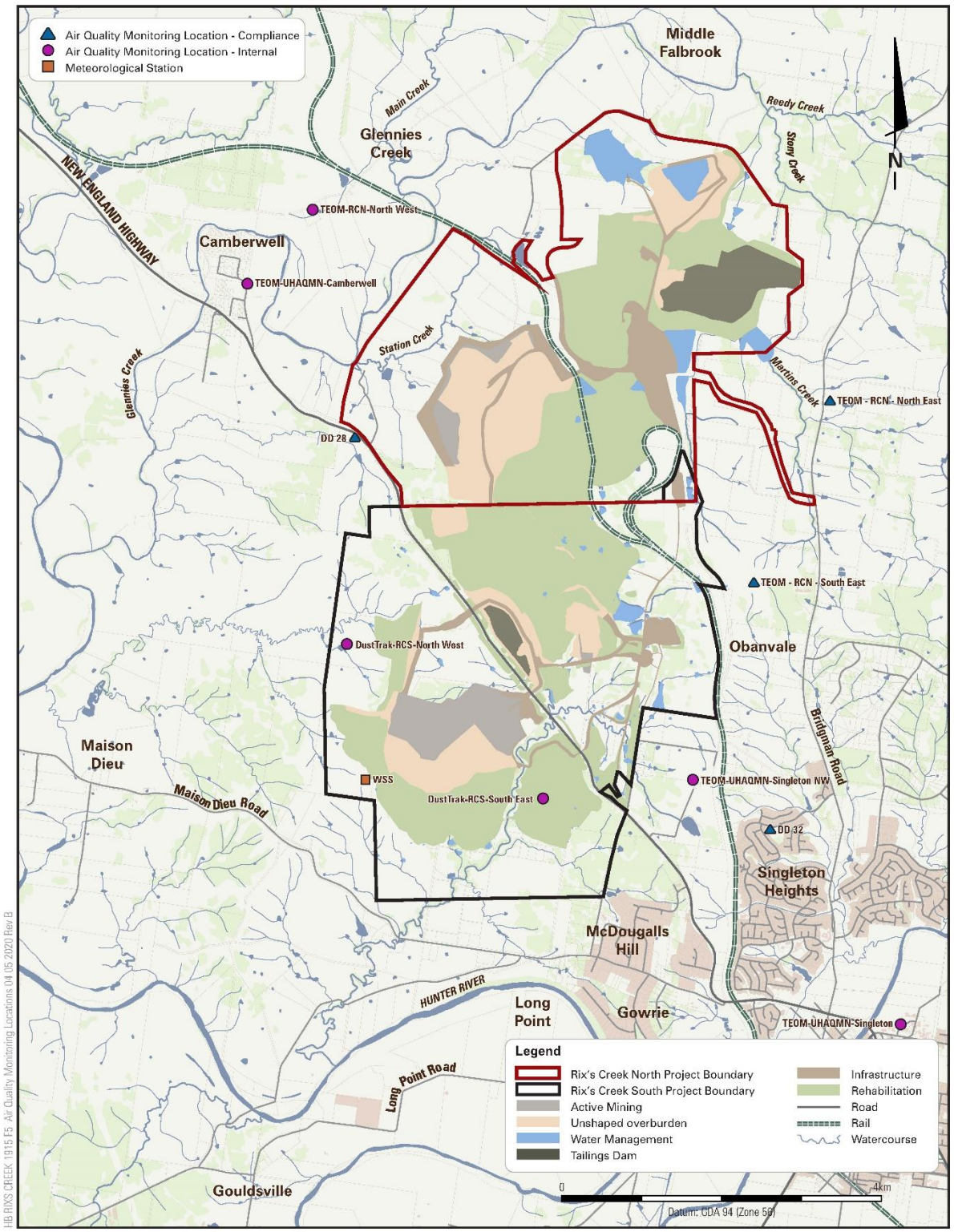
In accordance with EPL 3391, Bloomfield currently utilises the UHAQMN for the calculation of upstream and downstream reporting for PM_{10} for reporting to NSW EPA. The allowance for the utilisation of the UHAQMN for monitoring of $PM_{2.5}$ aligns with the use of existing monitoring sites where applicable and to the commitment undertaken by NSW EPA and DPIE to reduce the amount of monitoring required by companies through funding of the UHAQMN.

The UHAQMN measures $PM_{2.5}$ using the Beta Attenuation Method, in line with *AS/NZS 3580.9.12-2013: Methods for sampling and analysis of ambient air – Part 9.12: Determination of suspended particulate matter – $PM_{2.5}$ beta attenuation monitors*.

6.1.5 Meteorological Monitoring

In accordance with EPL 3391, Schedule 3 Condition 28 PA 08_0102 and Condition B28 of SSD 6300, one on-site Automatic Weather Station (AWS) is currently located at RCM (see **Figure 5**) which complies with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)* and the *NSW Industrial Noise Policy* (EPA, 2000).

The meteorological station continuously monitors wind speed, wind direction, sigma-theta (the standard deviation of horizontal wind directions), lapse rate, temperature, rainfall, relative humidity and solar radiation.



RIXS CREEK COAL MINE

Air Quality Monitoring Locations

FIGURE 5

6.2 Monitoring Network

The network of ambient air quality monitors surrounding RCM are positioned in areas representative of the surrounding sensitive receptor locations and background air quality levels. The ambient monitoring data provide insight into the potential dust contribution due to the operations.

On 15 August 2014, the Integra Open Cut was placed on care and maintenance and Integra Vale requested a reduction in the number of air quality monitors given it was no longer operational. In 2014 DPIE approved this reduction in monitoring pending recommencement of operations. In 2016 RCN re-commenced operations and a number of air quality monitors were re-installed, however as the Falbrook Pit remained in care and maintenance, no air quality monitors were re-installed for the Falbrook Pit Area. Air quality monitoring associated with the Falbrook Pit will be re-installed prior to recommencement of operations in that area.

The RCM air quality monitoring network is augmented by ambient air quality monitoring stations operated by the NSW Environment Protection Authority (EPA), the Upper Hunter Air Quality Monitoring Network (UHAQMN), which monitor additional air pollutants and provide an extensive network of stations representative of the wider air shed. The closest stations are the Camberwell site located to the northwest of RCM and the Singleton NW and Singleton sites located to the southeast. (refer to **Figure 5**).

Monitoring of $PM_{2.5}$ is conducted at the Camberwell and Singleton UHAQMN sites. These stations are located in close proximity to RCM. The Camberwell site is located to the northwest and the Singleton NW and Singleton sites located to the southeast (**Figure** 1**5**).

The Camberwell and Singleton sites measure $PM_{2.5}$ as well as PM_{10}. The closest unit to the operation is the Singleton NW site which measures PM_{10}. Monitoring of $PM_{2.5}$ and PM_{10} for internal management is conducted at the Camberwell and Singleton UHAQMN sites.

The prevailing winds are from the north-west during autumn/winter and south-east during spring/summer which indicate the monitors are suitably located to measure any contribution from RCM and can be used to further verify site monitoring results for PM_{10}.

The air quality monitoring network is shown in **Figure 5**. Further details regarding the monitoring locations are presented in Table **7. Table 7** also indicates whether monitors are utilised for compliance or internal monitoring and management purposes. Commitment H15 and H16 of the PA 08_0102 Statement of Commitments require Bloomfield to negotiate with Ashton Coal on the joint use of data from the Ashton mine monitoring network. These commitments are no longer relevant and Bloomfield has established its own monitors.

Table 7
RCM Monitoring locations

Location		Site ID	Parameter	Frequency	Compliance /Internal
Easting (m)	Northing (m)				
321546	6406545	TEOM – RCN – North West	Real time PM_{10}	Continuous	Internal
326985	6401815	TEOM – RCN – North East	Real time PM_{10}	Continuous	Compliance
327988	6404128	TEOM – RCN – South East	Real time PM_{10}	Continuous	Compliance
326265	6399322	TEOM UHAQMN – Singleton NW	Real time PM_{10}	Continuous	Compliance
328840	6396313	TEOM UHAQMN – Singleton	Real time $PM_{2.5}$	Continuous	Internal
320681	6405600	TEOM UHAQMN – Camberwell	Real time PM_{10} & $PM_{2.5}$	Continuous	Internal
321931	6401023	DustTrak – RCS – North West	Real time PM_{10}	Continuous	Internal
324707	6402840	DustTrak – RCS – South East	Real time PM_{10}	Continuous	Internal
322054	6403608	DD28	Dust deposition	Every 30 days ± 2 days	Compliance
327235	6398704	DD32	Dust deposition	Every 30 days ± 2 days	Compliance
322163	6399089	WSS	Meteorological parameters	Continuous	Compliance

6.3 Monitoring data validation

Monitoring data is validated on a monthly basis or in response to a measured exceedance of criteria to confirm whether or not the exceedance is a non-compliance, following the steps below:

Level 1: A first pass assessment that includes a check that all calibration and maintenance work due in that month has been completed, and an examination of the data. For example using a plot of the last month's data on a trend line spanning at least 12 months (where the data are available) or similar other simple and effective means to identify potentially erroneous or outlier data (e.g. wind roses for meteorological data), or tables showing variability and deviation from the average.

Level 2: Where data are assessed to be potentially invalid, the investigation may include:

- A detailed examination of the available field records, laboratory notes, calibrations etc.
- A site inspection of the monitoring equipment to check it is not damaged, dirty, corroded or compromised by insects, spider webs etc.
- Comparison of site data with data from the UHAQMN records for the Camberwell, Singleton NW and Singleton stations to show variability and deviation from trends.

Level 3: Where anomalous or potentially invalid data are found and the issue is significant (e.g. may indicate an exceedance or equipment fault) and a level 1 or 2 evaluation cannot determine the cause, professional air quality expert will be engaged to examine the issue.

If the data validation identifies an incident or non-compliance, this will be reported as detailed in **Section 7.2.**

As required by EPL 3391, all monitoring records will be kept for at least four years after monitoring in a legible form which can be provided to an authorised officer of the EPA. The records will include the following information:

- The date and time of sampling;
- The sampling location; and,
- The name of the person collecting the sample.

7 Compliance Protocol

7.1 Compliance Evaluation

Where monitoring results are below the air quality criteria in **Section 2.3**, no further action is required and results are reported with no additional analysis. Measured levels above the criteria do not necessarily mean non-compliance. Dust-generating events not coming from RCM and resulting in non-compliance can usually be identified through further assessment of the data in consideration of the meteorological conditions and the path of the wind from the source to the monitor.

Extraordinary events, such as "*bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity which has been endorsed by the EPA and then agreed to by the Secretary*" can be excluded.

For 24-hour average PM_{10}, compliance can be inferred if measured dust levels at a site between a receptor and RCM are below the criteria.

The mine-only incremental 24-hour average PM_{10} dust level is inferred as the difference between the upwind and downwind measured 24-hour average PM_{10} levels, taking into consideration meteorological conditions:

- The assessment requires steady prevailing winds which represent a constant direction;
- The path taken by the airborne particle matter when examining the origin of the dust arriving at a receptor. Be sure to consider the path over time and not just an average wind direction for an hour or day;
- A parcel of air can take significant time to travel across the site, pick up dust particles and arrive at a receptor. The time lag (between upwind events and when the upwind air arrives at a downwind receptor) will usually need to be considered in approximating mine-only incremental dust levels; and
- Dust levels downwind of a major dust source can have a narrow path under certain conditions, and measured levels at a location somewhat to the side of the downwind axis of the prevailing wind can be substantially lower than directly along the axis.

This method can also be used to determine compliance for 24-hr average $PM_{2.5}$ levels. Compliance with the 24-hr average $PM_{2.5}$ levels can be inferred if measured levels at the Camberwell and Singleton UHAQMN sites are below the criteria taking meteorological conditions into consideration.

TSP levels are inferred from the measured PM_{10} data assuming that the TSP level is 2.5 times the measured PM_{10} level. This inference is derived from measurements in the report '*Particle size distributions in dust from open cut mines in the Hunter Valley*' (SPCC, 1986). The approach is used at a number of mines in the Hunter Valley and allows the operation to focus on measurement of PM_{10} which is a better indicator of potential impact.

Additional assessment of air quality monitoring results will be undertaken by qualified air quality specialists if an exceedance against the impact assessment cannot be reasonably determined using the methods described above.

7.2 Compliance Reporting

Condition E7 of SSD 6300 and Schedule 5 Condition 8 of PA 08_0102 require Bloomfield to immediately report any incidents to DPIE 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*."

Bloomfield are required to report any non-compliances to DPIE 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.*"

An incident report includes:

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

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.

If monitoring results indicate an exceedance of the relevant air quality criteria outlined in **Section 2.3**, at a private residence, RCM will notify the affected landowners, tenants and the CCC as soon as practical in accordance with Schedule 4, Condition 3 of PA 08_0102 and Conditions D6 and D7 of SSD 6300.

If an affected landowner considers the Rix's Creek Mine is exceeding the relevant criteria, they may request from the Planning Secretary an independent review of impacts that would include monitoring and identifying measures to be implemented to ensure compliance.

7.3 Corrective Actions

Where the compliance evaluation indicates non-compliance with the assessment criteria, the following actions will be undertaken:

- Identify activities occurring during non-compliance;
- Determine the most likely source of the emissions;
- Review the process and current dust controls; and
- Implement an alternative to reduce emissions where feasible;

The corrective action may involve supplementary monitoring to identify the source of the non-compliance, or may involve modification of activities to avoid any recurrence or minimise its adverse effects.

7.4 Complaints Handling and Response

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, private 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 an air quality related complaint, a review of management practices to systematically identify and implement options to modify site practices, to ensure effective control of dust-generating activities so as to achieve compliance with the air quality criteria would be conducted.

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

7.5 Key Performance Indicators

Table 8 details specific air quality management performance indicators for RCM.

Table 8
Specific Performance Indicators

Objective	Target	Performance indicator
Regulatory compliance.	No exceedances of air quality criteria given in **Section 4**.	Number of confirmed exceedances (excluding extraordinary events such as dust storms and bushfires).
	No offensive odours emitted from site.	Number of odour complaints.
Operating at optimum efficiency to minimise potential dust impacts from wind erosion.	Rehabilitation of final dump profile to occur within three months, or sooner.	Time between end of dumping/ shaping activity and rehabilitation.
	Disturbance area has been minimised.	Area of exposed land.
Perform as anticipated.	No increase beyond latest approved EIS prediction.	Long term trend in measured data, considering seasonal trends, new developments and excluding extraordinary events.
Ensure all applicable reasonable and feasible best practice measures are being taken to minimise dust.	Measures are comparable to established reasonable and feasible best practice (as applicable to the specific situation).	Maintaining on-site documentation or a log of dust mitigating measures taken, and the aspect of the operation to which they are applied.
	Newly developed, improved measures are adopted where applicable.	Development of new measures that are necessary to ensure optimal use of available resources.

7.6 Environmental Air Quality Awareness and Training

Rix's Creek Mine provides training commensurate with the roles and responsibilities of personnel outlined in **Table9**.

Training implemented at Rix's Creek Mine with respect to air quality management includes the following:

- Site familiarisation inductions provided to all new employees and contractors;
- General environmental awareness provided to all employees and contractors; and
- Issue specific training sessions provided to employees and contractors as required.

8 Landholder Notifications, Mitigation and Acquisition

8.1 Landholder and Tenants Notifications

Under Schedule 4, Condition 1 of PA 08_0102 and Condition D4 of SSD 6300, Bloomfield were required to notify landowners and tenants of their mitigation or acquisition rights. For SSD 6300, these notifications were sent via registered mail on 28 October 2019.

Properties entitled to mitigation or acquisition for dust were provided with a copy of the NSW Health fact sheet entitled "Mine Dust and You" (dated April 2011) where environmental assessment predictions identified dust emissions generated by RCM were likely to be greater than relevant air quality criteria at any time in the life of RCM. Notifications required under PA 08_0102 were sent in accordance with conditions previously.

8.2 Future Tenancy Agreements

Prior to entering into any future tenancy agreement (including renewals) for any Bloomfield owned land that is predicted to experience exceedances of the recommended dust and/or noise criteria, Bloomfield will:

- Advise the prospective tenants of the potential impacts associated with living on the land and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and
- Advise the prospective tenants of the rights they would have under SSD 6300 and PA 08_0102.

8.3 Notifications of Exceedances or Incidents

Where the protocol in **Section 7.1** identifies an exceedance of relevant criteria, notification in writing to affected land owners, tenants and the CCC, and provision of the NSW Health fact sheet entitled "Mine Dust and You" (latest version) will occur as soon as practical in accordance with Schedule 4, Condition 3 of PA 08_0102 and Conditions D6 and D7 of SSD 6300.

Tenancy agreements include the option to terminate without penalty due to air quality concerns.

8.4 Independent Review

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 Conditions D8 to D10 of SSD 6300 as required.

8.5 Acquisition upon Request

Upon receipt of a written request for acquisition from the owner of the land, Bloomfield will follow the procedures in Schedule 4, Conditions 7 and 8 of PA 08_0102 or Conditions D11 to D18 of SSD 6300 to acquire any property stipulated in the consent and summarised in **Appendix A**, but only if that land is no longer subject to acquisition upon request under a relevant development consent or project approval for another mine as detailed in the Tables.

Within three months of receiving a written request from a landowner with acquisition rights, Bloomfield will make a binding written offer to the landowner in accordance with Schedule 4, Condition 7 of PA 08_0102 or Condition D11 of SSD 6300.

8.6 Mitigation Upon Request

Upon receiving a written request from the owner of any residence on the land listed in PA 08_0102 Table 1 (for which the acquisition basis is air quality), Table 12 or on privately owned land where subsequent monitoring shows the dust generated by RCM exceeds the air quality limits in PA 08_0102 Table 10 or SSD 6300 Table 7 or Table 8, Bloomfield will implement additional air quality mitigation measures in consultation with the owner of the residence. This may include reasonable and feasible measures such as air filters, a first flush roof water drainage system and/or air conditioning in accordance with the Voluntary Land Acquisition and Mitigation Policy (VLAMP) as required.

These measures must be reasonable and feasible and directed towards reducing the air quality impacts of RCM on that residence.

Bloomfield will also be responsible for the reasonable costs of ongoing maintenance of these additional mitigation measures until the cessation of mining operations.

If within three months of receiving a request for mitigation from the land owner, Bloomfield and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

9 Reporting and Review

9.1 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 the effectiveness of noise and air quality management systems and 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 performance of the air quality management system.

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.

9.2 Monthly Reporting

Compliance air quality 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.

9.3 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 air quality monitoring results and Bloomfield's responses.

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.

9.4 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 AQGMP 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 AQGMP, then within six weeks of the review decision, unless the Secretary agrees otherwise, the revised AQGMP will be submitted to the Secretary for approval.

Any major amendments to the AQGMP 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.

The AQGMP may also be revised due to:

- Deficiencies being identified;
- Introduction of additional mitigation measures or controls;
- Results from the monitoring and review program, including exceedances of criteria;
- Recommendations resulting from the monitoring and review program;
- Changing environmental requirements;
- Improvements in knowledge or technology becoming available;
- Changes in legislation;
- Identification of a requirement to alter the AQGMP following a risk assessment; or
- Updating of the Mining Operations Plan.

RCM will adhere to the additional procedures and environmental management, reporting and auditing requirements in PA 08_0102 and SSD 6300 and reproduced in **Appendix A**.

10 Roles and Responsibilities

Air quality management roles and responsibilities are listed in **Table9**.

Table 9
Roles and Responsibilities

Role	Responsibility	Section
Mine Manager	• Provide sufficient resources to manage air quality related risks and progress opportunities for improvement. • Identify and allocate sufficient resources to manage air quality related risks by supporting AQGMP implementation.	**5.3**
Environmental Manager	• Accountable for ensuring all employees in the relevant areas are committed to and implement the requirements of this AQGMP.	**5.3**
Environmental Officer	• Oversee the implementation, monitoring and review of the AQGMP in accordance with applicable requirements. • Record, investigate and respond to air quality related incidents and complaints in accordance with complaint and incident management procedures. • Periodically assess dust management performance. • Provide training to employees and contractors for the implementation of dust management related controls, systems and procedures. • Implement, monitor and review programs, systems and procedures linked to the AQGMP. • Monitor and review data collected as part of air quality monitoring network and assess compliance.	**5.3** **7.4** **9.1** **5.3** **9.4** **9.1**
All personnel	• Conduct work activities in a manner that minimises dust emissions. • Report excessive dust emissions to appropriate supervisor.	**5.3**

11 References

Environmental Protection Licence 3391

NSW EPA Environmental Protection Licence for Rix's Creek Pty Limited.

Holmes Air Sciences (2009)

"Air Quality Impact Assessment: Integra Open Cut Project", Prepared for URS Australia by Holmes Air Sciences, 19 June 2009.

PoEO (1997)

Protection of the Environment Operations Act 1997, New South Wales.

SPCC (1986)

"Particle size distributions in dust from open cut mines in the Hunter Valley", Report Number 10636-002-71, prepared for the State Pollution Control Commission of NSW by Dames & Moore, 41 McLaren Street, North Sydney, NSW, 2060.

Standards Australia / Standards New Zealand

"Australia / New Zealand Standard 3580.9.3:2003, Methods for sampling and analysis of ambient air; Method 9.3: Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High Volume sampler gravimetric method".

Standards Australia / Standards New Zealand

"Australia / New Zealand Standards 3580.9.6:2003, Methods for sampling and analysis of ambient air; Method 9.6: Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method".

Standards Australia / Standards New Zealand

"Australia / New Zealand Standards 3580.10.1:2003, Methods for sampling and analysis of ambient air; Method 10.1: Determination of particulate matter – Deposited matter – Gravimetric Method".

Standards Australia / Standards New Zealand

"Australia / New Zealand Standards 3580.9.8:2008: Methods for sampling and analysis of ambient air – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser"

Todoroski Air Sciences (2015)

"Air Quality and Greenhouse Gas Assessment: Rix's Creek Continuation of Mining Project", 26 August 2015.

US EPA (2000)

"Meteorological Monitoring Guidance for Regulatory Modelling Applications", U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality planning and Standards. Research Triangle Park, NC 27711. EPA-454/R-99-005, February 2000.

Appendix A – Land Ownership and Receivers' Rights

Table A1 and **Table A2** include individual numbers for private residences which correlate to the Receptor IDs in **Figure A1.**

Table A1 identifies the private properties with rights to acquisition or mitigation upon request as described in Schedule 3, Conditions 1, 6 and 12 of PA 08_0102 as at February 2021 and **Table A2** identifies the private properties with rights to acquisition or mitigation upon request as described in Condition D1 of SSD 6300 as at 21 October 2019.

Table A1
Land Ownership and Receivers' Rights under PA 08_0102

Figure ID	Table ID	Acquisition		Mitigation	
		Air	Noise	Air	Noise
N64	64		✓		
175	87		✓		
176	106		✓	✓	
173	111		✓	✓	
177	153	✓	✓		
170/N207	351		✓		
N210	352		✓		
4	5				✓
5	6				✓
7	8				✓
10	16				✓
9	14				✓
N31	31				✓
N32	32				✓
N48	48				✓
N47	47				✓
N50	50				✓
N53	53				✓
N54	54				✓
N62	62				✓
N63	63				✓
N91	91				✓
N105	105				✓
N161	161				✓
N183	363				✓

Figure ID	Table ID	Acquisition		Mitigation	
		Air	Noise	Air	Noise
N88	88			✓	
N234	N234	✓			
N235	N235	✓			
N236	N236	✓			
N237	N237	✓			
N238	N238	✓			
N239	N239	✓			
N240	N240	✓			

In **Table A2**, Blue shading indicates rights to acquisition or mitigation by Bloomfield if the rights are no longer available under RCN (presently valid to 2035). Olive shading indicates rights to acquisition or mitigation by Bloomfield but only if the rights are no longer available under RCN or Ashton South East Open Cut (presently valid to 2020). Pink shading indicates rights to acquisition or mitigation by Bloomfield but only if the rights are no longer available under RCN, Ashton South East Open Cut or Glendell Mine (presently valid to 30 June 2024). Purple shading indicates rights to acquisition or mitigation by Bloomfield but only if the rights are no longer available under RCN or Glendell Mine.

Table A2
Land Ownership and Receivers' Rights under SSD 6300

Figure ID	Table ID	Acquisition		Mitigation	
		Air	Noise	Air	Noise
1	R1	✓	✓		
N209	1/121623	✓	✓		
N210	1/1244196	✓	✓		
N203	54/252692	✓	✓		
170	R170	✓			
171	R171	✓			
N207	3/1111313	✓			
N200	2/804005	✓			
N201	52/252692	✓			
N202	53/252692	✓			
N88	N88	✓			
N211	104/852484	✓			
N91	N91	✓			

Figure ID	Table ID	Acquisition		Mitigation	
		Air	Noise	Air	Noise
N212	106/855187	✓			
N161	N161	✓			
N172	N172	✓			
N103	N103	✓			
N213	1/248748	✓			
N214	5/758214	✓			
N215	6/758214	✓			
N216	7/758214	✓			
N217	3/758214	✓			
N218	8/758164*	✓			
N219	2/9/758214	✓			
N220	9/758214	✓			
N190	44/1166047 *	✓			
N191	5/1166047	✓			
N105	N105	✓			
173	R173			✓	
175	R175			✓	
176	R176			✓	
177	R177			✓	

* *incorrect Lot/DP allocated in SSD6300 (N218 should be Lot 8 DP 758214 and N190 should be Lot 4 DP 1166047).*

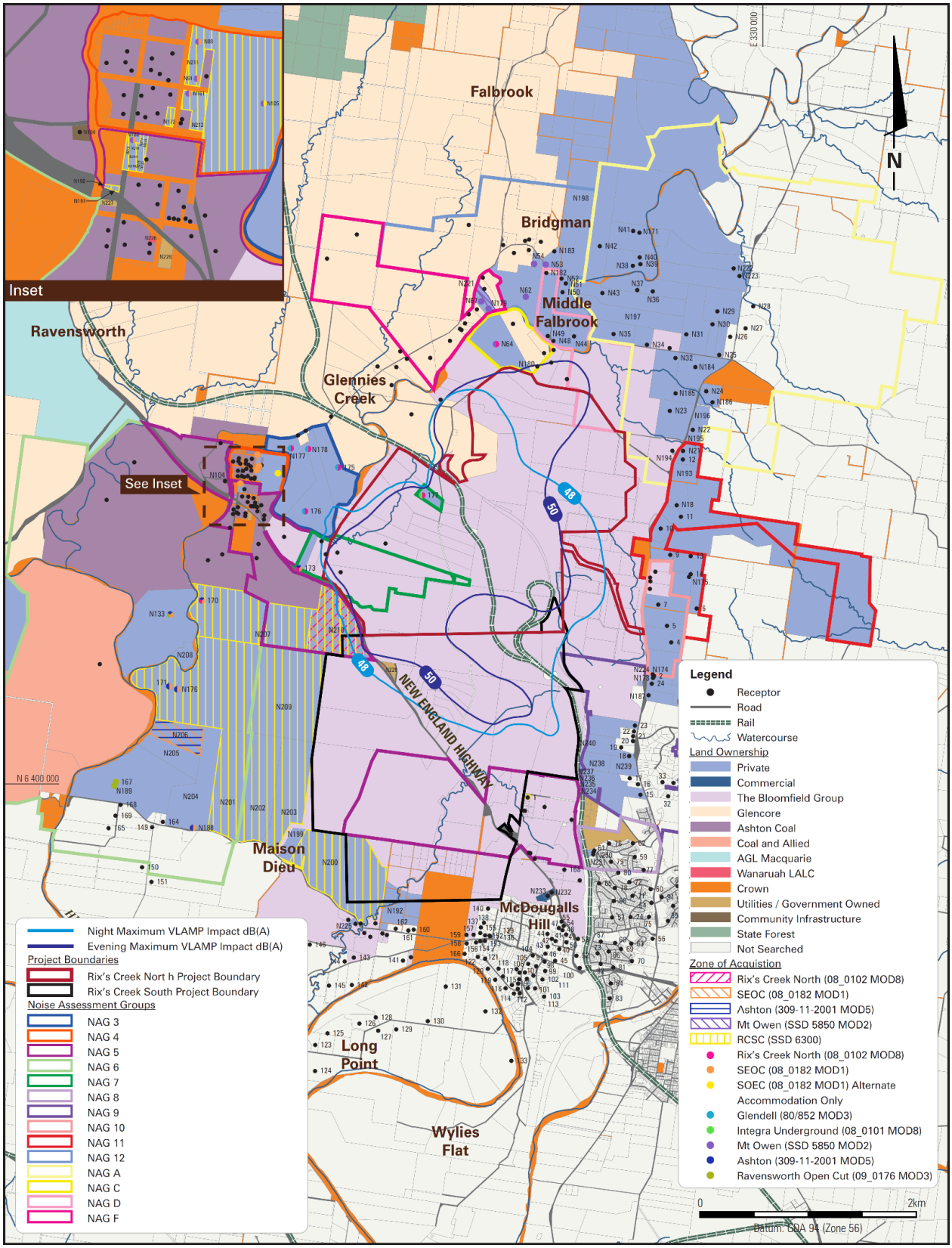


Figure A1-Air Quality Assessment Groups and Rediential Receivers

Appendix B – Development Consent Conditions

Table B1

PA 08_0102 Consent Conditions

<table>
<tr><th>Ref</th><th>Legal Requirement</th><th>Section</th></tr>
<tr><td>Schedule 3, Condition 22</td><td>Except for the land referred to in Table1 for which the acquisition basis is air quality, the Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the project does not exceed the criteria listed in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately owned land.</td><td>5.3</td></tr>
<tr><td></td><td>Table 10: Air quality criteria
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th colspan="2">Criterion</th></tr>
<tr><td>Particulate matter < 10 µg (PM_{10})</td><td>Annual</td><td colspan="2">[a] 25 µg/m^3</td></tr>
<tr><td>Particulate matter < 10 µg (PM_{10})</td><td>24 hour</td><td colspan="2">[b] 50 µg/m^3</td></tr>
<tr><td>Particulate matter < 2.5 µg ($PM_{2.5}$)</td><td>Annual</td><td colspan="2">[a] 8 µg/m^3</td></tr>
<tr><td>Particulate matter < 2.5 µg ($PM_{2.5}$)</td><td>24 hour</td><td colspan="2">[b] 25 µg/m^3</td></tr>
<tr><td>Total suspended particulates (TSP)</td><td>Annual</td><td colspan="2">[a] 90 µg/m^3</td></tr>
<tr><td>Deposited Dust</td><td>Annual</td><td>[b] 2 g/m^2/month</td><td>[a] 4 g/m^2/month</td></tr>
</table>
Notes to Table 10:
[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
[c] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.
[d] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method..

For the purposes of this condition, 'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the requirements in conditions 26 and 27 to develop and implement a real-time air quality management system that ensures effective operational response to the risk of exceedance of the criteria.</td><td>6</td></tr>
<tr><td>Schedule 3, Condition 24</td><td>Upon receiving a written request from the owner of any residence:
(a) on the land listed in Table 1 for which the acquisition basis is air quality; or
(b) on the land listed in Table 12,
the Applicant must implement additional reasonable and feasible dust mitigation measures (such as a first flush roof system, internal or external air filters, and/or air conditioning) at the residence in consultation with the owner.

If within 3 months of receiving this request from the owner, the Applicant and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of</td><td></td></tr>
</table>

<table>
<tr><th>Ref</th><th>Legal Requirement</th><th>Section</th></tr>
<tr><td></td><td>these measures, then either party may refer the matter to the Secretary for resolution.

Table 12:Land subject to dust mitigation on request

<table><tr><td>88 – M & T De Jong</td><td>106 – B & R Richards</td></tr><tr><td>112 – S & C Ernst</td><td>111- T Burgess</td></tr></table>Notes:

• To interpret the locations referred to in Table 12, see the applicable figures in Appendix 4;
• For this condition to apply, the exceedances of the criteria must be systemic; and
• 112 – S & C Ernst has been acquired by the Applicant.</td><td></td></tr>
<tr><td>Schedule 3, Condition 25</td><td>The Applicant must ensure that particulate matter emissions generated by the project do not exceed the criteria in Table 10 at any occupied residence on any mine-owned land (including land owned by adjacent mines), unless:</td><td>5</td></tr>
<tr><td></td><td>(a) the tenant and/or landowner has been notified of any health risks in accordance with the notification requirements under Schedule 4 of this consent;</td><td>8.1</td></tr>
<tr><td></td><td>(b) the tenant on land owned by the Applicant can terminate the tenancy agreement without penalty, subject to giving reasonable notice, and the Applicant uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;</td><td>8.1</td></tr>
<tr><td></td><td>(c) air mitigation measures such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant and landowner (where owned by another mine other than the Applicant;</td><td>8.1</td></tr>
<tr><td></td><td>(d) particulate matter air quality monitoring is undertaken to inform the tenant and landowner (where owned by a mine other than the Applicant) of potential health risks; and</td><td>6</td></tr>
<tr><td></td><td>(e) monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property,

to the satisfaction of the Secretary.</td><td>8</td></tr>
</table>

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;	**Appendix E**
	(b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; and • 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;	**2.2** **2.3** **7.5**
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	**5.3**
	(d) a program to monitor and report on the: • impacts and environmental performance of the project; and • effectiveness of any management measures (see (c) above);	**9**
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	**5.4.2**
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	**9**
	(g) a program to regularly review management practices to align with contemporary best practice industry standards;	**9**
	(h) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with the conditions of this consent and statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and	**7**
	(i) a protocol for periodic review of the plan.	**9.4**

Ref	Legal Requirement	Section
	Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	
Schedule 5 Condition 3	**Preparation of Management Plans** 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.	**2.2.1**
Schedule 5 Condition 4	**Relationships between Management Plans** 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.	**Appendix C**
Schedule 5 Condition 5	**Revision of Strategies, Plans & Programs** Within 3 months of: (a) the submission of an incident report under condition 8 below; (b) the submission of an annual review under condition 10 below; (c) the submission of an audit report under condition 11 below, or (d) any modification of the conditions of this consent (unless the conditions require otherwise), 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. *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.*	**9.4**
Schedule 5 Condition 8	**Incident Notification** 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.	**7.2**

Ref	Legal Requirement	Section
Schedule 5 Condition 9	**Non-compliance Notification** 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 consent 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. *Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*	**7.2**

Table B2

SSD 6300 Consent Conditions

<table>
<tr><th>Ref</th><th>Legal Requirement</th><th>Section</th></tr>
<tr><td>Condition A21 (d)</td><td>With the approval of the Planning Secretary, the Applicant may:
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.</td><td>Appendix C</td></tr>
<tr><td>Condition B22</td><td>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 3 at any residence on privately-owned land, excluding the air quality affected land referred to in Table 7.</td><td>5.3</td></tr>
<tr><td></td><td>Table 3: Air quality criteria
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr>
<tr><td rowspan="2">Particulate matter < 10 µg (PM_{10})</td><td>Annual</td><td>[a, c] 25 µg/m^3</td></tr>
<tr><td>24 hour</td><td>[b] 50 µg/m^3</td></tr>
<tr><td rowspan="2">Particulate matter < 2.5 µg ($PM_{2.5}$)</td><td>Annual</td><td>[a, c] 8 µg/m^3</td></tr>
<tr><td>24 hour</td><td>[b] 25 µg/m^3</td></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>[a,c] 90 µg/m^3</td></tr>
</table>
Notes:
[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all sources);
[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own);
Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.</td><td>2.3</td></tr>
<tr><td>Condition B23</td><td>The air quality criteria in Table 3 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>2.3</td></tr>
<tr><td>Condition B24</td><td>Particulate matter emissions generated by the development must not exceed the criteria listed in Table 3 at any occupied residence on mine-owned land (including land owned by adjacent mines), unless:</td><td></td></tr>
</table>

Ref	Legal Requirement	Section
	(a) the tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks in accordance with the notification requirements under PART C of this consent;	**8**
	(b) the tenant on land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving 14 days' notice;	**8**
	(c) air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate matter emissions at the residence; and	**6**
	(d) data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.	**8**
Part E Condition E4	Management plans required under this consent must be prepared in accordance with any relevant guidelines, and include: (a) a summary of relevant background or baseline data;	**Appendix E**
	(b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/criteria; and (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;	**2.2** **2.3** **7.5**
	(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c)	**Appendix D**
	(d) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	**5.3**
	(e) a program to monitor and report on the: (i) impacts and environmental performance of the project; and	**9**

Ref	Legal Requirement	Section
	(ii) effectiveness of any management measures (see (c) above);	
	(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;	**5.4.2**
	(g) a program to investigate and implement ways to improve the environmental performance of the project over time;	**9**
	(h) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criteria or performance measure; (ii) complaint; or (iii) failure to comply with other statutory requirements;	**7.2** **7.4**
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	**9**
	(j) a protocol for periodic review of the plan. *Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*.	**9.4**
Condition E5	**Revision of Strategies, Plans & Programs** Within 3 months of: (a) the submission of an incident report under condition E7; (b) the submission of an annual review under condition E9; (c) the submission of an Independent Environmental Audit under condition E10, or (d) the modification of the conditions of this consent (unless the conditions require otherwise), The suitability of existing strategies, plans, and programs required under this consent must be reviewed by the Applicant.	**9.4**
Condition E6	**Revision of Strategies, Plans & Programs** 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	**9.4**

Ref	Legal Requirement	Section
	required, the revised document must be submitted to the Planning Secretary for approval within 6 weeks of the review. *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*.	
Condition E7	**Incident Notification** 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.	**7.2**
Condition E8	**Non-compliance Notification** 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. *Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*	**7.2**

Appendix C – Regulatory Correspondence

Planning, Industry & Environment

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

DOC20/556726-7

The Bloomfield Group
Returned via the Major Projects Portal

24 July 2020

Dear Mr Chris Knight

Post Approval Air Quality and Greenhouse Gas Management Plan Review
Rix's Creek Mine SSD 6300-PA-22

Thank you for consulting with the Environment Protection Authority (EPA) in regard to the Rix's Creek Mine Air Quality and Greenhouse Management Plan Review for the Rix's Creek Mine operated by The Bloomfield Group, SSD 6300-PA-22 at Rix's Creek Lane, Singleton NSW.

The EPA encourages the development of Environmental Management Plans to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any Project and/or the conditions of an environment protection licence. However; the EPA does not review these plans (unless in circumstances deemed necessary) as the role of the EPA is to set conditions for environmental protection and management, not to be directly involved in the development of strategies to comply with such conditions.

The EPA has therefore not reviewed this management plan and offers no comments in relation to it.

If you have any questions about this matter, please contact Genevieve Lorang on 02 4908 6869 or by email to hunter.region@epa.nsw.gov.au

Yours sincerely

JENNY LANGE
A- Unit Head Regulatory Operations
Environment Protection Authority

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Phone 02 4908 6800
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hunter.region@epa.nsw.gov.au

Planning, Industry & Environment

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

23/06/2021

Dear Mr Knight

Rix's Creek North Open Cut Project (PA 08_0102)
Approval of Air Quality and Greenhouse Gas Management Plan

I refer to the revised Air Quality and Greenhouse Gas Management Plan which was submitted in accordance with condition 27 of Schedule 3 of the development consent for the Rix's Creek North Open Cut Project (PA 08_0102).

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the Project development consent.

Accordingly, the Planning Secretary has approved the revised Air Quality and Greenhouse Gas Management Plan (Revision 1.6, dated May 2021). 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 Joe Fittell on 02 4908 6896 or via email at joe.fittell@planning.nsw.gov.au.

Yours sincerely

Matthew Sprott
Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary

Appendix D – Environmental Commitments

Table C1 and Table C2 summarise the Air Quality 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 D2
PA 08_0102 Air Quality Commitments

Item	Mitigation Measure and Commitment	Implementation	Section
H1	Only the minimum area required for the operation of the Open Cut Project will be disturbed. Reshaping, topsoil emplacement and rehabilitation of overburden emplacement areas will occur as soon as practicable after the completion of overburden emplacement.	Continuous during operations.	**5.3**
H2	Coal handling areas/stockpiles will be kept in a moist condition using water carts to minimise wind-blown and traffic- generated dust.	Continuous during operations.	**5.3**
H3	Water sprays will be available for use on ROM coal stockpiles as required to reduce airborne dust.	Continuous during operations.	**5.3**
H4	All roads and trafficked areas will be watered when required using water trucks.	Continuous during operations.	**5.3**
H5	All haul roads would be clearly defined, especially where they cross overburden emplacement areas.	Continuous during operations.	**5.3**
H6	Development of minor roads will be limited and the locations of these will be clearly defined.	Continuous during operations.	**5.3**
H7	Minor roads used regularly for access etc will be watered.	Continuous during operations.	**5.3**
H8	Obsolete roads will be ripped and re-vegetated.	Continuous during operations.	**5.3**
H9	Access tracks used by topsoil stripping equipment during their loading and unloading cycle will be watered.	Continuous during operations.	**5.3**
H10	Long term soil stockpiles (not used for over 3 months) will be revegetated.	Continuous during operations.	**5.3**
H11	Dust aprons, dust extraction systems or water injection will be used during drilling operations.	Continuous during operations.	**5.3**
H12	Adequate stemming will be used during blasting.	Continuous during operations.	**5.3**

Item	Mitigation Measure and Commitment	Implementation	Section
H13	A real-time PM10 monitor (TEOM) will be implemented at the location agreed with the EPA in accordance Conditions of Consent for North Open Cut (PA 06_0073). This will be located in the vicinity of Residence 48. Should the 24-hour average concentrations of PM10 approach the cumulative assessment criteria 150 µg/m3, the Operations Manager (Open Cut) of the mine would review the current Open Cut operations and take remedial action to ensure the impact on the property is kept below the criteria. Should the criteria be reached, then all Open Cut operations will cease.	Continuous during operations. (Note North Open Cut (Falbrook Pit) currently in Care and Maintenance).	**6.2**
H14	A real-time PM10 (TEOM) will be located in the vicinity of Residences 108 to 112. Should the 24-hour average concentrations of PM10 approach the cumulative assessment criteria 150 µg/m3, the Operations Manager (Open Cut) will review the current Open Cut operations and take remedial action to ensure the impact on the property is kept below the criteria. Should the criteria be reached, then all Open Cut operations will cease.	Continuous during operations.	**6.2**
H15	Rather than establish an additional monitor at Residence 87, Bloomfield will negotiate with Ashton mine the joint use of data from the existing real-time PM10 (TEOM) monitor at this location (see TEOM No. 3 on Figure 12-3 for location).	No longer required	**6.2**
H16	Bloomfield will negotiate with Ashton Coal for the joint use of data from the other sites in the Ashton mine monitoring network (see Figure 12-3 for locations). This will enable real-time monitoring of the impacts of the operations to the west of the Open Cut Project Area.	No longer required	**6.2**
H17	The results from the dust monitoring program will be regularly reviewed to ensure the data being collected is meaningful. Where warranted, the program will be adjusted in consultation with EPA, with	Continuous during operations.	**9**

Item	Mitigation Measure and Commitment	Implementation	Section
	operating/management measures modified accordingly.		
H18	During Years 1 -3 of the Part Pit Extent (i.e. in the case that Bloomfield is unable to acquire Residence 153 or negotiate an agreement with the owner), additional controls will be implemented and will include: • re-positioning of the main waste and coal haul routes to reduce impacts on Dulwich; • treatment of the main haul routes to achieve a level of dust control greater than 75%; • development of an Environmental Management Plan that will address environmental controls to be implemented as part of pre-operational phase soil removal activities; • control of emissions from drilling operations through the application of water; and • increasing the moisture content of the ROM coal in-pit.	Prior to the commencement of operations and continuous during operations.	**5.3**

Table C2
SSD 6300 Air Quality Commitments

	Factor	Management and Mitigation Measures	Section
1	Dust Generation	Dust suppression measures such as the use of water carts and sprays will be utilised during construction activities. Dust generating activities will be minimised during adverse (windy) weather conditions to reduce dust generation, where practical.	**5**
2	Diesel fume management	Control measures to be utilised where possible to reduce emissions from diesel engines for vehicles and plant include: • Minimise excess use by scheduling operations to maximise efficiency; • Engines switched off when not in use;	**4.3**

	Factor	Management and Mitigation Measures	Section
		• Maintained and serviced according to manufacturer's specifications; • Fleet optimisation applied to reduce vehicle kilometres travelled. • Any new mine fleet purchased will have adequate pollution reduction devices fitted.	
3	Dust at mine owned residences.	Continue to ensure that Tenancy Agreements include option to terminate without penalty due to air quality concerns.	**8.3**

Appendix E - Baseline Data

Baseline Air Quality Data

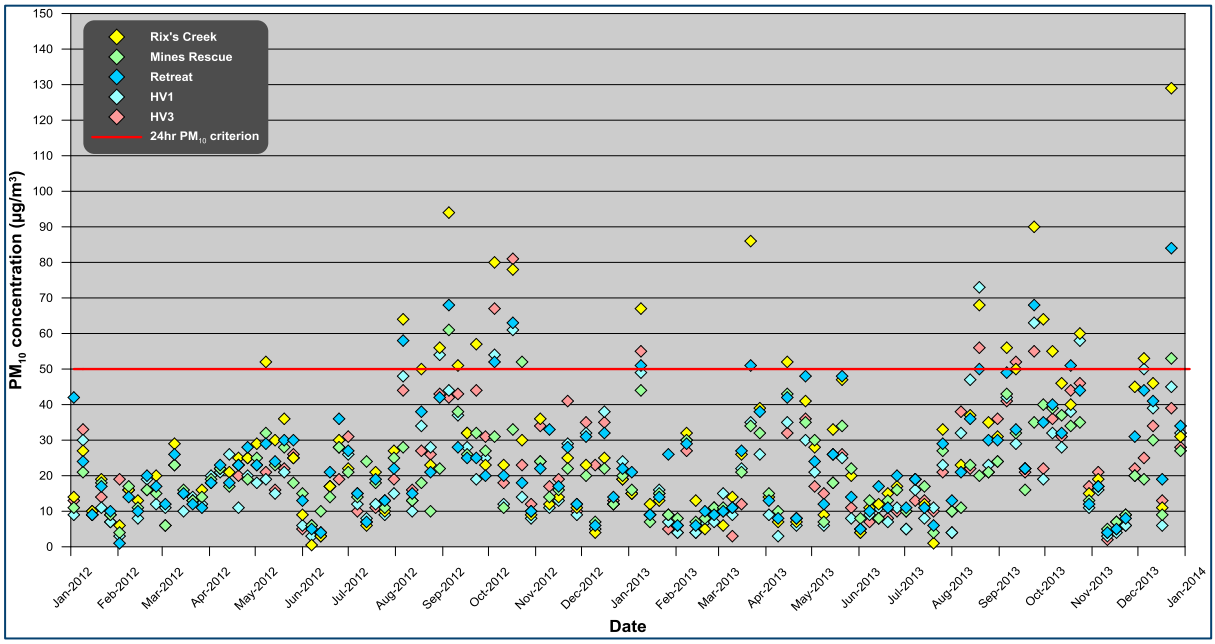
Baseline environmental air quality data collected at locations surrounding RCM provide an indication of the air quality and meteorological conditions.

Dust monitoring data

Figure B1 and **Figure B2** present a graphical summary of the measured 24-hour average PM_{10} and TSP concentrations using High Volume Air Samplers (HVAS) during January 2012 to December 2014.

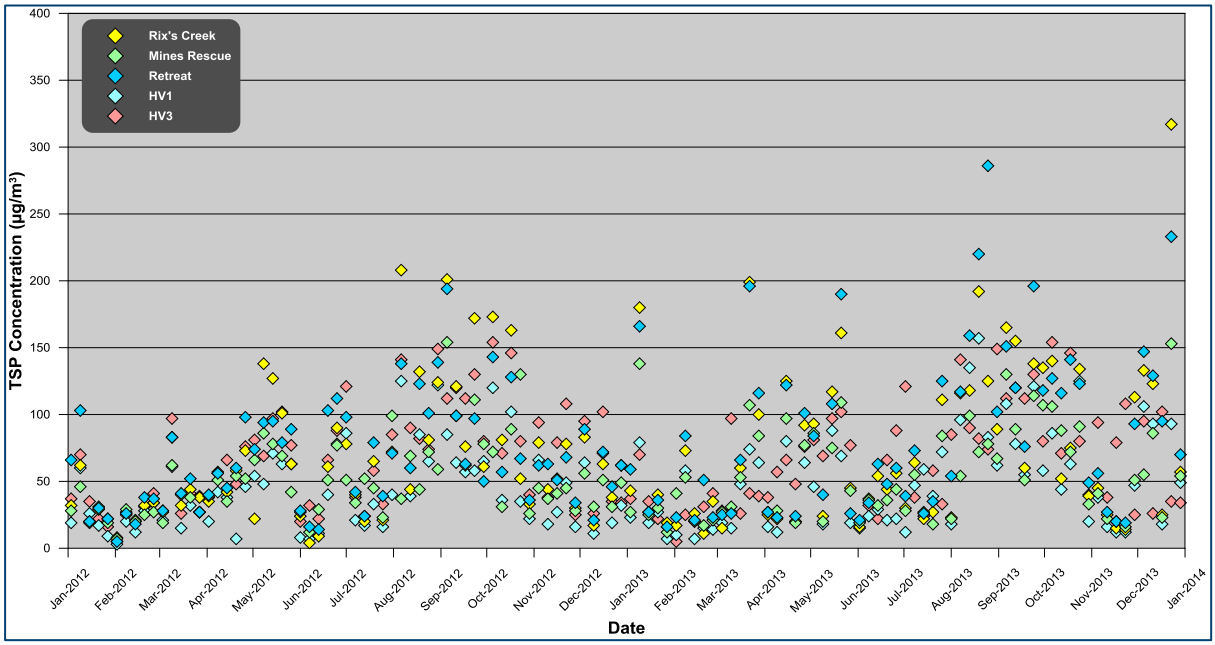
Seasonal trends are apparent in both figures which indicate levels are nominally highest in the spring and summer months with warmer weather raising the potential for drier ground and elevating the level of windblown dust, the occurrence of bushfires and pollen levels.

The data indicate that 24-hour average PM_{10} concentrations at times exceeded that relevant criterion of 50µg/m³ at these monitors and can be typically attributed to regional events as indicated by levels at the other monitors.



Source: **Todoroski Air Sciences (2015)**

Figure B1
HVAS 24-hour average PM_{10} concentrations (µg/m³)



Source: **Todoroski Air Sciences (2015)**

Figure B2
HVAS 24-hour average TSP concentrations (µg/m³)

A visualisation of the annual average dust deposition levels for 2012 is presented in **Figure B3**. The figure indicates that annual average dust deposition levels are generally contained to areas surrounding active mining and in areas to the west of RCM.

The area to the west of RCM would experience contributions from surrounding mining sources upwind and also other local sources such as traffic emissions and agricultural activities.

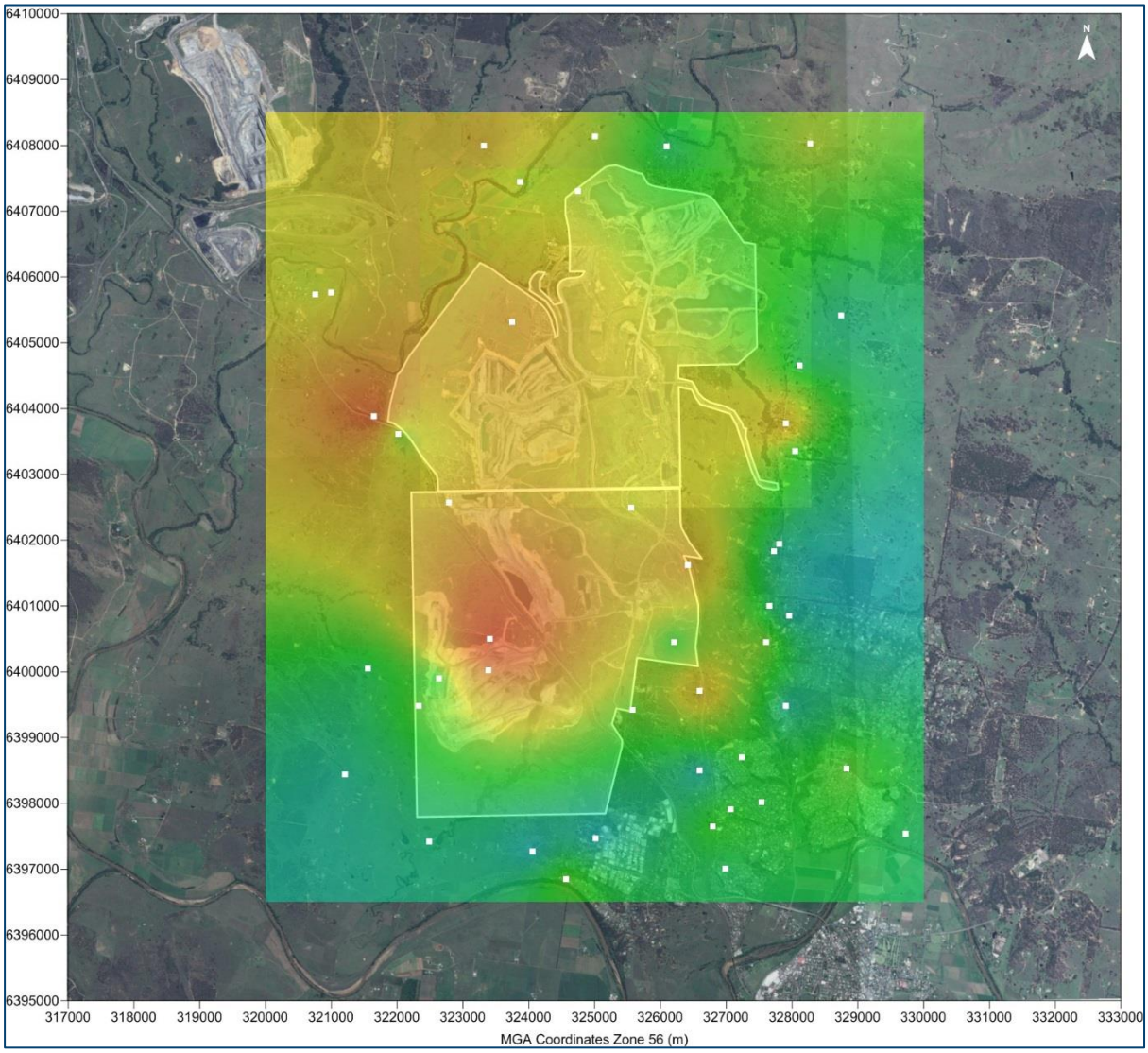


Figure B3
Visualisation of annual average dust deposition levels (2012)

Meteorological monitoring

Meteorological monitoring is undertaken at RCM in accordance with project approval and EPL requirements. Annual and seasonal windroses prepared from data collected are presented in **Figure B4**. The windroses indicate typical wind patterns for the Hunter Valley with winds predominately along a northwest and southeast axis with few winds from the northeast and southwest quadrants.

Figure B4
Annual and seasonal windroses for Rix's Creek Mine (December 2014 – November 2015)