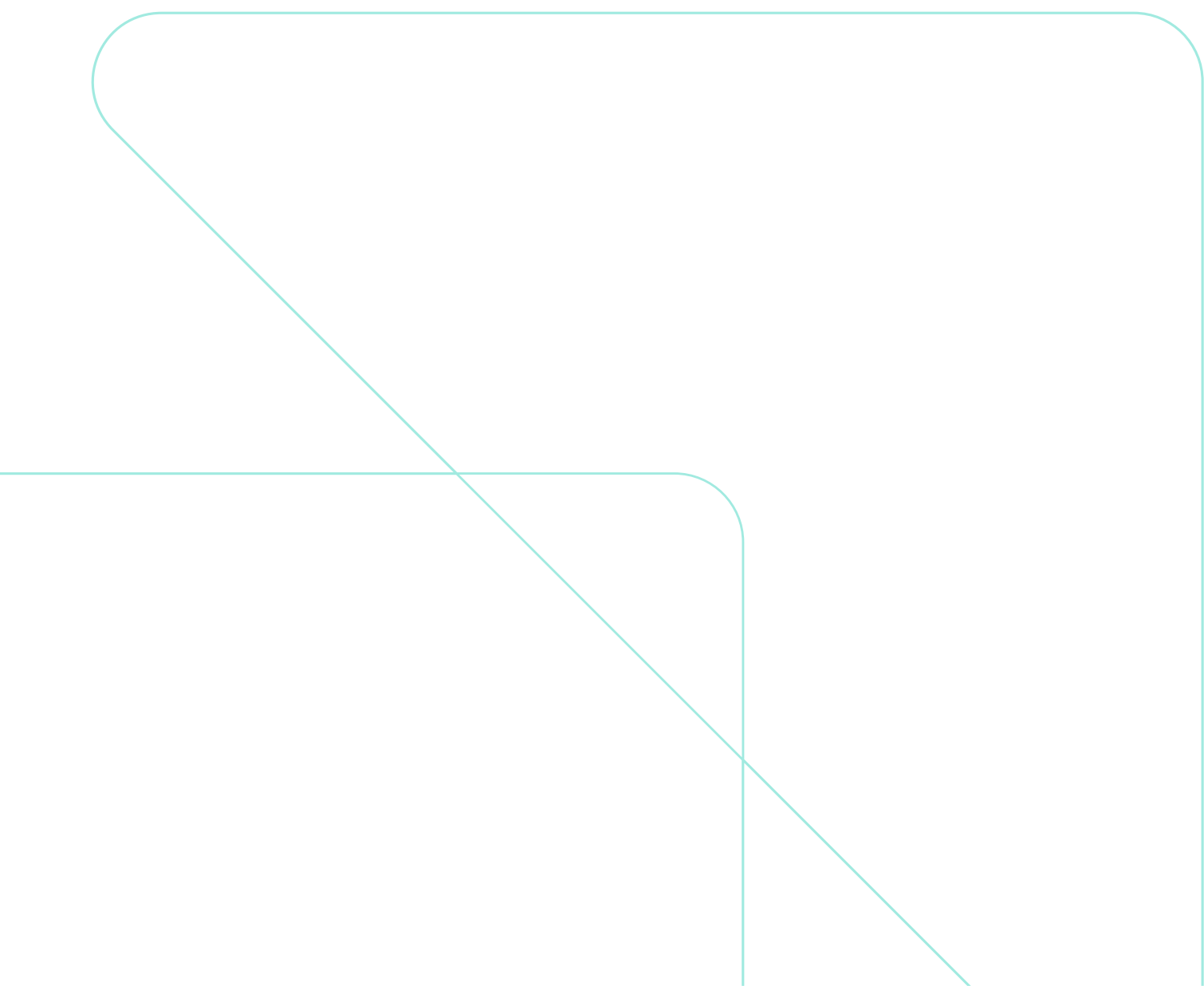


Vickery Blast Management plan



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1. Introduction

1.1 Overview of approved operations

The Vickery Coal Mine (VCM) is located in the Gunnedah Coal Basin, approximately 25 kilometres (km) north of Gunnedah in New South Wales (NSW). The VCM is operated by Vickery Coal Pty Limited (VCPL) (a wholly owned subsidiary of Whitehaven Coal Limited [WHC]).

Development Consent (SSD-7480) was granted to VCPL on 12 August 2020 by the NSW Independent Planning Commission as a delegate of the NSW Minister for Planning under Section 75J of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). The Development Consent allows for the development of an open cut mine and associated infrastructure with a 25-year mine life, extracting run-of-mine (ROM) coal at up to 10 million tonnes per annum (Mtpa) and processing the coal, as well as coal from WHC's Tarrawonga Mine, at an on-site coal handling and processing plant (CHPP) for off-site transport by rail.

A full project description, including history of operations, current operating approach and mining methods are outlined within the Vickery Extension Project Environmental Impact Assessment and previous Annual Reviews for the site. These documents can be found on the [Whitehaven Coal website](#).

1.2 Baseline data

Baseline blast monitoring for the VCM commenced in 2024.

1.3 Purpose

The purpose of this Blast Management Plan (BLMP) is to provide an overview of and direction to the systems, processes and documentation that have been established to:

- Ensure compliance with operating conditions of all active approvals
- Minimise the impact of blasts from mining activity on the environment and nearby residences
- Evaluate and report on the effectiveness of the blast management system and
- Maintain an effective response mechanism to deal with exceedances and complaints.

1.4 Scope

The scope of this Management Plan applies to all activities at VCM including mining, handling, transport, and storage of coal that have the potential to impact on the immediate and surrounding receiving environment.

1.5 Management systems

VCM; as a Whitehaven Coal operation, has well-established management systems that are generally aligned with the international management system standard ISO 14001. These management systems provide the framework to support the planning, implementation, monitoring and review to achieve continual improvement in blast management. To minimise the blasting impacts of these activities, a risk-based approach has been established, which includes mechanisms for predictive forecasting and blast monitoring, providing feedback on the effectiveness of controls and enabling adaptive blast management.

2. Legislative requirements

Requirements and commitments associated with blasting are defined within the following approvals:

- Vickery Development Consent (SSD-7480); and
- Environmental Protection Licence (EPL) 21283.

2.1 Exceedance criteria

This Blast MP has been developed in accordance with the Project Approval and other relevant conditions, as provided in Appendix 1.

Table 1 provides a summary of the assessment criteria for blasting.

Table 1 Project approval assessment criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Residence on privately owned land^a	120 (within 30 m)	10 (within 3.5 m)	0%
	115 (within 30 m)	5 (within 3.5 m)	5% of the total number of blasts over a calendar year
Kurrumbede^b	133	10	0%
All other public infrastructure	-	50 (or a limit determined by the structural design methodology in AS 2187.2-2006, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary)	0%

Notes:

- As per Condition B18, Schedule 2 of SSD-7480, the blasting criteria in Table 1 do not apply if the VCM has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and VCM has notified DPHI in writing the terms of the agreement.]
- Criterion reviewed by a structural engineer's in structural report completed in accordance with Condition B72, Schedule 2 of Project Approval SSD-7480.

2.2 Blast hours and frequency

In accordance with Condition B19, Schedule 2 of SSD-7480, VCM must only conduct blasting operations between 9 am and 5 pm (Monday to Saturday inclusive). Blasting is not permitted on Sunday's, public holidays or any other time without the prior written approval of the Planning Secretary.

As per Condition B20, Schedule 2 of SSD-7480, VCM may carry out a maximum of:

- 1 single blast event per day and
- 5 single blast events per week (averaged over a calendar year).

This does not apply to blasts generating ground vibrations of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public. A single blast event means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. An additional blast required following a misfire is counted as a single event.

2.3 Heritage items

Condition B27(b), Schedule 2 of SSD-7480 requires no damage to heritage items from blasting activities at VCM. There are no regulatory criteria nominated in Australia for the assessment of damage to items of heritage significance from vibration and airblast due to blasting. Based on literature, nominated vibration and airblast criteria for the relevant heritage sites are detailed in Table 2 (consistent with those used in the Vickery Extension Project Noise and Blasting Assessment [Wilkinson Murray, 2018]).

Table 2 Nominated heritage site blasting criteria

Heritage Site	Blast Site Location Identification	Airblast overpressure (dB)	Ground Vibration (mm/s)
Grinding Groove Site (AHIMS 20-4-0009)	B-02	N/A	80
Kurrumbede Homestead ¹	B-01	133	10

¹ Criteria for the Kurrumbede Home are consistent with Table 6 of SSD-7480.

Prior to commencing blasting operations, a suitably qualified structural engineer was engaged to inspect the condition of the main residence of the Kurrumbede Homestead and associated outbuildings, in accordance with Condition B72, Schedule 2 of SSD-7480, to confirm blasting criteria, advise measures to minimise impacts due to blasting and recommend works to protect the structural integrity of the buildings. The blast criteria listed in Condition B17, Schedule 2 of SSD-7480 have not been amended as a result of this inspection.

3. Consultation and communication

This Management Plan has been prepared in consultation with the Department of Planning, Housing and Infrastructure (DPHI) and the NSW Environment Protection Agency (EPA). The Road Closure Management Plan has been prepared in consultation with the Gunnedah Shire Council and Narrabri Shire Council, as required by Condition B29(f), Schedule 2 of SSD-7480. In addition, VCM has extensive consultation and communication processes, including but not limited to:

- a comprehensive community engagement program which includes a Community Consultative Committee (CCC);
- ongoing consultation with relevant government agencies including the EPA;
- consultation with the EPA during the management plan development process through the DPHI major projects portal;
- a community response line (1800 942 836) which enables members of the community to contact environment and community staff directly to discuss concerns with the BLMP and;
- publicly available project approvals, environmental and other related documentation (annual reports, complaints register, CCC minutes) via the Whitehaven Coal website.

4. Risk management

VCM implements a comprehensive risk management system as documented in the Whitehaven Coal HSE Risk Management Standard (WHC-STD-HSE Risk Management) and the Whitehaven Coal HSE Risk Management Procedure (WHC-PRO-HSE Risk Management). Blasting risks and their associated control measures are documented in the VCM Broadbrush Risk Assessment; the control measures are summarised in section 5 of this Management Plan. Operational and project related changes that have the potential to materially alter the blasting profile are managed through the Whitehaven Coal Management of Change Standard (WHC-STD-Management of Change).

5. Control measures

5.1 Overview of operation controls

SSD-7480 requires VCM to implement reasonable and foreseeable avoidance and mitigation measures' regarding blasts to ensure the safety of people and livestock, protect public and private infrastructure and minimise the dust and fume emissions of blasting. Key operational control measures are included in Table 3.

Table 3 Key control measures

Risk	Source	Mitigation Measures	Responsibility	Timing
Blast exceeds criteria	Open Cut blasting	Appropriate blast design and site-specific blast protocols.	Drill & Blast Engineer	Ongoing
		BLMP prepared by suitably qualified and experienced persons including environmental scientists and engineers with blast design and execution experience.	Environmental Superintendent	As required

Risk	Source	Mitigation Measures	Responsibility	Timing
		Assessment of weather conditions prior to blasting	Environmental Superintendent	As required
		Training all relevant personnel on blast-related obligations	Drill & Blast Superintendent	As required
		Calibrate site-specific blast models over time using monitoring data from previous blast events.	Drill & Blast Superintendent	Ongoing
		Coordinate timing of blasting at VCM with nearby mines by communicating the blast schedule and maintaining a 15 minute interval between blast events to avoid cumulative blasting impacts	Drill & Blast Superintendent	As required
		Undertake periodic review of blasting procedures to evaluate performance	Drill & Blast Superintendent	Ongoing
		Evaluate new technology and available blasting methodologies	Drill & Blast Superintendent	Ongoing
Excessive dust generation	Open Cut blasting	Minimisation of blast area by appropriate blast design	Drill & Blast Superintendent	As required
		Assessment of weather conditions prior to blasting	Environmental Superintendent	As required
Damage to buildings and infrastructure and harm to public, personnel and livestock	Open Cut blasting within 500 m of public roads	Temporary closure of Bluevale Road/Hoads Lane and Braymont Road when blasts are within 500 m of a public road or when it is considered a blast may adversely affect that road.	Drill & Blast Superintendent	As required
		Adherence to the Road Closure Management Plan (Table 4) as approved by Gunnedah Shire Council on 18 January 2024 in accordance with SSD-7480 Condition B28.	Operations Manager	Every Road Closure event associated with blasting at VCM
		Appropriate blast design and site-specific blast protocols.	Drill & Blast Superintendent	As required
		Establish a minimum blast exclusion zone	Drill & Blast Superintendent	As required
		Undertake blast monitoring at a representative location, unless otherwise agreed to by the infrastructure owner	Environmental Superintendent	Ongoing
		Notification to all external stakeholders including those on the pre-blast notification register	Environmental Superintendent	As required
Damage to buildings and infrastructure and harm to public, personnel and livestock	Open Cut blasting	Appropriate blast design and site-specific blast protocols.	Drill & Blast Superintendent	As required
		Establish a minimum blast exclusion zone	Drill & Blast Superintendent	As required
		Provide advance notice of scheduled blasts on the project website and update the website if the blasting schedule changes to ensure up-to-date information is available.	Environmental Superintendent	As required
		Notification to all external stakeholders including via SMS to those on the pre-blast notification register	Drill & Blast Superintendent	As required
Damage to heritage items	Open Cut blasting	If actual airblast/vibration levels approach criteria, as informed by monitoring at Kurrumbede Homestead and the grind grooving	Drill & Blast Superintendent	As required

Risk	Source	Mitigation Measures	Responsibility	Timing
		site (AHIMS 20-4-0009), blast design will be revised by updating the predictive modelling with the actual results.		
Fumes	Open Cut blasting	Assess weather conditions prior to blasting.	Environmental Superintendent	As required
		Postpone blasting when the site weather station records wind direction from the north-east (20° through to 70°) and wind speed greater than 8 m/s over successive readings.	Operations Manager	As required
		Reschedule blasting if it is considered likely that a level 3C (or higher) fume event (refer Appendix B) could potentially leave site in the direction of a private receiver, unless required for safety reasons.	Operations Manager	As required
		Minimise the time between drilling and loading, and loading and firing of the blast through optimisation of blast sequencing	Drill & Blast Superintendent	As required
		Select explosive products with consideration of the likelihood of moisture down hole (including the presence of clay strata)	Drill & Blast Engineer	As required
		Select appropriate explosive products with a formulation to reduce the likelihood of fumes	Drill & Blast Engineer	As required
Fumes	Open Cut blasting	Undertake hole loading in accordance with shotfirer procedures to avoid product contamination	Drill & Blast Superintendent	As required
		Use blast hole stemming to minimise venting of gases	Drill & Blast Superintendent	As required
		Use coarse stemming (i.e. drill fines would not be used)	Drill & Blast Superintendent	As required
		Manage fume emissions in accordance with the <i>Code of Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting</i> (Australian Explosives Industry and Safety Group Inc., 2011) by utilising explosives products according to the manufacturers technical specifications.	Drill & Blast Superintendent	As required
Restricted public road access	Open Cut blasting at VCM and neighbouring mines	Coordinate blasts with neighbouring mines to ensure road closures do not occur at the same time.	Drill & Blast Superintendent	As required
Restricted public road access	Open Cut blasting within 500 m of public roads	No more than one blast event per day, unless in the case of misfire, and a maximum of five blasts per week, averaged over 12 months.	Drill & Blast Superintendent	Ongoing
		Notify neighbours who have requested to be notified of blasts, including road closures by SMS/email prior to the blast event.	Environmental Superintendent	As required
		In the event of delayed blast event, re-notify by SMS/email and VCM website prior to the blast event.	Environmental Superintendent	As required
		Road closure notified on VCM website, including estimated duration of closure.	Environmental Superintendent	As required

Risk	Source	Mitigation Measures	Responsibility	Timing
		Provide Gunnedah and Narrabri Shire Councils as much notice as possible, but at least 2 hours before a blast and by 3 pm on Friday in the case of a blast event on Saturday.	Environmental Superintendent	As required
		Blasting will be undertaken between the approved times of 9.00 am and 5.00 pm Monday to Saturday	Operations Manager	Ongoing
		Blasts involving a road closure will be avoided where possible at peak traffic periods including during the afternoon school bus run.	Drill & Blast Superintendent	As required
		Road closure only implemented at the point a blast is ready to fire to minimise duration of closure. Road is reopened as soon as the 'road sweep' has been conducted and it is safe for traffic to continue.	Drill & Blast Superintendent	As required

5.2 Key operational control procedures

Key operational control procedures supporting the above blast management measures as a result of mining activity include:

5.2.1 WHC-PRO-OC-VOC-Blast planning design and record keeping

The purpose of this procedure is to describe the blast design and record keeping requirements that provide for:

- competent and safe blasting conditions
- suitable fragmentation and muckpile that match the chosen digging equipment and
- compliance with established environmental limits.

5.2.2 WHC-PRO-OC-VOC-Blast clearance and firing

This procedure describes the process for clearing blast areas and preventing unauthorized or inadvertent access during blasting operations.

5.2.3 WHC-CHK-OC-VOC-Environmental blast hazard analysis

This analysis identifies vibration, overpressure, dust and fume hazards and determines an overall hazard score for each and subsequent actions. This analysis must be completed prior to a blast event.

5.2.4 WHC-PRO-OC-VOC-Managing misfires

This procedure describes the requirements for safely managing explosives that misfires as a result of shot firing activities.

5.2.5 WHC-CHK-OC-Drill and blast design

This checklist is completed for each design to ensure all relevant factors have been considered including planning, environmental, design, design compliance and environmental compliance and performance parameters.

5.2.6 WHC-CHK-OC-VOC-Blast controller

This checklist assists the Blast Controller ensure all blast requirements are completed and is signed off by the Blast Controller and Shotfirer.

5.2.7 WHC-CHK-OC-VOC-Shotfirer

This checklist assists the Shotfirer ensure all blast requirements are completed and is signed off by the Blast Controller and Shotfirer.

5.3 Road closure management plan

A road closure management plan is included in Table 4.

Table 4 Road closure management

Aspect	Requirement
Objective	To safely manage temporary road closures when blasts are within 500m of a public road or when it is considered a blast may adversely affect that road.
Scope	Temporary road closure of any public road within 500m of Vickery Coal Mine's blasting activities. In particular: - Blue Vale Road/Hoads Lane; and - Braymont Road
Environmental Issues	Disruption to traffic on public roads during temporary road closures due to blasting at VCM.
Performance Criteria	Ensure the public are well informed of any temporary road closures on Blue Vale Road/Hoads Lane and Braymont Road due to blasting at VCM and ensure minimal disturbance to traffic during blasting periods.
Control measures - prior to road closure	Neighbours: Those neighbours who have requested to be notified of blasts including the closure of local roads, will be advised by SMS/email before the day of the blast by VCM. The notification of a road closure will also be included in the blast notification section of the website. In the event of a blast required for safety purposes as much notice as possible will be given. The notification of a road closure will include an estimated duration that the road will be closed. Blasts at VCM will be coordinated with neighbouring mines to ensure that impacts to road users from road closures are minimised. In the event a blast event is delayed re-notification will occur via the website, SMS and email. Narrabri Shire Council (NSC)/Gunnedah Shire Council (GSC): VCM will give as much notice as possible to the NSC and GSC but will notify of a road closure at least 2 hours before a blast and by 3pm on Friday in the case of a blast on Saturday. In the event of a blast required for safety purposes as much notice as possible will be given. Road closures will be performed at a time to minimise impact on road users and the local school bus run. Blasting is not permitted before 9am which will avoid peak traffic times in the morning. Whitehaven will try to avoid blasting during the peak hours traffic time but reserves the right to blast between 9:00am and 5:00pm, in accordance with the Project Approval. Neighbouring Mining Operations: Blasts will be coordinated with neighbouring mines to ensure that road closures do not occur at the same time. This includes the notification of planned blast times to neighbouring operations and receiving notification (via electronic or verbal notification) of planned blast times from other mine sites. If any blast is scheduled for the same time the blasting schedule will be adjusted by both or either of the operations to ensure a minimum 15 minute gap between blast events.
Control measures – at time of road closure	Emergency Services: Should any emergency services approach a road closure point and be required to pass to attend an emergency, the traffic controller will arrange for the emergency service vehicles to be escorted through the road closure station as soon as the route can be made safe and without delay. This may include contacting the blast controller to temporarily delay the firing of the blast. Traffic Control: Traffic control points will be established on the affected road. These locations will remain relatively constant, near the existing Braymont Road/Kurrumbede access road and in positions to prevent access from Shannon Harbour Road or Hoads Lane. These locations may require some modification due to prevailing weather conditions on the day of blasting. Control points will be revised as the pit progresses in an easterly direction. As a minimum, the traffic control points will include two (2) sentries for the purpose of traffic control, together with all equipment necessary for the safe control of the road. All sentries will be in two-way contact with the blast controllers. The control of traffic on a public road will only be undertaken by qualified and authorised personnel. Persons controlling traffic shall have the 'Traffic Controller' certification (level 1 blue certificate) whilst persons requiring to set up and work with Traffic Control Plans shall have the 'Apply Traffic Control Plans' certification (level 2 yellow certificate). All road sentries will travel to the road closure points and open all necessary signage advising of the temporary road closure due to blasting. Once all signage is positioned the sentries will await direction from the blast controller. Traffic control point signage will consist of fold out signs situated adjacent to the road. Once the blast is ready to be fired, the traffic controllers will be directed to close the road. The road sentry shall drive the entire route to ensure all vehicles are clear of all road closure points. Once the area has been confirmed to be clear of vehicles the road sentry will notify the blast controller and the blast will be fired in accordance with the site procedure for blasting. At the completion of the blast, the "all clear" is given by the Shot-firer. Once the blast has been fired the Shot-firer will instruct the road sentry to drive the entire route to confirm the road has not been impacted by the blast (fly rock or damage). The road sentry will remove any fly rock that impacts on the road. At the conclusion of this process the road will then be reopened to traffic. All necessary signage will be removed at the conclusion of the road closure.
Frequency	Blasting frequency and requirements for road closure will vary with mine development. There will be no more than one blast per day, unless in the case of a misfire, and a maximum of five blasts per week, averaged over 12 months. Where road closure is required, it is expected that the road will be closed for approximately 20 minutes for each blast.

5.4 Property Inspections and investigations

In accordance with Condition D4, Schedule 2 of SSD-7480, all owners of privately-owned land within 3 km of the approved open cut at the VCM (property IDs 127, 132 and 133) have been notified in writing that they are entitled to a property inspection to establish the baseline condition of any buildings and/or structures, or to have a previous property inspection updated.

To date, no written requests for a property inspection have been received by WHC prior to construction and therefore no property inspection reports have been prepared, nor any other specific measures identified to minimise the potential blasting impacts of the VCM on such buildings and/or structures (as required by Condition B22, Schedule 2 of SSD-7480).

Should any owners of privately-owned land within 2 km of the open cut mining pit Drill & Blast, or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claim that buildings and/or structures on their land have been damaged as a result of a blast event at the VCM, an investigation will be conducted by a suitably qualified, experienced and independent person whose appointment has been approved by both parties. If there is a dispute over the selection of the suitably qualified, experienced and independent person, the matter will be referred to the Planning Secretary for resolution.

The investigation will be commissioned within two months of the claim and a copy of the independent property investigation report provided by WHC to the landowner upon its completion.

If the independent property investigation report confirms the landowners claim, and both parties agree with these findings, WHC will repair the damages to the satisfaction of the Secretary.

However, if the landowner or WHC disagrees with the findings of the independent property investigation report, then either party may refer the matter to the Secretary for resolution.

6. Monitoring program

A Blast Monitoring Program has been established to evaluate and report on:

- the effectiveness of the management of blast design
- compliance with blast criteria and
- compliance with blast operating conditions.

To assess compliance with the relevant criteria in section 2, blast monitoring will be conducted at various locations that are considered representative of relevant residences and public infrastructure in the areas that may be potentially influenced by construction and initial mining activities as well as operations (Table 4, Table 5 and Figure 1).

The effectiveness of the monitoring program will be evaluated each year upon the review of this plan as per the requirements of section 9.2 and reported on each year in the annual review.

6.1 Blast overpressure and vibration

To assess compliance with the relevant criteria, the following monitoring will be undertaken for each blast:

- Overpressure and vibration monitoring at a location representative of the closest privately-owned residence to the blast site.
- Overpressure and vibration monitoring at the Kurrumbede Homestead and vibration monitoring at the grinding groove site (AHIMS 20-4-0009).
- Vibration monitoring in close proximity to construction and initial mining blasting as an indicator for potential impacts at the nearest public infrastructure to monitor compliance with the blast criterion in Section 2. Following cessation of construction and initial mining blasting, these monitors would be relocated to a location representative of privately-owned residences for monitoring during operational blasting.

The overpressure and vibration modelling monitoring units are solar-powered automated devices triggered by blast events. The monitoring results are collected via telemetry and available to VCM personnel through a portal. Technical personnel also receive the blast monitoring results via SMS and email. The blast monitoring units are maintained and calibrated regularly by qualified personnel. If the review of blast monitoring data identifies a non-compliance with the overpressure and vibration criteria the Compliance Reporting protocol will be followed (Sections 9.2 and 10.1.1).

Consideration of the locations has been made in relation to prominent wind direction, vectors of nearby receivers and activities proposed. Blast monitoring locations are appropriate for the construction and initial mining phase and are shown in Table 5. Monitoring locations will be reviewed upon the phasing out of construction activities and will be described in future revisions of the BLMP.

Table 5 Blast monitoring locations

Monitor	Easting (GDA2020)	Northing (GDA2020)	Parameter
B-01	229439	6589565	Airblast pressure and ground vibration
B-02	228922	6591462	Airblast pressure and ground vibration
B-03	227751	6588285	Airblast pressure and ground vibration

6.2 Fumes

Visual monitoring for blast fumes will be undertaken for fume level, colour and extent on a scale between 0 – 5, based on the AEISG Code of Practice Visual Fume Rating Scale (Appendix 2). The shotfirer will rate any visible blast fume following a blast and record the result in the shotfirer's statutory logbook. This fume rating result is also recorded in the EBHA and in the blast monitoring database. Reportable significant fume events will be reported in accordance with the protocol in section 9.3.

Blasts events will be recorded in a video recording or photographs to allow post-blast analysis to be undertaken including the review of post-blast emissions and the performance of the explosives products.

6.3 Meteorological monitoring and forecasting

Meteorological data will be collected at the on-site meteorological monitoring station (Figure 1). The weather station is sited in accordance with the requirements in SSD-7480 and EPL 21283, and relevantly consistent with Condition B38. Meteorological forecasting and predictive blast dispersion modelling will be utilised to assist in blast planning to minimise impacts including consideration of time of blasting and the explosive product selection.

Table 6 provides the meteorological monitoring parameters for which data would be collected at the onsite meteorological monitoring station.

Table 6 Meteorological monitoring parameters

Parameter	Units	Frequency	Average Period	Method
Wind speed	Metres per second	Continuous	15 minute	AM-2 & AM-4
Wind direction	Degrees	Continuous	15 minute	AM-2 & AM-4
Temperature @ 10 m	Degrees Celsius	Continuous	15 minute	AM-4
Temperature @ 60 m	Degrees Celsius	Continuous	15 minute	AM-4
Relative humidity	Percentage	Continuous	15 minute	AM-4
Rainfall	millimetres	Continuous	1 hour	AM-4

6.4 Monitoring of the Kurrumbede Homestead Complex

Inspection of the Kurrumbede Homestead by a Structural Engineer occurred twice prior to the commencement of mining in 2020 (Constructive Solutions, 2020) and December 2023 (Kelley Covey, 2024). Blasting activities as part of mining operations began in January 2024. A subsequent assessment following 12 months of blasting operations was undertaken in December 2024 (Kelley Covey, 2025). No defects attributable to blasting operations were recorded.

Monitoring of the condition of the Kurrumbede Homestead by a Structural Engineer will continue at least every two years or as otherwise described in the VEP Historic Heritage Management Plan in accordance with recommendations made by the Structural Engineer (Constructive Solutions, 2020). Part of this inspection will assess if any defects are attributable to blasting operations at the Vickery Coal Mine.

7. Responsibilities

Table 7 Roles and responsibilities

Role	Responsibility
General Manager – Vickery Coal Mine	Ensure required resources and support to implement the BLMP
Operations Manager (or delegate)	Authorise the BLMP and future amendments Ensure induction and training relevant to the BLMP Management and maintenance of monitoring network Regulatory notification and engagement Reporting and data review System maintenance and development Specific management responsibilities outlined in Table 3
Environmental Superintendent, Officer (or delegate)	Maintenance and update of the BLMP Monitoring program implementation Implementation of operational controls listed in Table 3
Operations Manager and Technical Services Team	Implementation of operational controls listed in Table 3
Drill & Blast Superintendent	Implementation of operational controls listed in Table 3
All personnel	Adhere to the relevant requirements of this BLMP Modify activities to reduce blast levels Specific management responsibilities outlined in Table 3

8. Data quality assurance

Real-time data is accessed by a web interface that provides notifications when equipment is not operating as required or a blast trigger level is reached.

Monitoring equipment is maintained and calibrated in accordance with manufacturer's specifications and relevant standards.

9. Compliance obligations

9.1 Protocol for determining exceedances

A protocol for managing and reporting non-compliances with statutory requirements has been developed as a component of the VCM's EMS.

A non-compliance is defined as an occurrence, set of circumstances or development that is a breach of the condition of SSD-7480. As described in Section 9.2, WHC will report non-compliances in accordance with Condition E7 and E8 of SSD 7480.

Where monitoring results are above the blast criteria listed in section 2, an investigation will be conducted to validate the monitoring result for an exceedance. The investigation may include:

- audit of the blast management system, reviewing blast management measures
- identification of potential system improvements such as upgrade of blast infrastructure and handling procedures
- implementation of modifications to the blast management system and
- additional monitoring.

Affected landowners of an identified exceedance of blasting and air quality criteria and the CCC will be notified as soon as practical and no longer than 7 days following receipt of results in accordance Part D Condition D6, Schedule 4 of SSD-7480.

Any landowner that considers VCM is exceeding any blasting criterion in Part B of SSD-7480 may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land in accordance with Schedule 2, condition D8 of SSD-7480. VCM will cooperate with DPHI to ensure this requirement is fulfilled in the event such a request is made.

9.2 Non-compliance notification

A written notification of a non-compliance with Conditions B17, B19, B20 of SSD-7480 will be provided to the DPHI via the major projects website within seven days of becoming aware of the non-compliance (or as otherwise directed by the DPHI) as per Condition E8, Schedule 2 of SSD-7480. The notification will set out the condition/s of SSD-7480 which the VCM is noncompliant with, why it is non-compliant and what actions have or will be taken to address the causes of the non-compliance. A notification in writing will also be submitted to the EPA as soon as practicable after an exceedance of the blasting limits in accordance with Conditions R4.2 of EPL21283. Notifications to any affected landholders will be made as described in Section 9.1.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

9.3 Incident notification

In accordance with Condition E7, Schedule 2 of SSD-7480 and under Section 148 of the POEO Act, the Secretary of DPHI and representatives of all relevant regulatory agencies will be informed of any blasting incident that;

- has caused, or threatens to cause, material harm to the environment and
- breaches or exceeds the limits or performance measures / criteria in this approval.

A notification will be provided to DPHI immediately after becoming aware of an incident via the Major Project portal. A written report on the incident will be provided to DPHI via the Major Project portal within seven days and a detailed report with 30 days of becoming aware of the incident (or as otherwise directed by DPHI) as per the requirements of Condition E7 and E8, Schedule 2 of SSD-7480. Reporting to additional regulatory authorities will be executed to meet legal obligations.

Notification of environmental harm to the EPA must be made by telephoning the Environmental Line service on 131 555. Notification of an exceedance of blast criteria will be classified as an incident and will be reported in the same manner. Within seven days of becoming aware of an incident, the licensee must provide written details of the notification to the EPA as per Condition R2 of EPL 21283.

9.4 Complaint handling

Whilst all endeavours will be made by VCM to avoid adverse blast impacts on local landowners / residents, it is acknowledged that impacts may occur. In order to ensure an appropriate and consistent level of reporting, response and follow-up to any complaints is adopted by VCM, the following complaints management protocol will be followed:

- a publicly advertised telephone complaints line is in place to receive complaints
- initial response is provided where practical within 24 hours of receipt of a complaint
- an investigation will be initiated as per for an exceedance (section 9.1) and
- all details regarding the complaint including investigation outcomes and follow up actions will be documented in a Complaints Register.

A copy of the Community Complaints Register will be made available to the CCC and the complainant (on request) and updated monthly on the VCM website, as per Condition E14, Schedule 2 of SSD-7480. A summary of complaints received every 12 months will be included in the Annual Review.

10. Reporting and Review

10.1 Reporting

10.1.1 Compliance reporting

An overview of any non-compliances or incidents received during the reporting year are included in VCM's annual review. Refer to section 10.1.3 for further detail on the annual review.

Blast monitoring results are included in the EPL monitoring summary in accordance with section 66(6) of the Protection of the Environment (Operations) Act (POEO Act) that is available on the project website.

Non-compliances with Blasting criteria will be reported according to the protocol described in sections 9.2 and 9.3.

10.1.2 CCC reporting

A Community Consultative Committee (CCC) has been established and will continue to be operated for the duration of operations on site. Regular briefings to the CCC will be provided, including a quarterly environmental monitoring report, presented at quarterly CCC meetings.

10.1.3 Annual review

By the end of March each year, WHC will review the environmental performance of VCM for the previous calendar year including blast monitoring results. The blast component of the Annual Review includes the required detail as per the *DPHI Annual Review Guideline* (2015). The Annual Review will be sent to the relevant regulatory agencies for review and made publicly available on the WHC website, in accordance with Condition E14, Schedule 2 of SSD-7480.

10.2 Review

This Management Plan will be reviewed and evaluated to assess its adequacy and effectiveness, to the satisfaction of the Secretary (in consultation with relevant government agencies) in accordance with Condition E5, Schedule 2 of SSD-7480. This requires that this is undertaken within 3 months of the submission of:

- a. an annual review;
- b. an incident report;
- c. an audit; and
- d. any modifications to the conditions of SSD-7480.

If necessary, the Management Plan will be revised to incorporate any recommended measures to improve the environmental performance of VCM resulting from audits, community complaints (section 9.4) and incident investigation findings (section 9). In addition, the review process will include ongoing evaluation of operational modifications, alternative methodologies and new technologies that become available for their potential to lessen blasting impacts.

10.3 Independent audit

In accordance with Condition E10, Schedule 2 of SSD-7480, an Independent Environmental Audit (IEA) of VCM was initially undertaken in 2023 and additional IEAs have been and will continue to be undertaken every three years since. The IEA will be conducted by a suitably qualified and experienced auditor whose appointment has been endorsed by the Secretary.

The IEA will be undertaken to address the relevant requirements of Condition E10, Schedule 2 of SSD-7480 and will review the blasting performance of VCM, assess compliance with the requirements in this plan, and implementation of blast management measures. If necessary, appropriate measures or actions to improve the environmental performance of the VCM in regard to blast management will be recommended. A copy of the IEA report will be submitted to the Planning Secretary and any other NSW agency that requests it, together with the response to any recommendations within the IEA report and a timetable proposed for the implementation of recommendations. The IEA and WHC's response to recommendations in the Audit will be made publicly available on WHC's website as per Condition E14, Schedule 2 of SSD-7480.

11. References

Australian and New Zealand Environment Council (1990). Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration.

Australian Explosives Industry and Safety Group Inc (2011). Code of Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting.

Casaday and Lehmann (1967). Effects of Noise on the Physiology and Behaviour of Farm-Raised Animals, Physiological Effects of Noise.

Constructive Solutions (2020). Structural Inspection Report, November 2020.

Heggies Australia Pty Ltd (2006). Report on Vibrational Effects in Transported Cattle. Appendix D of the Albion Park Quarry Extension Revised Blast Management Plan.

Kelley Covey (2024). Dilapidation Report Kurrumbede Homestead.

Kelley Covey (2025). Dilapidation Report Kurrumbede Homestead.

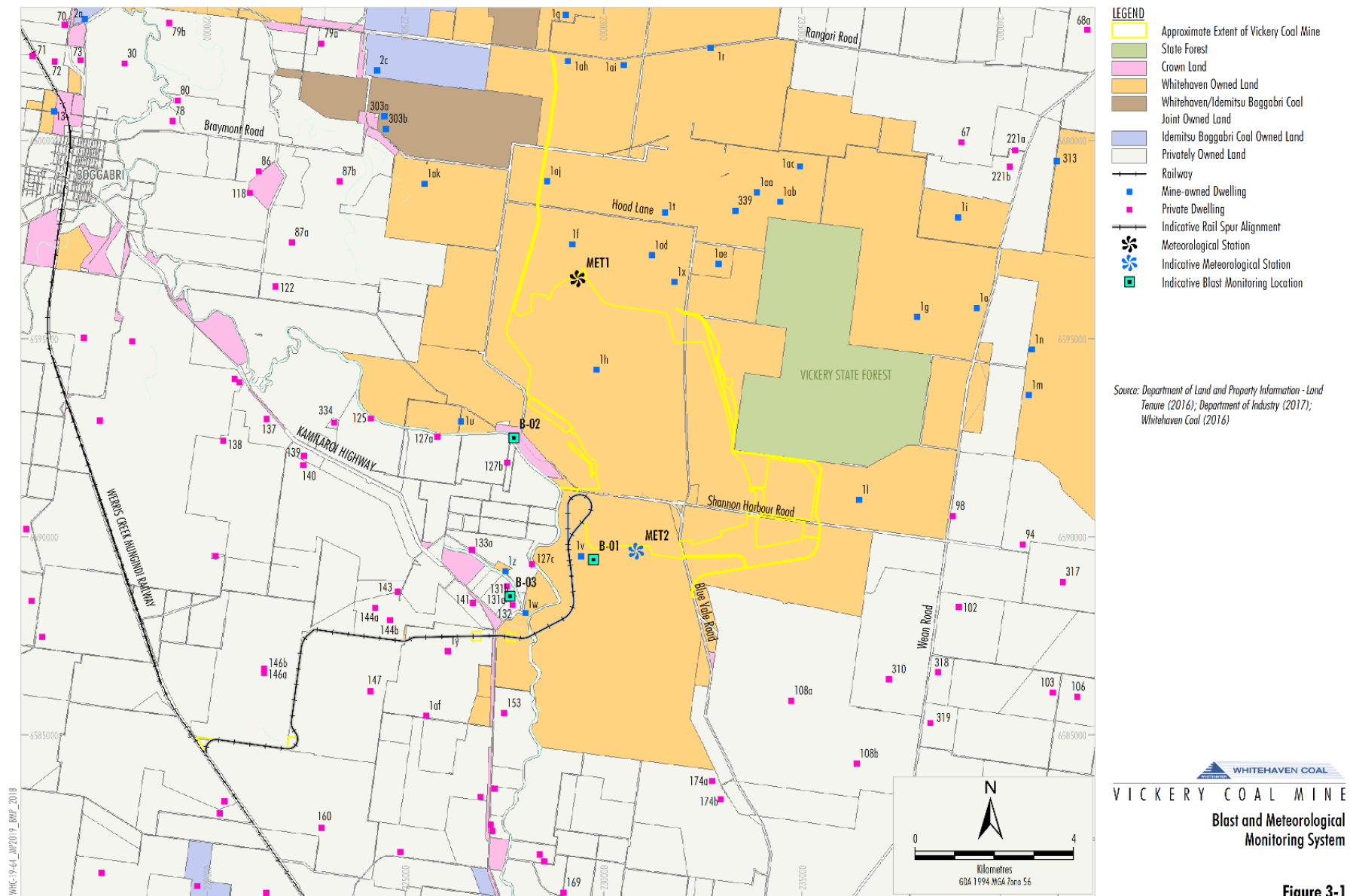
Whitehaven Coal Limited (2018) Vickery Extension Project Environmental Impact Statement.

Wilkinson Murray (2018) Vickery Extension Project Noise and Blasting Assessment.

12. Version control

Revision	Description	Author	Authorised by	Date
1.0	Initial draft following consultation as first submitted	WHC	WHC	December 2020
1.1	DPIE feedback incorporated	WHC	WHC	June & July 2021
1.2	Updated with minor administrative changes to reflect early mining and construction and also to include a road closure management plan.		-	December 2023
1.3	Updated in response to comments received from Narrabri Shire Council and to reflect a change in blasting within 500m of public roads.	WHC	-	January 2024
1.4	Reviewed in response to DPHI comments	WHC	WHC	February 2024
2.0	Content revision and incorporation into a new template.	Onward Consulting (Environmental Management Consultants)	-	January 2025
2.1	WHC Review including subject matter experts in the Environment and Technical Services team such as Drill and Blast Engineers, Drill and Blast Superintendent and Environmental Superintendent.	WHC	WHC	June 2025
2.2	Updated in response to DPHI comments.	WHC	WHC	August 2025
2.3	Updated in response to DPHI comments.	WHC	WHC	September 2025

Figure 1 Blast monitoring locations



13. Appendix 1 Relevant Conditions in Development Consent (SSD-7480)

Table A-1 Specific Management Plan Requirements

Approval condition	Relevant section of this Blast MP
Blasting Criteria	

Section 2

Schedule 2 Condition B17

The Applicant must ensure that blasting on the site does not cause exceedances of the criteria at the locations^a in Table 6.

Table 6: Blasting criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a calendar year
Kurrumbede ^b	133	10	0%
All other public infrastructure		50 (or a limit determined by the structural design methodology in AS 2187.2 - 2006, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary)	0%

Notes:

^a the locations referred to in Table 6 are shown in Appendix 1 and Appendix 5.

^b Unless a more appropriate criterion is established by the structural engineer's findings in condition B72 and agreed to by the Planning Secretary.

Schedule 2 Condition B18

The blasting criteria in Table 6 do not apply if the Applicant has an agreement with owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Section 2

Blasting Hours

Schedule 2 Condition B19

The Applicant must only carry out blasting on the site between 9 am and 5 pm (Monday to Sunday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.

Section 2

Blasting Frequency

Schedule 2 Condition B20

The Applicant may carry out a maximum of:

- 1 single blast event^a a day; and
- 5 single blast events^a a week, averaged over a calendar year.

Section 2

Schedule 2 Condition B21

Condition B20 does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.

Note:

^a Within conditions B20 and B21, a 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.

Section 2

Property Inspections

Approval condition		Relevant section of this Blast MP
Schedule 2 Condition B22		
If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of any approved open cut mining pit on the site for a property inspection to establish the baseline condition of any buildings and structures on their land, or to have a previous property inspection updated, then within two months of receiving this request the Applicant must:		
a.	Commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to:	
(i.)	Establish the baseline condition of any buildings and other structures on the land, or update the previous property inspection report; and	
(ii.)	Identify measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and structures; and	
b.	Give landowner a copy of the new or updated property inspection report.	
Property Investigations		
Schedule 2 Condition B24		
If the owner of any privately-owned land within 2 kilometres of any approved open cut mining pit on the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within two months of receiving this written claim the Applicant must:		
a.	commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and	
b.	give the landowner a copy of the property investigation report.	
Blasting Operating Conditions		
Schedule 2 Condition B27		
The Applicant must:		
a.	take all reasonable steps to:	
(i)	ensure the safety of people and livestock from blasting impacts of the development;	Section 5
(ii)	protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and	
(iii)	minimise the dust and fume emissions of any blasting;	
b.	ensure that blasting on the site does not damage heritage items ^a , including Aboriginal grinding groove site 20-04-0009 and the Kurrumbede Homestead and outbuildings, except in accordance with the predictions in the document/s listed in condition A2(c), and develop specific measures to protect heritage items outside the approved disturbance areas from any blasting damage associated with the development;	Section 5 and 6
c.	operate a comprehensive blast management system that uses a combination of meteorological forecasts and predictive blast modelling to guide the planning of blasts to minimise blasting impacts;	Section 6 and 8
d.	minimise the frequency and duration of any public road closures for blasting, and use all reasonable efforts to avoid road closures during peak traffic periods;	Section 5
e.	operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and any associated public road closures, including notification via SMS message of the blasting schedule and associated road closures for that day and any variations to that schedule and closures;	Section 5
f.	use all reasonable efforts to co-ordinate the timing of blasting at the site with nearby mines to minimise cumulative blasting impacts; and	Section 5
g.	carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.	Section 5 and 6
Note: ^a The locations of the heritage items referred to in paragraph (b) are shown in Appendix 5.		-
Schedule 2 Condition B28		
The Applicant must not undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the blast generates ground vibration of 0.5 mm/s or less, or the Applicant has:		Section 5
a.	a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement; or	Section 5
b.	demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.	Section 5

Approval condition	Relevant section of this Blast MP
Blast Management Plan	
Schedule 2 Condition B29	
The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	This document
a. be prepared by a suitably qualified and experienced person/s;	Section 5 and 12
b. be prepared in consultation with the EPA;	Section 3
c. be submitted to the Planning Secretary for approval prior to carrying out any blasting operations on site under this consent;	Section 1
d. describe the blast management system and the measures that will be implemented to ensure compliance with the blasting criteria and conditions of this consent;	Section 5 and 6
e. include a Blast Fume Management Strategy for:	Sections 5, 6.2, 9 and 10.1.1
(i.) minimising blast fume emissions;	
(ii.) rating and recording blast fume events in accordance with Visual Nox Fume Rating Scale (AEISG, 2011) or equivalent monitoring technique; and	
(iii.) reporting significant blast fume events to the Department and the EPA;	
f. include a Road Closure Management Plan for any blasting within 500 m of a public road, that has been prepared in consultation with GSC and NSC and includes provisions for:	Section 5.3
(i) minimising the duration of closures, both on a per event basis and weekly basis;	
(ii) avoiding peak traffic periods as far as reasonable; and	
(iii) co-ordinating closures with nearby mines to minimise the cumulative effect of road closures.	
g. identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant); and	Section 2
h. include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent.	Section 6, 9 and 10
Schedule 2 Condition B30	
The Applicant must implement the Blast Management Plan as approved by the Planning Secretary.	This Plan
Historic Heritage	
Schedule 2 Condition B72	
Prior to commencing blasting operations on the site, the Applicant must commission a suitably qualified structural engineer to inspect the condition of the main residence at the Kurrumbede Homestead Complex and outbuildings to confirm measures to minimise damage due to blasting, advise appropriate blasting criteria and recommend works to protect the structural integrity of the homestead.	Section 2, Section 6

Table A-2 Project approval general requirements

Approval condition	Relevant Section of this Waste MP
Hours of Operation	
Schedule 2 Condition A16	
The Applicant may undertake the development 24 hours a day, 7 days a week, except for:	
a. transport operations as described in condition A15;	-
b. blasting operations as described in condition B19; and	Section 2
c. construction hours as described in condition C1.	-
Management Plan Requirements	
Schedule 2 Condition E4	
Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant:	Entire Document
a. summary of relevant background or baseline data;	Section 1.2
b. details of:	

(i)	the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2
(ii)	any relevant limits or performance measures and criteria; and	Section 2
(iii)	the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 2
c.	any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 5 and 6
d.	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 5 and 6
e.	a program to monitor and report on the:	
(i)	impacts and environmental performance of the development; and	Section 6
(ii)	effectiveness of the management measures set out pursuant to paragraph (d);	
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;	Section 9.1
g.	a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 10
h.	a protocol for managing and reporting any:	
(i)	incident, non-compliance or exceedance of any impact assessment criterion or performance measure;	Section 9.1
(ii)	complaint; or	Section 9.4
(iii)	failure to comply with other statutory requirements;	Section 9.2
i.	public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 10
j.	a protocol for periodic review of the plan.	Section 10.2
Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.		

14. Appendix 2 Blast fume rating system

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

Source: AEISG, 2011

Assessing the amount of NO_x gases produced from a blast will depend on the distance the observer is from the blast and the prevailing

weather conditions. The intensity of the NOx gases produced in a blast should be measured on a simple scale from 0 to 5 based on the table above. The extent of the NOx gases also needs to be assessed, and this should be done on a simple scale from A to C where:

A = Localised (i.e. NOx gases localised across only a few blast holes)

B = Medium (i.e. NOx gases from up to 50% of blast holes in the shot)

C = Extensive (i.e. extensive generation of NOx gases across the whole blast).

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

Source: AEISG, 2011

Tony Dwyer
Group Manager – Approvals and Biodiversity
Vickery Coal Pty Ltd
28/259 George Street
Sydney, NSW, 2000

03/11/2025

Vickery Coal 2 – Blast Management Plan

Dear Mr. Dwyer

Thank you for submitting the Blast Management Plan in accordance with Condition B29, Schedule 2 of the consent for the Vickery Coal 2 (SSD-7480). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Blast Management Plan has been prepared in consultation with the EPA; and contains the information required by the conditions of approval.

Accordingly, as nominee of the Planning Secretary, I approve the revised Blast Management Plan (Rev. 2.3, September 2025).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 02 99955944.

Yours sincerely

A handwritten signature in black ink, appearing to be "S O'Donoghue".

Stephen O'Donoghue
Director
Resource Assessments

As nominee of the Planning Secretary