

BLAST MANAGEMENT PLAN

HERA MINE AND
FEDERATION MINE

15/05/2025



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Appendix A – Landowner Agreement

Version	Date	Description	Author
V1.0	08/12/2023	For DPE Submission	Mueller Acoustic Consulting and IEMA
V1.1	15/05/2025	Updates to reflect changes from consent Modification 2	IEMA and Aurelia Metals

1. INTRODUCTION

1.1. Background

Hera Resources Pty Ltd (Hera Resources), a wholly owned subsidiary of Aurelia Metals Limited (Aurelia), owns and maintains Hera Mine, an underground metalliferous mine, approximately 100km southeast of Cobar and 4km south of Nymagee in the central west of New South Wales (NSW). Hera Resources operated Hera Mine from 2014 until it entered care and maintenance in early 2023.

Hera Mine is a State Significant Development (SSD) and commenced operations in 2012 under the former *Environmental Planning and Assessment Act 1979* (EP&A Act) Part 3A Major Project Approval development consent MP10_0191, which has been modified six times.

The Federation Project (the Project) is an underground metalliferous mine located in central-western NSW, approximately 15 kilometres (km) south of the Nymagee township and 10km south of Hera Mine. High grade mineral deposits were discovered at the Federation Mine site in 2019 with subsequent drilling operations identifying a substantial gold-lead-zinc-copper-silver mineral resource.

Following the mineral discovery, an Exploration Decline Program was approved for a bulk sample and supporting infrastructure at the Federation Site in August 2021 by the Resources Regulator under Part 5 of the EP&A Act and section 23A(4) of the *Mining Act 1992*.

Development consent ('the consent') for the Project (SSD 24319456) was granted on 2 March 2023 and has since been modified twice. Modification 1 was approved on 27 November 2023 regarding changes to biodiversity offset staging.

Modification 2 was approved on 27 March 2025 to allow options for:

- haulage between 7am and 10pm of up to 600ktpa of ore to Peak Gold Mine (PMG) for processing, throughout the life of mine;
- reclaim of tailings from the existing Hera Mine Tailings Storage Facility (TSF) for paste backfill at Federation Mine; and
- minor rearrangement of infrastructure at Federation Mine within the approved disturbance area, inclusive of new water tank.

The consent required that 'within 12 months of the date of physical commencement of development under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must surrender development consent MP10_0191 for the Hera Gold Mine. The Hera Gold Mine consent was surrendered on 17 March 2025. The Project's consent includes the amalgamation of Hera Mine's development consent conditions with the consent conditions for the Project into a single consolidated consent for both Hera Mine and Federation Mine as well as connecting infrastructure, herein referred to as the Site. Within the Site, the consent authorises activities within the 'approved disturbance area'.

Key infrastructure approved via the consent for the Site is outlined in **Table 1**.

Table 1: Key Site Infrastructure

Project Element	Description
Mining Method	Underground mining via longitudinal retreat long hole stoping method.
Management of Waste Rock	During operations, waste rock is stored on designated pads or utilised for backfilling underground stopes. Post mining, potentially acid forming waste rock will be returned underground, and non-acid forming waste rock will be returned underground, used for backfilling the box cut or used for other rehabilitation purposes.
Processing Plant	<p>The existing processing plant includes a Run of Mine (RoM) pad, Waste Rock Emplacement (WRE), crushing, grinding and screening operations, gravity separation, and flotation circuits capable of processing up to 505 ktpa of ore.</p> <p>The new processing plant is anticipated to be commissioned early to mid-2024 at Hera Mine capable of processing 750 ktpa of ore once at full operational capacity. Key elements of the proposed processing plant include:</p> <ul style="list-style-type: none"> • Three stages of crushing followed by ball milling with hydrocyclone classification; • Gravity separation to recover gold from the milling circuit recirculating load, followed by cyanide leaching of the gravity concentrate; • Sequential flotation to produce separate copper, lead and zinc concentrates; and • Concentrate thickening and filtration. <p>Tailings thickening and filtration, and disposal by both underground paste backfill at Federation Site and surface storage in the approved Hera Mine TSF.</p>
Management of Tailings	<p>Tailings will be either placed into the approved Tailings Storage Facility at Hera Mine or returned to Federation Mine for placement underground as paste backfill.</p> <p>The preferred backfill method at Federation Mine is cemented paste fill using tailings. The tailings paste plant will be located adjacent to the stoping footprint to allow gravity reticulation of tailings paste fill down dedicated boreholes and laterally through an underground paste distribution system.</p> <p>The shotcrete batch plant will be co-located with the tailings paste fill plant. This plant will provide an ongoing supply of shotcrete for ground support requirements underground and concrete for miscellaneous construction works.</p>
Power Generation	<p>The preferred option for power generation at Federation Mine will be by a gas plant at Hera Mine with power transferred by overhead powerlines. A proposed solar farm to be constructed at Hera Mine will offset gas requirements. An option for a solar farm and gas generators at Federation Mine is also being considered if separate power generation is the preferred option in which case transmission lines will not be required.</p> <p>The Federation Mine will initially be powered by diesel generators while new power generation capacity is constructed.</p>
General Infrastructure	Internal roads, ablutions block, administration buildings, workshop and stores, sewage treatment and treated effluent irrigation, diesel storage tanks, potable water treatment, waste rock storage, underground vents, substation, paste plant, laydown area, topsoil stockpiles, ROM pad, box cut, magazines, haul roads, telecommunications tower, surface extraction areas, ventilation rises, access roads, heavy vehicle corridors, overhead transmission lines and concentrate stores.
Transport	Ore will be transported from Federation Mine to Hera Mine via Burthong Road and to Peak Mine via Priory Tank Road and Kidman Way. Tailings will be transported from Hera Mine to Federation Mine via Burthong Road. Concentrate will be transported via road from Hera Mine to Hermidale Siding with an average of approximately 12 vehicle trips per day at the peak of concentrate transport. At the peak of mining, concentrate, ore, and tailings transport is estimated to be an average of 61 vehicle trips (one-way movements) per day.
Water Management	<p>The processing plants generate the majority of Site's water demand. Water will primarily be sourced from underground workings and pumped to the surface. A network of production bores will also be established which will supplement the existing production bores.</p> <p>The maximum groundwater extraction forecast by the site water balance model is 530 megalitres per year (ML/year), which is within the existing licenced volume of 543 ML/year.</p>

Hera Mine

The water management system at the Hera Site includes the diversion of clean water runoff around upslope areas of the site, the collection of water from disturbed areas and the discharge of water to Box Creek. The key elements of the Hera water management system include:

- Clean water runoff from undisturbed catchment areas within and upslope of the site. These flows may be diverted and discharged off site without treatment or licensing;
- The dirty water management system which consists of a series of dirty water drains. Sediment Basin 1 and Sediment Basin 2 were used as dirty water storages during construction and have since been combined into a larger contaminated water storage which collects runoff from the processing plant area; and
- Raw water system supplied from production bores around the site. The production bores transfer water to the Back Tank (located beside Back Dam). Water from the Back Tank is transferred to the Feed Water Tank. The House Dam receives surface water from the clean water catchment and the House Bore (production bore).

Federation Mine

A water management system will be implemented at the Federation Mine. Key elements include the diversion of clean water runoff around the mine, and the collection of water from disturbed areas and the underground. Dirty (sediment) water is captured in catch drains and collected in the sediment basin within the footprint of the Stormwater Retention Pond. Runoff from the PAF pads will drain to lined leach ponds. Runoff from the box cut will report down the decline and be dewatered as part of the underground dewatering system to the Dewater Pond. Water contained in the lined leach ponds, Stormwater Retention Pond and Dewater Pond will be recirculated for reuse within the Hera Mine water management system by the water pipeline between Federation Mine and Hera Mine.

Services Corridor	Linear infrastructure in the 23 m wide, 14.3 km long services corridor (see Figure 2) includes:
	<ul style="list-style-type: none"> • Electricity transmission lines (if required); • Water pipeline; • Access track; • Tailings pipeline and return water line (potentially); and • Communication infrastructure (potentially).

Ore from Federation Mine will be trucked to the Peak Mine during the first four years of operations. Federation Mine is expected to produce up to 6.95 million tonnes of ore over a 12 to 14 year period.

The regional locality of the Site is shown in **Figure 1** and a general site layout is in **Figure 2**. Detailed site layouts of Hera Mine and Federation Mine are shown in **Figure 3** and **Figure 4** respectively.

1.2. Purpose and Scope

This Blast Management Plan (BMP) has been prepared in accordance with Condition B18 of SSD 24319456 and manage the blast impacts of Site.

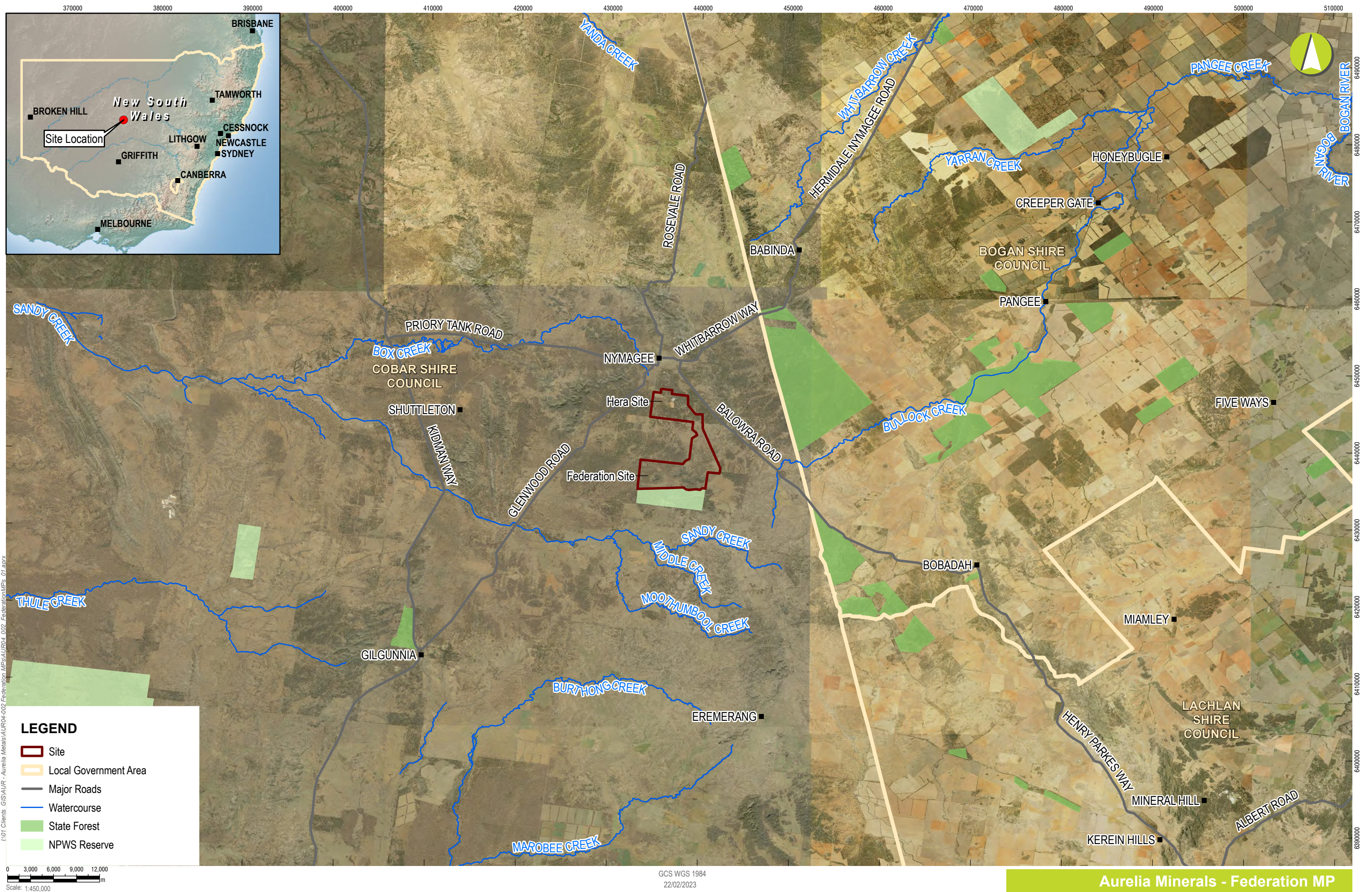
The scope of this BMP applies to all employees, contractors and visitors involved in blasting activities at the Site (**Figure 2**), including the Hera Mine and Federation Mine.

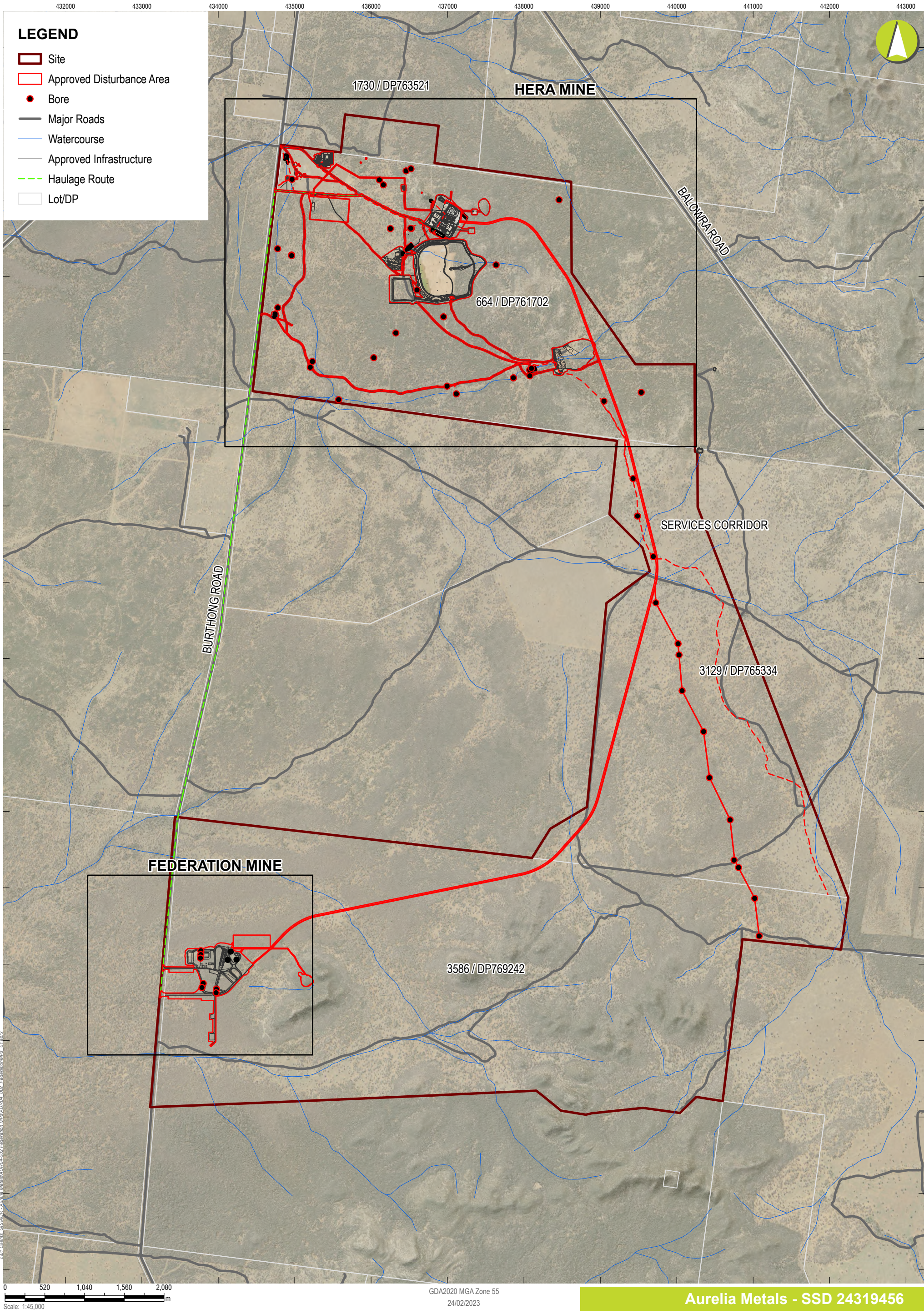
This BMP was prepared to:

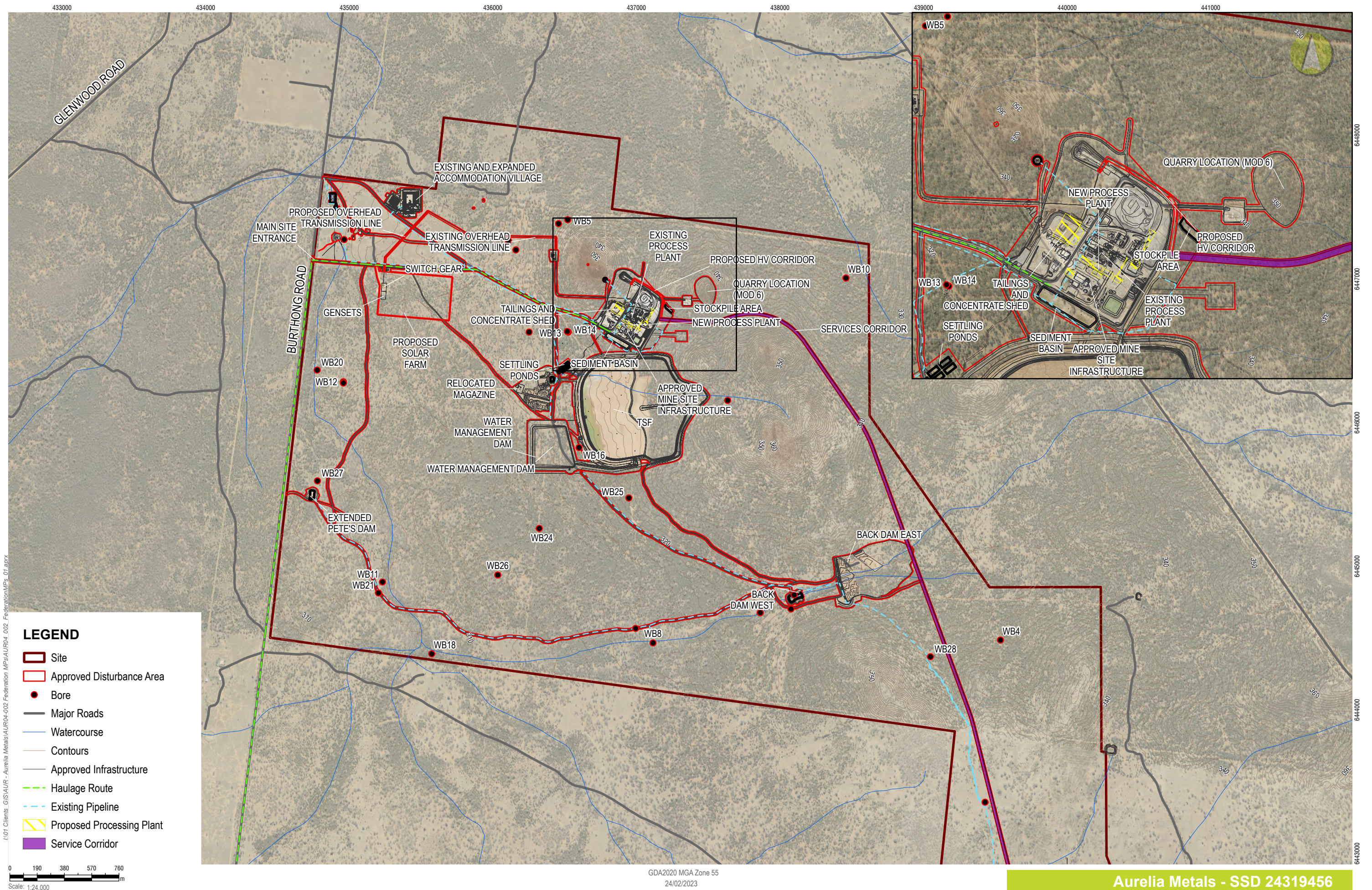
- Provide relevant Hera Resources employees and contractors with a clear and concise description of their responsibilities regarding blasting activities required for the Site
- Describe the blast management system and measures that will be implemented to ensure that blasting emissions from Site operations comply with the relevant conditions of SSD 24319456
- Describe the monitoring program for evaluating and reporting on compliance with the relevant conditions of SSD 24319456
- Describe the protocol for identifying blast-related exceedance, incident or non-compliance and for notifying the Department, EPA and relevant stakeholders of these events
- Describe the review mechanism and contingency measures if blasting causes amenity impacts at levels below the relevant criteria
- Describe the public notification procedures to enable members of the public to get up-to-date information on the proposed blasting schedule, and
- Describe the protocol for investigating and responding to blast-related complaints.

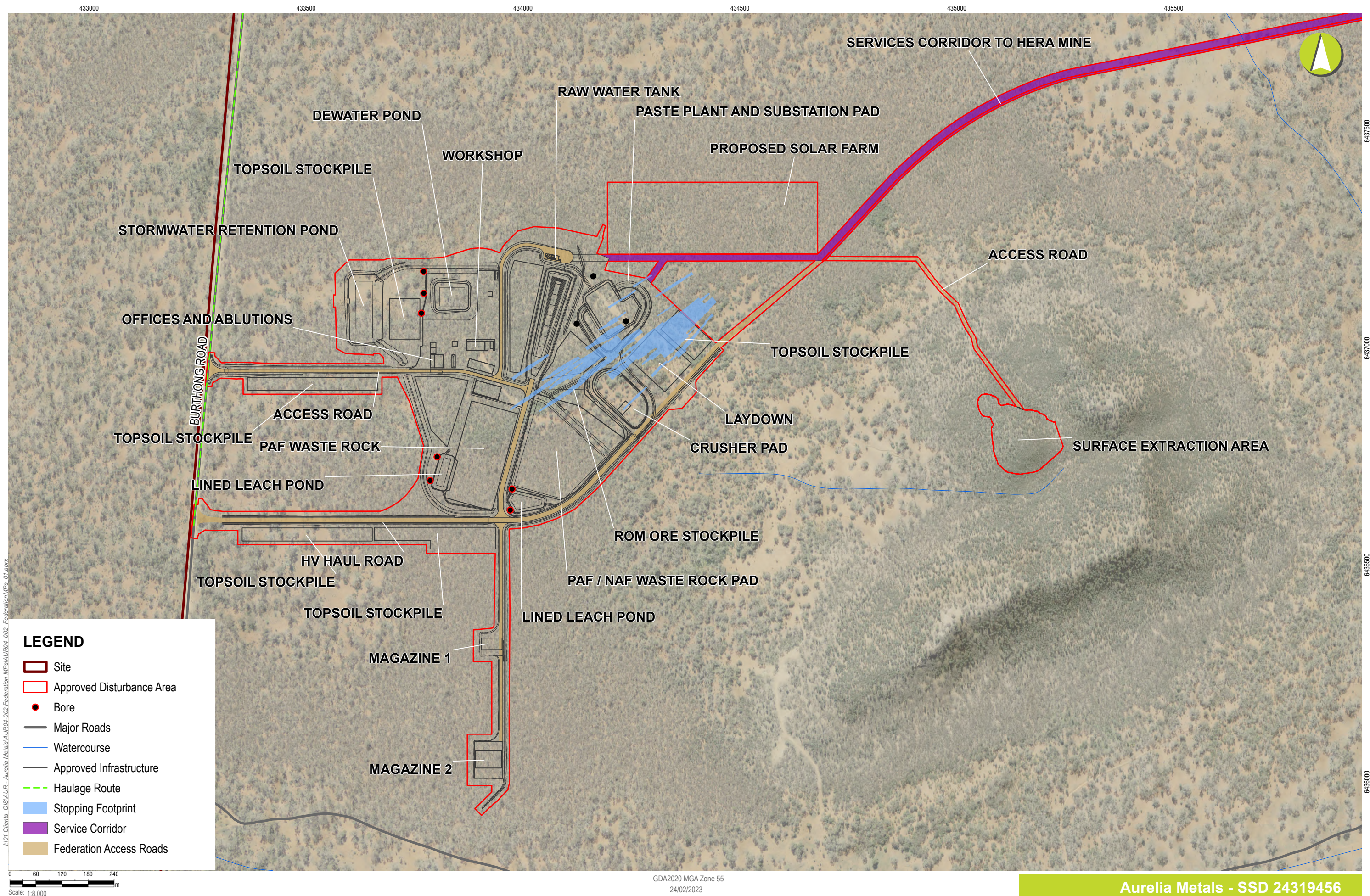
It is noted that EPL 20179 is currently applicable to Hera Mine only. A variation has been submitted to include the Federation Mine but has not yet been approved, this BMP will be updated as required should the EPL 20179 be approved.

As required by Condition B19 of SSD 24319456, Hera Resources will not commence construction until a copy of the BMP has been provided to the Planning Secretary. Hera Resources will implement the BMP as per the requirements of Condition B20 of SSD 24319456.









2. LEGAL AND OTHER REQUIREMENTS

2.1. SSD 24319456

SSD 24319456 stipulates the required criteria that the construction and operational activities of Site must comply with and sets out the core requirements of this BMP. Relevant conditions associated with this approval and where they have been addressed in this document are reproduced in **Table 2**.

Table 2: Relevant 24319456 Conditions

Condition No.	Condition	Where Addressed											
BLASTING													
Blast Criteria													
B11	The Applicant must ensure that blasting on the Site does not cause exceedances of the criteria in Table 2 . Table 2: Vibration Criteria	Section 4.2											
	<table><tr><th>Location</th><th>Airblast Overpressure (dB Linear Peak)</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Residence on privately-owned land *</td><td>120</td><td>10</td><td>0%</td></tr><tr><td>115</td><td>5</td><td>5% of the total number of blasts over a financial year</td></tr></table>		Location	Airblast Overpressure (dB Linear 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 financial year
	Location		Airblast Overpressure (dB Linear 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 financial year								
<i>*Or other sensitive receiver location (e.g. a school or hospital)</i>													
B12	The blasting criteria in Table 2 do not apply to a residence if the Applicant has an agreement with the owner/s of that residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.	Section 4.2											
B13	The Applicant may carry out a maximum of: (a) 3 blasts per 24-hour period; and	Section 4.2											
	(b) 20 blasts per week.	Section 4.2											
B14	Condition B13 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. Notes: <ul style="list-style-type: none">For the purpose of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.Should an additional blast be required after a blast misfire, the additional blast and the blast misfire are counted as a single blast	Section 4.2											
	Blasting Hours												
	B15		The Applicant must only carry out above ground blasting between 9:00am and 5:00pm Monday to Saturday, inclusive. No above ground blasting is allowed on Sundays, public holidays or at any other time without the written approval of the Secretary.	Section 4.2									
B16	Underground blasting may be undertaken at any time, subject to compliance with the conditions of this consent.	Section 4.2											
Blast Operating Conditions													
B17	The Applicant must: a) take all reasonable steps to: <ul style="list-style-type: none">Protect the safety of people and livestock in the areas surrounding blasting operations; andProtect public or private infrastructure and property in the surrounding area from damage from blasting operations;	Section 4											

Condition No.	Condition	Where Addressed
	(b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site; and	Section 4.1
	(c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent.	Section 5.3
Blast Management Plan		
	The Applicant must prepare a Blast Management Plan for the development. This plan must:	Document Control
	(a) Be prepared by a suitably qualified and experienced person/s;	
	(b) 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 4
	(c) Include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent;	Section 5
B18	(d) Include a protocol for identifying any blast-related exceedance, incident or non-compliance and for notifying the Department, the EPA and relevant stakeholders of these events;	Section 7.1
	(e) Includes a review mechanism and contingency measures if blasting causes amenity impacts at levels below the relevant criteria;	Section 6 Section 11
	(f) Include public notification procedures to enable members of the public, particularly surrounding residents, to get up-to-date information on the proposed blasting schedule; and	Section 4.1
	(g) Include a protocol for investigating and responding to blast-related complaints.	Section 7.2
B19	The Applicant must not commence construction until the Blast Management Plan has been prepared and a copy has been provided to the Planning Secretary.	Section 4.2
B20	The Applicant must implement the Blast Management Plan.	Section 4.2
Management Plan Requirements		
	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant:	Section 3
	(a) Summary of relevant background or baseline data;	
	(b) Details of:	
	(i) The relevant statutory requirements (including any relevant approval, licence or lease conditions);	
	(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;	
	(c) Any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 4
	(d) A description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4
	(e) A program to monitor and report on the:	
	(i) Impacts and environmental performance of the development; and	Section 5.3
	(ii) Effectiveness of the management measures set out pursuant to paragraph (d);	Section 11
C5	(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 6
	(g) A program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
	(h) A protocol for managing and reporting any:	
	(i) Incident, non-compliance or exceedance of any impact assessment criterion or performance measure;	Section 7 Section 8
	(ii) Complaint; or	
	(iii) Failure to comply with other statutory requirements;	
	j) A protocol for periodic review of the plan.	Section 11
	Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	

2.2. Environment Protection Licence

Relevant conditions of EPL 20179 to this BMP and where they are addressed in this plan are provided in **Table 3**. These conditions are subject to change pending the approval of EPL 20179 variation.

Table 3: Relevant EPL Conditions

Condition No.	Condition	Where Addressed															
BLAST																	
L5 Blasting	<p>Note: Blasting condition L5.1 applies to all receiver locations</p> <p>Blasting overpressure and ground vibration.</p> <p>The proponent must ensure that the blasting on site does not cause exceedances of the criteria in the following table;</p> <table><tr><th>Location</th><th>Time of Blasting</th><th>Airblast Overpressure dB(Lin Peak)</th><th>Ground Vibration mm/s</th><th>Allowable exceedance</th></tr><tr><td>Any residence on privately owned land</td><td>Any time</td><td>120</td><td>10</td><td>Nil</td></tr><tr><td>Any residence on privately owned land</td><td>Any time</td><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr></table>	Location	Time of Blasting	Airblast Overpressure dB(Lin Peak)	Ground Vibration mm/s	Allowable exceedance	Any residence on privately owned land	Any time	120	10	Nil	Any residence on privately owned land	Any time	115	5	5% of the total number of blasts over a period of 12 months	
Location	Time of Blasting	Airblast Overpressure dB(Lin Peak)	Ground Vibration mm/s	Allowable exceedance													
Any residence on privately owned land	Any time	120	10	Nil													
Any residence on privately owned land	Any time	115	5	5% of the total number of blasts over a period of 12 months													
L5.1	<p>Note: a) Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.</p> <p>b) All blasts are to be designed by a suitably qualified /experienced blasting engineer</p>	Section 4															
L5.2	<p>Surface Blasting operations at the premises may only take place between 9:00am - 5:00pm Monday to Saturday. Surface Blasting is not permitted on Sundays or public holidays.</p> <p>Surface Blasting outside the hours specified can only take place with the written approval of the Environment Protection Authority.</p> <p>Underground Blasting may be undertaken at any time subject to Condition L5.1.</p>	Section 4.2															
L5.3	<p>A breach of the licence will still occur where airblast overpressure or ground vibration levels from the blasting operations at the premises exceeds the limit specified in Condition L5.1 at any "noise sensitive locations" other than the locations identified in the above conditions.</p>	Section 7.1															
L5.4	<p>The Proponent may exceed the limits in Condition L5.1 if it has a written negotiated blasting agreement with any landowner for higher blasting overpressure and vibration limits, and a copy of the agreement has been forwarded to the EPA.</p>	Section 4.2															
L5.5	<p>Airblast overpressure or ground vibration as a result of blasting at the premises must not exceed levels that cause cosmetic or other damage, and in relation to Condition L5.5 [sic] only if specifically allowed for in the written agreement between the proponent and the landholder.</p>	Section 4															

2.3. Dams Safety Act

Site has onsite tailings storage facilities which are prescribed dams under the requirements of the NSW *Dams Safety Act 1978*. Blast monitoring is undertaken and reported to the NSW Dams Safety Committee (DSC) as per the conditions administered by the DSC.

2.4. Consultation

This management plan does not require consultation. A copy will be provided to DPE prior to the commencement of construction in accordance with Condition B19.

3. BASELINE ENVIRONMENT

Blasting operations have been a regular occurrence at Hera Mine since its commencement. A review of Annual Reviews demonstrates that up to 868 blasts have occurred per year, with no recorded exceedances of the blasting criteria.

Blast monitoring undertaken at the nearest neighbour's property (R3) identifies airblast overpressure levels ranging from 71 dBZ to 112.8 dBZ, and ground vibration levels from 0.01 mm/s to 3.23 mm/s.

4. MANAGEMENT MEASURES

4.1. Existing Management Measures

A summary of blast management measures existing at Hera Mine are outlined in **Table 4**: This describes measures currently authorised under Hera Mine's development consent MP10_0191. In accordance with Condition A8 of the consent (SSD 24319456) upon the physical commencement of development under the consent and before the surrender of MP10_0191, the conditions of the consent prevail to the extent of any inconsistency with the conditions of MP10_0191. Therefore, any reference to compliance with MP10_0191 in **Table 4** only applies to the activities at Hera Mine prior to the commencement of development at Federation Mine and, after Federation Mine commences, only to the extent it is consistent with the consent.

Table 4: Existing Blast Management Measures

Source	Control Procedure	Person Responsible
Operational Controls	<ul style="list-style-type: none"> Meteorological assessments will be undertaken prior to surface blasting to assess if weather conditions are conducive to blasting operations. Where meteorological conditions are unfavourable, the shot-firer will liaise with the appropriate senior official to determine whether to delay or postpone the surface blast. A review of the blasting procedures from Federation Mine and Hera Mine will be undertaken at least quarterly to optimise future blast designs. Daily notifications will be issued to confirm operation of the blast monitors. Blasting operations will be coordinated between the Hera Mine and Federation Mine sites. 	Blasting Engineer / Shotfirer / Environment Team
Blasting Design	<ul style="list-style-type: none"> All blasts will be designed by a suitably qualified and experienced blasting engineer or shot-firer to ensure that each is designed in accordance with the ANZECC Blasting Guidelines (1990) to achieve the relevant criteria. The following parameters will be considered to reduce overpressure and ground vibration: <ul style="list-style-type: none"> Amount of explosives Direction of initiation Consideration of ambient weather conditions including consideration of cloud cover and inversions Relief (amount of confinement) Ground type (weathered of competent), and Initiation delay timing. Blasting procedures have been developed, based on collected blast monitoring data, in accordance with industry practice. All blasts will be designed to ensure that the blast criteria identified in the Approvals are complied with. Adequate quality stemming and adequate stemming lengths will be used to ensure maximum confinement of the explosives. 	Blasting Engineer / Shotfirer

Source	Control Procedure	Person Responsible																							
	<ul style="list-style-type: none">Blasting criteria for Hera Mine are set out in Schedule 3, Condition 4 of MP10_0191. These criteria are reproduced in Table 5.																								
	Table 5: PA10_0191 Blast Criteria																								
Blasting Criteria	<table><tr><th>Location</th><th>Time Period</th><th>Airblast Overpressure (dB Linear Peak)</th><th>Ground Vibration (mm/s)</th><th>Allowable Exceedance</th></tr><tr><td></td><td>Any time</td><td>120</td><td>10</td><td>0%</td></tr><tr><td rowspan="3">Residence on privately-owned land</td><td>Day</td><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>Evening</td><td>-</td><td>2</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>Night</td><td>-</td><td>1</td><td>0%</td></tr></table>	Location	Time Period	Airblast Overpressure (dB Linear Peak)	Ground Vibration (mm/s)	Allowable Exceedance		Any time	120	10	0%	Residence on privately-owned land	Day	115	5	5% of the total number of blasts over a period of 12 months	Evening	-	2	5% of the total number of blasts over a period of 12 months	Night	-	1	0%	General Manager / Environment Team
Location	Time Period	Airblast Overpressure (dB Linear Peak)	Ground Vibration (mm/s)	Allowable Exceedance																					
	Any time	120	10	0%																					
Residence on privately-owned land	Day	115	5	5% of the total number of blasts over a period of 12 months																					
	Evening	-	2	5% of the total number of blasts over a period of 12 months																					
	Night	-	1	0%																					
Blasting Hours	<ul style="list-style-type: none">All surface blasting operations will be undertaken during the hours identified in the Condition B15 of the consent (see Table 2).Underground blasting may be undertaken at any time accordance with Condition B16.	General Manager / Blasting Engineer / Shotfirer																							
Blasting Frequency	<ul style="list-style-type: none">Above ground blasting operations will not exceed three blasts per day, unless an additional blast is required following a blast misfire, with no more than five blasts per week, averaged over a calendar year.Blasts will only be undertaken outside these frequency parameters if it is required to ensure the safety of the site or its workers.More frequent blasts may be undertaken where ground vibration at any residence on privately-owned land is 0.5mm/s or less.	General Manager / Blasting Engineer / Shotfirer																							
Safety	<ul style="list-style-type: none">Appropriate signage and notification will be provided.All blasts will be designed by a suitably qualified and experienced person/s to minimise the potential for fly-rock.Appropriate blast exclusion zones will be established for equipment, personnel, contractors and neighbouring properties.Confirm blast sentries are in position to exclude all non-authorised persons from entering the blast exclusion zone.Blast fume or unusual level of flyrock generated with the potential to cause a safety risk will be noted for each blast. This information will be used to continually re-assess the adequacy of blast design controls and the size of the safety exclusion zone for people and livestock in the vicinity of the blast.	General Manager / Blasting Engineer / Shotfirer																							
Property Inspection	<ul style="list-style-type: none">If surrounding landowners believe that onsite blasting operations are causing damage to their property, Hera Resources will offer to provide an inspection by an independent, suitably qualified and experienced expert. This will be conducted at Hera Resource’s expense and the final report will be provided to the landowner.	General Manager / Environment Team																							
Dust and Fumes	<ul style="list-style-type: none">To minimise dust and fumes caused by surface blasting, the following procedures will be implemented:<ul style="list-style-type: none">Avoid surface blasting in strong wind conditionsMinimise time between drilling and loading to reduce blast hole deterioration, andMinimise moisture content within blast holes to reduce potential fumes.	Blasting Engineer / Shotfirer																							
Public Information for Blasting Operations	<ul style="list-style-type: none">Measures to ensure the public has up to date information regarding Site blasting include:<ul style="list-style-type: none">Following the blasting schedule to fire only from 9:00am to 5:00pm Monday to Saturday. No above ground blasting is allowed on Sundays, public holidays or at any other time without the written approval of the SecretaryProviding a planned blasting schedule on Aurelia Metals website and in monthly reports	General Manager / Environment Team																							

Source	Control Procedure	Person Responsible
	<ul style="list-style-type: none">• Contacting the nearest property owners and local police (02 6870 2330) prior to any surface blast and advised of the day and approximate time the blast will occur, and• Both surface and underground blast monitoring results will be made available to the public via the Aurelia Metals website monthly reports.	

4.2. Additional Management Measures

Additional management measures have been introduced to mitigate blast impacts for Site, these are described in **Table 5**. These management measures apply to the whole Site from the commencement of development of the Federation Mine.

Table 5: Additional Management Measures

Source	Control Procedure	Person Responsible
General	<ul style="list-style-type: none"> Construction must not be commenced until the BMP has been prepared and a copy has been provided to the Planning Secretary. Site must implement this BMP. 	Environment Team
Blasting Design	<ul style="list-style-type: none"> Detailed design is undertaken for each blast to maximise the blast efficiency, minimise dust, fumes, ground vibration, airblast overpressure and the potential for flyrock, and to achieve compliance with blasting criteria. The Project will employ three classes of blasting. The maximum instantaneous charge (MIC) for each class of blasting will be: <ul style="list-style-type: none"> Development blasting – MIC = approximately 122 kg; Surface blasting – MIC = approximately 50 kg; and Underground blasting – MIC = approximately 450 kg. Adequate quality stemming and adequate stemming lengths will be used to ensure maximum confinement of the explosives. 	Blasting Engineer / Shotfirer
Operational Controls	<ul style="list-style-type: none"> Detailed monitoring of all initial blasts will be undertaken at Federation Mine to continually improve blasting procedures where possible. Blasting operations will be coordinated between the Hera Mine and Federation Mine sites. 	Blasting Engineer / Shotfirer / Environment Team
	<ul style="list-style-type: none"> Condition B11 of SSD 24319456 provides the blasting criteria for Site, reproduced in Table 6. 	

Table 6: Blasting Criteria from Table 2 of SSD 24319456

	Location	Airblast Overpressure (dB Linear Peak)	Ground Vibration (mm/s)	Allowable Exceedance	
		120	10	0%	
Blasting Criteria	Residence on privately-owned land	115	5	5% of the total number of blasts over a financial year	General Manager / Environment Team
	<ul style="list-style-type: none"> In accordance with Condition B12 of SSD 24319456 the blasting criteria in Table 6: Blasting Criteria from Table 2 of SSD 24319456 do not apply to a residence if an agreement is in place with the owner/s of that residence or infrastructure to exceed the blasting criteria, and the Department has been notified in writing of the terms of the agreement. Hera Resources has an agreement with the R3 landowner dated 2 September 2020 (see Appendix A). Hence, the blast criteria do not apply at R3. 				
Blast Hours	<ul style="list-style-type: none"> Blasting will only be carried out above ground between 9:00am and 5:00pm Monday to Saturday, inclusive. No above ground blasting will occur on Sundays, public holidays or at any other time without the written approval of the Secretary. Underground blasting may be undertaken at any time, subject to compliance with the conditions of SSD 24319456 and EPL 20179. 				General Manager / Blasting Engineer / Shotfirer / Environment Team
Blasting Frequency	<ul style="list-style-type: none"> Federation Mine may carry out a maximum of: <ul style="list-style-type: none"> 3 blasts per 24-hour period, and 20 blasts per week. 				General Manager / Blasting Engineer / Shotfirer / Environment Team

.Source	Control Procedure	Person Responsible
	<ul style="list-style-type: none">▪ The maximum number of blasts do 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.	

5. BLAST MONITORING PROGRAM

Blast monitoring will be undertaken for each blast to determine compliance with the SSD 24319456 and EPL 20179 criteria. The monitoring will be done by an independent, suitably qualified and experienced expert.

5.1. Monitoring Standards

Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006 *Explosives – Storage and use – Use of explosives*.

Meteorological monitoring is undertaken in accordance with the *Approved methods for sampling and analysis of air pollutants in NSW* (EPA 2022) and Australian Standard AS 3580.14:14 *Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications*.

5.2. Meteorological Monitoring

An Automatic Weather Station (AWS) is required at Site in accordance with Condition B29 which states:

Prior to the commencement of construction and for the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that:

- (a) Complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in NSW*
- (b) Is capable of measuring meteorological conditions in accordance with the NSW Noise Policy for Industry (EPA, 2017), unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.*

Meteorological conditions will be recorded using the automatic weather station (AWS) located at the Site (refer **Figure 5**). The Site AWS complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2022).

5.3. Blast Monitoring

5.3.1. SSD 24319456 Compliance

Airblast overpressure and ground vibration monitoring will be undertaken in accordance with the requirements of SSD 24319456 and EPL 20179.

Blast monitoring will be undertaken at the monitoring compound approximately 1.5 km north of the Federation Mine (refer to BM1, **Figure 5**). All monitoring instrumentation and procedures will be undertaken in accordance with AS 2187.2-2006 *Explosives – Storage and use – Use of explosives*.

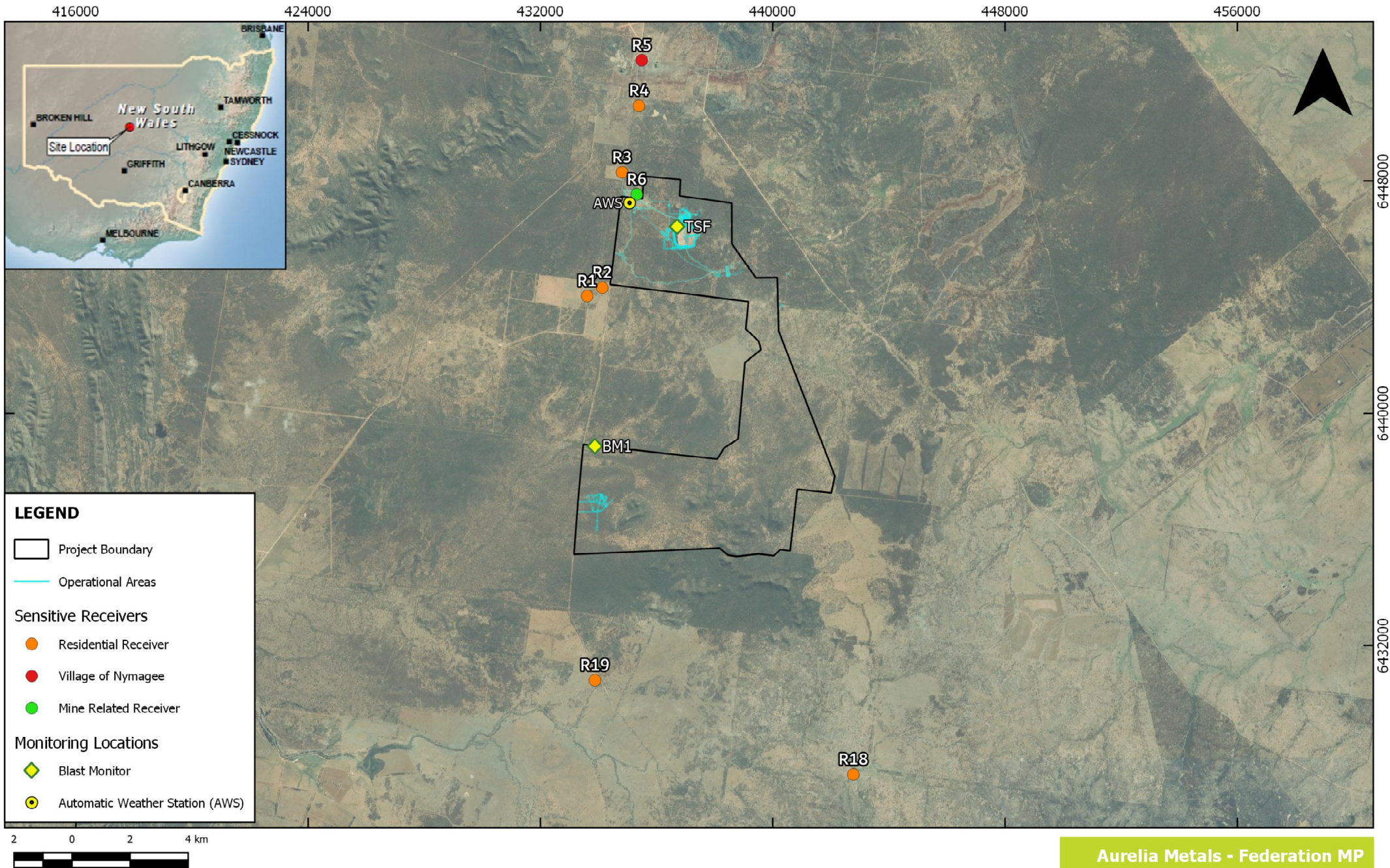
The following information will be recorded as part of the monitoring procedure:

- Location of the blast and monitoring location
- Blast overpressure (dB Lin Peak) for surface blasts and peak particle velocity (ppm) (mm/s) for surface and underground blasts
- The time of the monitoring event
- Meteorological conditions at the time of the event (surface blasts only), and
- Blast parameters (i.e. MIC, blast patterns etc).

If requested by a landowner and/or tenant, blast monitoring will be conducted near to their residence. The blast monitoring results will be supplied to the landowner and/or tenant.

5.3.2. Dams Safety Committee Compliance

A blast monitor is installed adjacent to the TSF (refer **Figure 5**) to monitor blast vibration originating from the Site. Blast monitoring is undertaken using instrumentation and procedures in accordance with AS 2187.2-2006 *Explosives – Storage and use – Use of explosives*.



Monitoring Locations

Figure 5

6. CONTINGENCY PLAN

Unpredicted blast impacts may include:

- Generation of fly rock due to inadequate blast design (i.e. holes spacing, stemming depth and material)
- Dust and fume emissions due to inadequate blast design, explosive type, moisture in blast holes or adverse weather conditions
- Airblast overpressure resulting from inadequate blast design, unconfined blasts, excessive maximum instantaneous charge (MIC) or adverse weather conditions, or
- Damage to structures from ground vibration.

In the event of an unpredicted impact, including incident, complaint, non-compliance or exceedance, from blasting activities, Site will undertake an investigation to determine:

- The approval conditions and/or relevant criteria which the Site is non-compliant with
- The activities and conditions that occurred at the time of the blast impact
- The root cause of the blast impact
- Any contributing factors that led to the blast impact
- Whether appropriate controls were implemented to prevent the blast impact, and
- Recommendations for corrective and/or preventative actions that could be implemented to reduce the likelihood of the blast impact reoccurring.

Further detail regarding the corrective actions to be undertaken by Site in the event of unpredicted blast impacts are described in **Section 6.1**.

6.1. Trigger Action Response Plans

The Trigger Action Response Plan (TARP) defines the minimum set of corrective actions that Federation must implement in response to unpredicted impacts or abnormal conditions (triggers). The trigger levels are determined based on regulatory requirements, previous monitoring and best practice management. The TARP is displayed in **Table 7**.

Table 7: Trigger Action Response Plan

Key Element	Trigger/Response	Condition Green	Condition Orange	Condition Red
Airblast overpressure exceeds the blast criteria	Trigger	Monitoring results within criteria. Airblast overpressure trigger level not exceeded.	<p>Airblast overpressure >115dB (Lin Peak) but <120dB (Lin Peak)</p> <p>AND</p> <p>Airblast overpressure >115dB (Lin Peak) and this level exceeded less than 5% of blasts in current financial year.</p>	<p>Airblast overpressure >120dB (Lin Peak)</p> <p>OR</p> <p>Airblast overpressure >115dB (Lin Peak) and this level exceeded more than 5% of blasts in current financial year.</p>
	Response	No response required.	<p>Review monitoring data to determine if results are blast related or weather related (e.g. wind). If the investigation determines that the airblast overpressure result/s is associated with blasting operations, internally review all blast design parameters and monitoring, determine cause of exceedance and assess potential for remedial actions.</p> <p>Implement remedial actions and continue to monitor and manage all blasting operations closely to ensure ongoing operations do not exceed the relevant blast criteria.</p>	Engage blast expert to review blast design and data and determine cause of exceedance. Implement recommendations of external blast expert and continue to monitor and manage all blasting operations closely to ensure ongoing operations do not exceed the relevant blast criteria.
Ground vibration exceeds the blast criteria	Trigger	Monitoring results within criteria. Ground vibration trigger level not exceeded.	Ground vibration >5mm/s and this level exceeded for less than 5% over financial year	<p>Ground vibration >10mm/s</p> <p>OR</p> <p>Ground vibration >5mm/s and this level exceeded for less than 5% over financial year</p>

Response	No response required.	<ul style="list-style-type: none">• Review blast design and determine cause of elevated vibration levels.• If required, amend blast design forms to take into account the determined cause of the ground vibration level or variance and have the investigation and amended blast designs reviewed by external blast expert.• Prepare report outlining the results of the investigation, design modification implemented and file for subsequent reference	Engage external blast expert to review blast design and cause of exceedance. Implement recommendations of external blast expert and continue to monitor and manage all blasting operations closely to ensure ongoing operations do not exceed the relevant blast criteria.
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7. INCIDENT AND COMPLAINT MANAGEMENT

7.1. Incident and Non-compliance Protocol

Hera Resources will manage any incident or non-compliance at the Site in accordance with the incident and non-compliance protocols found in the Environmental Management Strategy (EMS). In summary Hera Resources will, at the earliest opportunity:

- Take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DPE describing those options and any preferred remediation measures or other course of action
- Implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary, and
- Submit an incident report within seven days of the original notification.

7.2. Complaints Management

The Environmental Management System (EMS) includes a detailed complaints management procedure. This sub-section records the procedures that would be implemented following the receipt of a blast-related complaint.

Complaints can be directed to Hera Resources via phone or email. These details are presented in **Table 8**.

Table 8: Contact Details for Complaints

Communication Method	Details
Email	complaints@areliametals.com.au
Telephone	1300 016 240

Following receipt of any blast related complaint, Hera Resources would implement the following procedure:

1. The complaint will be reviewed to determine the nature, date and time of the complaint source.
2. Any relevant monitoring data for the period will be examined. The complainant will be contacted to discuss and attempt to resolve the complaint.
3. In the event that the complaint is resolved via Step 2, no further action would be taken. If not resolved, then supplementary monitoring may be undertaken within one month of the conclusion of Step 2 in accordance with the procedures identified in **Section 5**.
4. Should the review of the monitoring data indicate that no non-compliance of the relevant criteria was identified, this may be communicated to the complainant.
5. Should the review of monitoring data indicate that a non-compliance of the relevant criteria, Hera Resources will notify the relevant government agencies. In addition, the complainant may be notified if required.

If multiple complaints are received from the same individual(s) and Hera Resources can demonstrate compliance to the relevant criteria and previous efforts have been made to resolve their issues, then Hera Resources may limit their response to Step 1 and 2.

8. REPORTING

8.1. Annual Reporting

Hera Resources is required to prepare an Annual Review each year in accordance with Condition C10, which states:

By the end of September each year after the date of physical commencement of development under this consent, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:

- (a) Describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;*
- (b) Include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, including a comparison of these results against the:*
 - (i) Relevant statutory requirements, limits or performance measures/criteria;*
 - (ii) Requirements of any plan or program required under this consent;*
 - (iii) Monitoring results of previous years; and*
 - (iv) Relevant predictions in the document/s listed in condition A2(c);*
- (c) Identify any non-compliance or incident which occurred in the previous financial year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;*
- (d) Evaluate and report on compliance with the performance measures, criteria and operating conditions of this consent;*
- (e) Identify any trends in the monitoring data over the life of the development;*
- (f) Identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and*
- (g) Describe what measures will be implemented over the next financial year to improve the environmental performance of the development.*

Hera Resources must also submit an Annual Return in accordance with Condition R1.1 of EPL 20179 which states:

R1.1 *The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:*

- 1. A Statement of Compliance;*
- 2. A Monitoring and Complaints Summary;*
- 3. A Statement of Compliance – Licence Conditions;*
- 4. A Statement of Compliance -Load based Fee;*
- 5. A Statement of Compliance -Requirement to Prepare Pollution Incident Response Management Plan;*
- 6. A Statement of Compliance – Requirements to Publish Pollution Monitoring Data; and*
- 7. A Statement of Compliance – Environmental Management Systems and Practices.*

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

8.2. Incident Reporting

An incident is defined in the consent 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.

Hera Resources will report any incidents in accordance with the protocol described in the EMS and Condition C8 of SSD 24319456. Condition C8 states:

The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the

name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 6.

In summary, a written report will be provided which will include the following:

- Describes the date, time, and nature of the exceedance;
- Identifies the case (or likely cause) of the exceedance;
- Describes the action to date; and
- Describes the proposed measures to address the exceedance.

8.3. Non – Compliance Reporting

A non-compliance is defined in the consent as:

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

Hera Resources will report any incidents in accordance with the protocol described in the EMS and Condition C9 of SSD 24319456. Condition C9 states:

The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

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

In summary, a written report will be provided within seven days which will include the following:

- Describes the date, time, and nature of the exceedance;
- Identifies the case (or likely cause) of the exceedance;
- Describes the action to date; and
- Describes the proposed measures to address the exceedance.

8.4. Independent Environmental Audit

Hera Resources will commission and provision for an Independent Environmental Audit in accordance with Conditions C12 and C13 which state:

C12 *Within one year of the date of physical commencement of development under this consent, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must:*

- (a) Be prepared in accordance with the Independent Audit Post Approval Requirements (NSW Government 2020); and*
- (b) Be submitted, to the satisfaction of the Planning Secretary, within two months of undertaking the independent audit site inspection, unless otherwise agreed by the Planning Secretary.*

And;

C13 *In accordance with the specific requirements of the Independent Audit Post Approval Requirements (NSW Government 2020), the Applicant must:*

- (a) Review and respond to each Independent Audit Report prepared under Condition C12 of this consent;*
- (b) Submit a response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations of the Independent Audit Report;*
- (c) Implement the recommendations to the satisfaction of the Planning Secretary; and*
- (d) Make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary.*

9. ROLES AND RESPONSIBILITIES

The roles and responsibilities for Hera Resources personnel in relation to this BMP are listed in **Table 9**.

Table 9: Roles and Responsibilities

Position	Accountable Task
General Manager	<ul style="list-style-type: none"> • Ensure the resources are available for the implementation of this BMP. • Be accountable for the overall environmental performance of the Mine, including the outcomes of this BMP. • Ensure blasting hours are adhered to. • Ensure appropriate controls are installed.
Environment Team	<ul style="list-style-type: none"> • Ensure that the requirements of this BMP are effectively implemented. • Ensure the results of all monitoring are recorded. • Ensure all internal and external reporting requirements are met. • Ensure all personnel undertaking works in relation to this management plan are trained and competent. • Update the Management Plan as required. • Undertake/organise, review and analyse all monitoring data.
Drill and Blast Engineer	<ul style="list-style-type: none"> • Regularly review blast design parameters on the basis of blast monitoring records. • Design and implement blasts to achieve the relevant blasting design criteria, limits, hours, frequency, safety, and dust and fume emissions. • Conduct pre-blast meteorological assessment (surface only). • Maintain records for blasts initiated.
Shotfirers	<ul style="list-style-type: none"> • Notify the Drill and Blast Engineer of any factors that may lead to non-compliance with this BMP. • Load and fire blasts in accordance with the design supplied by the Drill and Blast Engineer.
All Personnel	<ul style="list-style-type: none"> • Comply with the requirements of this BMP.

10. TRAINING AND AWARENESS

All personnel shall undergo blast management awareness training through the induction and re-induction process. Blast management shall be a component of the competency-based site induction program. The following areas shall be covered in the induction:

- The existence and requirements of this BMP
- Blast management awareness including control measures
- Awareness of prevailing wind directions and their potential to increase fume and dust emissions downwind
- Awareness of safety for surrounding receivers, including livestock
- Awareness of blast monitoring at sensitive residential receiver
- Sentry responsibilities, and
- Awareness of making timely reporting of any visible emissions (fume and dust) to allow for prompt and appropriate action to be undertaken for the management of the identified emissions.

The Environment Team shall be responsible for ensuring the appropriate blast management training is included in the induction.

11. REVIEW AND IMPROVEMENT

This BMP will be reviewed and revised as necessary in accordance with the requirements of Condition C6 of SSD 24319456 which states that reviews must be conducted:

Within three months of:

- (a) The submission of an incident report under condition C8;*
- (b) The submission of an Annual Review under condition C10;*
- (c) The submission of an Independent Environmental Audit under condition C12; or*
- (d) The approval of any modification of the conditions of this consent (unless the conditions require otherwise);*
- (e) Notification of a change in development phase under condition A5; or*
- (f) A direction of the Secretary under condition A3 of Schedule 2.*

The suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

As part of the review process Hera Resources will assess the adequacy of the plan to meet the requirements contained in the relevant statutory approvals and any opportunities for improvement. The assessment will include a review of data and related trends identified in the Annual Review, a consideration of recommendations from an Independent Environmental Audit and findings arising from any incident report. If required, the plan will be updated in consultation with DPE and other relevant agencies.

12. REFERENCES

- Australian Standard AS2187.2-2006 (AS2187.2) – *Explosives-Storage and Use Part 2: Use of Explosives*;
- Australian and New Zealand Environment Council (ANZEC), 1990, *Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration*;
- Muller Acoustic Consulting (MAC), 2021, *Noise and Vibration Impact Assessment – Federation Exploration Decline Program*; and
- Muller Acoustic Consulting (MAC), 2022, *Amended Noise and Vibration Impact Assessment – Federation Project*.

APPENDIX A R3 LANDOWNER AGREEMENT