NORTHERN STAR
RESOURCES LTD

FIMISTON NOISE AND VIBRATION MANAGEMENT PLAN

FIMISTON GOLD MINE OPERATIONS EXTENSION (STAGE 3)

FIMISTON SOUTH PROJECT

FEBRUARY 2026 v12

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VERSION CONTROL

Version	Date	Document Changes
1	JAN 1993	New Document. Submitted to EPA to meet requirements of Condition 5 of Ministerial Statement No. 188 (MS188).
2	JUN 2004	Revised to meet requirements of Southern Landform Extension Project Section 45C approval.
3	AUG 2009	Revised to meet requirements of Ministerial Statement No.782 and the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009.
4	APR 2010	Revised to include the recommendations of the Appeals Committee regarding an appeal against the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009*.
5	OCT 2010	Finalised in response to feedback from the OEPA and the DEC in regard to the April 2010 Provisional Noise and Vibration Monitoring and Management Plan.
6	JUN 2016	Revised to meet requirements of the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016*
7	JAN 2018	Changes were made to the blast monitoring network following a recommendation that the Echo blast monitoring site be relocated to a point further south of the current site. The recommendation was made following a blast assessment conducted in 2017 by George Boucher Consulting for then proposed Morrison mining project, located at the southern end of the Fimiston Open Pit. A revised NVMMP, showing the proposed new location for the Echo blast monitoring site was submitted with the Change to Proposal to Ministerial Statement No.782 application in February 2018 and subsequently approved under Section 45C of the *Environmental Protection Act 1986* on 26 June 2018.
8	AUG 2018	Revision submitted to the CEO of DWER to approve the relocation of the Echo blast monitoring site.
	AUG 2022	Updated to reflect Fimiston South Project Referral – provisional only.
9	JUL 2023	Review and complete re-write to bring into line with the EPA's *Instructions on how to prepare Environmental Protection Act 1986 – Part IV Environmental Management Plans*; update references; new noise modelling for future mine life and support a variation to *Environmental Protection (Fimiston Gold Mine Noise Emissions) 2016* submission under Regulation 17.
10	FEB 2024	Update to revised EPA format
11	AUG 2025	Updated to meet the requirements of the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025* – which was gazetted on 30 May 2025. Document renamed to Noise and Vibration Management Plan (NVMP) and is still aligned with the existing conditions of MS782, until the new Ministerial Statement for the FS Project is approved.
12	FEB 2026	Updated in accordance with the approved Ministerial Statement MS1258 (published 20 October 2025 for the FS Project.

GLOSSARY AND ABBREVIATIONS

Term	Definition
Airblast level	A noise level resulting from blasting.
ARC	Australian Research Council.
AS2187.2	Australian Standard AS2187.2-2006: Explosives – Storage and use, Part 2: Use of explosives
Blast hole	A hole that has been drilled or prepared for the purpose of being charged with explosives or has been charged with explosives.
Blasting	The use of explosive material to fracture: rock, coal and other minerals for later recovery; or structural components or other items to facilitate removal from a site or for reuse.
BPS	Boulder Primary School - KCGM Real-time / Continuous noise monitoring site. Means any place within the boundary of the premises known as Boulder Primary School at 200 Lane Street, Boulder.
BSW	Barton Street Williamstown Compliance Monitoring Site
CEO	Chief Executive Officer.
CRG	Community Reference Group.
Daytime	Any time in the period between the hours of 0700 and 1900 on Monday to Saturday, excluding public holidays; and between the hours of 0900 and 1900 on Sunday and public holidays.
DE	Development Envelope
DEC	Department of Environment Regulation (now DWER)
Decibels (dB)	Logarithmic unit used to measure sound levels.
DMIRS	Department of Mines Industry Regulation and Safety (now DMPE)
DMPE	Department of Mines, Petroleum and Exploration
DPLH	Department of Planning Lands and Heritage
DWER	Department of Water and Environmental Regulation
EMP	Environmental Management Plan.
ENB	Environmental Noise Bund (current)
ETM	Advanced Texcel remote blast monitor equipment.
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority.
Evening	Any time in the period between the hours of 1900 and 2200.
FS Project	Fimiston South Project
Ground vibration	Mechanical energy (vibration) produced by a blast and transmitted through the ground.
Hz	Hertz. Unit of frequency, equal to one cycle per second.
KCGM	Kalgoorlie Consolidated Gold Mines Pty Ltd.
km	Kilometres
KTS	Kalgoorlie Technical School Compliance Monitoring Site
LA 10	The noise level in decibels, exceeded for 10% of the measurement period, obtained using the "A" frequency-weighting characteristic.
LA 50	The noise level in decibels exceeded for 50% of the measurement period, obtained using the "A" frequency-weighting characteristic.
LA 90	The noise level in decibels exceeded for 90% of the measurement period, obtained using the "A" frequency-weighting characteristic.

Term	Definition
LAeq	The average continuous noise level
LA max approved level	An assigned level that, measured as an LA Slow value, is not to be exceeded at any time.
LA Slow	The reading in decibels obtained using the "A" frequency-weighting characteristic and the "S" time- weighting characteristic as specified in AS IEC 61672.1-2004 Electroacoustics-Sound level meters Part 1: Specifications, for class 1 and class 2 meters, with sound measuring equipment that complies with the requirements of Schedule 4 of the Environmental Protection (Noise) Regulations 1997.
Leq	The Sound Pressure Level in dB, equivalent to the total Sound Energy over a given period of time.
LZ peak	The peak sound pressure level in decibels (dB) obtained using the "A" frequency weighting characteristic, as specified in AS IEC 61672.1-2004 Electroacoustics-Sound level meters Part 1: Specifications, with sound measuring equipment that complies with the requirements of Schedule 4 of the Environmental Protection (Noise) Regulations 1997.
Measured	In relation to the measurement of a noise emission, means measured and adjusted in accordance with the Environmental Protection (Noise) Regulations 1997.
MEP	Metal Exploration Premises - KCGM Real-time / Continuous noise monitoring site.
MEX	KCGM weather monitoring station (located within the same premises as MEP).
MS188	Ministerial Statement No.188 Fimiston Project Stage II – Mine and Waste Dumps.
MS782	Ministerial Statement No.782 Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning.
MS1258	Ministerial Statement No.1258 Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning.
Monitoring	The process of sampling and measuring certain parameters.
mm/s	Millimetres per second.
NATA	National Association of Testing Authorities.
Noise Regulations	Environmental Protection (Noise) Regulations 1997.
Noise Sensitive Premises	Has the meaning given in Schedule 1 Part C of the Environmental Protection (Noise) Regulations 1997.
NVMP	Noise and Vibration Management Plan. Previously referred to as Noise and Vibration Monitoring and Management Plan (NVMMP).
OEPA	Office of the Environmental Protection Authority. (Now DWER)
ONB	Operational Noise Bund (proposed)
OSB	Outram Street Boulder Compliance Monitoring Site
PIL	Public Interaction Line. – Communication service operated by KCGM and can be contacted on (08) 9022 1100)
Reference location	A location specified in the terms in Environmental Protection (Fimiston Gold Mine Noise Emissions Approval) 2009 for the assessment of noise emissions.
Regulation 17	*Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025* issued under Regulation 17 of the Environmental Protection (Noise) Regulations 1997.
RFI	Request for Information.
RL	Relative Level
Sensitive Site	Has the meaning given in Regulation 11(1) of the Environmental Protection (Noise) Regulations 1997.
SLM	Sound level meter. A measuring device that measures the level of sound, and may provide dBL, dBA or dBC values.
Sound pressure level (dB)	A logarithmic scale of pressure with a reference pressure of 20 µPa.

Term	Definition
TSF	Tailings Storage Facility
UWA	University of Western Australia.
WHO	World Health Organization
WIF	Weather Influencing Factor.
WRD	Waste Rock Dump
YSB	York Street Boulder Compliance Monitoring Site

1 SUMMARY

Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) is the proponent for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project). The FS Project is important to ensure ongoing operations at Fimiston until approximately 2034. The Revised Proposal is summarised in Section 2.1 of this Noise and Vibration Management Plan (NVMP) for ease of reference.

This management plan (v12 2026) has been updated following assessment of the Noise Regulation 17 variation that was approved on 30 May 2025, referred to now as the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*. The NVMP maintains alignment to the currently approved MS1258 and has been updated to reflect the new conditions outlined in the Ministerial Statement following the approval of the FS Project by the EPA in October 2025.

This NVMP has also been updated to:

- Be presented in adherence with the 'Instructions on how to prepare *Environmental Protection Act 1986* - Part IV Environmental Management Plans, (version 2.0; 2021)' published by the Western Australian (WA) Environment Protection Authority (EPA).
- Respond to a formal EPA request for information (RFI) received in February 2023.
- Detail the measures that are required to manage potential impacts to social surroundings from the current and proposed continuation of approved activities under KCGM's Ministerial Statements.
- Include any additional activities required to deliver the open pit (Ivanhoe) cut back works as described within the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project proposal.

Following approval of this NVMP (v12 2026), internal KCGM document control processes will be implemented to ensure the currently approved NVMMP (v7 2018) is formally archived, and this management plan version 12 becomes the approved guiding document.

Table 1 contains an executive summary of the information relevant to this January 2026 revised version of the NVMP.

Table 1: Management Plan Summary

Title of Proposal	Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal
Proponent	Kalgoorlie Consolidated Gold Mines Pty Ltd
Ministerial Statement Number	Ministerial Statement MS1258 – currently approved.
Purpose of the NVMP	The NVMP is submitted to fulfil the requirements of condition/s outlined in the issued Ministerial Statement, and to fulfil the requirements of condition 11 of the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*
Key Environmental Factors and Objectives	**Key Environmental Factor:** Social Surroundings – Noise and Human Health. **EPA Objectives:** Social Surroundings 'To protect social surroundings from significant harm' (EPA, 2022). Human Health 'To protect human health from significant harm' (EPA, 2016). To manage noise emissions from the Fimiston Operations to minimise potential impacts to the residents of the City of Kalgoorlie-Boulder.
Environmental Criteria	Criterion 1: Environmental Noise Levels (dB, LA 10, LA MAX) Criterion 2: Air-blast Over Pressure Levels (dB linear peak, LZ peak) Criterion 3: Blast Vibration Levels (mm/second peak particle velocity)

Condition Clauses	Condition 11 of the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025;* and Condition B3-5 of new Ministerial Statement.
Proposed Construction Date	Continuation of existing operations.
EMP required pre-construction?	Yes – this document.

2 CONTEXT, SCOPE, AND RATIONALE

2.1 The Project

Northern Star Resources Limited (Northern Star or NSR) owns and operates the KCGM Operations which consists of the following mining and processing activities:

- Fimiston Open Pit: open pit mining and waste rock disposal;
- Proposed FS Project for the Ivanhoe cut back;
- Mt Charlotte Underground Mine: underground mining;
- Fimiston Processing Plant: crushing, mineral processing, refining and tailings disposal;
- Gidji Gold Processing Plant: mineral processing and tailings disposal; and
- Exploration: mineral resource definition drilling and core processing.

The Noise and Vibration Management Plan is relevant to the Fimiston Operational area within the Mine Development Envelope (MDE) as per the currently approved Ministerial Statement. The following are key facilities:

- Fimiston Open Pit;
- Fimiston Tailings Storage Facilities (TSFs);
- Fimiston Processing Plant; and
- Fimiston Waste Rock Dumps (WRDs).

2.1.1 Location of Fimiston Operations

The Fimiston Operations are located adjacent to the City of Kalgoorlie-Boulder approximately 600 kilometres (km) east of Perth, Western Australia. On average, KCGM produces 500,000 ounces of gold per annum and has a current operational mine life expectancy until 2034 (including the FS Project).

Currently, up to 80 million tonnes (Mt) of ore and waste rock material are mined from the Fimiston Open Pit per annum through traditional truck and shovel methods. Ore is then continuously processed through the Fimiston Processing Plant, whilst marginal or low-grade ore are stockpiled adjacent to the open pit area and waste rock material is transported to various WRDs for permanent storage.

2.1.2 The Revised Proposal – FS Project

The Revised Fimiston South (FS Project) submission package supports the 'Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal, Fimiston South Project' application to mine the Ivanhoe cutback at the southern extent of the pre-existing Fimiston Open Pit. Proposed future mining activities will continue to utilise traditional mining methods currently employed in the open pit. The cutback will allow for both the widening and deepening of the pit and extend the life of mine to approximately 2034.

The Revised FS Project includes:

- Expansion of the Fimiston Open Pit to the south and west;
- Additional Fimiston II Extension TSF cell;
- Construction of the new Fimiston III TSF;
- An extension to the existing Southern WRD; and
- Development of areas for supporting infrastructure and services.

2.1.3 Variation to Regulation 17

Due to the proximity of the Ivanhoe cut back to the Boulder Light Industrial Area, KCGM acknowledges the potential for this change to also modify the risk profile. This modification to the risk profile refers to the potential increase in community discomfort or community awareness of operational works being conducted in the area. KCGM have taken this on board and incorporated identifying high risk areas and or activities to guide operational delivery towards reducing these potential impacts.

The FS Project proposes a significant structural change to the Fimiston Open Pit, thus triggering the requirement to review the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016 exemption, which has now been superseded by *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.

KCGM engaged an independent specialist who has undertaken additional studies and extensive modelling[1] to identify potential issues or high-risk areas (for noise generation or potential for community complaints) relating from the physical delivery (mining out) of the Ivanhoe cut back. Mining out activities will commence at the surface and progress downwards into the existing Fimiston Open Pit.

The acoustic re-modelling included:

- Current Environmental Noise Bund (ENB) and its entirety;
- Proposed Operational Noise Bund (ONB) [2]and its entirety;
- Existing and proposed topography data of the open pit and surrounds;
- Sound power levels of machinery supplied by KCGM;
- Identification of higher risk of noise complaints or exceedance of compliance monitoring thresholds delineation point;
- Modelling included 1x 994 loader, 1 x PC800 Shovel, 1 x tracked D10 Dozer and 6 x 793F Haul trucks to mimic mining out of the cutback;
- Locating a potential replacement monitoring location for Outram Street (OSB); and
- Modelling scenarios based on night-time levels to assess under the more stringent thresholds and assess for likelihood of 24/7 project delivery.

2.1.4 Implementation of this NVMP

This NVMP will be implemented as per the approved Regulation 17 variation which was gazetted on 30 May 2025 and provides a framework for the assessment and approval of the FS Project as per the Section 38 Submission Package under the *Environmental Protection Act 1986* (EP Act) and supporting Regulations.

Now that the FS Project is approved under Part IV of the *Environmental Protection Act 1986*, all proposed activities will be implemented under the new Ministerial Statement (MS1258) and the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*. A review of this management plan has been undertaken to ensure alignment to the new Ministerial Statement No. 1258 which was approved/published 20 October 2025) The Fimiston Gold Mine Operations will continue to operate under the approved MS1258 and approved management practices.

Figure 1 details the location and extent of structural amendments to the Fimiston Open Pit being proposed.

1 Acoustic assessment and modelling completed in line with Guideline: Assessment of environmental noise emissions (Draft May 2021).

2 Refer to KCGM Minor and Preliminary Works Permit application submitted in March 2023. These works are not included under the current Regulation 17 (2016), as they are categorised as construction works under the Environmental Protection (Noise) Regulations 1997.

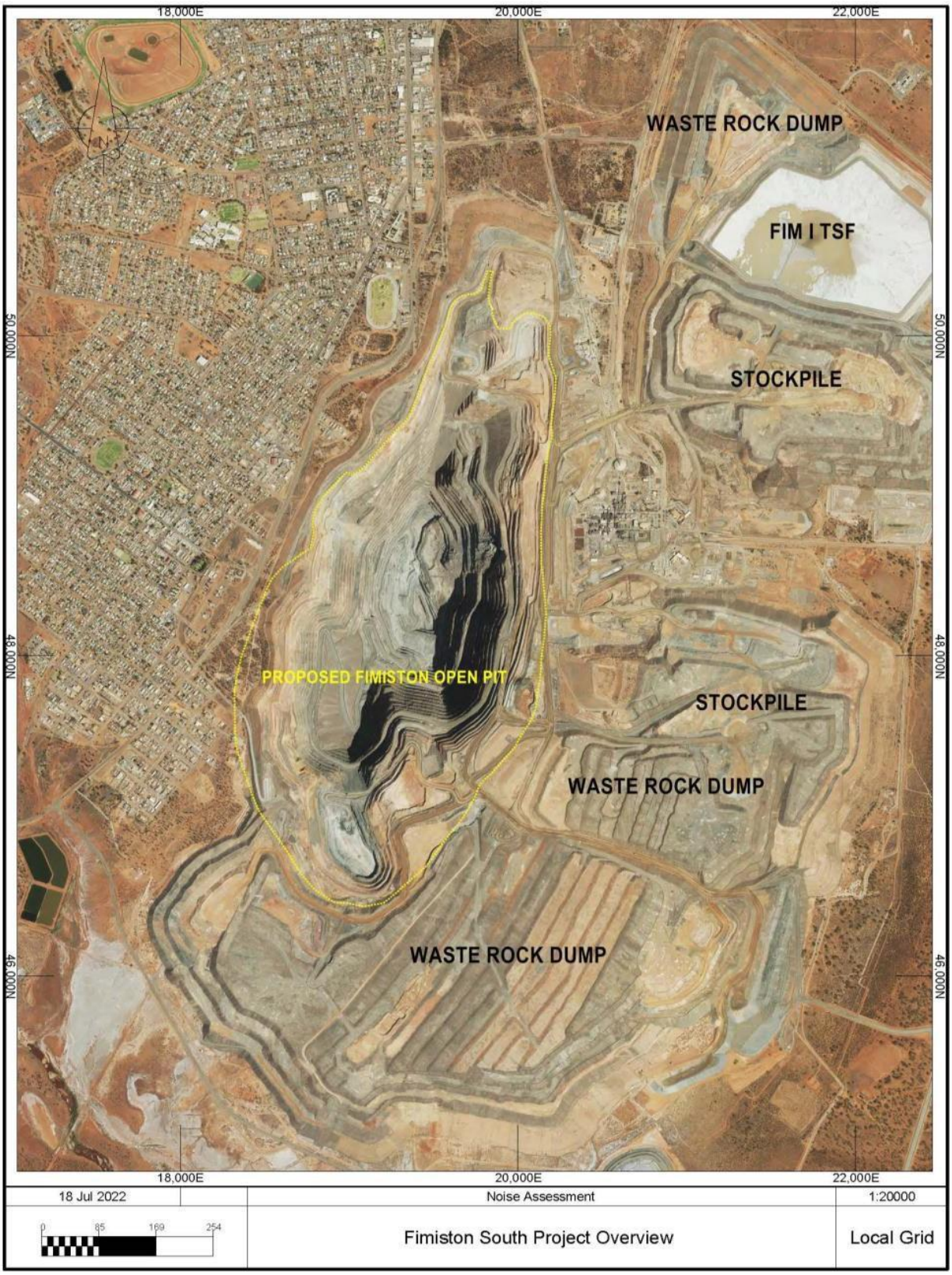

Figure 1: Amended Fimiston Pit Expansion (Proposed)

2.2 Key Environmental Factors

This NVMP specifically addresses both the 'Noise' and 'Vibration' environmental factors, as defined within the *EPA's Statement of Environmental Principles, Factors and Objectives and aims of EIA* (EPA, 2023, version 5).

As defined within the EPA's Environmental Factor Guideline: Social Surroundings (EPA, 2023), the environmental objective of Social Surroundings is:

To protect social surroundings from significant harm.

As defined within the EPA's Environmental Factor Guideline: Human Health (EPA, 2016), the environmental objective of Human Health is:

To protect human health from significant harm.

2.2.1 Activities Affecting Key Environmental Factor – Social Surroundings

Noise (and vibration) is a key element and when considered in tandem with social surroundings, the potential for impacts on the community or individuals may be considered and investigated. The potential impacts (actual or perceived; frivolous or vexatious) as a direct result of the FS Project or the ongoing Fimiston Operations (mining, processing and waste disposal) on the physical or biological surroundings; a person's aesthetic, cultural, economic surrounds may be assessed.

KCGM's management approach is detailed in Section 2.4.

This environmental factor is defined under the *Environment Protection Act 1986* and presented in the *Environmental Factor Guideline: Social Surroundings (EPA, 2023)* as:

"Environment, subject to subsection (2), means living things, their physical, biological and social surroundings, and interactions between all of these things (Subsection 3(1))".

and;

In the case of humans, the reference to social surroundings in the definition of environment in subsection (1), is a reference to aesthetic, cultural, economic and other social surroundings to the extent to which they directly affect or are affected by physical or biological surroundings (section 3(2)).

Examples of social surroundings may include:.

- Aesthetics of local towns (presentation of schools, parks, and playgrounds).
- Ability to attract and retain new employees (modern housing and technologies).
- Encourage new employees and their families to relocate, invest and stay regionally (economics).
- Ability for a town or regional area to provide modern amenity, services, health care (or emergency transfers to major medical facilities).
- Additional employment inside and outside of the mine (small business, sole traders, medium sized business).
- Acceptance and/or embracing of culture diversity, cultural history, provision of family friendly environments.
- Ability to maintain Aboriginal heritage and cultural knowledge, stories, artefacts.
- Ability to accept diversity of both natural and manmade historical heritage.

The Fimiston Operations is located directly adjacent to the City of Kalgoorlie-Boulder urban areas (commercial, industrial and residential) with open cut, underground; ore processing and waste disposal activities occurring for over 100 years. This is in part legacy from historical mining practices in and around the rural City of Kalgoorlie-Boulder and a scenario that is not unique to the Goldfields Region of Western

Australia. Other examples of Australian towns located in proximity to mining activities include Port Hedland and Karratha (WA), Mount Isa (Qld), Bendigo (Vic), Lightning Ridge (NSW), Jabiru (NT) or Roxby Downs (SA).

Historically, being able to live close to where the work was provided a practical solution when the distance from work to home (and vice versa) was often restricted by how far a person could walk, ride a bike or travel by horse; in addition to completing long hours each day (example: in the 1800's people often survived in very basic living conditions (subsistence)). This scenario has gradually changed over time (century) as regional growth occurred, expectations of living conditions became a higher priority, disposable incomes became larger, and demographics of towns gradually evolved.

This is especially noticeable since the introduction of occupational health and safety standards (~1970's onwards) into workforces which assisted to guide changes to living conditions, quality of lifestyle/s and eventually a work life balance became the focus over basic survival (set basic expectations/standards). Examples of how social surroundings may influence the image of a mining town such as the City of Kalgoorlie-Boulder can be easily observed when comparing photos from previous decades or centuries to that of the current day. These influences include:

- Comparison and progression of improved living conditions over the past 100+ years.
- Analysis of population dynamics and trends over the past 100+ years.
- Recreational activities and the changes that have occurred over the past 100+ years.
- Changes to the social scene and (actual or perceived) reduction in anti-social behaviours.
- Acceptance, inclusion and recognition of new ethnic cultures, values, beliefs or religions.
- Acceptance, inclusion, and recognition of indigenous cultures (localised and nationally), diversity of beliefs, ethnographic and anthropological connections to country.

Potential impacts to social surroundings element when considering noise and/or vibration from the proposed implementation of the Ivanhoe cut back and the continued mining activities might include:

- Reduced visual amenity from un-vegetated mining landforms or the presence of a haze.
- Reduced public health due to odour, diesel particulates, volumes of fly-in/fly-out (FIFO) personnel (colds and flu), volumes of social/recreational activities (increased antisocial activities).
- Reduced public amenity from dust emissions (excessive levels of particulates in homes or landing on cleaned vehicles).
- Reduced vegetative health or impacting on items or locations of cultural importance (ethnographic), short term or long term.
- Reduced physical and/or mental health of individuals or sensitive receptors (pre-existing conditions aggravated through reduced air quality).

Other social surrounding elements which are covered in separate KCGM management plans include:

- Reduced amenity from higher or impacted background air quality levels.
- Reduced public health or potential damage to property from flyrock.

2.2.2 Activities Affecting Key Environmental Factor – Human Health

Human health is a key environment factor when considered in tandem with social surroundings and sub-factor noise (and vibration) as an additional potential risk beyond social amenity. This human health factor has been interpreted and assessed as an additional step above personalising/individualising a direct risk aspect in addition to social surroundings which may otherwise be interpreted as in-personal/non-direct.

The human health factor is driven in part due to the location of the overall operational area, the semi-arid climatic region (natural) and the proximity of the proposed continued mining activities adjacent to the City of Kalgoorlie-Boulder; but, also supported by the fact that KCGMs employees, contractors, families and friends have the right to be safe whilst at work and whilst outside of the workplace.

For the purposes of this NVMP, the World Health Organization (WHO) defines human health as:

"a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (EPA, 2016)."

KCGM's management approach is detailed in Section 2.4.3. Human health management is managed and implemented under the *Work Health and Safety Act 2020* and Work Health and Safety (General) Regulations 2022 by additional KCGM departments.

Potential risks to human health when incorporating noise, ground vibration or air-blast over pressure elements to the proposed implementation of the continuing mining activities might include:

- Reduced individual or public health (acute or chronic), including but not limited to sensitive receptors such as children and elderly through exposure to continuous excessive noise, ground vibrations or blast-overpressure over an extended amount of time (long term exposure).
- Reduced individual mental or physical health, through excessive ground rumbling or window shaking (acute short-term or repetitive exposure); and
- Uncontrolled release of noise; ground vibrations or blast over-pressure beyond regulated conditions (poor blast design or preparation, land slip or other unplanned events or incidents).

Other aspects of the long-term mining activities which may pose a risk in the long term may include:

- Failure to modernise the Fimiston operation leading to excessive or unacceptable volumes of greenhouse gas emissions being released.
- Failure to maintain maintenance schedules or purchasing of suitable replacement parts or filters (sub grade materials); and
- Failure to upgrade to newer technologies or improved methods if/when readily available.

Considerations of human health during the environmental impact assessment phase of the FS Project included:

- Careful consideration, planning and monitoring requirements of climatic conditions when undertaking mining activities.
- Designing a delivery or execution plan to have near surface cut back activities which may create excessive noise, generate ground vibration or air-blast over pressure as a consequence of the action being undertaken, that activity is to occur during normal day-time operational hours only.
- Identification of a group or singular high-risk task/s or activity/ies which may require additional mitigation processes to be implemented to lower the proposed significance of the impact prior to the task commencing (may include re-scheduling activity, re-routing haul trucks to a different WRD or portion thereof).
- Ensure FS Project activities identified as potentially having a higher risk probability of attracting negative community attention (near surface works, land clearing) are implemented during approved times only.
- If an unexpected geology or other surface matrix is encountered during blasting activities for the FS Project Ivanhoe cut back, the blast design/sequence is adjusted to ensure continued compliance with existing monitoring program thresholds (avoid an exceedance event or an increase in community complaints).
- Consider additional monitoring or training opportunities with site-based supervisors undertaking spot checks or opportunistic field noise monitoring (and recording field notes); to ensure compliance to plan.

2.3 Condition Requirements

This NVMP is submitted in accordance with the 2025 Fimiston Noise Emissions Approval issued under Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* (commonly referred throughout this document as Regulation 17), and in line with the current approved Ministerial Statement 1258.

Table 2 summarises the condition requirements from the previous and current Regulation 17 Approvals (2009, 2016 and 2025) as well as the current approved MS1258 and outlines where they are addressed in this NVMP.

Table 2: Summary of Conditions

Condition	Section in NVMP
Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009 **– Appeals Committee Recommendations**	
(i) outline the steps required to develop and implement a noise amelioration program that will benefit the community most affected by noise from KCGM operations and that this would be over and above the commitments that KCGM have already made to other community projects	Section 2.5.6. UWA Research Project
(ii) detail, where practicable, the work required for the future installation and maintenance of a real-time noise monitoring site that is accessible by the public via the internet and preferably through the KCGM website.	Section 2.6.4. Real-Time Noise Monitoring
Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016	
9(1) KCGM is to submit a noise management plan for the Fimiston Gold Mine to the CEO of DWER within 3 months after the start day.	Section 1 Changes to the NVMP
9(2) The noise management plan is to include the following –	
(a) details of a noise and air-blast level monitoring programme;	Section 2.6. Monitoring Programs
(b) details of a programme to monitor weather conditions relevant to the assessment of noise and air-blast levels from mining operations;	Section 2.6.3. Weather Monitoring
(c) details of a programme for the provision of information to the community regarding noise and air-blast levels from mining operations;	Section 2.5.9. Management of Blast Vibration and Air- blast Over Pressure
Procedures to be adopted by KCGM to respond to complaints about noise emissions;	Section 5.1. Complaint Management
Procedures to be adopted by KCGM to identify major noise emission sources;	Section 2.4.3. Management Approach
Procedures to be adopted by KCGM to adjust mining operations to reduce noise emissions based on the noise and air-blast level monitoring programme specified in paragraph (a); and based on responses to complaints about noise emissions;	Section 4.1. Adaptive Management and Review of the NVMP
Procedures to be adopted by KCGM to eliminate tonality, modulation and impulsiveness in noise emissions from mining operations;	Section 2.5.3. Reversing Alarms
Procedures to be adopted by KCGM to minimise noise emissions from equipment used for mining operations;	Section 2.5 Management of Mining Activities
Procedures to be adopted by KCGM to minimise air-blast levels;	Section 2.5.9. Management of Blast Vibration and Air- blast Over Pressure
Procedures to be adopted by KCGM for recording details of blasting practices used for any blast that exceeds the air-blast level set out in regulation 11; and	Section 2.6.7 Reporting of Exceedance of Environmental Criteria
Any other matter that the CEO of DWER may require.	Section 4.1 Adaptive Management and Review of the NVMP
Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025	
7. Mining operations in the northern section of the Ivanhoe Cutback as identified in Schedule 4 must be conducted only during the daytime unless the work is carried out at or below 342 mAHD.	Section 2.7 Management of Mining Activities
8. Before removal of any section of the environmental noise bund at the western extent of the Fimiston Gold Mine a replacement bund is to be fully constructed so as to form an equivalent continuous noise barrier between the Kalgoorlie-Boulder town site and the Fimiston Gold Mine.	Section 2.7 Management of Mining Activities

Condition	Section in NVMP
11. (1) KCGM is to submit a noise management plan for the Fimiston Gold Mine to the CEO of DWER within 3 months after the start date.	Section 6. Changes to the NVMP
11. (2) The noise management plan is to include the following -	
Details of a noise and airblast level monitoring programme;	Section 2.8.5 Blast Vibration and Airblast Monitoring
Details of a programme to monitor recorded levels of noise in accordance with clause 10(1) for each wind direction and wind speed listed in Table 2 of Schedule 2;	Section 2.8.3 Weather Monitoring
(a) Details of a programme to monitor weather conditions relevant to – (i) The assessment of noise and airblast levels from mining operations; and (ii) the monitoring of recorded levels of noise in accordance with subclause (2)(b);	Section 2.8.3 Weather Monitoring
Details of a programme for the provision of information to the community regarding noise and airblast levels from mining operations;	Section 2.8.4 Real Time Noise Monitoring
Procedures to be adopted by KCGM to respond to complaints about noise emissions;	Section 5.1 Complaint Management
Procedures to be adopted by KCGM to identify major noise emission sources;	Section 2.7.5 Surface Activities
(b) Procedures to be adopted by KCGM to adjust mining operations to reduce noise emissions – (i) Based on the noise and airblast level monitoring programme specified in paragraph (a); and Based on responses to complaints about noise emissions;	Section 4.1 Adaptive Management and Review of the NVMP
Procedures to be adopted by KCGM to eliminate tonality, modulation and impulsiveness in noise emissions from mining operations;	Section 2.7 Management of Mining Activities
Procedures to be adopted by KCGM to minimise noise emissions from equipment used for mining operations;	Section 2.7 Management of Mining Activities
Procedures to be adopted by KCGM to minimise airblast levels;	Section 2.7.9 Management of Blast Vibration and Air-blast Over Pressure
Procedures to be adopted by KCGM for recording details of blasting practices used for any blast that exceeds the airblast level set out in regulation 11;	Section 2.8.7 Reporting of Exceedance of Environmental Criteria
Details of a programme to develop a noise exposure model for the Kalgoorlie Boulder population to better understand noise impacts of Fimiston operations;	Section 2.6.1.1 Noise
Any other matters that the CEO of DWER may require.	Section 4. Continuous Improvement
Current Ministerial Statement MS1258 Conditions	
B3-5 Ground Vibration and Air-blast overpressure : 1. Ensure explosives are detonated at surface level when wind directions favour the carriage of dust away from the residential areas of Kalgoorlie Boulder, unless undertaken for the purposes of removing obstructions in crushers, or making workings safe, or for firing misfired holes. 2. Ensure that explosives are only detonated between the hours of 0700 hours and 1800 hours, unless undertaken for the purposes of removing obstructions in crushers, or making workings safe, or for firing misfired holes. 3. Ensure active mining is not undertaken within 400 metres of a property zoned Residential under the Town Planning Scheme without the written consent of the owner and occupier of that property. 4. Where adverse impacts to State Registered Places may occur or are identified associated with active mining, liaise with the Heritage Council of Western	Section 2.5.9. Management of Blast Vibration and Air- blast Overpressure

Condition	Section in NVMP
Australia on those State Registered Places.	

2.4 Rationale and Management Approach

The FS Project has been designed to avoid and minimise impacts to key environmental factors located within the MDE and project footprint; this includes activities that cause noise and ground vibrations and/or air-blast over pressure.

KCGM's approach to managing noise, ground vibrations and/or air-blast overpressure are based on the identification of likely major impact sources through conventional risk assessment methodologies, noise and vibration modelling, noise and vibration monitoring and results, operational experience and feedback drawn from community via the Public Information Line (PIL).

Risk mitigation measures identified during the risk assessment process are to be embedded into supporting site procedures for activities identified as being a significant or higher-risk source of noise, ground vibration and/or air-blast emissions which could result in an exceedance event occurring.

Each of the three elements are defined and trigger and threshold limit levels are established as part of KCGM's outcome-based proactive management approach towards early identification and treatment of potential impacts on the environmental and social surroundings. The trigger and threshold levels are further discussed in Section 3 Guidance for the development of these levels have been included in Table 3.

Table 3: Guidance for Trigger Levels and Threshold Limits

Element	Element Definition	Guidance for Trigger Levels and Thresholds
Noise	A sound which is audible, may be low or high levels, may be pleasant or unpleasant or of annoyance or considered excessive to/by the receiver.	Are developed based on the allowable noise level at surrounding locales prescribed by the *Environmental Protection (Noise) Regulations 1997* for non-mining areas. or: under *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025* (Schedule 2 and Schedule 3). and/or: conditions set out in approved Ministerial Statement.
Ground Vibration	"Ground vibration from blasting is the radiation of mechanical energy within a rock mass or soil. It comprises various vibration phases travelling at different velocities. These phases are reflected, refracted, attenuated and scattered within the rock mass or soil, so that the resulting ground vibration at any particular location will have a complex character with various peaks and frequency content." (AS2187.2: 2006).	Are developed based on guidance from Australian Standard 2187.2: 2006 Explosives – storage and use.

Element	Element Definition	Guidance for Trigger Levels and Thresholds
Air-blast Overpressure	Air-blast Over Pressure/or air-blast level refers to the noise level resulting from blasting (*Environmental Protection (Noise) Regulations 1997*) or a blast wave, refers to the sudden onset of a change in (air) pressure wave following a blast. Operational mining and processing activities and associated noise levels at Fimiston is governed under the *Environmental Protection (Fimiston Gold Mine Noise Emissions) 2025*[3].	Are developed based on guidance *Environmental Protection (Fimiston Gold Mine Noise Emissions) 2025* (Schedule 2 and Schedule 3).

KCGM will continue to monitor noise, ground vibration and air-blast overpressure associated with execution of the FS Project Ivanhoe cut back and all ongoing future mining and processing operations. This monitoring will assist KCGM to maintain records of compliance, early identification of potential threshold breaches; and respond through initiating additional control measures or assist investigating and the development of external reporting of an exceedance.

Monitoring data will be utilised to inform the effectiveness of current and future management measures and support reporting and adaptive management initiatives (Section 4.1).

Environmental Outcomes or Objectives

The key objective of the NVMP is to ensure compliance of the FS Project with EPA objectives regarding noise and vibration. The NVMP provides a framework for the management of noise and vibration in KCGM's approved operational mining areas and has been prepared to fulfil requirements set out under currently approved MS1258 and the *Environmental Protection (Fimiston Gold Mine Noise Emissions) 2025*.

To meet this objective, management provisions have been established for potential impacts as summarised in Section 3.2. As environmental impacts incorporate both quantifiable and non-quantifiable impacts, outcomes-based and objective-based provisions have been included in Section 3 of this NVMP.

Outcome-based provisions are performance-based and may be used where the part of the environment is able to be objectively measured and reported. The establishment of outcome-based provisions informs the development of trigger and threshold levels used to manage direct impacts. This management strategy ensures acceptable environmental outcomes.

Below are the following environmental outcomes determined to meet the NVMP's primary objective of ensuring compliance of the FS Project and Fimiston Operations with EPA conditions and objectives on noise, ground vibration and air-blast overpressure:

- Changes to the façade of mining landforms visible from the Kalgoorlie townsite will be minimised, as these landforms are behind the existing pit and noise bund.
- Noise emissions will remain within the limits approved in the *Environmental Protection (Fimiston Gold Mine Noise Emissions) 2025*.
- Ground vibration will comply with the vibration limits, measured or calculated, in accordance with Section J4.2 of Australian Standard 2187.2: 2006 Explosives – storage and use.
- KCGM will continue to comply with approved blasting procedures; and
- Ensure that no direct disturbance of Aboriginal cultural heritage sites occurs.

Objective-based provisions relate to management measures and may be used where the part of the environment is unable to be objectively measured and reported. For the purposes of this management

3 Daytime is defined b is defined by the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025 as:
(a) between the hours of 0700 and 1900 on Monday to Saturday, excluding public holidays; and
(b) between the hours of 0900 and 1900 on Sunday and public holidays.

plan, objective-based provisions are developed to align with the EPA's objective for Social Surroundings: "to protect social surroundings from significant harm" (EPA, 2023).

2.4.1 Survey and Study Findings

KCGM have conducted studies and rigorous impact assessments of operational noise, ground vibration and air-blast overpressure dating back to 2006. These studies have been undertaken to inform the assessment of impact from the Projects and to meet obligations in relation to the reporting of compliance. The noise, ground vibration and air-blast overpressure studies completed to date are outlined in Table 4.

Table 4: Currently Completed Studies and Assessments

Author	Document Title	Submitted
External Reports		
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2025	16/04/2025
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2024	19/04/2024
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2023	20/04/2023
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2022	21/04/2022
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2021	21/04/2021
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2020	20/04/2020
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2019	18/04/2019
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2018	19/04/2018
KCGM – Environment	Annual Noise Monitoring Report: *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* – April 2017	21/04/2017
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2015 – 13th July 2016, (approval 2009).	2/08/2016
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2014 – 13th July 2015, (approval 2009).	14/08/2015
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2012 – 13th July 2013, (approval 2009).	14/08/2014
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2012 – 13th July 2013, (approval 2009).	13/08/2013
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2011 – 13th July 2012, (approval 2009).	15/08/2012
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2010 – 13th July 2011, (approval 2009).	15/08/2011
KCGM – Environment	Annual Noise Monitoring and Management Report – 14th July 2009 – 13th July 2010, (approval 2009).	12/08/2010
Additional Acoustic Investigations		
Herring Storer Acoustics	KCGM's Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning Revised Proposal: Fimiston South Project: Revised Acoustic Assessment (Ivanhoe cut back)	2021 & 2023
George Boucher Consulting	Prediction of Blast-Induced Ground Vibration and Air Overpressure Fimiston Open Pit – Fimiston South Project Study	July 2022

Author	Document Title	Submitted
Blasttechnology	Flyrock Control for Fimiston South Project, Stage 2 (Ivanhoe Cut Back) Final Report	August 2022
Herring Storer Acoustics	KCGM Northern Waste Rock Dump (WRD) night hauling-environmental noise assessment	March 2022
The University of Western Australia, KCGM and Australian Government: Australian Research Council	Integrated passive and active control of humming noise from KCGM's haul trucks (ARC Linkage Project (LP140100987) 2014-2019). *Note: study included 793C AEH, 793C XO and 793F Caterpillar haul trucks (250t capacity).*	April 2019
Herring Storer Acoustics	KCGM – East Wall remediation environmental noise assessment	12/12/2018
The University of Western Australia	Passive and active noise control of KCGM haul trucks – progress report	15/08/2016
Herring Storer Acoustics	Rock Breaker Night Operations – Marginal Dumps	29/07/2015
The University of Western Australia	Preliminary Design for the KCGM Truck Noise Reduction Project (and progress reports)	14/11/2014
The University of Western Australia	Development of Active Techniques for Controlling Low Frequency Noise from KCGM Haul Trucks Phase 1 – progress report 2	2/04/2013
The University of Western Australia	Development of Active Techniques for Controlling Low Frequency Noise from KCGM Haul Trucks Phase 1 – progress report 1	27/11/2012
Herring Storer Acoustics	KCGM Fimiston Gold Mine Noise Emission (Reduction) Schedule	June 2011
Herring Storer Acoustics	Real time noise monitor location assessment	17/11/2010
Herring Storer Acoustics	Reversing Alarms – Tests of new broadband types	19/01/2006

2.4.1.1 Noise

Since the early 1990s KCGM has consulted with noise consultants Herring Storer Acoustics to undertake numerous noise modelling and compliance assessments in and around the Fimiston Operations.

An environmental acoustic assessment was undertaken by Herring Storer Acoustics in September 2021 and revised in June 2023 to identify noise sources and therefore potential risks to compliance. Results of this modelling identified the following major noise emission sources: haul trucks, dozers, loaders, diggers and graders. In this instance the FS Project and continuance of normal mining and processing operations are both considered. Noise received at the nearest neighbouring residential premises, due to noise associated with the proposed and current operations, were modelled in-line with DWER Guideline: assessment of environmental noise emissions (revised draft June 2021) SoundPlan with CONCAWE algorithms.

Sound power levels utilised for the calculations are based on actual measured sound pressure levels of similar equipment proposed for use on site (Herring Storer Acoustics, 2023). Various operating scenarios were then developed and tested, based on the proposed staging of future operations.

Fimiston Operations have been designed to minimise attenuation of noise into the townsite, primarily though the construction and numerous modifications and extensions to a 15 m high Environmental Noise Bund (ENB) between the western boundary of the Fimiston Open Pit and operational areas and the City of Kalgoorlie-Boulder (Figure 2).

To gain a better understanding of potential noise impacts of the Fimiston Operations on the population of Kalgoorlie-Boulder, and now that the section 38 FS Project has been approved, KCGM intends to commission additional studies, including a noise exposure model specific to the local population. Additionally, KCGM continues to undertake modelling to evaluate any proposed changes to mining or processing activities or any other activity, refer to Section 2.5.

Figure 2: KCGM Environmental Noise Bund Alignment

2.4.1.2 Ground Vibration & Air-blast Overpressure

Ground vibration and air-blast overpressure produced from blasting, if of sufficient magnitude or occurring over an extended period, can cause discomfort to sensitive receptors and potentially cause damage to structures, architectural elements and public services. Structural damage is not always the result of ground vibration or air-blast overpressure and can also be the result of natural deterioration of structures or ground or foundation movements due to the reactive clay environment (George Boucher Consulting, 2022).

Levels of ground vibration and air-blast overpressure from blasting activities is influenced by a range of factors, not all of which are within the control of the shotfirer. These include the rock type, structure, topography, meteorological conditions, explosive type, blast design and geometry. Studies and experience show that well designed and controlled blasts are unlikely to create ground vibrations of a magnitude that causes damage to structures (similarly; air-blast overpressure).

The proposed implementation of the Ivanhoe cutback surface activities present a slightly different scenario through a different increased risk probability of being noticeable by the community than normal in-pit operations. The reason for the change in risk probability is solely the location of surface blasting in comparison to underground or deep in-pit blasting. This fundamental difference must be clearly understood and managed to ensure appropriate controls are in place prior to any blast being fired. Future operational in-pit blasting has a lower risk probability of being noticeable by the community.

2.4.1.3 Flyrock Modelling

Flyrock refers to rock generated from within a blast, which may project varying distances beyond the blasting area. Variations in the distance that flyrock is thrown are a direct result of blast design, collar rock conditions and the loading practices of the blast. Poorly controlled blasting practices have the potential to generate flyrock that can be thrown great distances which then has the potential to cause damage to equipment and property, or harm or injury to people.

Throughout development of the mine, flyrock modelling has been conducted to determine the level of risk flyrock may present to the community. Based on the results of flyrock assessments, a blasting clearing area (BCA) is implemented to reduce the risk of harm to personnel and the public from flyrock. This BCA was historically 400 m from the blast zone but was successfully reduced to 200 m during development of the Golden Pike Project.

Results of modelling conducted for the Fimiston South Project (Blastechnology, 2022) calculated the risk of flyrock landing in the adjacent industrial area was 0.04% but could be lower provided stemming length and related blast parameters are strictly controlled. Among all property boundaries assessed in the study, only one showed a probability greater than 10^{-7} of fragments landing within the boundary. The structure at this location is owned and managed by KCGM and is scheduled for demolition. A small section of the Goldfields Highway (200 m long) has also been identified as having a very low probability of around 0.0001%.

2.4.2 Key Assumptions and Uncertainties

A number of assumptions and uncertainties based on studies and assessments undertaken to date form the basis of the proposed management approach, as listed below.

2.4.2.1 Assumptions

- The increase in the use of haul trucks at surface and on the eastern waste dumps as a result of the proposed extension of the Fimiston Open Pit may potentially increase the local noticeable noise levels.
- Cracks in buildings may be attributable to causes other than ground vibration, including ground or foundation movements (settlement and swell) associated with natural progressive deterioration of buildings over time and/or cyclical expansion/contraction of reactive clay soils during periods of prolonged dry or wet weather.

2.4.2.2 Uncertainties

- It should be noted that continuous noise monitoring data is influenced by other noise sources such as traffic, animals (e.g. birds and barking dogs) and social activity (e.g. music) and is not considered to be solely representative of noise emitted from KCGM's Fimiston Operations.

2.4.3 Management Approach

Management measures to minimise the intensity of the effects of the FS Project or future continued Fimiston Operations are necessary to ensure these activities will not have a significant detrimental impact on key environmental factors.

Specific application of the mitigation hierarchy for the FS Project has been applied due to the increased risk profile of surface activities.

2.4.3.1 Avoid

- No unnecessary blasting or ground vibration inducing activity to be conducted.
- Restricted hours of operation:
  - Blasting only between 0700 hours and 1800 hours (as per current conditions).
  - Limiting surface mining activities to daytime and evenings only until a level of 20 m below the undisturbed surface level is reached.

2.4.3.2 Minimise

- Construction of the ENB/ONB along south-western boundary of Fimiston Open Pit.
- Continuation of noise and vibration monitoring in accordance with the NVMP.
- Continuation of independent noise modelling to evaluate any proposed changes to current or future Fimiston Operations.
- Restricted hours of operation – for certain equipment or activity if there is a risk of attracting negative feedback from the community (restricted to daytime).
- Designing blasts to minimise air blast and vibration:
  - Reducing blast size.
  - Reducing blasthole diameter.
- Continue to undertake blast modelling to predict projected ground vibration and air-blast overpressure levels.
- Utilisation of electronic detonation system (as required).
- Ensuring the minimum stemming is loaded into each blasthole.
- Continue taking into consideration atmospheric conditions prior to blasting (red or green winds).
- Using additional noise barriers or temporary barriers where required or indicated by projected modelling (e.g. around exploration drilling).
- Installation of broadband frequency noise (white sound) reversing alarms on mobile equipment.
- Maintain consultation and engagement for matters of cultural heritage under the KCGM Aboriginal Cultural Heritage Management Plan/s (and related agreements).

2.5 Management of Mining Activities

2.5.1 Current Environmental Noise Bund

The first stage of the (ENB) was constructed in 1992, following modelling completed by Herring Storer Acoustics. Subsequent modifications and extensions have been undertaken and completed as the Fimiston Operations have evolved over time (see Figure 2 for current noise bund alignment). The most recent works on the ENB was undertaken to support the Golden Pike Cutback commenced in mid-June 2007 and were completed in July 2010.

The civil works required to remove the existing ENB is to accommodate the proposed Ivanhoe cutback and widening of the open pit (Figure 3) and maintain noise attenuation during the cut back activities and future Fimiston Operations (future mining and processing).

2.5.1.1 Operational Noise Bund

The FS Project (including the Ivanhoe cutback) requires a broadening of the currently approved Fimiston Open Pit boundary/crest, which impacts on existing infrastructure including the current nearby existing ENB which has been in place since 2007. This triggered the need for an additional realignment of a 1.8 km section which is referred to as the Operational Noise Bund (ONB) and is to remain in place whilst mining and processing activities continue at Fimiston. Due to the location of the zone of instability, the ONB will require re-shaping and partial removal to meet future long term closure (safe, stable, and sustaining)

landform requirements. Closure details are defined within the Fimiston Mine Closure Plan, which will be updated throughout the operational life phase. KCGM has allowed for the long-term adjustment of the ONB in the Fimiston Mine Closure Plan.

A separate acoustic assessment and noise management plan was completed under the Noise Regulations for construction works of the ONB. This predictive modelling has shown it is more beneficial to maintain daytime only operations when constructing the ONB, due to the construction zone being located on the western side of the current noise attenuation structures and near some Boulder Light Industrial area properties. Advice received on the best implementation strategy for construction works includes delivering the ONB construction in the timeliest manner possible to reduce the length of overall potential disruption (exposure) to nearby businesses in the industrial area.

Approval to commence early construction of the ONB, in advance of surface mining activities related to the Ivanhoe cutback, was granted in September 2023 under a minor or preliminary works under section 41A(3) of the EP Act. Civil construction activities were detailed in the Fimiston South Preliminary Works Supporting Document and approved Management Plan. Construction activities of the 1.8 km ONB commenced in late 2024 and was completed by early 2026. The works was implemented in staged sections, including day and night earthworks where required, to minimise the perception of continuous construction impacts on external receptors.

2.5.1.2 Ivanhoe Cut Back Sound Attenuation

The existing ENB will be retained during surface Ivanhoe cut back activities (i.e. mining activities being undertaken between -50RL and -60RL) to provide additional noise control as suggested by recent predictive impact assessment modelling completed in 2023. This modelling suggested, to allow the operation of large earth moving machinery at the surface, it was more beneficial to retain the existing eastern side of the current ENB directly next to the work areas. This is mainly due to the natural topography (up slope from south to north) of the area combined with the risk potential investigated during the impact assessment modelling.

Furthermore, once the mining activities are required at the -70RL, the existing noise bund will be removed to ensure pit stability. KCGM will however, ensure that the ENB is constructed to mitigate any potential adverse noise emissions.

Greater detail including activity restrictions is shown within Table 6 and Table 7 and discussed in Section 2.5.2. Figure 3 presents the overall birds eye view of the location of the 1.8 km ONB and supporting infrastructure corridors (electrical services etc). As a result of these works, the "Super Pit Lookout" was also relocated in early 2026 further south-west, accessed from Mount Monger Road off the Goldfields Highway, and re-established as a tourist and community attraction.

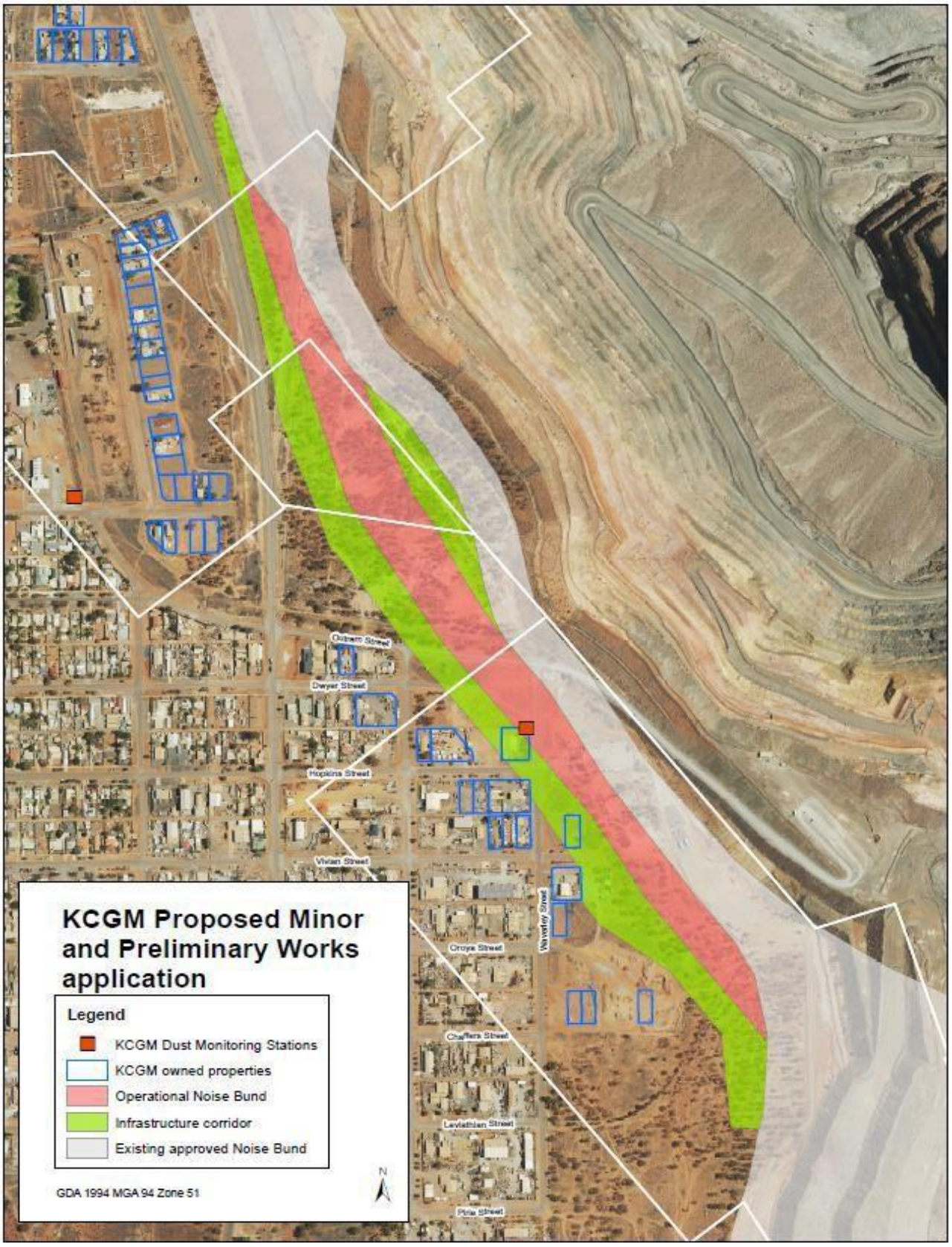

Figure 3: Operational Noise Bund and Infrastructure Corridor

2.5.2 Surface Activities

Certain activities, when undertaken at the natural surface, have been identified as major potential sources of noise emissions which could trigger community complaints or exceedances requiring external regulator notification. These noise sources are associated with equipment which can emit annoying characteristics i.e. tonality, modulation and impulsiveness as defined within the Environmental Protection (Noise) Regulations 1997 and activities which occur within close proximity to residential areas.

Examples of such equipment that may exceed the prescribed noise levels include long hole percussion drills, diggers, tracked loaders and dozers, and reversing alarms. To prevent such noise impacts, the use of certain equipment in certain areas is restricted to daytime[3] and evenings[4] only under *Environmental Protection (Noise) Regulations 1997*; and is replicated within the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.

Predictive modelling within the northern section of the Ivanhoe cut back has suggested mining out activities at surface and down to -70RL may pose the potential of an increased dB recording at nearby compliance monitoring stations. This increase, through the modelling was predicted to be in the vicinity of 1-5 dB above the current compliance thresholds approved under *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.

KCGM will look to reinstate the biannual sound power level testing programme (used between 2008 – 2016; Section 2.7.5) and/or investigate different methods to measure the equipment and activities on site to identify sources of major noise emissions. Once KCGM has collected sufficient data for the noise factors: Tonality, modulation and impulsiveness, a study will be commissioned to identify the major emission sources and include potential methods to reduce these noise factors at the Fimiston Operations.

2.5.2.1 Defining the Operational Time Period

Noise management measures have been developed based on predictive noise modelling and approved noise levels prescribed by the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*. Predictive noise modelling was undertaken for different scenarios whereby mining operations occurred at different operational heights (RL) and locations along the proposed cut back, in respect to noise receivers (Table 8).

Detailed analysis of the predicted noise level contributions from the revised Ivanhoe cut back has been undertaken in isolation from the total cumulative noise level to quantify how the difference in project generated/originated noise would or may impact the overall noise level/s. Additional predictive modelling was then conducted using a representative digger noise source with a Sound Power Level of 130 dB(A). Each individual digger was then independently assessed in isolation to each other along the entire length of the Ivanhoe cut back (Figure 4) and assessed at the regulatory monitoring locations.

The noise assessment considered the impacts with both the existing ENB and proposed ONB realignment on the noise levels experienced by receptors (regulatory monitoring locations); from surface to -70 RL. The purpose of this exercise was to establish clear delineation between non-impacting and higher probability of impacting operating time periods (day, evening or night shift).

The resultant noise level for each monitoring site (Table 8) represents the cumulative noise of both current mining operations and the FS Project mining operations. These noise levels are based on the highest noise propagation from source to receiver and considers the maximum WIF as informed by weather monitoring (see Section 2.6.3); effectively defining the worst-case scenario.

Based on a cumulative noise level (simultaneous all combined noise sources) there is the potential to exceed night-time assigned noise levels under the current *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025* at the currently approved compliance monitoring locations (Section 2.6.2 and Table 8). This rigorous testing of the model has provided KCGM with a delineation line between what is considered safe 24/7 operations and identified where further restraint and caution is required: or daytime

4 Evening is defined by the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025* as between the hours of 1900 and 2200.

only operations (Figure 5). This is identified as Digger Noise Source within Figure 4. Further understanding of the risk profile can be observed within Table 5.

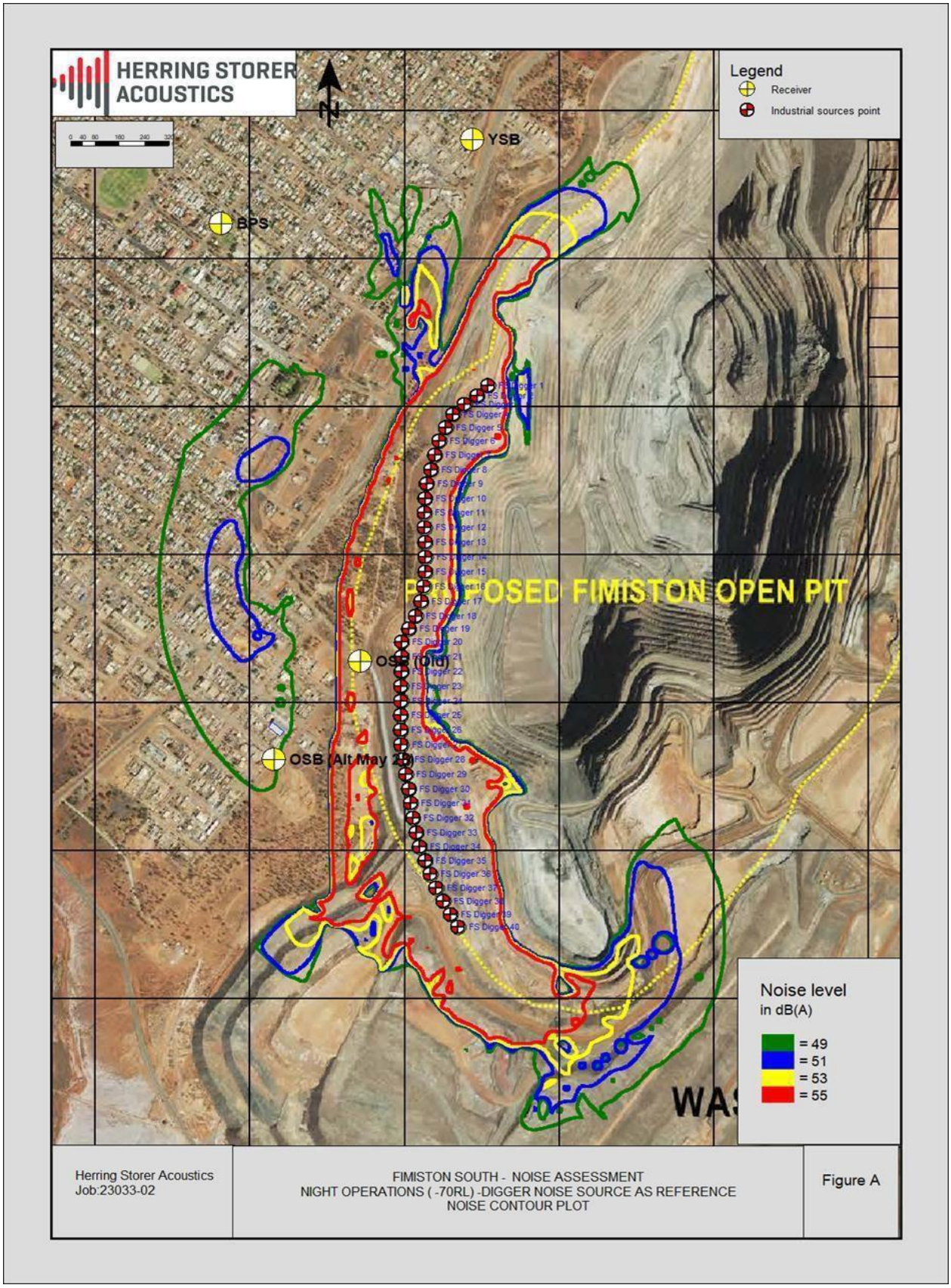

Figure 4: Noise Source Location Plan

Figure 5: Day/Evening and Night Operating Areas

2.5.2.2 Ivanhoe Surface Cut Back

The surface level activities associated with the Ivanhoe cut back pose an increased risk of attracting external attention onto the Fimiston Operation. To mitigate this and simultaneously assist develop a sustainable mining schedule, the following risk mitigation strategy (Table 5) is proposed and has been approved under *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.

Table 5: Ivanhoe Surface Activity Risk Mitigation Strategy

Activity Level		Top of ENB - 40 RL	Surface - 50 RL	Bench - 60 RL	Bench - 70 RL	Bench - 80 RL	Bench - 90 RL	> than - 90 RL
Northern Section of Ivanhoe Cut Back								
Day Time	0700-1900	No activity	12 hrs	12 hrs	12 hrs	24hrs/7days		
Evening	0700-2200		3 hrs	3 hrs	3 hrs			
Night- time	2200-0700		-	-	12 hrs			
Sunday	0900-1900		10 hrs	10 hrs	10 hrs			
Public Holiday	0900-1900		10 hrs	10 hrs	10 hrs			
Southern Section of Ivanhoe Cut Back								
Day Time	0700-1900	No activity	24hrs/ 7days	24hrs/ 7days	24hrs/ 7days	24hrs/ 7days	24hrs/ 7days	24hrs/ 7days
Evening	0700-2200							
Night- time	2200-0700							

Due to the sensitivity surrounding audibility within the Northern Section of the project, shown in Figure 5, which delineates the difference between 24/7 operations and daytime only, Table 6 has been developed to guide mining teams to schedule on ground activities based on the risk likelihood of receiving an external complaint and/or exceeding a compliance threshold at a compliance monitoring location.

A further dissection of the "Northern Section" (Figure 6) has been undertaken to divide the area into thirds, then a simple traffic light coding applied. The colours of red, orange and green represent the risk level associated with digger operation (loudest contributor, and haulage up East Waste Dump) under night-time conditions (Figure 5).

- Red shading indicates very high probability of receiving a complaint or recording an exceedance and, therefore, advisable to that area to be attributed to daytime only operations (0700-1900).
- Orange shading indicates the potential reduction in the probably, but caution should be implemented; suggest daytime and evening works only (0700 to 2200) with a hard stop at 2200.
- Green shading represents where the modelling confirmed 24/7 operation could safely be undertaken without increasing the risk of external complaints or exceeding a compliance threshold/s.

Figure 6: Dissection of the Northern Section of the Ivanhoe Cut Back

Table 6: Detailed Risk Mitigation Strategy for Mining Out of the Northern Section of Ivanhoe Cut Back

Activity Level		Top of ENB - 40 RL	Surface - 50 RL	Bench - 60 RL	Bench - 70 RL	Bench - 80 RL	Bench - 90 RL	> than - 90 RL
Northern Third of Northern Section								
Day Time	0700-1900	No activity	12 hrs	12 hrs	12 hrs	24hrs/7days		
Evening	0700-2200		-	-	-			
Night-time	2200-0700		-	-	-			
Sunday	0900-1900		10 hrs	10 hrs	10 hrs			
Public Holiday	0900-1900		-	10 hrs	10 hrs			
Middle Third of Northern Section								
Day Time	0700-1900	No activity	12 hrs	12 hrs	12 hrs	24hrs/7days		
Evening	0700-2200		3 hrs	3 hrs	3 hrs			
Night-time	2200-0700		-	-	-			
Sunday	0900-1900		10 hrs	10 hrs	10 hrs			
Public Holiday	0900-1900		-	10 hrs	10 hrs			
Southern Third of Northern Section								
Day Time	0700-1900	No activity	12 hrs	12 hrs	12 hrs	24hrs/7days		
Evening	0700-2200		3 hrs	3 hrs	3 hrs			
Night-time	2200-0700		-	-	-			
Sunday	0900-1900		10 hrs	10 hrs	10 hrs			
Public Holiday	0900-1900		10 hrs	10 hrs	10 hrs			

During the construction of the Northern WRD, KCGM implemented the following noise management strategy whereby construction was undertaken in two separate stages:

1) Construction of the outer wall to act as a noise bund (daytime only); and
2) Dumping of waste rock behind the outer wall.

This methodology was successful, and a similar approach will be adopted for future WRDs constructed within close proximity to residential areas.

2.5.3 Reversing Alarms

Results of the environmental noise study undertaken by Herring Storer Acoustics in 1991 identified reversing signals as a major noise emission source. Reversing warning alarms are required for safety purposes on mobile equipment operating on any mining or mineral processing site in accordance with regulation 13.3(1) of the *Work Health and Safety Act 2020 and Work Health and Safety (Mines) Regulations 2022*. The signals from these audible alarms are by design intrusive in nature (containing annoying characteristics) and therefore KCGM has continually investigated ways to minimise this noise.

Initially "smart alarms" were utilised on mobile mining equipment. These alarms allow for their output signal limit to be set at 5 dB(A) above background noise levels which reduced the volume of the reversing alarm during quiet periods (i.e. at night). The use of visual high intensity magenta strobe lights was also used on night shift on the ROM pad as an alternative to the tonal reversing alarm.

In 2006, KCGM became aware of a new type of reversing alarm which produces a broadband frequency noise opposed to tonal noise as the warning signal. After successfully trialling the broadband reversing alarms during 2007, KCGM commenced installing broadband reversing alarms on all mobile equipment located permanently onsite at the Fimiston Operations.

Since completing the roll out in late 2010, the use of broadband reversing alarms has been applied to all new mining equipment located permanently onsite, with the exception of PC 8000 Shovels and the CAT 994 Loaders that could not be fitted as the alarm could not be adequately heard above the idling of the equipment.

In order to eliminate tonality, modulation and impulsiveness in noise emissions from mining operations, KCGM will continue to research the feasibility of mechanisms other than audible signals for use as reversing alarms on other equipment used at the Fimiston Operations.

2.5.4 Mt Charlotte Waste Rock Conveyor

Since the early 1990s, waste rock has been transported to the Mt Charlotte Glory Hole to provide backfill for the underground mining operation, ensuring the safety and stability of the mine. Initially this was achieved by using haul trucks; however an increase in complaints received from nearby residents during 2000 identified this activity as a major noise emission source. In response, the number of trucks was reduced to a maximum of 12 per hour and operators made improvements to their driving techniques to reduce noise.

It became necessary to investigate alternative methods of transporting the waste rock which resulted in utilising the decommissioned conveyor equipment (previously used to transport ore from Mt Charlotte to the Oroya Mill). The conveyor eliminated the need for haul trucks which significantly reduced the noise emission levels associated with the transportation of waste rock to the Mt Charlotte Glory Hole.

However, the use of the conveyor introduced new noise emission sources, such as squeaky rollers and the noise from rocks falling off the belt and at designated transfer points. To further reduce noise emissions, the conveyor design included fully enclosed sections internally lined with insulation and an enclosure (noise barrier) constructed around the transfer chute on the western side of the conveyor at the Glory Hole.

In 2009, it was identified through several complaints that metal clips (used to repair tears in the conveyer belt) travelling over the rollers was a contributing noise source. KCGM replaced the conveyor belt during the first quarter of 2010 eliminating this noise source. The use of rubber clips in place of the metal clips has been trialled; however they were not suitable for repairing parallel rips or major tears. To mitigate the noise associated with the metal clips, KCGM adhered a rubber strip over the clips as required.

KCGM continues to manage noise emissions from the Mt Charlotte Waste Rock Conveyor via routine inspections and maintenance of the conveyor belt, rollers and related infrastructure. Any feedback received regarding noise from the conveyer is responded to with urgency to ensure that the source is identified and rectified in a timely manner.

2.5.5 Management of Haul Truck Noise

Initial noise assessment and modelling of the Fimiston operations identified haul trucks as a major noise emission source (Herring Storer Acoustics, 1991); recommendations from this assessment included investigating exhaust silencers and fitting panels to further enclose engines.

Based on recommendations by Herring Storer Acoustics, noise management regarding the haul trucks has continually been pursued by KCGM to investigate noise reduction opportunities, including the following:

- 2002 – KCGM undertook an improvement programme to retrofit existing haul trucks with quieter engines. New trucks purchased since this time have quieter engines and fans as a standard.
- 2008 to 2016 – biannual sound power level testing on individual haul trucks to enable analysis of noise performance trends and identify if additional maintenance is required.
- 2009 – Investigation of the use of sound suppressant mufflers.
- 2023 – Trials of eXtra Quiet haul trucks

- 2023, re-design of the Fimiston open pit triggered acoustic re-modelling with consideration to "normal operations" and expected expansion activities.

The predictive noise modelling has been based on the fleet of KCGM fleet. These are shown in Table 7.

Table 7: KCGM Fleet - Noise Source and Sound Power Level (dB(A)

Source Name	Quantity	SWL dB(A)
Dozer D10	6	113
Loaders (FEL)	3	115
Graders	3	115
Diggers	1	130
Haul Trucks	35	124

2.5.6 UWA Research Project

In June 2010, KCGM commenced a Noise Amelioration Program to satisfy a recommendation[5] made by the Appeals Committee in relation to an appeal against *the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009*.

After comprehensive community consultation, a research project entitled "Integrated Passive and Active Control of Humming Noise from KCGM's Haul Trucks" put forward by the University of Western Australia (UWA) was selected at KCGM's Community Reference Group (CRG) meeting held in March 2012 as the preferred noise amelioration program for KCGM to pursue.

This program was considered to satisfy the intent of the Appeals Committee recommendation to benefit the community most affected by noise from KCGM's Fimiston operations (i.e., haul truck noise) and to be over and above the commitments that KCGM has already made to other community projects regarding noise amelioration.

2.5.7 Haulage Route Program

Based on the analysis of noise source emissions conducted by Herring Storer Acoustics (2023), haul truck locations are the most significant contributor of noise emissions. Through operational experience and confirmation through acoustic modelling, the up ramp to the Eastern WRD is a known existing contributor to noise during night operations. This ramp has been utilised at night during current 24/7 site operations for a number of years. Currently KCGM implement noise mitigation activities to reduce the potential to impact on the City of Kalgoorlie-Boulder (example; not tipping on the western edge (town side) of the EWRD at night; and, reviewing WRD design when designing new WRD in the future). The Public Information Line (PIL) receives approximately 1 complaint per quarter relating to generalised operational noise at night.

2.5.8 Management of Resource Definition Drilling

KCGM's resource definition drilling programs often occur in close proximity to the City of Kalgoorlie-Boulder and have therefore been identified as a major noise emission source. Due to their transient nature and differentiation from general mining activities, noise emissions associated with resource definition drilling programs are managed to comply with the *Environment Protection (Noise) Regulations 1997*.

In 2011, a noise assessment was undertaken for a drilling program within proximity of residential properties in Williamstown. The assessment determined that the acoustic screens could not provide sufficient noise attenuation to comply with the *Environment Protection (Noise) Regulations 1997*. An alternative noise barrier

5 "(i) outline the steps required to develop and implement a noise amelioration program that will benefit the community most affected by noise from KCGM operations and that this would be over and above the commitments that KCGM have already made to other community projects."

was investigated which resulted in a decision to trial the use of shipping containers. Noise modelling was conducted by Herring Storer Acoustics (2011) with shipping containers in place, which indicated that the use of the containers provided a significant improvement in noise reduction when compared to the use of the acoustic screens.

A desktop assessment is undertaken for each drilling program prior to commencement to verify compliance with *the Environment Protection (Noise) Regulations 1997*. This process generally includes the following:

- Review of nearby land use to identify potential impacts on noise sensitive premises (industrial, rural or residential).
- Review of 'on ground' noise contours with shipping containers in place for each planned drilling location to determine compliance with the Noise Regulations at the nearest noise sensitive premises.
- Undertaking additional noise modelling as required.
- For drilling programs located within close proximity to residential areas the following noise control measures are considered:
- Drilling personnel provided with information to improve awareness of environmental impacts.
- Restricting times of operation.
- Utilisation of shipping containers. Generally, the cab will face the premises and the shipping containers positioned in an "L" shape around the cab. The shipping containers are to be assembled to maximise disrupting the line-of-sight between the drilling operations and the community. There should be no gaps either in the containers or at the junctions.
- Any ancillary pumps should be located behind tanks or the shipping containers. In addition, the pumps should be placed on tyres as this provides an effective vibration isolation medium from the ground.
- Any tanks should be located together. There should be no gaps between the tanks if they are to act as an additional noise barrier.
- Thick rubber matting should be laid between the drill rods as they are stacked.
- Lighting towers should be directed away from residential areas.
- Noisy activities e.g., pulling of rods should be avoided during the night-time period (between the hours of 2200 to 0700 or before 0900 on Sunday and public holidays).

Follow-up noise monitoring is usually undertaken once the drilling program has commenced to verify the predicted noise levels obtained from the desktop assessment. The measurements are used to calibrate the model to improve predictions made for subsequent drilling programs. Additional control measures will be implemented as required.

2.5.8 Management of Blast Vibration and Airblast

Careful management of blasting impacts, ground vibration and air-blast overpressure, is critical due to KCGM's proximity to the City of Kalgoorlie-Boulder. Since the commencement of the Fimiston Open Pit in 1989 as a single operation, KCGM has achieved a high success rate of blasting within approved regulatory levels and therefore minimised the impacts of ground vibration and air-blast overpressure on the community.

The Fimiston Open Pit presents some unique challenges for blast management including numerous faults which intersect the pit, a vast network of underground voids remnant from historic mining operations. Through extensive research and development projects coupled with learnings from both favourable and unfavourable blast events, KCGM's management of blasting is continually improving.

2.5.9.1 Blasting Times

Ministerial Statement1258 Condition B3-5 stipulates that KCGM shall only detonate explosives on the premises between the hours of 0700 hours and 1800 hours. If blasting occurs outside of the hours 0700 to 1800, KCGM will submit a report outlining why the blast was necessary to the CEO of DWER within seven (7) days, as per MS1258 Condition D1-1.

Where possible, KCGM initiates blasts at 1300 or 1700. A daily blast notification is sent to a distribution list (which includes community organisations) advising of the planned blast time and location. Daily blast times

are also made available through KCGM's Public Interaction Line (Ph: 9022 1100). Effort is made to avoid basting on Sundays and Public holidays, where practicable.

Blasts may be scheduled with "one hour" notice when unfavourable weather is predicted, or blast preparation is pending. Whilst every effort is made to notify the public of blast times, unexpected changes in weather and wind direction may cause a blast to be cancelled or rescheduled.

2.5.9.2 Blast Design and Modelling

Each blast is carefully designed to meet internal design criteria and accounts for external factors which may potentially increase the ground vibration and/or air-blast overpressure levels. A blast plan is developed for each bench to identify fault structures and underground workings within the blast areas to determine the risk profile with regards to ground vibration and air-blast overpressure. Criteria for blast design to minimise ground vibration and air-blast overpressure includes the following:

- Blast size is generally less than 450,000 tonnes.
- Blasthole diameter is determined by type of blast and vibration modelling results.
- Blast modelling is undertaken for all blasts to predict ground vibration and air-blast overpressure levels. Modelling considers the location of the blast within the pit and distance from monitoring sites.
- The type of initiation system (Nonel[6] or Ikon[7]) is determined based on the type of blast and from the blast modelling results.
- A minimum stemming height is required for each blasthole to optimise containment and reduce air- blast overpressure.
- Modification of blasting schedules where unfavourable atmospheric conditions are identified (e.g., cloud cover, high winds) are conducive to reflection of blast noise and potential to produce erroneous data.
- Firing of blastholes adjacent to known voids and simultaneous detonation of adjacent blastholes is avoided to minimise air-blast overpressure levels.

2.6 Monitoring Programs

2.6.1 Continuous Environmental Noise Monitoring

In accordance with the Condition 10(1) of the 2025 Fimiston Noise Approval and Ministerial Statement, KCGM has carried out continuous environmental noise monitoring at Metal Exploration Premises (MEP) and Boulder Primary School (BPS) (refer to Table 8). These are shown in shown in Figure 7 and Table 8.

KCGM's 'Continuous Environmental Noise Monitoring Program' is detailed below:

- Continuous noise monitoring is undertaken at BPS and MEP using Bruel and Kjaer 2250 Sound Level Meter (SLM) equipment, which are NATA calibrated every two years in accordance with the manufacturer's recommendation.
- Noise data at BPS is recorded in decibels as L10, L50, and L90 which are averaged over 1 hour.
- The SLM at BPS records any trigger events. The noise trigger function is set to operate between the hours of 1900 and 0700. A noise trigger event is recorded when:
  - the noise level exceeds 60 dB(A) between the hours of 1900 and 2200; and
  - the noise level exceeds 55 dB(A) between the hours of 2200 and 0700 for greater than two minutes.
- Trigger recordings are reviewed as required.

6 Nonel is a nonelectric shock tube detonation system which requires manual tie-in using various period delay detonators to achieve the required blast pattern. Experience has shown that inter-hole and inter-row timing combinations for Nonel can effectively manage vibration.

7 Ikon is an electronic detonation system which is used to achieve single hole firing to minimise the Maximum Instantaneous Charge. Because of the electronic programming of each individual hole, the use of Ikon can achieve a very precise blast pattern with reduced risk of misfire and timing errors. The electronic initiation system is able to separate the timing between holes to 12 milliseconds.

- Noise data at MEP is recorded in decibels as Leq which are averaged over five minutes. The MEP site is used to record real-time noise monitoring data for the KCGM website (refer to Section 2.6.4).
- Continuous noise monitoring equipment settings have been modified to include the recording and assessment of tonality at each location (BPS & MEP).

2.6.2 Compliance Environmental Noise Monitoring

In accordance with the Condition 10(3) of the 2025 Fimiston Noise Approval and Ministerial Statement, KCGM is required to record levels of noise and the presence of tonality received at each reference location. These reference locations are described in Table 8 and shown in Figure 7. This monitoring data is recorded as LA-10 and LA max which are averaged over the measurement period (minimum of 15 minutes) and is used to determine compliance against the approved noise levels for the Fimiston Operations. KCGM has commenced measuring and assessing tonality, modulation and impulsiveness as part of the compliance programme.

KCGM's 'Compliance Environmental Noise Monitoring Program' is detailed below.

- Performed quarterly by noise specialists using a manned SLM.
- Noise, other than mining noise attributable to the Fimiston operations, is excluded from the sound pressure level logs.
- Noise monitoring is undertaken at the reference locations during the evening and/or night periods. This time period has been selected to minimise noise from other contributing sources (e.g. traffic).

The approved noise level calculations also consider a Weather Influencing Factor (WIF). Data from the weather monitoring (refer to Section 2.6.3) equipment at KCGM's weather station Metal Exploration Premises (MEX) (see Figure 7) is used to determine the WIF based on measured weather conditions prevailing at the time the noise is received.

Table 8: Noise Monitoring Sites

Name	Abbreviation	Compliance/Continuous	Description
Barton Street Williamstown	BSW	Compliance	Means any place at or adjacent to the intersection of Barton Street and Baden Street, Williamstown.
Boulder Primary School	BPS	Continuous Compliance	Means any place within the boundary of the premises known as Boulder Primary School at 200 Lane Street, Boulder.
Kalgoorlie Technical School	KTS	Compliance	Means any place within the boundary of the premises known as Kalgoorlie Technical School at 13 Davidson Street, South Kalgoorlie.
Metal Exploration Premises	MEP	Continuous	Means any place within the boundary of the premises known as Metal Exploration Premises at 29 to 31 Holmes Street, Boulder.
Outram Street Boulder	OSB[8]	Compliance	Means any place at or adjacent to the intersection of Outram Street and Shannon Street.
York Street Boulder	YSB	Compliance	Means any place on York Street, between the intersections of York Street with Lane Street and Hamilton Street, Boulder.

It is also noted that the receiver point on Outram Street (OSB) will be altered as a part of the FS Project. An assessment has been undertaken against alternative reference locations for OSB. The relocation of this compliance noise monitoring receiver site, following the construction of the ONB and prior to cutback activities commencing, has been approved under the Regulation 17 Approval.

8 OSB compliance noise monitoring receiver site will be relocated following construction of the ONB and prior to cutback activities commencing. The current noise monitoring site is at the intersection of Outram Street and Shannon Street.

Figure 7: Noise Monitoring Locations

2.6.3 Weather Monitoring

In accordance with Ministerial Statement Condition 4(3) of the 2025 Fimiston Noise Approval, KCGM is required to determine the WIF for the weather conditions prevailing at the time the noise is measured, to calculate the approved noise levels for the Fimiston Gold Mine.

KCGM's uses data obtained from a wind sensor installed at KCGM's MEX weather station to meet the above requirement, as detailed below:

- Wind monitoring (wind speed and wind direction) is undertaken at MEX (Figure 7) using MET ONE model 50.5 sonic anemometer equipment positioned at approximately 20 m above ground level.
- The wind sensor is wind tunnel calibrated every two years in accordance with the manufacturer's recommendations.
- Wind Direction data is recorded as degrees (0-360) which are averaged (using vector averages) over five minutes.
- Wind Speed data is recorded as metres per second (m/s) which are averaged over five minutes. If required, weather data can also be obtained from the Bureau of Meteorology site located at the Kalgoorlie-Boulder airport.

2.6.4 Real Time Noise Monitoring

In October 2011, KCGM installed a "real-time noise monitor" to satisfy a recommendation made by the Appeals Committee in relation to an appeal against the Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009 gazetted on 14 July 2009. MEP was selected for the real-time noise monitoring site based on an assessment undertaken by Herring Storer Acoustics (2010) and the existing equipment/communication capabilities at the site.

Noise data is recorded as LAeq which are averaged over five minutes. Whilst it was initially suggested that the LA50 noise level data be used, the SLMs used by KCGM (Brüel & Kjaer 2250) are only capable of sending an analogue output as the LAeq noise level. In consultation with KCGM's noise consultants Herring Storer Acoustics, the LAeq was selected as it is considered to be more easily understood by the public.

The Appeals Committee's recommendation also required that data be made accessible to the public via the internet. To achieve this, KCGM set up a web-based report on the KCGM website which graphically displays the real-time noise monitoring data over a 48-hour period; the report is automatically updated every 15 minutes. The SLM used to record the real-time noise monitoring data is the same unit used to record the continuous environmental noise data at MEP (refer to Section 2.6.1).

2.6.5 Blast Vibration and Airblast Monitoring

In accordance with Condition 10(4) of the 2025 Fimiston Noise Approval, and MS1258, KCGM is required to record air-blast overpressure levels and ground vibration. KCGM's "Blast Monitoring Program" has been implemented to meet the above requirements, as detailed below:

- Blast monitoring is undertaken at six (6) reference locations (Alpha, Bravo[9], Charlie, Delta, Echo[10] and Foxtrot) which were established in 1993 (as defined in Table 9 and shown in Figure 8).
- Blast monitoring is measured and recorded using Advanced Texcel remote blast monitor (ETM) equipment. The blast monitoring equipment and siting meet the requirements of Regulation 21 and Schedule 4 of the Environmental Protection (Noise) Regulations 1997 and sections J3.2.1, J3.2.2 and J4.2 of Australian Standard AS2187.2-2006: Explosives – Storage and use, Part 2: Use of explosives.

9 As a result of the Golden Pike Cutback project, the Bravo blast monitoring site was relocated in 2010 to a more representative location as the previous location was within proximity to the open pit, resulting in unusually large variation in recordings which did not correlate with the other monitors. Approval from DWER was obtained prior to relocation through amendment of the NVMMP in October 2010.

10 This version of the NVMP has been amended to reflect the proposed relocation of the Echo blast monitoring site, following an assessment of blast induced ground vibration and air-blast overpressure associated with the proposed Morrison mining project (George Boucher Consulting, 2017). The assessment report recommended that the Echo blast monitoring site be relocated to a location further south of the existing site.

- The ETMs are NATA calibrated annually in accordance with Schedule 4 of the *Environmental Protection (Noise) Regulations 1997*, the manufacturer's specifications, and Section J3.1.2 of Australian Standard AS2187.2-2006: Explosives – Storage and use, Part 2: Use of explosives. A performance check of the equipment is automatically completed daily, and a copy of the performance report is sent to drill and blast personnel.
- Blast vibration is measured as peak particle velocity which is recorded in millimetres per second (mm/s).
- Airblast is recorded in decibels as Lz peak.
- Recording of a blast is triggered by ground vibration exceeding the set trigger level of 0.5 mm/s. The trigger level is an internal level set well below the applicable standards and regulations in order to track blast vibration patterns and trends.
- Blast monitoring records for each blast undertaken in the Fimiston Open Pit are stored in KCGM's Operational Management Databases (MMRS and Connected Mine). Procedures for recording of blast information in accordance with Section J3.4 of Australian Standard AS2187.2- 2006: Explosives – Storage and use, Part 2: Use of explosives.

Table 9: Blast Monitoring Sites

Name	Description
Alpha	Sensitive site
Bravo	Sensitive site on a residential property owned by KCGM
Charlie	Sensitive site on a residential property owned by KCGM
Delta	Sensitive site on a residential property owned by KCGM
Echo	Location other than a sensitive site
Foxtrot	Location other than a sensitive site

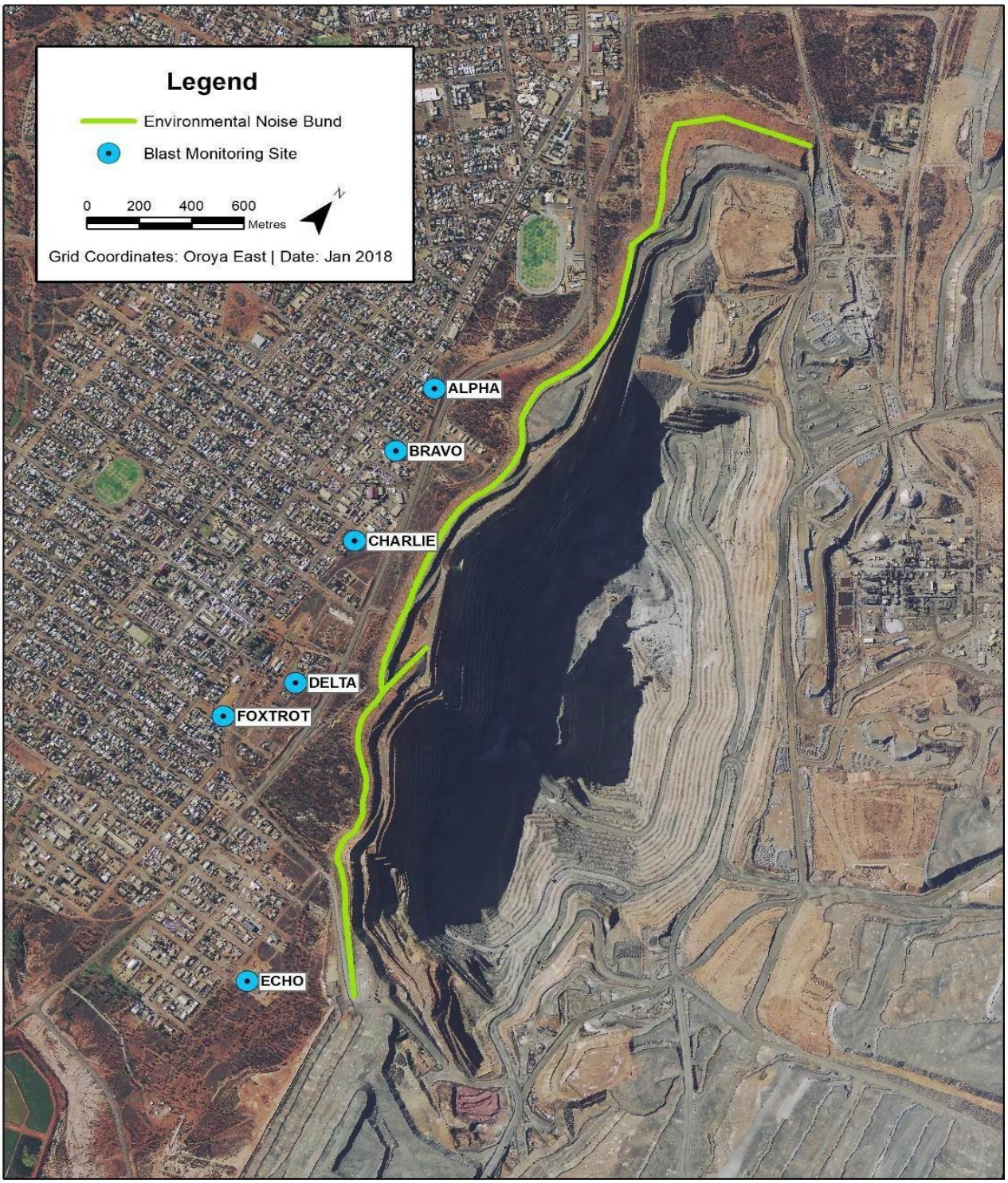

Figure 8: Fimiston Open Pit Blast Monitoring Sites

2.6.6 Rationale for Choice of Indicators and/or Management Actions

The current Regulation 17 Approval grants the approval for KCGM to exceed the regulated noise emission levels for:

- Noise emissions other than blasting (refer to Table 10); and
- Noise emissions resulting from blasting (refer to Table 11).

Table 10: Permitted Noise Emissions other than from Blasting

Location	Time	LA 10 approved level (dB)	LA max approved level (dB)
Barton Street Williamstown	Daytime	50 + WIF	65 + WIF
	Evening	45 + WIF	55 + WIF
	Night	45 + WIF	55 + WIF
Boulder Primary School	Daytime	50 + WIF	62 + WIF
	Evening	45 + WIF	52 + WIF
	Night	45 + WIF	52 + WIF
Kalgoorlie Technical School	Daytime	50 + WIF	62 + WIF
	Evening	45 + WIF	52 + WIF
	Night	45 + WIF	52 + WIF
Outram Street Boulder	Daytime	52 + WIF	65 + WIF
	Evening	49 + WIF	60 + WIF
	Night	49 + WIF	60 + WIF
York Street Boulder	Daytime	52 + WIF	65 + WIF
	Evening	49 + WIF	60 + WIF
	Night	49 + WIF	60 + WIF
Boulder Primary School	Daytime	50 + WIF	62 + WIF
	Evening	45 + WIF	52 + WIF
	Night	45 + WIF	52 + WIF
Kalgoorlie Technical School	Daytime	50 + WIF	62 + WIF
	Evening	45 + WIF	52 + WIF
	Night	45 + WIF	52 + WIF
Outram Street Boulder	Daytime	52 + WIF	65 + WIF
	Evening	49 + WIF	60 + WIF
	Night	49 + WIF	60 + WIF
York Street Boulder	Daytime	52 + WIF	65 + WIF
	Evening	49 + WIF	60 + WIF
	Night	49 + WIF	60 + WIF

Table 11: Permitted Noise Emissions from Blasting

Time of day	Approved airblast level (dB $L_{Z\ peak}$)	
	Not to be exceeded anytime	Not to be exceeded for 9 in any 10 consecutive blasts
0700 to 1800 hours Monday to Saturday (excluding public holidays)	125	120
0700 to 1800 hours Sunday and public holidays	120	115

Monitoring indicators and triggers have been chosen on the basis of accurately representing potential impacts associated with noise and vibration from the FS Project operations on social surroundings.

Management actions have been chosen that directly benefit the social surroundings in relation to noise and vibration. Herring Storer Acoustics (2023) predicted that the calculated noise levels, from the expansion of the FS Project, would potentially change the noise levels received at the current approved monitoring locations. Analysis of the noise source contribution for these receivers highlights that the haul trucks dominate the overall noise level, with the variation being a result of the location of individual haul trucks.

Acoustically, the night-time variation of the FS Project operations would be considered insignificant in either auditability or in assessable noise levels at the north and western receivers. For the Outram St location (OSB), the FS Project encompasses the reference location, hence this is no longer a suitable monitoring location. Alternative locations were substituted for the FS Project; however, these will require further investigation into the practicality of adopting them for future monitoring purposes. The study investigates the calculated results at the current approved locations and three alternative Outram Street monitoring sites through the following five scenarios:

- **Scenario 1** – Mining at down to -50 RL. Initial mining at the -50RL which includes the existing ENB. Mining operations cutting a 10 m bench through the FS Project from south to north. Allows for the bund to be left as a barrier and equipment mining on the pit side of the bund.
- **Scenario 2a** – Mining at the -60 RL (South). Mining at the -60 RL which includes part of the ENB. Mining operations cutting a 10 m bench through the FS Project from south to mid-section. Allows for the bund to be left as a barrier and equipment mining on the pit side of the bund.
- **Scenario 2b** – Mining at the -60 RL (North). Mining at the -60 RL which includes part of the ENB. Mining operations cutting a 10 m bench through the FS Project from mid-section to the north. Allows for the bund to be left as a barrier and equipment mining on the pit side of the bund.
- **Scenario 3a** – Mining Operations at -70 RL (South). Mining operations cutting a 10 m bench through the FS Project from south to mid-section. Allows for the removal of the bund in the south of the Project.
- **Scenario 3b** – Mining Operations at -70 RL (North). Mining operations cutting a 10 m bench through the FS Project from mid-section to north. Allows for the removal of the bund in the north of the Project.
- **Scenario 4** – Mining Operations at -80 RL. Mining operations at the -80 RL, cutting a 10 m bench through the FS Project length.
- **Scenario 5** – Mining Operations at -90 RL. Mining operations at the -90 RL, cutting a 10 m bench through the FS Project length.

Table 12: Results La 10 dB(A)

Receiver	Maximum Allowable Noise Level		Scenario						
			1	2a	2b	3a	3b	4	5
	Daytime	Night-time							
BPS	56	51	50	50	49	**52**	**54**	51	49
BSW	54	49	45	45	46	46	46	46	45
KTS	56	51	49	49	50	49	50	49	49
OSB	57	54	54	52	52	50	**57**	52	51
OSB Alternate 1[11]	57*	54*	50	52	**55**	51	**56**	52	52
YSB	57	54	50	50	49	52	54	51	49

2.6.7 Reporting of Exceedance of Environmental Criteria

In the event that the threshold criteria for noise, air-blast overpressure or ground vibration is exceeded, the CEO of DWER will be notified within seven (7) days of identification of the exceedance (MS1258; Condition D1-1).

Such events will include the following:

- Compliance Noise Monitoring result which indicates a measured level to be greater than the approved level;
- Air-blast overpressure level recorded above the approved limit level or more than 1 in any 10 consecutive blasts above the approved level; or
- Ground vibration level recorded above the approved limit level or more than 1 in any 10 consecutive blasts above the approved level.

11 Refer to Section 2.6.2 and Figure 6 for the location for the alternate monitoring location for Outram Street.

3 ENVIRONMENTAL MANAGEMENT PLAN PROVISIONS

3.1 Outcome-based Provisions

Outcome/s: To maintain noise emissions within the limits approved within the Regulation 17 Approval.
To maintain vibration within the ground vibration limits set out in Section J4.2 of Australian Standard 2187.2 – 2006.
To ensure KCGM continues to comply with the approved blasting procedures.
To ensure no direct disturbance of Aboriginal heritage sites, and Cultural Heritage Monitors will be used to monitor the works in the vicinity of heritage sites.

Key environmental values: Human health and amenity.

Key impacts and risks: Impact on human health and amenity.

Table 13: Noise and Vibration Outcome-based Provisions

Criteria	Response Actions	Monitoring	Timing / Frequency of Monitoring	Reporting
Trigger criteria A noise trigger event is recorded when the noise level exceeds 60 dB(A) between 1900 and 2200 hours and 55 dB(A) between 2200 and 0700 hours for greater than two minutes.	**Trigger level actions** The noise trigger function is set to operate between 1900 hours and 0700 hours. The digital stamp recorder stamps all triggers with the date and time of the event. Trigger recordings are reviewed as required, usually in conjunction with a response to a noise complaint, to identify if the source of the noise was attributable to the Fimiston operations.	Continuous noise monitoring at BPS (Boulder Primary School) and Metal Exploration Premises (MEP) using Bruel and Kjaer 2250 Sound Level Meter (SLM) equipment.	Continuous monitoring of noise data at BPS and MEP are recorded in decibels as LA10, LA50, and LA90 which are averaged over 1-hour. Compliance environmental noise monitoring is completed quarterly at five reference locations.	If a noise trigger is identified as being from the Fimiston Operations, it will be reported as an internal incident and the source will be further investigated.
Threshold criteria Noise and vibration exceed approved LA max levels.	**Threshold contingency actions** Report internally as an incident. Investigate cause and extent of the impact and if it is likely to result in the key environmental outcome not being achieved. Revise and update noise management measures to minimise noise and vibration exceedances.	Continuous noise monitoring at BPS (Boulder Primary School) and Metal Exploration Premises (MEP) using Bruel and Kjaer 2250 Sound Level Meter (SLM) equipment.	Continuous monitoring of noise data at BPS and MEP are recorded in decibels as LA10, LA50, and LA90 which are averaged over 1-hour. Compliance environmental noise monitoring is completed quarterly at five reference locations.	In the event that the threshold criteria for noise, air-blast overpressure or ground vibration is exceeded, the CEO of DWER will be notified within seven (7) days of identification of the exceedance.

Criteria	Response Actions	Monitoring	Timing / Frequency of Monitoring	Reporting
Trigger criteria Public health or property impacted by flyrock.	**Trigger action level** Evidence of land disturbance resulting in damage to property will be reported as an incident. Investigate cause and extent of impact and if it is likely to result in the key environmental outcome not being achieved.	Assessment of level of damage to property caused from flyrock.	As required.	Annual reporting of monitoring and contingency actions.
Threshold criteria Reduced public health or damage to property from flyrock.	**Threshold contingency actions** Report internally as an incident. Investigate cause and extent of impact and if it is likely to result in the key environmental outcome not being achieved.	Assessment of level of damage to property caused from flyrock.	As required.	Annual reporting of monitoring and contingency actions.
Trigger criteria Public health or damage to property from flyrock.	**Trigger action level** Review the circumstances and potential emission source.	Blast monitoring is measured and recorded at six reference locations using Advanced Texcel remote monitor (ETM) equipment.	Recording of a blast is triggered by ground vibration exceeding the set trigger level of 0.5 mm/s. The trigger level is an internal level set well below the applicable standards and regulations in order to track blast vibration patterns and trends.	In the event that the trigger criteria for noise, ground vibration and air- blast overpressure is exceeded, the CEO of DWER will be notified within seven (7) days of identification of the exceedance.
Threshold criteria Airblast level recorded above the approved limit level or more than 1 in any 10 consecutive blasts above the approved level; or Vibration level recorded above the approved limit level or more than 1 in any 10 consecutive blasts above the approved level.	**Threshold contingency actions** Report internally as an incident. Investigate cause and extent of impact and if it is likely to result in the key environmental outcome not being achieved. Develop strategies to reduce dust affecting public amenity if it is shown to be the cause of the decline.	Blast monitoring is measured and recorded at six reference locations using Advanced Texcel remote blast monitor (ETM) equipment.	Recording of a blast is triggered by ground vibration exceeding the set trigger level of 0.5 mm/s. The trigger level is an internal level set well below the applicable standards and regulations in order to track blast vibration patterns and trends.	In the event that the threshold criteria for noise, ground vibration and air- blast overpressure is exceeded, the CEO of DWER will be notified within seven (7) days of identification of the exceedance.

3.2 Objective-based Environmental Management Plans (EMP)

EPA factor/s and objective/s: To protect social surroundings from significant harm.

Purpose of Environmental Management Plans: To maintain noise emissions within the limits approved within the Regulation 17 Approval. To maintain vibration within the ground vibration limits set out in Section J4.2 of Australian Standard 2187.2 – 2006.

To comply with currently approved Ministerial Statement 1258 and anticipated conditions.

Key environmental values: Human health and amenity.

Key impacts and risks: Impact on human health and amenity.

Table 14: Noise and Vibration Objective-based Provisions

Management targets	Management actions	Monitoring	Timing / frequency of actions	Reporting
For all blasting, the proponent shall comply with the following vibration limits, measured or calculated, in accordance with a Section J4.2 of Australian Standard 2187.2 – 2006 and the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.				
Trigger level Vibration exceeds allowable limits.	**Preventative actions** • Train staff in implementing the NVMP. • Confirm NVMP is being implemented. **Trigger level actions** • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences which may include the following: - Audit and review of training and staff inductions, i.e. increase in staff training and awareness to include information on legislative requirements.	Internal audit	Annual auditing and documentation of any contingency actions.	Annual reporting of monitoring and contingency actions.

Management targets	Management actions	Monitoring	Timing / frequency of actions	Reporting
Threshold level Recording of a blast is triggered by ground vibration exceeding the set trigger level of 0.5 mm/s. The trigger level is an internal level set well below the applicable standards and regulations in order to track blast vibration patterns and trends.	**Threshold level actions** • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences which may include the following: - Audit and review of training and staff inductions, i.e. increase in staff training and awareness to include information on legislative requirements.	Internal audit.	Annual auditing and documentation of any contingency actions.	Annual reporting of monitoring and contingency actions.
The proponent shall review the Revised Noise and Vibration Monitoring and Management Programme as required by the Environmental Protection Authority and shall amend the Programme to the requirements of the Minister for Environment on advice of the Department of Water and Environmental Regulation.				
Trigger level NVMP is not reviewed and or amended as instructed.	**Preventative actions** • Confirm NVMP is reviewed as required. **Trigger level actions** • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future exceedances.	Internal audit.	Annual auditing and documentation of any contingency actions.	Annual reporting of monitoring and contingency actions. Review and update of NVMP based on requirements of the Minister for the Environment on advice from DWER.
The proponent shall implement the amended Revised Noise and Vibration Monitoring and Management Program in accordance with the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*				
Trigger level NVMP is not implemented.	**Preventative actions** • Train staff in implementing the NVMP. • Confirm NVMP is being implemented. **Trigger level actions** • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences which may include the following: - Audit and review of training and staff inductions i.e.	Internal audit.	Annual auditing and documentation of any contingency actions.	Annual reporting of monitoring and contingency actions in accordance with Regulation 17 requirements.

Management targets	Management actions	Monitoring	Timing / frequency of actions	Reporting
	Increase in staff training and awareness to include information on legislative requirements). **Threshold level actions –** N/A			

4 CONTINUOUS IMPROVEMENT

KCGM recognises the dynamic nature of ecosystems and supports adaptive management under this NVMP. Adaptive management involves:

- Monitoring and evaluation against management targets (including early response triggers) and environmental criteria (including triggers and thresholds).
- Implementing mitigation measures, reviewing and assessing new technologies.
- Systematically adapting management and mitigation measures and monitoring to meet the environmental objectives.

4.1 Adaptive Management and Review of the NVMP

KCGM will implement adaptive management to learn from the implementation of mitigation measures, monitoring and evaluation against the environmental criteria in order to meet the condition environmental objective. Assumptions and uncertainties will be evaluated against collected monitoring data on a recurrent basis in a process of continual improvement and management provisions will be refined accordingly. The following approach will be followed:

- Compliance Noise Monitoring data will be systematically evaluated and compared to the environmental criteria on a quarterly basis. Monitoring results which indicate a measured level to be within 1 dB of the corresponding approved level will be reviewed in a process of adaptive management to verify the effectiveness of noise management measures and its implementation, assess changes to operating conditions and identify potential noise sources external to the Fimiston Operations.
- Blast monitoring data will be systematically evaluated and compared to modelled results, internal limits and environmental criteria following each blast in a process of adaptive management to verify whether responses to the impact are the same or similar to predictions. Blast monitoring results above KCGM's internal limits (i.e. a vibration reading between 4 mm/s and 5 mm/s and air-blast overpressure levels within 5 dB of the regulatory limit for that monitoring site) are reviewed to identify potential improvements to existing blast ground vibration and air-blast overpressure controls.
- An increased number of complaints or repeated complaints from the same area will be reviewed to verify whether noise management practices are being implemented effectively, if there has been a change to operating conditions or if the source is external to the Fimiston Operations. Information received via community feedback can assist KCGM to identify noise emission sources and improve noise management.

Review of the EMP will be undertaken as per the following:

- When requested by the CEO of DWER;
- When required by a condition of a subsequent ministerial approval;
- Where management actions identify the requirement for improvement; or
- When external changes occur during the life of the proposal which indicate a change to the proposed management actions (e.g. changes to the open pit operations).

Any review and consideration of management actions or additions to this plan made in relation to adaptive management will be submitted to DWER for formal review.

5 STAKEHOLDER CONSULTATION

The relevant stakeholders for this NVMP are:

- EPA: Assessment of the FS Project under Part IV of the EP Act, Review of NVMP.
- Kalgoorlie-Boulder residents.
- WAPC (formerly DPI).
- DMPE: Annual reporting and mine operation (Mining Act).

- City of Kalgoorlie-Boulder.
- Heritage Council of Western Australia (HCWA).
- DWER (Noise Regulation Branch).
- Noise Working Group consisting of KCGM personnel and stakeholder representatives from: City of Kalgoorlie-Boulder, DWER, Kalgoorlie-Boulder Community and Main Roads.
- Community Reference Group (CRG) consisting of self-nominated group of local community members and invited guests from the DWER, DMPE, KBCCI, DPLH and State and Local Government.
- Community: When approved, the revised plan will be made publicly available.
- During Assessment Phase: available via regulator website for public comment.

The results from the stakeholder consultation process with local groups and governing authorities are outlined in Table 15.

Table 15: Results from Stakeholder Consultation

Stakeholders	Results from Consultation
Kalgoorlie-Boulder residents	The views of Kalgoorlie-Boulder residents are captured regularly in KCGM's Social Impact Assessments (SIA), which are conducted around every five years or when there is a major operational change. The most recent SIA in 2021 included questions regarding management of environmental impacts, including noise and vibration. Both key stakeholders and public phone survey respondents rated KCGM highly in management of environmental impacts. Since 2019, KCGM has engaged an independent consultant to undertake public consultation through online surveys and focus group sessions. These surveys seek data on meeting community expectations what drives Social Licence to Operate (SLO) for KCGM and provides recommended mitigation strategies. Trust and Acceptance scores are used as a proxy measure for SLO. Survey insights are analysed and provided back to both the company and to the community. Insights provide data-based evidence of long-term trends on key issues and emerging patterns to consider. These recommendations from the baseline of KCGM's Social Impact Management Plan (SIMP). The survey program has occurred every quarter for the past five years. Management of environmental impacts is measured and monitored closely. To date, this has consistently scored at or above 3.5 out of 5.
Heritage Council of Western Australia (HCWA)	In accordance with Condition B3-5(4) of MS1258, KCGM is required to liaise with the Heritage Council of Western Australia to minimise environmental impacts associated with active mining on State Registered Places including the Boulder Railway Station, Subway and Loopline, and Cornwall Hotel.

Stakeholders	Results from Consultation
Department of Water and Environmental Regulation (DWER)	Since 1991 when the MS188 was issued by the Minister, KCGM has continuously consulted with the Department of Water and Environmental Regulation (DWER) including EPA Services and Noise Services with regards to development of the NVMMP including confirmation and approval of noise measurement sites and instruments, and inclusion of additional information in the NVMMP when requested. Since approval of the October 2010 version of the NVMMP, received 06 December 2010, KCGM has consulted with the DWER with regards to the following: • 19 January 2011 KCGM sent a letter to the OEPA and the DEC to advise them of the new format for advertising the quarterly noise results. No feedback received. • 14 July 2011 KCGM sent a letter to DEC (Noise Regulation Branch) seeking approval for the location of the Real-Time Noise Monitoring Sites. • 21 September 2011 DEC (Noise Regulation Branch) provided feedback via email approving the location of the Real-Time Noise Monitoring Site. • 19 June 2013 KCGM emailed the DEC (Noise Regulation Branch) seeking approval to vary from the October 2010 NVMMP regarding assessment of noise triggers and field calibration frequency. • 21 June 2013 DEC (Noise Regulation Branch) provided comments via email regarding KCGM intention to vary from the October 2010 NVMMP. The changes were accepted. • 22 June 2016 KCGM submitted a revised NVMMP, which was approved 19 September 2016. • 24 January 2018 KCGM met with the DWER (Noise Services) to: - review the environmental noise assessments which were completed for the proposed Morrison Mining Operations and realignment of the ENB, the proposed Brownhill Mining Operations and proposed haulage of waste rock associated with a TSF Infrastructure Project; and - discuss the proposed relocation of the Echo Blast Monitor. Given the location of the proposed projects and results of the environmental noise assessments there were no concerns raised regarding potential noise impacts, and the relocation of Echo was to be sought through an amended NVMMP. • 27 July 2022 KCGM met with the DWER (Noise Services) to advise them of the coming EP Act Referral for FS Project.
Noise Working Group	A Noise Working Group was established in June 2010 to discuss KCGM's options to address the Appeals Committee recommendations with regards to the original Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2009. During the program review, the function of the Noise Working Group was assessed and the decision made to incorporate discussions regarding the Noise Amelioration Program and the Real-Time Noise Monitoring Program into the CRG monthly meeting agenda, rather than coordinating a separate forum. Details are documented in KCGM's Quarterly Noise and Blast Monitoring Reports and the Annual Noise Monitoring and Management Report.

Stakeholders	Results from Consultation
Community Reference Group (CRG)	The Community Reference Group meets monthly to discuss current KCGM planning, operational activities and feedback from the community. Minutes of meetings are available on the KCGM website together with contact details for all CRG Members. The local community is encouraged to contact CRG members to discuss their issues if they do not wish to contact KCGM directly. KCGM has consulted with the CRG regarding the following items regarding noise management: • Noise Amelioration Program; • Real-Time Noise Monitoring Program; • New Format for the Quarterly Noise Advertisement; and • Proposed mining projects (including Morrison, Brownhill and the Fimiston South Project).

KCGM maintains a 24-hour Public Interaction Line (PIL) as a point of contact, this is managed by the Community Team and includes maintaining records of all comments (regardless of frivolously or founded nature). All comments received during the assessment of the FS Project proposal public comment phase or this NVMP document, have been considered and changes made as/if required.

5.1 Complaints Management

KCGM's 24-hour Public Interaction Line (PIL) was established in 1993 and allows the community to contact and speak with KCGM representatives directly on specific matters they wish to discuss. It is an important avenue for capturing individual and community-based issues which may require additional follow up and action/s. The PIL is promoted regularly in print and radio advertising, radio interviews, online mediums (website) and printed materials (information sheets).

The PIL is supported by an electronic database, which enables the categorisation of queries and the automation of subsequent action allocation and follow-up. The database is also used to record stakeholder communications and engagement and enables data to be analysed and tracked with reference to areas of community concern.

During business hours, PIL enquiries are referred directly to the relevant department supervisor for appropriate action. Incoming calls received outside office business hours may be forwarded to the shift supervisor for immediate action or where appropriate will be followed up the next working day.

Once an internal review has been completed, the caller is informed of actions taken or outcomes of their enquiry or complaint. KCGM responds to all people who contact the PIL and provide contact details either by phone, in writing or meetings. Historically, complaints related directly to noise or vibration associated with mining operations are low with an average of 4.5 per annum between 2009-2021.

6 CHANGES TO THE NVMP

Table 16: Changes to the NVMP

Complexity of changes:	Minor revisions		Moderate revisions	X	Major revisions		
Number of Key Environmental Factors:	1		2-3	X	> 3		
Date revision submitted to EPA:	23/02/2024	This NVMP (V12, 2025) has not yet been submitted to the EPA as we are currently awaiting issue of the final approved Ministerial Statement for the FS Project					
Proponent's operational requirement timeframe for approval of revision:	< One Month	X	< Six Months		> Six Months		None
Reason for Timeframe:	Condition 11 of the F requires submission of a Noise Management Plan within 3 months of this date.						

Item no.	EMP section no.	EMP page no.	Summary of change	Reason for change
1	General	All	Overall framework amended	Comply with 'Instructions on how to prepare Environmental Protection Act 1986 - Part IV Environmental Management Plans, (version 2.0; 2021)'
2		iv	Document History/Version control	More suitable to be at the front of the document.
3	Section 1	2	Present background of the project	To provide the purpose of the NVMP and update the Management Plan Summary as per the EPA guidelines
4	Section 2	5	Updates to KEF to include Social Surroundings and Human Health (Section 2.3)	Updated to accurately reflect KEF potentially impacted by FS Project.
5		6	Inclusion of the discussion of Potential impacts (Section 2.2.1.and Section 2.2.2)	Included to align with EPA guidelines

Item no.	EMP section no.	EMP page no.	Summary of change	Reason for change
6		10	Rationale for development of the document (Section 2.4)	Section and sub-section included to describe rationale of the management approach against the potential impacts on the environment as per EPA EMP template and guideline
7		30	Inclusion of Monitoring Programs (Section 2.6)	Section and sub-section included to describe the rationale for the management actions against the potential impacts on the environment as per EPA EMP template and guideline.
8		35	Inclusion of rationale for choice of indicators and/or management actions	Added to comply with EPA 'Instructions on how to prepare Environmental Protection Act 1986 - Part IV Environmental Management Plans, (version 2.0; 2021)'
9	Section 3	39	Updates to EMP Provisions	Amended to align with the outcome based, and the objective based EMP requirements as per the EPA EMP template and guideline.
10	Section 4	44	Provided strategies for Continuous Improvement.	Updated to identify adaptive management action for consideration, as per the EPA EMP template and guideline.
11	Section 5	47	Included reference to the 24-hour Public Interaction Line (PIL)	Updated to more accurately reflect KCGM operations and responses.
12	Section 6	48	Included Changes to EMP	Updated to align with EPA EMP template, new MS 1258 and new Noise Regs.

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