GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal - Fimiston South Project

Kalgoorlie Consolidated Gold Mines Pty Ltd

Report 1779

February 2025

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the of the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal - Fimiston South Project by Kalgoorlie Consolidated Gold Mines Pty Ltd.

This assessment report is for the Western Australian Minister for Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA considers appropriate.

Darren Walsh
Chair
Environmental Protection Authority

30 January 2025

ISSN 1836-0491 (Online)
Assessment No. 2354

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The Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal - Fimiston South Project is a significant amendment to extend the approved Fimiston Gold Mine Operations Extension Stage 3 and Mine Closure Planning proposal. The proposal is to mine a cutback of the existing Fimiston Open Pit, with expansion of mine tailings deposition, waste capacity and associated infrastructure. The significant amendment proposes the expansion of operations by:

- increasing the mine development envelope
- widening and deepening the mine pit (also known as the Super Pit) within an area referred to as the Ivanhoe Cutback
- relocating and modifying the environmental noise bund (ENB)
- expanding and relocation of associated infrastructure and facilities including a run of mine pad, extended waste rock dumps (WRDs), tailing storage facilities (TSFs), topsoil stockpiles, pipelines, roads and transmission lines
- increasing production capacity
- extending the life of mining operations by seven years to 2034.

The proposal is located 600 kilometres (km) east of Perth, and adjacent to the City of Kalgoorlie-Boulder, in the Goldfields region of Western Australia (Figure S1). The proponent is Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM).

Context

Mining operations and mineral processing has occurred within the vicinity of proposal since the discovery of gold in the area in 1893. Prior to 1989, the Kalgoorlie Golden Mile area was mined by several companies with individual operations. KGCM was established in 1989 to combine individual operations into one single operation and amalgamate several smaller pits into what is now known as the ‘Super Pit’.

The original proposal to rationalise the mining activities into a single operation was assessed by the EPA in 1991. The existing proposal was approved through Ministerial Statement (MS) 188 issued in October 1991. In January 2009, MS 782 was issued for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning Proposal. MS 782 has been subject to seven amendments between 2010 and 2020. The revised proposal for the Fimiston South Project will increase the mine development envelope to accommodate the widening of the Fimiston pit, and extension of the TSFs, WRDs and supporting infrastructure.

Environmental values

The proposal primarily occurs within the Eastern Goldfields Subregion of the Coolgardie Bioregion with a small portion situated in the Eastern Murchison subregion of the Murchison Bioregion. The development envelope contains one priority flora species, *Eremophila praecox* (Priority 2), and one priority fauna species, *Jalmenus aridus* (Priority 1; Inland Hairstreak Butterfly). Air quality, social surroundings, flora and vegetation, terrestrial fauna and greenhouse gas (GHG) emissions are the key environmental factors that may be impacted by the proposal.

Consultation

The Environmental Protection Authority (EPA) published the proponent's referral information for the proposal on its website for seven days public comment. The EPA published the proponent's environmental review document on its website for public review for four weeks between 25 March 2024 to 24 April 2024. Nine (9) public submissions were received from individuals and Government agencies. The proponent provided the EPA with a response to submissions document (RtS). The EPA considered the comments received during these public consultation periods in its assessment.

Mitigation hierarchy

The mitigation hierarchy is a sequence of proposed actions to reduce adverse environmental impacts and emissions. The sequence commences with avoidance, then moves to minimisation, rehabilitation, and offsets are considered as the last step in the sequence.

The proponent considered the mitigation hierarchy in the development and assessment of its proposal, and as a result has proposed the following key measures.

Avoidance measures:

- designing the mine layout (significant amendment disturbance footprint) to avoid 60 known *Eremophila praecox* individuals within the significant amendment development envelope
- designing the WRD to avoid impacting the entire onsite *Jalmenus aridus* population
- designing surface hydrology to avoid changes in hydrology in the *Jalmenus aridus* habitat area
- avoiding known Aboriginal cultural heritage sites.

Minimisation measures:

- continued implementation of the Fimiston Air Quality Management Plan and Dust Monitoring and Management Programme to minimise impacts to dust, including continued real-time monitoring of particulate matter (PM_{10}) concentrations and implementation of the reactive dust control strategy
- continued implementation of the Aboriginal Cultural Heritage Management Plan to reduce impacts to Aboriginal heritage sites and values
- implementation of the Significant Species Management Plan (SSMP) Flora and SSMP Fauna to minimise impacts to conservation significant flora and fauna
- controlling weeds through the implementation of the Weed Management Procedure within the SSMP Flora and SSMP Fauna
- establishing a 50 m buffer around *Jalmenus aridus* breeding shrubs
- continued implementation of a Noise and Vibration Monitoring Management Plan (NVMMP) and Blast Management Plan to minimise potential impacts from noise and blasting
- implementation of a Greenhouse Gas Management Plan.

Rehabilitation measures:

- implementation of the Rehabilitation and Closure Management Plan and Mine Closure Plan
- stockpiling vegetation cleared / mulched vegetation for use in rehabilitation to improve the nutrient value of the soil
- retention and use of soil from cleared areas for TSF rehabilitation post closure
- progressive rehabilitation to minimise fugitive dust emissions from wind erosion.

Assessment of key environmental factors

For each of the significant impacts identified, the EPA has considered the proponent's application of the mitigation hierarchy and whether environmental outcomes are likely to be consistent with the EPA's factor objectives and the principles of the EP Act. As the proposal is a significant amendment to an existing proposal the EPA's assessment has been undertaken in the context of the existing proposal, having regard to the combined and cumulative effects on the environment. The EPA has also considered whether to inquire into the implementation conditions for the existing proposal.

The EPA has identified the key environmental factors in the course of the assessment. For each factor, the EPA has assessed the residual impacts of the proposal on the environmental values and considered whether the environmental outcomes are likely to be consistent with the EPA environmental factor objectives.

Air Quality

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Potential to impact on air quality from dust and to the associated environmental values of human health and amenity.	The dust impacts from the combined proposal are not expected to significantly impact air quality or cause longer-term health effects provided the minimisation and management measures continue to be effectively implemented by the proponent. The EPA considers that a 24-hour PM_{10} limit of 75 µg/m^3 at the boundary monitors and 50 µg/m^3 at the community based monitors are appropriate to ensure no longer-term health impacts in the community from the proposal. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for air quality.	**Condition B3 (Air quality)** Impacts should be subject to implementation conditions B3-1 to B3-4 to manage air quality impacts from the proposal.
2	Detonation of explosives.	The proponent will be required to detonate explosives to facilitate mining. Management to ensure explosives are detonated at surface	**Condition B3-5** Impacts should be subject to implementation condition B3-5 to manage

Residual impact		Assessment finding	Recommended conditions and DMA regulation
		level when wind directions favour the carriage of dust away from the residential areas, that explosives are only detonated between the hours of 0700 hours and 1800 hours and that mining operations are not undertaken within 400 metres (m) of a property without consent, will ensure the potential for impacts are minimised. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for air quality.	air quality impacts from the proposal as a result of detonation of explosives.

Social Surroundings

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Direct impacts to Aboriginal heritage sites.	The EPA advises that there is a risk of residual impacts to Aboriginal cultural heritage associated with unauthorised ground disturbance or disturbance to potentially unknown sites. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for social surroundings.	**Condition A1 (Limitations and extent of proposal)** **Condition B5 (Aboriginal cultural heritage)** Requiring avoidance of disturbance to Aboriginal cultural heritage sites, unless consented to through approvals under Aboriginal heritage legislation.
2	Noise impacts to the City of Kalgoorlie-Boulder.	Noise impacts will continue to be above the prescribed limits in the Noise Regulations. The noise impacts are able to continue to be regulated through a Regulation 17 Approval, with revised and additional requirements.	**Draft proposed Regulation 17** Requires the proponent to implement a noise management plan and to minimise noise emissions and impacts of noise on the City of Kalgoorlie-Boulder.

Flora and vegetation

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Clearing of up to 1,580 ha of native vegetation mostly in 'Good' to 'Excellent' condition.	The clearing of 'Excellent' to 'Very Good' condition vegetation represents a residual impact.	**Condition A1 (Limitations and extent of proposal)**

Residual impact		Assessment finding	Recommended conditions and DMA regulation
		The EPA advises that this residual impact can be regulated through conditions including limitations on clearing, and progressive rehabilitation to meet rehabilitation and closure outcomes. The EPA has concluded that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.	**DMA regulation** Progressive rehabilitation to meet rehabilitation and closure outcomes through the Mine Closure Plan under the *Mining Act 1978*.
2.	Clearing of up to 126 individuals of priority species *Eremophila praecox* (P2) and indirect impacts to flora and vegetation associated with dust deposition, spread of weeds and altered hydrological regimes.	The EPA advises that the potential impacts to priority flora and indirect impacts to flora and vegetation are residual impacts. The EPA advises that the residual impact should be subject to recommended conditions B1, B6 and B7 to ensure the environmental outcome is consistent with the EPA objective for flora and vegetation.	**Condition B1 (Flora and Vegetation)** Limits on clearing of priority flora and implementation of a Significant Species Management Plan to meet environmental objectives including management measures for the spread of weeds, dust deposition and altered hydrological regimes. **Condition B6 (Rehabilitation)** Undertake trials to incorporate restoration of *Eremophila praecox* in mine rehabilitation, where possible. **Condition B7 (Restoration and Research)** Undertake research that will investigate the biological and ecological requirements of the species and address knowledge gaps that have been identified as a research priority needed to improve the management and protection for the species.

Terrestrial Fauna

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Clearing of up to two shrubs considered to be breeding habitat for *Jalmenus aridus.* Indirect impact to remaining breeding shrubs for *Jalmenus aridus* though dust, weeds, fire and an altered hydrological regime.	The EPA advises that the potential impacts to priority fauna habitat and indirect impacts to priority fauna habitat are residual impacts. The EPA advises that the residual impact should be subject to recommended conditions B2, B6 and B7 to ensure the environmental outcome is consistent with the EPA objective for terrestrial fauna.	**Condition B2 (Terrestrial Fauna)** Limits on clearing of priority fauna habitat and implementation of a Significant Species Management Plan Fauna to meet environmental objectives including exclusion zones and weed management. **Condition B6 (Rehabilitation)** To rehabilitate areas to support terrestrial fauna including trials to re-establish habitat for *Jalmenus aridus*. **Condition B7 (Restoration and Research)** Undertake research that will address knowledge gaps that have been identified as a research priority needed to improve the management and protection for *Jalmenus aridus*.

Greenhouse Gas Emissions

Residual emissions		Assessment finding	Recommended conditions and DMA regulation
1.	The average combined proposal scope 1 emissions are expected to be approximately 281,477 t CO_2-e per annum and total expected scope 1 emission are expected to reduce to net zero by 2050. The average combined proposal	The combined proposal is expected to produce 2,814,774 t CO_2-e of scope 1 GHG emissions over 10 years. The annual estimated scope 1 emissions from the proposal would constitute approximately 0.25% of Western Australia's total emissions and 0.05% of Australia's total reported GHG emissions for 2022. The EPA recognises that the Commonwealth Safeguard Mechanism requires the	**Condition B4: (Greenhouse Gas Emissions)** Reporting if obligations change under the NGER Act and Safeguard Mechanism.

Residual emissions		Assessment finding	Recommended conditions and DMA regulation
	scope 2 emissions are expected to be approximately 224,639 t CO_2-e per annum. The average combined proposal scope 3 emissions are expected to be approximately 71,984 t CO_2-e per annum.	proponent to take actions to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australian emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 are achieved. In consideration of this, the EPA is of the view that emissions reductions required under the Safeguard Mechanism represent an as far as practicable reduction of the proposal's scope 1 GHG emissions, and therefore the likely environmental effects of the proposal can be mitigated to achieve consistency with the environmental factor objective for GHG emissions. The combined proposal is expected to produce 2,246,385 t CO_2-e scope 2 emissions over the proposal life. The EPA supports the proponent's proposed commitments to mitigate scope 2 emissions through implementation of renewable energy projects and proposed emission reduction targets and has not recommended conditions relating to scope 2 emissions for the proposal. The EPA supports the mitigation measures proposed and the continued reduction of scope 2 emissions consistent with other recent recommendations and to ensure the environmental outcome is consistent with the EPA objective for GHG emissions.	

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment. The EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986*.

The EPA has recommended that the proposal may be implemented subject to conditions recommended in Appendix A.

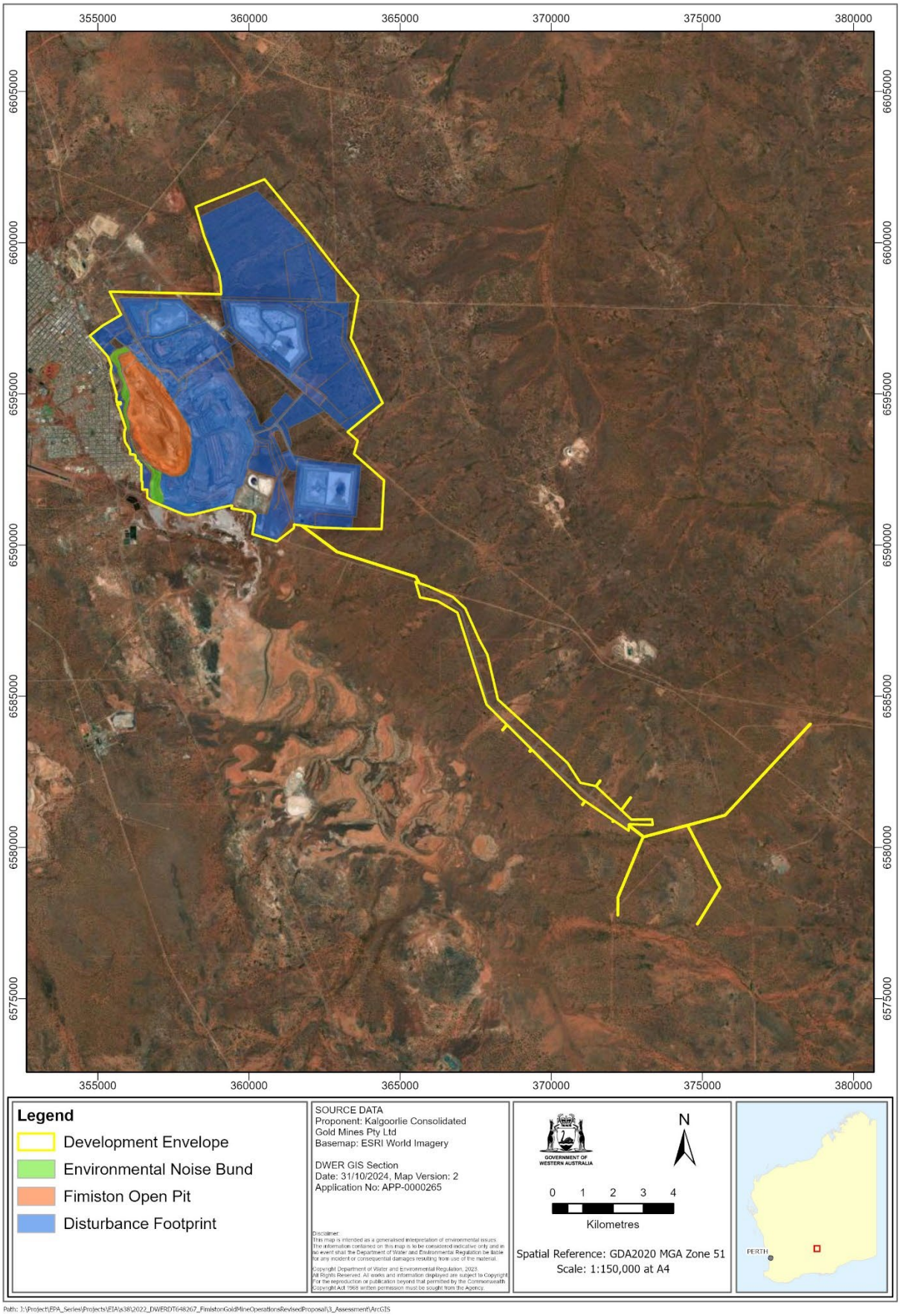


Figure S1: Development envelope and disturbance footprint

1 Proposal

The Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal - Fimiston South Project is a proposal to extend the approved Fimiston Gold Mine Operations Extension Stage 3 and Mine Closure Planning proposal. The proposal is to mine a cutback of the existing Fimiston Open Pit, with expansion of life of mine tailings deposition, waste capacity and associated infrastructure. The proposal is located 600 kilometres (km) east of Perth, and adjacent to the City of Kalgoorlie-Boulder, in the Goldfields region of Western Australia (Figure 1).

The proposal is a significant amendment to approved proposals Fimiston Project Stage II - Mine and Waste Dumps Proposal regulated under Ministerial Statement (MS) 188 issued on 24 October 1991 and the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning Proposal regulated under MS 782 issued on 29 January 2009.

The significant amendment proposes the expansion of operations by:

- increasing the mine development envelope
- widening and deepening the mine pit (also known as the Super Pit) within an area referred to as the Ivanhoe Cutback
- relocating and modifying the environmental noise bund (ENB)
- expanding and relocation of associated infrastructure and facilities including a run of mine pad, extended waste rock dumps (WRDs), tailing storage facilities (TSFs), topsoil stockpiles, pipelines, roads and transmission lines
- increasing production capacity
- extending the life of mining operations by seven years to 2034.

The main elements of the proposal which have been subject to the EPA's assessment are outlined in Table 1.

Table 1: Location and proposed extent of proposal elements

Proposal element	Location	Original proposal	Significant amendment	Combined proposal
Physical elements				
Mine development envelope comprising: • Fimiston Open Pit • Environmental Noise Bund • Waste rock dumps (including stockpiles) • Tailings Storage Facilities • ROM and processing plant • Infrastructure corridors and workshop area • Managed Aquifer Reinjection (MAR) within existing Kaltails Supply Borefield	Figure 1	Clearing of up to 3,973 ha within the development envelope of 5,914 ha.	Additional clearing of 1,868 ha of which 1,580 ha is native vegetation.	Clearing of up to a total of 5,841 ha within the development envelope of 7,795 ha.
Operational elements				
Fimiston Open Pit	Figure 1	Clearing up to 535 ha within the development envelope of 5,914 ha.	Additional clearing of 39 ha.	Clearing up to 574 ha within the development envelope of 7,795 ha.
Environmental Noise Bund	Figure 1	Clearing up to 110 ha within the development envelope of 5,914 ha.	Reduction of 5 ha.	Clearing up to 105 ha within the development envelope of 7,795 ha.
Proposal elements with greenhouse gas emissions				
Construction elements				
N/A – No construction elements proposed				
Operational elements				
Scope 1	N/A	440,800 t CO_2-e per year[1]	281,477 t CO_2-e per annum (including clearing emissions) and 262,507 t CO_2-e per annum (excluding clearing emissions)	
Scope 2			224,639 t CO_2-e per annum	
Scope 3			71,984 t CO_2-e per annum	
Other elements which affect extent of effects on the environment				
Estimated Project Life	Up to 2027		Up to 2034	

1. A breakdown of emissions scopes is not provided in the original proposal.

Units and abbreviations
ha – hectare, tCO_2-e – tonnes of carbon dioxide equivalent

The proponent for the proposal is Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM). The proponent referred the proposal to the Environmental Protection Authority (EPA) under Section 38 of the *Environmental Protection Act 1986* (EP Act) on 4 October 2022. The referral information was subsequently published on the EPA website for seven days public comment. On 15 December 2022, the EPA determined to assess the proposal at the level of Referral Information with additional information and four-weeks public review.

The EPA published the Environmental Review Document (ERD) and additional information on its website for public review for four weeks from 25 March 2024 to 24 April 2024. Nine (9) public submissions were received from individuals and Government agencies. The EPA published the proponent's Response to Submissions (RtS) (KCGM 2024d) on its website on 5 December 2024.

Minor or preliminary works

On 6 September 2023, the EPA consented to the proponent commencing minor or preliminary works under Section 41A(3) of the EP Act for the disturbance of up to 19.32 hectares (ha) for the reposition and realignment of the ENB, realignment of supporting infrastructure and rehabilitation. The EPA Chair's notice consenting to the works is available on the EPA website.

Application of *Environmental Protection Act 1986* amendments to the proposal

The proposal is a significant amendment to the Fimiston Project Stage II - Mine and Waste Dumps Proposal regulated under MS 188 and the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning Proposal regulated under MS 782.

The EPA has assessed the residual impacts of the significant amendment by considering the life of mine extension and changes which are now proposed in the context of the original proposal (Figure 2). The EPA has considered combined impacts of the original proposal and the proposed changes, having regard to the combined and cumulative effects of the significant amendment on the environment and with other proposals in the region. The EPA has considered new information on the mitigation of impacts on the approved proposal and significant amendment, and proposed changes to the conditions accordingly.

The EPA has considered whether to inquire into the implementation conditions for the existing proposals. However, the EPA has not reassessed the proposals approved under MS 188 and MS 782 which are currently regulated through a variety of mechanisms. The proposal elements for the approved proposals are provided in Table 1 for context and the assessment of cumulative impacts in the context of the original proposal.

Proposal alternatives

Section 3.5 of the proponent's ERD (KCGM 2024c) describes the alternatives considered for the significant amendment.

The proponent did not consider an alternative location for the proposal to be practical given the viable ore body is situated within a fixed location and maximises the reuse of existing infrastructure and services (KCGM 2024c). The significant amendment was determined to be the preferred option for the next phase of mining following consideration of options and maintaining the balance between socioeconomic benefits and environmental outcomes (KCGM 2024c).

The pit location is restricted to the ore body, however, relocation of proposal infrastructure further away from sensitive receptors was considered. The proponent advised that the development envelope is constrained by the City of Kalgoorlie Boulder to the west, Gribbles Creek and the airport approach to the south, and Parkeston power station and electrical infrastructure to the north. The proponent considered alternative locations for proposal infrastructure and used the findings of flora, fauna and hydrological studies to inform refinement of infrastructure locations and minimise impact to the environment (KCGM 2024c).

The proponent investigated and risk assessed potential locations for proposal waste structures including the TSFs and WRDs with consideration to safety, future capacity options and environmental values. The height of infrastructure including TSFs and WRDs are restricted by Civil Aviation Safety Authority (CASA) regulations for airport approach pathways and *Obstacle Limiting Surface and Procedures for Air Navigation Services – Aircraft Operations* (KCGM 2024c,d). Given the considerations outlined above, the proponent refined the viable footprint to the arrangement presented in the ERD (KCGM 2024d).

Proposal context

Mining operations and mineral processing has occurred within the vicinity of KCGM since the discovery of gold in the area in 1893. Prior to 1989, the Kalgoorlie Golden Mile area was mined by several companies with individual operations. KGCM was established in 1989 to combine individual operations into one single operation and amalgamate several smaller pits into what is now known as the ‘Super Pit’.

The original proposal to rationalise the mining activities into a single operation was assessed by the EPA in 1991 and comprised a single open pit, placement of waste rock in WRDs to the east of the pit, and deposition of tailings in Fimiston I TSF. The existing proposal was approved through MS 188 issued in October 1991. In January 2009, MS 782 was issued for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning Proposal comprising the Golden Pike Cutback located along the western edge of the pit, construction of additional WRDs north of the pit and additional TSF capacity. Implementation of the proposal commenced in March 2010. MS 782 has been subject to seven amendments between 2010 and 2020.

KCGM broader operations include the Fimiston Operations, Mt Charlotte Underground Mine, Mt Percy Operational Area and Gidji Processing Plants. The existing Fimiston operations comprise the Fimiston open pit, processing plant, three TSFs, WRDs, run of mine pad, and supporting infrastructure. The revised proposal for the Fimiston South Project will increase the mine development envelope from 5,841 ha to 7,795 ha to accommodate the widening of the Fimiston pit, and extension of the TSFs, WRD and supporting infrastructure.

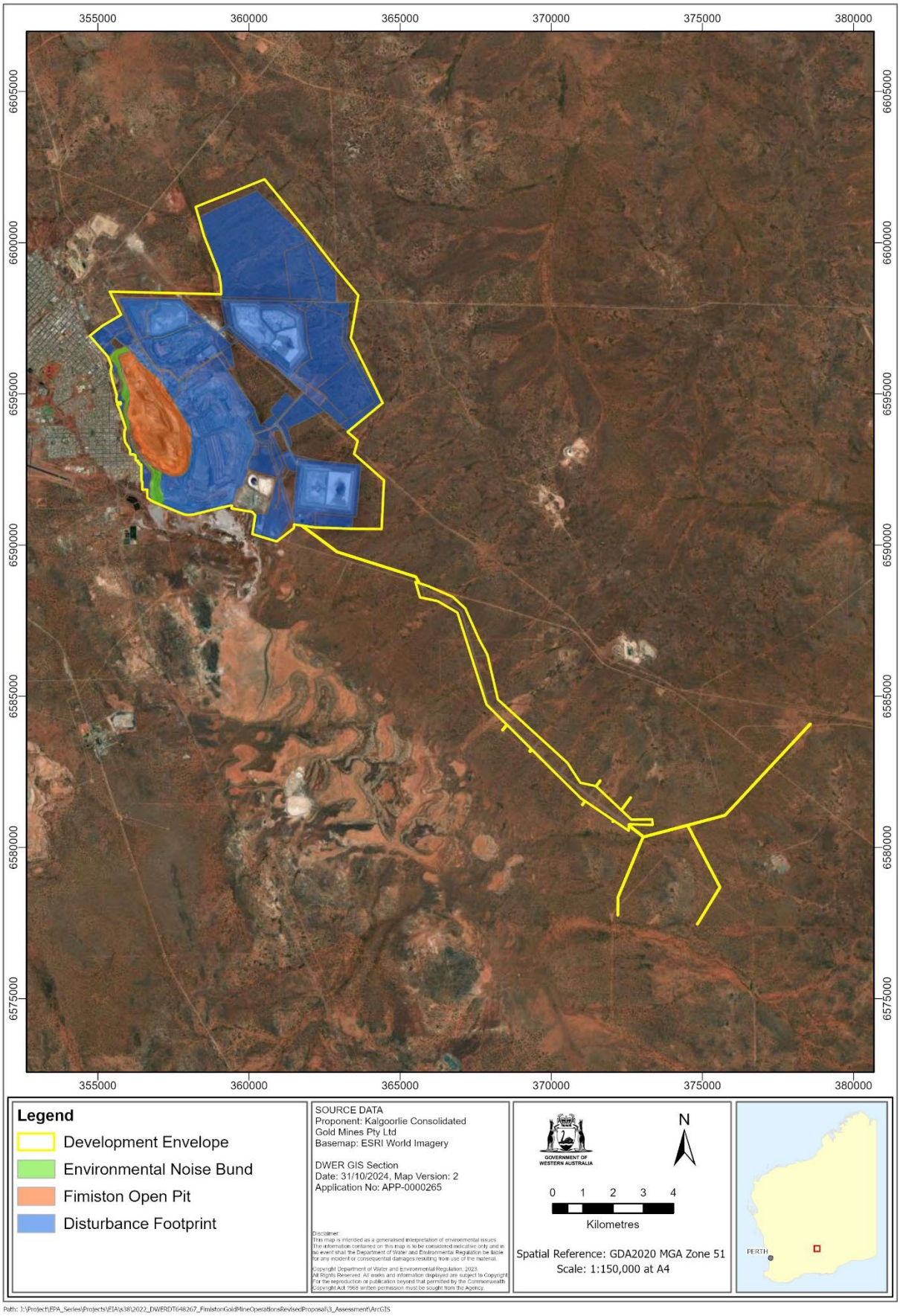


Figure 1: Development envelope and disturbance footprint

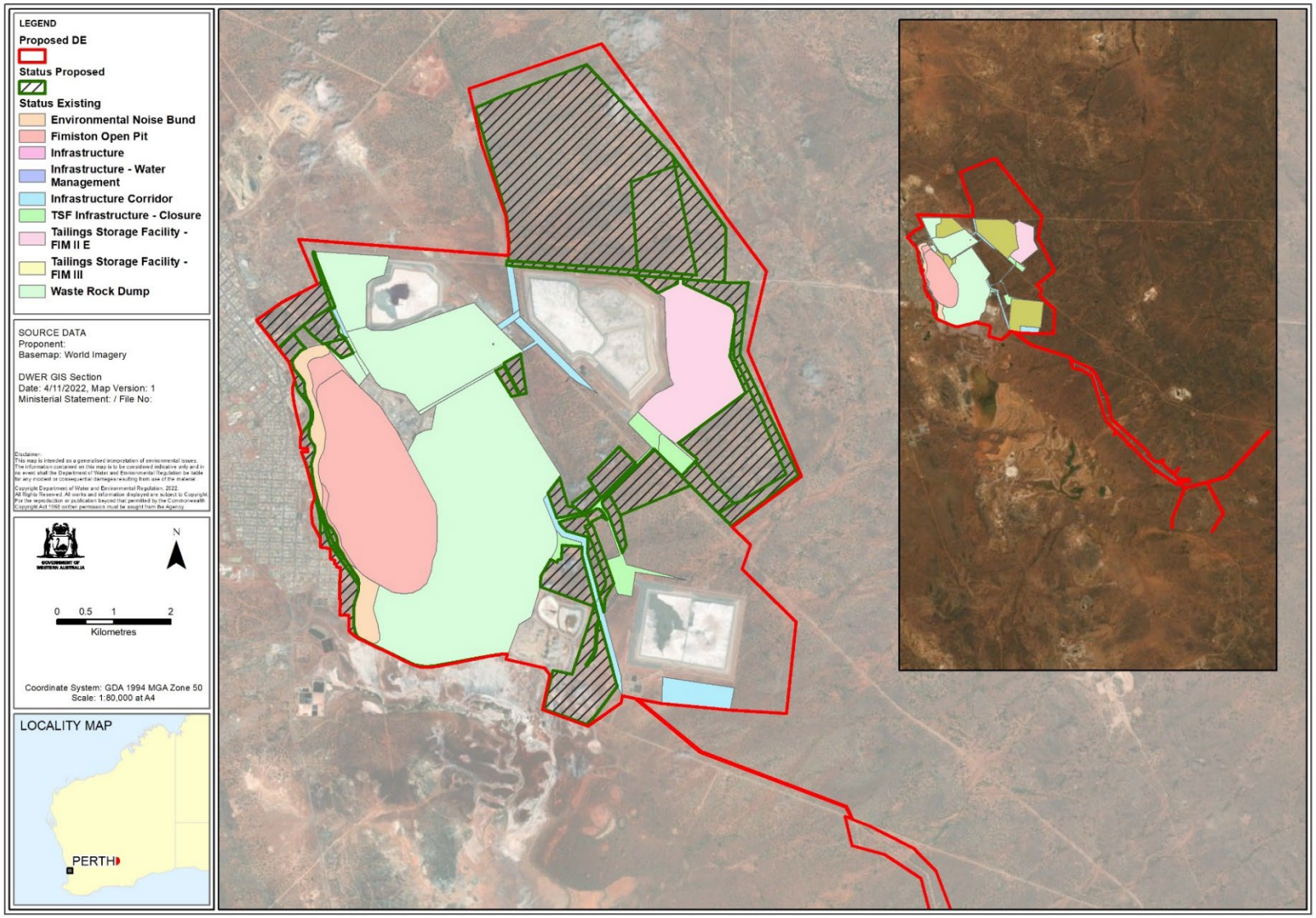


Figure 2: Development envelope indicating change to proposal

2 Assessment of key environmental factors

This section reports the outcome of the EPA's assessment of the key environmental factors against its environmental objectives, and its recommendations on conditions the proposal should be subject to if it is implemented.

The EPA has considered the principles of the EP Act (see Appendix E) in assessing whether the residual impacts will be consistent with its environmental factor objective.

The EPA has assessed the proposal in the context of the approved proposals (MS 188 and MS 782) while having regard to the combined and cumulative effect that the implementation of the approved proposal may have on the following environmental factors.

The EPA evaluated the impacts of the proposal on other environmental factors and concluded these were not key factors for the assessment. This evaluation is included in Appendix F.

2.1 Air Quality

2.1.1 Environmental objective

The EPA environmental objective for air quality is *to maintain air quality and minimise emissions so that environmental values are protected* (EPA 2020a).

2.1.2 Investigations and surveys

The EPA advises the following studies, reports and peer review were used to inform the assessment of the potential impacts to air quality:

- Fimiston South Project Air Quality Assessment (Ramboll 2022a)
- Fimiston South Project Screening Health Risk Assessment (Ramboll 2022b)
- Fimiston South Project Air Quality Impact Assessment (Ramboll 2023)
- Kalgoorlie Consolidated Gold Mines (KCGM) PM_{10} Dust Health Risk Assessment (Matisons Toxicology Solutions 2024a)
- Recommendations for Dust Management at KCGM Kalgoorlie (Matisons Toxicology Solutions 2024b).

The air quality assessment and modelling (Ramboll 2023) meet the Air Quality Modelling Guidance Notes (DWER 2006).

2.1.3 Assessment context – existing environment

Mining and mineral processing has occurred in the vicinity of this site since gold was first discovered in 1893. In 1989 KCGM was created to combine several individual operations into a single operation (KCGM 20224c). The proposal is located directly east of residents in the City of Kalgoorlie-Boulder and operations from the site have the potential to impact air quality in the immediate area primarily through the emission of fine dust particles with an aerodynamic diameter of less than or equal to 10 micrometres in diameter (PM_{10}). Historical ambient monitoring data indicates that

other natural and anthropogenic sources of dust, that are not attributable to the proponent, impact ambient particulate matter (PM_{10}) concentrations near the operations, including bushfires, smoke from wood heaters in winter, particulates from wind erosion of cleared areas, general earthworks, and vehicle movements on sealed and unsealed roads (KCGM 2024c).

Dust emissions from current operations are generated through activities consistent with typical mining processes including (KCGM 2024a,c):

- mining operations, such as drilling and blasting, excavation of waste rock and ore, and the loading and unloading of haul trucks
- ore processing, including crushing and conveyor transfer points
- wheel generated dust from haul trucks and other vehicles travelling on unsealed roads
- wind-blown dust emissions from exposed surface areas such as TSFs.

Average PM_{10} dust concentrations at the site fluctuate from year to year as a function of variable external factors such as regional annual rainfall, with the highest average concentrations typically occurring in spring/summer when winds are stronger and from an easterly direction (Ramboll 2023). The highest average spring/summer PM_{10} concentrations were recorded in 2019, characterised by lower than average rainfall and a number of regional bushfires (Ramboll 2023). For example, there were 36 days for which the 24-hour average ambient PM_{10} concentration at any of the boundary dust monitors was greater than the National Environmental Protection Measure (NEPM) 24-hour PM_{10} standard of 50 micrograms per cubic metre ($\mu g/m^3$); however, the Fimiston operations were determined to potentially be a significant contributor on only five of these occasions (Ramboll 2023). Table 2 of the Report documents occasions over 24 hours in which the proponent exceeded the NEPM standard at the set monitoring points surrounding the mine site (Figure 3). On the vast majority of occasions, ambient dust levels at these locations are within the NEPM standard for PM_{10}.

The proponent reported that it had received 39 complaints relating to dust emissions between 2020 and 2024 (KCGM, 2024h). The Department of Water and Environmental Regulation (DWER) received 20 dust complaints between 2022 and 2024, most of which were received in clusters of a few days indicating a public reaction to solitary dust events rather than an ongoing dust issue. Given the proximity of the existing operations to residents of the City of Kalgoorlie-Boulder, it is reasonable to conclude that residents are not reporting significant dust impacts from existing operations.

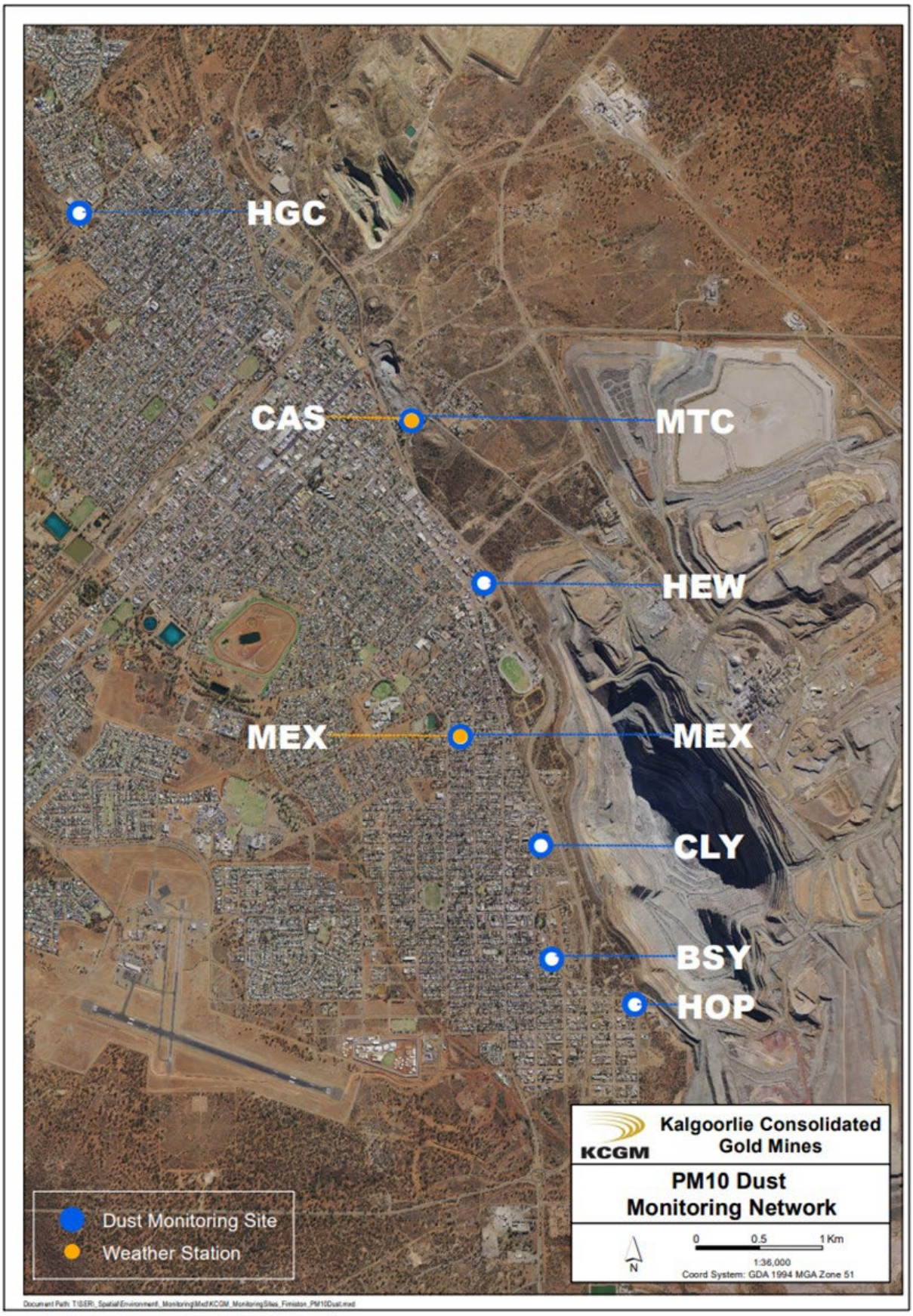


Figure 3: Air quality monitoring locations

2.1.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the proponent's RtS document (KCGM 2024d). The key issues and concerns raised during the public consultation on the proposal were in relation to the following:

- potential impacts to health and amenity of nearby residents from dust emissions (including cleaning and maintenance costs)
- the proximity of mining to dwellings and camps
- dust issues associated with location of the infrastructure and associated with extent of rehabilitation.

The key issues raised during public consultation on the proposal and how they have been considered in the assessment are described in Sections 2.1.5 to 2.1.8.

2.1.5 Potential impacts from the proposal

The EPA identified that proposal activities which could impact on its environmental objective for air quality through increased dust emissions (considering the combined impacts of the significant amendment) include an expanded mining footprint, haulage of waste and ore, initial clearing activities, topsoil collection and an increase to operationally exposed areas and dry tailings. The proposed mine operations are similar to current mine operations, comprising drilling and blasting, and excavation and haulage via conventional truck and shovel fleet.

The primary sources and characteristics of atmospheric emissions generated from the combined proposal is expected to remain similar to current operations.

2.1.6 Avoidance measures

The proponent has avoided disturbing additional areas by utilising the existing low-grade stockpile areas for storage of waste rock material.

2.1.7 Minimisation measures

The proponent outlined the following minimisation measures to reduce direct and indirect impacts to air quality:

- restricting operations as a function of wind direction to minimise dust, including restricting dumping of waste material, near-surface mining activities and land clearing activities
- mining near the surface during daytime only to allow elevated dust concentrations to be clearly visible, to provide for implementation of additional dust management measures as required
- use of water trucks and water cannons in areas that could produce dust, such as within service corridors and active surfaces
- watering down ore and waste rock material prior to loading and haul, as required
- continued real-time monitoring of PM_{10} concentrations and implementation of the reactive dust control strategy, as required
- continued implementation of the FAQMP
- progressively rehabilitating to minimise fugitive dust emissions from wind erosion.

2.1.8 Assessment of impacts to environmental values

The proposal has the potential to significantly impact air quality from dust emissions from the combined impacts of the existing proposal and significant amendment. This section includes the assessment of the combined impact and the cumulative impacts as the modelling has been undertaken using the combined impacts of the proposal and includes emissions from all existing site sources and background air quality within the area. The potential impact of dust to human health and amenity was raised as a concern during the public consultation period.

Air quality modelling and screening health risk assessment

An air quality assessment was completed in 2022 and revised in 2023 (Ramboll 2022a, 2023) and included air dispersion modelling of emissions to compare current and potential future impacts associated with the proposal. The impact assessment was supported by a health risk assessment (HRA; Ramboll 2022b) to expand on previous HRAs (in 2007 and 2020), incorporate recent air dispersion modelling and proposal changes, and compare potential health risks from the current and combined proposals.

The modelling indicated (Ramboll 2023) little difference between the current operations and future modelled scenarios on an annual average and 24-hour average basis. Contour plots of the differences in 24-hour average PM_{10} concentrations for predicted and current operations are presented in Figure 4.

Analysis of predicted changes from air dispersion modelling results identified that the most significant changes to air quality are expected to occur within the pit and impacts at sensitive receptor locations are expected to be similar to current operations (Ramboll 2023).

The updated HRA reassessed acute and chronic (including carcinogenic) health risks by considering additional monitoring data since the previous HRA and compared health risks from current worst-case emissions to predicted future worst-case emissions from the significant amendment. The HRA assumed that the fugitive dust impacts associated with proposed future operations would be similar to current operations, as mining activities and dust management procedures are proposed to remain similar to current activities and procedures (Ramboll 2022b).

Results of the HRA showed the proposal is unlikely to result in significant impacts to human health. The assessment using monitored PM_{10} data and historic metals data showed that no unacceptable acute or chronic non-carcinogenic or carcinogenic health risks currently exist at the receptor locations from any KCGM generated PM_{10} dust (Ramboll 2022b). The potential short-term and long-term health effects are also expected to remain unchanged in the future based on air dispersion modelling, with no unacceptable risks expected when the future activities are operational.

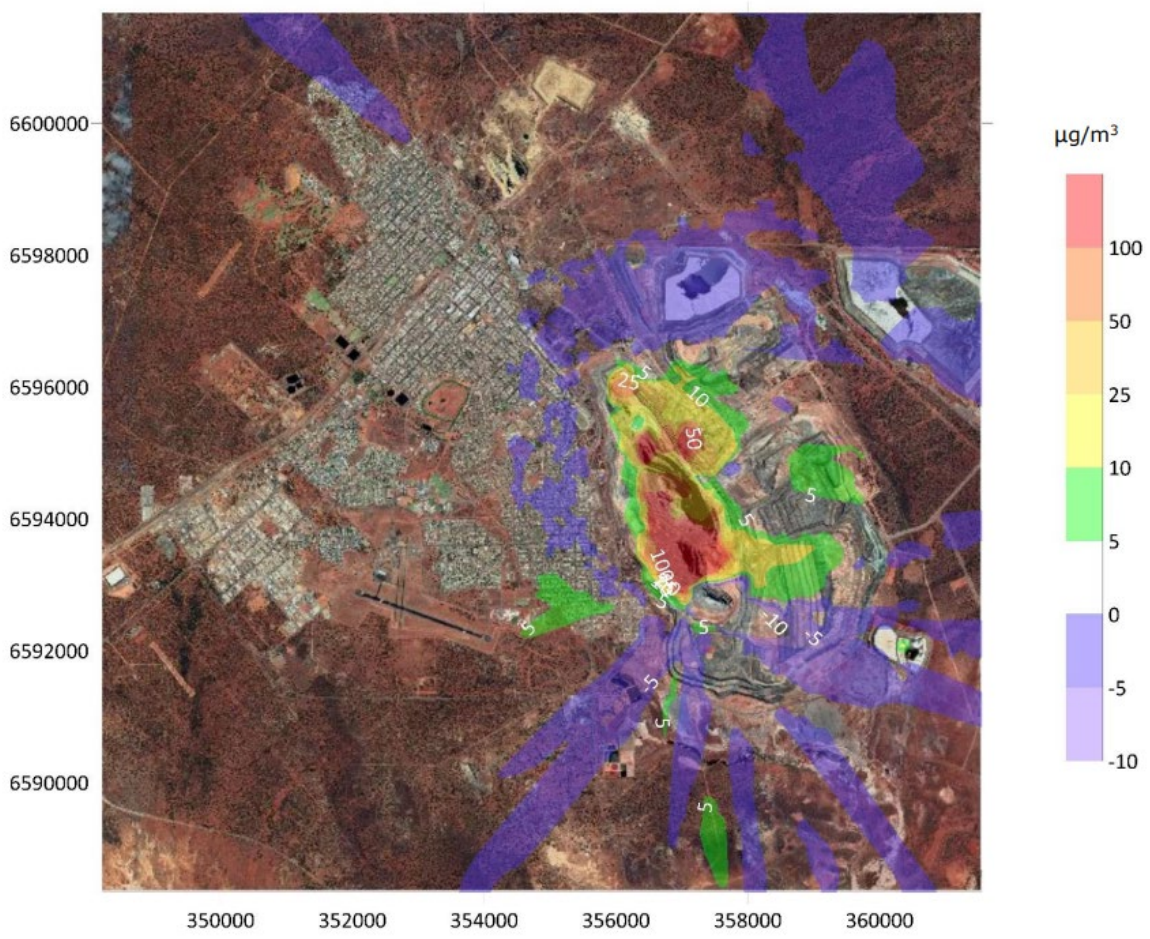


Figure 4: Predicted difference in 24-hour average concentrations of PM_{10}

Current and proposed dust management methodology

The proponent advises it has extensive pollution controls at point sources and can implement management strategies to control fugitive emissions associated with normal operations. The proponent has monitored and analysed air quality parameters at its operations over an extended duration of time. Dust emissions are actively managed via the Dust Monitoring and Management Programme (DMMP), a component of the Fimiston Air Quality Management Plan (FAQMP).

The FAQMP is the primary tool for air quality management and comprises a DMMP with seven ambient PM_{10} monitoring stations. Six of the monitoring stations are located within residential and light industrial areas, primarily situated along the western boundary where peak concentrations are expected, and include Boulder Shire Yard (BSY), Hewitt Street (HEW), Clancy Street (CLY), Hopkins Street (HOP), Mt Charlotte (MTC) and Metals Exploration Yard (MEX) sites (Figure 3).
The Hannan's Golf Course (HGC) monitoring station is located northwest of operations and generally provides background PM_{10} concentrations (Figure 3).

The DMMP uses real time PM_{10} and meteorological monitoring data, alarms for averaging periods, back trajectory plots, and visual observations to identify periods where the proponent's operations may be contributing to high concentrations of

PM_{10}. Real-time ambient PM_{10} monitoring data is compared to alert and action levels defined in the DMMP at the individual monitoring sites. These early warning levels provide notifications to the proponent that trigger management measures need to be applied promptly, such as additional dust suppression activities.

The current key performance target of the DMMP is to manage operations such that there are no more than five events above the NEPM 24-hour PM_{10} standard at any dust monitoring site per annum where the proponent is a significant contributor. The proponent has advised that, while the trigger level for a reportable event at the monitors have been set to match the NEPM standard, an exceedance of this value at the boundary monitoring locations does not immediately correlate with an exceedance of the NEPM standard at a nearby sensitive receptor. The EPA notes that the NEPM standard does not allow for any exceedances at sensitive receptors.

Table 2 presents a summary of exceedances of the NEPM standard at the monitoring locations, where the proponent was considered to be a significant contributor. With the exception of the 2023 data, all exceedances at the monitors are at or less than five.

Table 2: Exceedances above NEPM at dust monitoring locations

Year	Number of exceedances at each monitoring site							Average PM_{10} level ($\mu g/m^3$) of exceedances	Max PM_{10} level ($\mu g/m^3$)
	BSY	HEW	CLY	HOP	MEX	MTC	HGC (control)		
2018	1	2	1	5	0	0	0	66.1	86.1
2019	0	1	1	2	1	0	0	56.1	62.7
2020	0	1	3	0	0	0	0	68.9	96.3
2021	0	0	2	0	0	0	0	77.1	101
2022	0	1	1	4	2	0	0	55.9	71.7
2023	3	4	10	7	1	0	0	63.8	97.3

Toxicologist Review

During the RtS and to assist with the assessment of dust impacts, the proponent commissioned a toxicologist review including a review of PM_{10} emissions to assess whether dust emissions would adversely impact human health and to provide recommendations for dust management (Matisons Toxicology Solutions 2024a). This review was undertaken by an expert with regulatory experience within State and Commonwealth agencies, with 13 years' experience as Principal Toxicologist in the Department of Health WA.

The review contextualised dust (PM_{10}) exceedances in relation to community receptors of concern and to assess whether the dust management for the mine was adequate and provided the best possible management measures for dust mitigation in the area. The conclusions of this review were:

- Kalgoorlie-Boulder is situated in a dusty environment.
- KCGM is a significant contributor to dust in Kalgoorlie-Boulder.
- KCGM uses the FAQMP as an effective tool for the management of its particulate emissions utilising a framework of regular review and continuous improvement. This includes amendment of current alert and action levels to facilitate

compliance with the FAQMP performance targets at each of the PM_{10} monitoring sites.
- Annual PM_{10} for all KCGM monitors are within the NEPM standard guidelines values (GVs) and longer-term health effects are not expected within the residential community.
- All PM_{10} concentrations at the HGC monitor, which is well within the residential area, were less than the annual and 24-hour PM_{10} NEPM GV.
- PM_{10} concentrations at the MEX monitor were all less than the annual NEPM GV and with average 24-hour hazard quotients (HQs) at or less than 1.2.
- Exceedance of the 24-hour PM_{10} NEPM standard is the main point of departure from the GV.
- As monitoring results for 2022/23 may be discounted as outliers, the 24-hour HQs at community-based monitors were at or less than 1 and hence there would not have been any health effects expected from short-term exposure to PM_{10}.
- The NEPM is applicable to the two community-based monitors, HGC and MEX. It is noted that the MEX monitor is not wholly within sensitive receptors, and the proponent is considering installing another monitor close to MEX within sensitive receptors (a suitable location is currently being investigated by the proponent).
- The FAQMP in conjunction with a boundary monitor guideline of 75 $\mu g/m^3$ (equivalent HQ of 1.5) is suitable to monitor and respond to potential dust excursions from the operations and to minimise any short-term health effects within the residential community.

The review concludes that the HGC and MEX monitors are considered to be community-based monitors and the 24-hour PM_{10} limit of 50 $\mu g/m^3$ is appropriate. The other five monitors are considered to be boundary monitors and a 24-hour PM_{10} limit of 75 $\mu g/m^3$ is appropriate. However, alert and action levels used to trigger management responses on site are not proposed to change, as per the FAQMP submitted with the proposal.

Assessment summary

Based on the information provided the EPA considers that should the significant amendment be implemented, the nature of impacts to sensitive receptors from dust emissions is unlikely to change significantly in relation to both the level of PM_{10} and the impact to the health of residents adjacent to the proposal site when compared to the current operation.

The area already experiences impacts from dust which can be attributable to many different sources. However, the proponent is one of the major contributors to dust impacts in the area and as such, the EPA recognises that the proponent's contribution must be kept as low as practicable. The EPA acknowledges the proponent's ongoing implementation of the DMMP and relatively low level of concern from the community expressed in the form of dust complaints to the proponent and DWER.

The EPA notes that the current management of dust emissions by the proponent has allowed for five 'allowable exceedances' of the 24-hour PM_{10} NEPM standard, which is not consistent with the current NEPM standard (zero exceedances); however, the EPA also notes that the majority of exceedances have been experienced at boundary monitors that do not necessarily reflect an exceedance at a sensitive receptor. Considering the expert toxicology review identifies that longer-term health

effects are not expected within the residential community based on the proponent's current management regime, that the relative dust emissions for the current and proposed operations are unlikely to be significantly different to current operations and that the proponent is currently managing air emissions appropriately, the EPA considers that 24-hour PM_{10} limits of 75 µg/m^3 at the boundary monitors and 50 µg/m^3 at community-based monitors is appropriate, with no 'allowable exceedances' proposed at any monitor. These represent appropriate limits to ensure longer-term health effects within the community as a result of implementing the proposal are not expected.

The EPA considers that the MEX monitor should be considered a community monitor (in addition to HGC) as this is closer to the mine operations whilst also being partially within sensitive receptors.

The EPA notes that the proponent will be undertaking triennial reviews of the dust management regime to determine whether dust levels applicable to actions and alerts adequately measure on site activities and are considered representative of site conditions. The EPA notes that the proponent will seek further improvements for managing dust impacts.

The EPA advises that the impact to air quality should be subject to implementation conditions B3-1 to B3-4 to ensure management of air quality is likely to be consistent with the EPA objective for air quality.

Detonation of explosives

Air quality can be impacted as a direct result of a blasting event. This is most noticeable through the visible explosive movement and relocation of particulate matter, gravel, rock and gaseous emissions. This type of increased particulate loading is generally short lived and quite localised.

The proponent will be required to detonate explosives to facilitate mining. The EPA has recommended pertinent conditions from the current MS 782 regarding explosive detonations be retained in condition B3-5 to ensure adequate management of explosives continues by the proponent. This includes ensuring explosives are detonated at surface level when wind directions favour the carriage of dust away from the residential areas, that explosives are only detonated between the hours of 0700 hours and 1800 hours and that mining operations are not undertaken within 400 m of a property without consent.

Where a condition was no longer required or considered redundant/duplication, this has been outlined in Appendix I and J.

2.1.9 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on air quality. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 3. The EPA has also considered the principles of the EP Act (see Appendix E) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 3: Summary of assessment for air quality

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Potential to impact on air quality from dust and to impact the associated environmental values of human health and amenity.	The dust impacts from the combined proposal are not expected to significantly impact air quality or cause longer-term health effects provided the minimisation and management measures continue to be effectively implemented by the proponent. The EPA considers that a 24-hour PM_{10} limit of 75 µg/m^3 at the boundary monitors and 50 µg/m^3 at the community based monitors are appropriate to ensure no longer-term health impacts in the community from the proposal. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for air quality.	**Condition B3 (Air quality)** Impacts should be subject to implementation conditions B3-1 to B3-4 to manage air quality impacts from the proposal.
2	Detonation of explosives.	The proponent will be required to detonate explosives to facilitate mining. Management to ensure explosives are detonated at surface level when wind directions favour the carriage of dust away from the residential areas, that explosives are only detonated between the hours of 0700 hours and 1800 hours and that mining operations are not undertaken within 400 m of a property without consent, will ensure the potential for impacts are minimised. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for air quality.	**Condition B3-5** Impacts should be subject to implementation condition B3-5 to manage air quality impacts from the proposal as a result of detonation of explosives.

2.2 Social Surroundings

2.2.1 Environmental objective

The EPA environmental objective for social surroundings is *to protect social surroundings from significant harm (*EPA 2023b*)*.

2.2.2 Investigations and surveys

The EPA advises the following studies and reports were used to inform the assessment of the potential impacts to social surroundings:

- KCGM Aboriginal Cultural Heritage Management Plan (KCGM 2024b)
- Kalgoorlie Consolidated Gold Mines Fimiston South Project Acoustic Assessment (Herring Storer Acoustics 2022)
- Fimiston South Project Revised Acoustic Assessment (Herring Storer Acoustics 2023a)
- Fimiston Gold Mine Compliance Noise Monitoring Location Outram Street Boulder (Herring Storer Acoustics 2023b)
- Fimiston Noise and Vibration Monitoring: Management Plan (KCGM 2024e)
- Prediction of Blast-Induced Ground Vibration and Air Overpressure Fimiston Open Pit – Fimiston South Project Study (George Boucher Consulting 2022)
- Flyrock Control for Fimiston South Project Stage 2 (Blastechnology 2022, 2024)
- Fimiston South Project Air Quality Assessment (Ramboll 2022a)
- Fimiston South Project Screening Health Risk Assessment (Ramboll 2022b)
- Fimiston South Project Air Quality Impact Assessment (Ramboll 2023).

The EPA considers that it has sufficient information to assess impacts on social surroundings.

2.2.3 Assessment context – existing environment

The operations are situated adjacent to residential, commercial and industrial land uses of the City of Kalgoorlie Boulder. Mining operations and ore processing activities have existed adjacent to these urban areas and formed part of the landscape for more than a century.

Mining operations have been developed with consideration of interactions with the local community, residents and local businesses. All properties zoned as residential within 400 m of active mining operations are owned and managed by the proponent (KCGM 2024c). KCGM undertakes ongoing consultation with stakeholders in the region, including a community reference group, which informs the management of operations and future mine planning (KCGM 2024c).

Aboriginal cultural heritage

The Marlinyu Ghoorlie Native Title Claimant Group (WAD647/2017) has a Native Title claim over the proposal area, however, Native Title for the Kalgoorlie-Boulder region has not been determined.

Ethnographic and archaeological surveys and heritage studies for the operations were completed between 1989 and 2004 (KCGM 2024b,c). The archaeological

surveys were undertaken by anthropologists and senior Aboriginal Elders with knowledge of the mythological landscape and long historical associations with the area and heritage sites (KCGM 2024c). Eleven ethnographic sites were identified to the north and three archaeological sites were identified to the west and east of operations (KCGM 2024c). All sites are on the Department of Planning, Lands and Heritage (DLPH) Register of Aboriginal Sites.

A heritage survey of the significant amendment area was completed between March and April 2022 with representatives from Marlinyu Ghoorlie Traditional Owners, consultants and the proponent. The surveys identified the following Aboriginal cultural heritage sites within the proposed development envelope but outside the disturbance footprint, and are not likely to be impacted by the proposal (KCGM 2024c):

- Bylong Road KCGM Two (Site ID 18572) is a scatter of European debris that was visited by Aboriginal people and is a unique contact site that should be preserved and/or recorded.
- Bulong Road KCGM Two (Site ID 18573) is a *Eucalyptus salubris (*gimlet gum) that is believed to have been modified by Aboriginal people, meets criteria for authentication and could be considered ethnographically important.
- Site ID 39486 is currently an un-named site located immediately west of the ENB and adjacent to the Goldfields Highway. KCGM will follow Marlinyu Ghoorlie Traditional Owner advice to demarcate and avoid this location until further archaeological recording has taken place.

Muruntjarta (Site ID 1476) is located within the ENB and the currently approved development envelope (KCGM 2024c). The proponent has demarcated the site and internal ground disturbance assessments exclude the sites from approved activity areas (KCGM 2024c).

The cultural heritage surveys of the area have been used to inform the proponent's Aboriginal Cultural Heritage Management Plan (ACHMP; KCGM 2024b). The ACHMP was prepared in consultation with Marlinyu Ghoorlie Traditional Owners and revised in 2023. KCGM and Marlinyu Ghoorlie Traditional Owners have a signed agreement in place, agreed protocols for survey activities and surveys are expected to occur monthly (KCGM 2024c). The ACHMP includes protocols and procedures for management of Aboriginal sites or skeletal remains if identified during mining-related activities.

Vibration and flyrock

The primary source of ground vibration from the current proposal is blasting from mining activities. Ground vibration from blasting is influenced by rock type, structure, topography, meteorological conditions, explosive type and blast design. Ground vibration of a certain magnitude and occurring over an extended period has the potential to cause discomfort to sensitive receptors or damage to property. Blast induced vibrations and air-blast locations for existing operations have been established and monitored in accordance with the Noise and Vibration Monitoring Management Plan (NVMMP) currently required under MS 782. Flyrock is rock that has become airborne during a blasting event and may be projected beyond the original blast area. If blasting is inadequately planned or designed, it has the potential to project flyrock great distances and cause damage or harm to equipment, property or people. Air-blast locations for existing operations have been established

and monitored in accordance with the NVMMP. Most blasting activities associated with the proposal occur within the defined open pit below the surface, reducing the potential for flyrock to impact property in the vicinity of the proposal (KCGM 2024c).

The Ivanhoe Cutback for the significant amendment is situated adjacent to the South Boulder light industrial area, which predominantly comprises commercial and light industrial buildings and land uses that are generally not considered to be sensitive premises. The Ivanhoe Cutback requires blasting activities to occur near the surface for a short period of time potentially resulting in vibration impacts and flyrock.

Management of vibration and flyrock has been discussed in Section 2.1.8 (Detonation of explosives).

Visual amenity

The proposal is located within a brownfields site and where existing mining and ore processing operations have been operating near to urban areas for more than a century. Landforms that are visible from Kalgoorlie-Boulder include the ENB and WRDs. The significant amendment area and changes to mining operations are not expected to significantly change the façade of the existing mine. The mining of the larger pit is not expected to significantly alter visual amenity given the scale and minimal changes to pit visibility, noting that the Ivanhoe Cutback will increase the footprint by 7% and the line of site of the pit is primarily concealed by the 15 m high ENB.

The significant amendment will involve the partial realignment of the ENB closer to the South Boulder light industrial area to form part of the Operational Noise Bund and support the amended pit design. The significant amendment is not expected to significantly modify visual amenity given these activities are situated south of operations and adjacent to industrial areas. The significant amendment will comprise similar landforms and character of the landscape. The proponent proposes to manage potential impacts to visual amenity post-operations through implementation of rehabilitation (including WRDs and TSF) in alignment with visual amenity concepts and the approved mine closure plan.

Light impacts currently occur at the operations. The significant amendment area is restricted to the north, south and west, as described in Section 1 (proposal alternatives), which means that the proponent is constrained from locating infrastructure that could block some light (such as relocating the WRDs between the City and the operations). Light emissions will not change significantly, and any additional sources are likely to affect the light industrial area.

The existing mine pit is a tourist attraction comprising a lookout within the southern area of the pit and provides a public viewing point for operational mining activities. The current lookout is proposed to be relocated as part of the significant amendment proposal and will continue to function as a tourist attraction into the foreseeable future (KGCM 2024b).

It is noted that the proposal is a tourist attraction, and the significant amendment will increase the size of the pit in areas south of current operations and adjacent to industrial areas. As the proposal will comprise similar landforms and character of the landscape, it is not likely to significantly impact visual amenity and is not discussed further in this assessment.

Noise

Noise generated within the Fimiston Gold Mine operations originates from a number of sources including drilling, blasting, rock breaking, conveyors and haul trucks. This significant amendment relates to mining the Ivanhoe Cutback in the southwestern area of the existing Fimiston Open Pit. The proposal includes an expansion of the open pit area, construction and alteration of waste rock landforms, construction and operation of additional tailings storage and waste rock dump facilities, processing plant upgrade and the relocation of a portion of the existing ENB to accommodate changes to the open pit design.

Due to the proximity of the operations to the City of Kalgoorlie Boulder, noise from the operations impacts the local community. Therefore, noise levels have been previously found to be unable to reasonably or practicably comply with the assigned noise levels in the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations), and noise emissions from the operations have been continuously regulated by an approval under Regulation 17 of the Noise Regulations since 2009.

Currently, the proponent has the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2016* (current Regulation 17 Approval) which was granted on 22 March 2016. The current Regulation 17 Approval was to expire on 22 March 2021. However, as the proponent applied on 4 December 2019 for further approval, the current Regulation 17 Approval continues to operate until the assessment has been undertaken.

No change to the currently approved noise levels at the five reference locations are being sought by the proponent. The proponent is seeking to relocate the southernmost reference location at Outram Street as this reference location is within the proposed footprint of the realigned ENB.

The proponent reported that it had received 20 complaints relating to noise emissions between 2020 and 2024 (KCGM 2024h). DWER received two noise complaints during this period. Given the proximity of the existing operations to residents of the City of Kalgoorlie-Boulder, it is reasonable to conclude that residents are not reporting significant noise impacts from existing operations.

Dust

Impacts from dust emissions are considered in Section 2.1 (air quality).

2.2.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the proponent's RtS document (KCGM 2024d).

The key issues raised during the public consultation for the proposal and how they have been considered in the assessment are described below and in Sections 2.2.3 to 2.2.9, and include:

- Potential impacts to Aboriginal and historic European heritage sites.
- Extent of consultation with Aboriginal Elders.
- The adequacy of Regulation 17(7) of the *Environmental Protection (Noise) Regulations 1997* to manage noise, dust and amenity impacts.
- The potential for, and duration and size of, blasting in the evenings.

- Potential impacts from the WRD and new TSF location affecting noise, dust and visual amenity (including light).
- The proximity of mining to dwellings.
- The encroachment of the development envelope onto land not owned by the proponent and the Boulder Camp and Ninga Mia Aboriginal community.
- Potential impacts to geotourism and mine tourism.

Public consultation for the proposal raised concerns about the proponent's consideration of European cultural heritage values including mining heritage, mining homestead leases and the Loopline Track. The proponent advised that the significant amendment area does not require demolition or result in additional impacts to any registered historical sites, and there are no historic homestead lease properties within the significant amendment area (KCGM 2024d). The proponent advised that any changes to the Loopline Track predate the significant amendment, and the significant amendment did not identify any impacts to the Loopline Track (KCGM 2024d). The risk of impact on non-indigenous European heritage is considered low, as none of the identified sites will be directly disturbed by the proposal, and therefore has not been considered further in the assessment by the EPA.

The public consultation period raised concerns about the encroachment of the development envelope towards the Aboriginal community of Ninga Mia and potential indirect impacts to this site (i.e. pollution). The proponent advised that the Revised Proposal does not move mining activities any closer to the Ninga Mia settlement in relation to the current approved mine (KCGM 2024d).

The Boulder Camp is a temporary accommodation facility located close to operations and managed by the City of Kalgoorlie Boulder. The City intends to relocate the camp, and a working group of key stakeholders is progressing solutions for a suitable location. The City has been engaging directly with the community regarding their concerns and priorities, to better understand accommodation needs to provide a solution that is appropriate and long-lasting. The proponent has advised that it supports the City and is amenable to investing to assist this relocation.

Public consultation raised concerns about impacts of the proposal to geotourism values. The proponent advised that active mine sites do not typically provide for tourism, however, the proponent also acknowledged the significance of the Super Pit as a tourism asset for the City of Kalgoorlie-Boulder. The proponent will continue to provide public access to Hannans North Tourist Mine and a public lookout of the Super Pit in the future, as described above. The EPA cannot comment on matters outside environmental matters and therefore geotourism has not been considered further in the assessment by the EPA.

2.2.5 Potential impacts from the proposal

The proposal has the potential to directly and indirectly impact social surroundings, including:

- land disturbance resulting in damage to cultural heritage sites
- reduced amenity from dust (see Section 2.1), noise and vibration
- reduced public health or damage to property from flyrock
- reduced visual amenity from mining landforms.

2.2.6 Avoidance measures

The proponent has outlined the following avoidance measures to reduce direct and indirect impacts to social surroundings:

- There are no known Aboriginal sites within the Revised Proposal disturbance footprint and the direct disturbance of Aboriginal cultural heritage sites is not proposed. The proponent will engage Aboriginal cultural heritage monitors to monitor any works occurring near to heritage sites and will not undertake works without prior approval from DPLH and Traditional Owners.
- The proponent proposes to avoid potential impacts from noise and vibration through avoiding unnecessary blasting or ground vibration inducing activity and restricting blasting operational hours to between 0700 hours and 1800 hours, as required in the existing MS 782. The proponent proposes to limit surface mining activities to daytime and evenings only until a level of 20 m below the undisturbed surface level is reached (KCGM 2024c), whereby better attenuation of noise and vibration is expected.

2.2.7 Minimisation measures

The proponent outlined the following minimisation measures in accordance with an environmental management plan to reduce direct and indirect impacts to social surroundings:

- Aboriginal cultural heritage:
  - Implement the ACHMP which describes the ongoing management of cultural heritage.
  - Consult and engage with Traditional Owners including monthly heritage surveys.
  - Engage cultural monitors from Marlinyu Ghoorlie Native Title Claimant Group for all initial ground disturbing activities.
  - If a previously unidentified site or artefacts are discovered, cease ground disturbing works, implement a barricade of the immediate area and complete a heritage survey and report by a suitably qualified aboriginal heritage consultant.
  - Provide a heritage survey report to DPLH if a new site is identified so the site can be placed on the Register of Aboriginal Heritage sites.
  - Report any skeletal material discovered during ground disturbance activities and cease works in the immediate area.
- Noise:
  - Maintain the ENB along the western boundary of the operational lease.
  - Realign the ENB along the south-western boundary of the pit.
  - Use additional noise and temporary barriers where required/indicated through noise modelling.
  - Implement a Blast Management Plan and NVMMP.
  - Restrict blasting to daytime hours between 0700 and 1800 in accordance with the current MS 782.
  - Target initiating blasts at 1300 or 1700 to provide regularity/consistency for the community.

- No mining activities (including blasting) to be conducted within 400 m of a property zoned as residential without written consent of the owner and occupier.
- All properties zoned residential within 400 m of the active mining operations are owned and managed by the proponent; the tenancy agreements require tenants to vacate the property on the request of the proponent, if blasting may affect the residents.
- KCGM will ask the tenants of these properties or other industrial land within 200 m to vacate during initial blasting of upper benches as a safety precaution
- Implement a minimum 200 m clearance zone during blasting.
- Undertake blast modelling to predict projected ground vibration and air-blast overpressure levels.
- Design blasts to minimise air blast and vibration.

Regulation via *Aboriginal Heritage Act 1972*

Consent is required from the Minister for Aboriginal Affairs to alter Aboriginal sites under the *Aboriginal Heritage Act 1972* (AH Act). The EPA notes that the AH Act does not apply to sites outside the development envelope or indirect impacts within the development envelope. No known Aboriginal heritage sites are located within the disturbance footprint of the proposal and one cultural heritage site is situated within the mine development envelope. An ACHMP has been developed in consultation with the Traditional Owners to minimise and manage potential impacts to Aboriginal cultural heritage.

Regulation via Part V, Division 3 of the EP Act

The current operations are approved under Prescribed Premises Licence L6420/1988/14. A Works Approval and licence amendment under Part V of the EP Act will be required to manage the emissions and discharges during construction and operation of the proposal that may impact on social surroundings.

Regulation via the *Mining Act 1978*

Approvals under the *Mining Act 1978* regulated by Department of Energy Mines, Industry Regulation and Safety (DEMIRS) requires adequate stakeholder engagement. The mining proposal encompasses ground disturbance for mining and construction of WRDs, TSFs and rock dumps. The mine closure plan will include management of demolition, decommissioning and management of the post-closure landscape.

2.2.8 Assessment of impacts to environmental values

The EPA considered that the key social surroundings values likely to be impacted by the proposal are Aboriginal heritage sites and cultural values, and noise. Note that dust impacts are discussed in Section 2.1, and vibration, flyrock and visual amenity impacts are discussed in Section 2.2.3.

For noise impacts, the combined impacts from the existing proposal and significant amendment were considered as well as the cumulative impacts, as the modelling has been undertaken using the combined impacts of the proposal and includes noise emissions from all existing site sources and background noise within the area. Regarding cumulative impacts, the Kalgoorlie Rare Earths Processing Facility is located on the other side of the City, however, it is separated by approximately 5 km

from the Fimiston operations. This facility was assessed via EPA Report 1712 to be able to operate below assigned noise levels, so is unlikely to be significantly contributing to the noise received in the City.

Aboriginal heritage

The proposal has the potential to impact on the heritage values of registered Aboriginal heritage sites and other heritage places. Assessment of the potential impacts has been undertaken in accordance with the *Technical Guidance – Environmental impact assessment of Social Surroundings – Aboriginal cultural heritage* (EPA 2023c).

The EPA understands that the proponent will consult with Traditional Owners prior to works within the vicinity of any known Aboriginal heritage sites. The EPA notes that the proponent will require consent from the Minister of Aboriginal Affairs to alter Aboriginal sites under the AH Act if any areas are likely to be directly affected. The EPA is satisfied that this process can mitigate potential impacts to Aboriginal heritage sites to meet the EPA's objectives in that area because:

- The Aboriginal Cultural Heritage Committee must evaluate the importance and significance of the sites and make a recommendation to the Minister before alteration occurs.
- The Minister's consent is required before the alteration occurs.
- The Minister must be notified regarding any new information about Aboriginal sites which are found in the area.
- The consultation guidelines for the AH Act expect all relevant Traditional Owners are consulted before consent is considered.
- Sites are covered even if they are not registered or lodged.
- Consent can include conditions for protection, mitigation or management of sites in the area.
- Traditional Owners can appeal the Minister's consent.

The AH Act does not apply to sites outside the impact area or to indirect impacts. The EPA advises that the proponent has taken reasonable steps to consult with the Marlinyu Ghoorlie Native Title Claimant Group and the EPA has used this information in its assessment. The EPA considers that the significant amendment has the potential to indirectly impact Aboriginal heritage sites and cultural values, such as Muruntjarta (Site IS 1476), through unauthorised ground disturbance. The site has been demarcated and works cannot be undertaken without an internal ground disturbance approval, which requires a buffer around the site to avoid impact (KCGM 2024c).

Public consultation raised concern about the potential for unknown Aboriginal cultural heritage sites to be present within the proposed TSF footprint. The proponent advised that Aboriginal heritage surveys completed by Aboriginal heritage consultants in consultation with Traditional Owners did not identify areas of concern in the TSF footprint (KCGM 2024d). The EPA notes that the proponent will have cultural monitors present during all initial ground disturbing activities including at the TSF location and implement the unexpected finds procedure for any ground disturbing activities (KCGM 2024b,c).

The EPA supports the proponent's mitigation strategies to protect and preserve Aboriginal Cultural Heritage in the ACHMP, which was prepared in consultation with

the Marlinyu Ghoorlie Traditional Owners outlined above. The EPA acknowledges that if new sites are identified during works, the proponent will manage these in accordance with the ACHMP, which includes protocols for managing potential new sites if identified. The EPA supports the engagement of cultural monitors from the Marlinyu Ghoorlie Native Title Claimant Group for all initial ground disturbance activities, and if new potential cultural heritage items can be relocated or salvaged, as outlined in the ACHMP.

The EPA advises that potential residual direct impacts to Aboriginal cultural heritage can be adequately managed through standard conditions. The EPA has recommended conditions requiring the proponent to avoid disturbance of aboriginal cultural heritage sites unless approval has been granted under WA legislation (Condition B5-1). The EPA advises that the proponent should complete planning and implementation of rehabilitation activities in consultation with Traditional Owners.

The EPA acknowledges the potential for indirect impacts to Aboriginal cultural heritage sites through dust emissions and potential amenity impacts post-closure. The EPA considers that the EPA objective for social surroundings will be met in relation to indirect impacts to cultural heritage through the approved Mine Closure Plan and ongoing consultation with Marlinyu Ghoorlie Traditional Owners.

Noise

As previously noted, noise from the mine is regulated by an approval under Regulation 17 of the Noise Regulations. Regulation 17 Approvals are predominantly used in situations where there is a history of noise emissions which predate the Noise Regulations. Proponents must undertake significant investment in noise amelioration to demonstrate noise levels cannot practicably comply with assigned noise levels in the Noise Regulations. While the mine has been operating since 1893, a Regulation 17 Approval has been in place since 2009.

The current Regulation 17 Approval outlines the allowable limits, modified by wind direction and speed, at five reference locations. The proponent is required to undertake monitoring of noise and weather conditions at these locations, and to adjust mining operations, where required.

The City of Kalgoorlie-Boulder's population is approximately 30,000. The mine operations are to the east of the City, adjacent to light industrial areas and some residential properties up to within approximately 1 km of the edge of the mine operations. The proponent engages in regular community consultation, as described in the *Community engagement and consultation* section below, where the proponent considers complaints received and modifies operations where possible.

The operations are noisiest at night and so the proponent has limited what activities can be undertaken at night (i.e. no blasting is allowed).

Noise modelling

The proponent engaged acoustic consultant Herring Storer Acoustics (HSA) to assess noise emissions from the combined existing operations and the proposed significant amendment (HSA 2023a). The assessment confirmed that major noise emission sources from the operations continue to be identified as haul trucks, dozers, loaders, diggers and graders.

The assessment investigated the noise implications of realignment of the ENB,

which extends the full western length of the operations. The ENB is a physical barrier between the mine site and the City of Kalgoorlie-Boulder urban areas designed to reduce the City's exposure to noise from the mine operations. The ENB is approximately 15 m high. Due to the proposed expansion of the Fimiston pit, a 1.8 km southern section of the bund requires realignment (westwards) to accommodate the proposed Ivanhoe Cutback.

In addition to commissioning an acoustic assessment, the proponent engaged George Boucher Consulting (2022) to review blast-induced ground vibration and air-blast overpressure monitoring systems and equipment. This review developed predictive models for the likely blast-induced vibration and air-blast overpressure associated with the different types of blasting required to deliver the Ivanhoe Cutback.

The noise and vibration assessments for the proposal concluded that:

- Regarding nighttime levels, provided specific night-time work restrictions are implemented, the night-time noise variation would be insignificant in either auditability or in assessable noise levels at the northern and western receivers.
- Mining operations on the initial upper benches of the northern-most section of the proposed Ivanhoe Cutback will require restriction of operational hours to ensure that the night-time (1900 to 0700 hours) noise levels remain within the existing approved limits.
- A replacement for the Outram Steet reference location at the corner of Oroya and Waverley Streets based on the noise level measurements and predictive noise modelling was recommended.
- Analysis of the noise source contribution for different operational scenarios highlighted that haul truck location is still the main factor that dominates the predicted noise levels.

Noise management

The proponent implements several key noise management measures within a Noise and Vibration Monitoring and Management Plan (NVMMP). These include the installation of an ENB between the mine and the City of Kalgoorlie-Boulder, the use of broadband frequency reversing alarms on open pit vehicles, some surface activities restricted to day-time activities only, investigation of opportunities to reduce noise from the haul trucks and improvements in management of airblast overpressure events.

The haul truck fleet is a major noise emission source, and the proponent has undertaken the following noise reduction opportunities:

- 2002: The proponent 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.
- 2003: Trials of eXtra Quiet haul trucks.
- 2009: Investigation of the use of sound suppressant mufflers.
- 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.

- 2014 to 2017: Research project with the University of Western Australia: "Integrated passive and active control of humming noise from KCGM's haul trucks".

The EPA notes that there is a trend towards haul trucks and excavators with higher sound levels since an application for a regulation 17 in 2007 was submitted.

In 2007, the proponent reported 30 haul trucks operating at a sound power level of 122 dB(A). In 2023, the proponent has identified 35 haul trucks operating at a sound power level of 124 dB(A). While slight variations in measured haul truck sound levels are not uncommon, the observed difference between 2007 and 2023 indicates that noise reduction of the haul truck fleet has not yet been achieved despite the proponent's pursuit of noise reduction opportunities. The additional trucks in the fleet since 2007 may marginally increase the overall haul truck noise emissions. In 2007, the proponent reported using six excavators at a sound power level of 121 dB, and in 2023, three diggers at a sound power level of 130 dB(A) were modelled.

The proponent has advised it is actively engaging with Caterpillar and other suppliers to progress electrification of the haul trucks, which are expected to be much quieter than the current haul trucks. The status of the electrification of the haul trucks is also related to greenhouse gas emission abatement and is described in Section 2.5 Greenhouse Gas Emissions.

The early stages of mining activities at the Ivanhoe Cutback pose a high risk of noise impacts. Examples of such activities that may exceed the approved noise levels include long hole percussion drills, diggers, tracked loaders, dozers and haul trucks at or near surface level. To manage this risk, the existing ENB will be retained during surface activities to provide additional noise control. The ENB will be removed to ensure pit stability once the mining activities reach 20 m below ground level (352 mAHD). Noise levels in the nearby urban areas are predicted to reach their highest levels as a result of the proposed cutback activities once the ENB is removed.

Predictive modelling suggests that activities at surface and down to approximately 20 m below ground level (352 mAHD) at the Ivanhoe Cutback may increase the noise emission levels into the City. In particular, noise emission levels from the mining within the northern section of the cutback are predicted to exceed the L_{A10} nighttime noise limit approved under the current regulation 17. To manage compliance with the approved noise levels, mining is restricted within the northern section of the Ivanhoe Cutback to daytime only 30 m below ground level (342 mAHD) (Appendix B, condition 7).

Community engagement and consultation

The proponent has a well-established community engagement process using a range of mechanisms to engage with stakeholders and capture community input. Key consultation and engagement tools include the KCGM Community Reference Group, Public Interaction Line, website, media and advertising, community research, Super Pit Shop, and publications.

Since 2019, KCGM has engaged Voconiq to deploy the Local Voices survey service to better understand and track community sentiment towards the Fimiston Operations. Published survey results indicate that acceptability of dust, noise and

vibration impacts declined 12% between December 2020 to April 2024 (Voconiq 2024). The Local Voices 'Pulse' Survey Summary, April 2024 stated: "community members have expressed concerns about environmental impacts such as dust, noise, and vibrations, and these perceived impacts have increased over time, and continue to increase this pulse survey" (Voconiq 2024).

The proponent's analysis of noise complaints received indicated that most related to isolated events or individuals, rather than to a particular activity or from a specific area. Noise complaints primarily related to noise from mining open pit operations and waste rock conveyor squeaky rollers. For example, the proponent manages the noise from the waste rock conveyor by limiting operation to daytime hours and undertaking more regular maintenance. Complaints generally increase during winter months due to the influence of weather conditions that cause increased propagation of noise between the mine and the City.

Assessment Summary

The EPA notes that relatively few complaints have been received by the proponent and by DWER regarding noise considering the proximity of the mining operations to the City. The EPA also notes that noise modelling presented by the proponent suggests that once activities at the proposed Ivanhoe Cutback reach approximately 50 m below ground level (322 mAHD), noise levels will reduce and be similar to those associated with previous operations at the same depth. The modelling also shows that the majority of new areas to be affected are south of the City of Kalgoorlie-Boulder, within industrial areas (HSA 2022).

The current Regulation 17 Approval requires the proponent to take all reasonable measures to reduce its noise emissions. The EPA notes that the most effective control measure is the noise bund between the City of Kalgoorlie-Boulder and the mine site, which will be extended south. It is also noted that haul truck abatement measures are likely to have a major impact on noise levels when electrification is implemented across the fleet, which is currently being considered for future implementation by the proponent.

Compliance noise monitoring results presented to DWER over the last 10 years, which include collection of continuous data and spot checks once per quarter, indicate that noise associated with the operations comply with the approved noise levels in the current Regulation 17 Approval, and therefore, no increase of those noise limits are proposed by the proponent.

The EPA understands that the noise levels experienced in the City of Kalgoorlie-Boulder nearer to the mining operations are similar to the World Health Organisation (WHO) recommended levels in the *Environmental Noise Guidelines for the European Region* (WHO 2018) for traffic, which has characteristics in common with the proponent's operations. The noise levels are similar to that experienced when living close to a freeway or major road for the areas nearer to the mining operations.

Considering the proposed expansion of mining further south of the City toward industrial areas, the extension of the ENB and no change proposed to the limits in the current Regulation 17 Approval, the EPA considers that the revised proposal is unlikely to change noise impacts significantly in the area. However, the EPA notes that there has been a general trend since 2007 of more equipment being used at the mine with potentially higher sound levels. This may suggest that noise at the source has increased, however, it is not clear if this has resulted in changes to noise levels

received in the City of Kalgoorlie-Boulder. The EPA considers that an understanding of the long-term trends for noise received in Kalgoorlie-Boulder is required to evaluate performance against the proposed Regulation 17 Approval requirement to take all reasonable measures to reduce the level noise emissions from the Fimiston Gold Mine (Appendix B, condition 9).

The EPA notes that compliance with the noise levels in the current Regulation 17 approval is being met and that no change to these levels are being proposed. The EPA has also noted the low incidence of complaints and the similar noise levels in the current Regulation 17 Approval with the WHO Guidelines (WHO 2018) for traffic noise as an analogue for noise from the operations, which indicates adverse health impacts are unlikely to be common.

Overall, it is the EPA's preference that any exemption to the Noise Regulations via a Regulation 17 should not be a long-term solution, especially if health impacts could potentially arise. The EPA notes that 15 years has elapsed since the original Regulation 17 Approval and considerable advances have been made in that time in the understanding of public health implications of environmental noise exposure, with new methods developed to evaluate impacts. While the EPA considers that the current Regulation 17 Approval is fit for purpose and adverse health impacts are unlikely to occur, the EPA is recommending that the proponent undertake a noise exposure model. This new and additional exercise will provide a better understanding of the potential noise-related public health impacts of the proponent's operations, and would allow for adaptive management to meet relevant criteria, if required. This model could also inform a future environmental health impact assessment relating to noise impacts. The EPA has recommended a condition (Appendix B, condition 11(2)(l)) for the noise management plan to detail a programme to develop a noise exposure model.

The EPA considers that the requirements of the current Regulation 17 Approval can continue to be implemented, with some additions and modifications. The proposed new approval includes noise from the mining operations (including early-stage mining of the cutback and construction of the new section of bund) and airblast levels, and is provided as Appendix B to this report. Specifically, the EPA recommends the approval should contain the following additions to the current Regulation 17 Approval:

- The noise exposure modelling exercise, as mentioned above (Appendix B, condition 11(2)(l)).
- A condition limiting early mining activities in northern sections of the Ivanhoe Cutback to daytime only (Appendix B, condition 7).
- The realigned section of the ENB be completed before the existing section affected by the proposed cutback is removed (Appendix B, condition 8) to ensure noise received in urban areas is reduced.
- The current approval allows the proponent to exceed airblast limits for sensitive sites under regulation 11 of the Noise Regulations, provided limits specified in the approval are not exceeded at residential properties owned by the proponent. EPA also notes that for sensitive sites not owned by the proponent, the proponent's current approach is to assess measured airblast levels against the airblast limits specified by regulation 11 of the Noise Regulations and recommends a condition to reflect the practice (Appendix B, condition 4(2)) to provide appropriate protection for sensitive sites not owned by the proponent. This approach ensures

occupiers of those properties are informed and accepting of the higher blast noise they may experience.

- The NVMMP is updated to reflect operational changes associated with the expansion and proposed changes to the noise monitoring requirements (Appendix B, condition 11).
- The following additions to monitoring requirements to track long-term trends or assess performance against approval requirements:
  - amendments to noise monitoring conditions (Appendix B, condition 10) to ensure that measurements include L_{AS10}, L_{AS50}, L_{AS90} and L_{Aeq} measurement parameters for observing long term emission trends
  - continuous monitoring of L_{AS10}, L_{AS50}, L_{AS90} and L_{Aeq} measurement parameters, which takes into account wind direction be reported over a period consistent with the monitoring of weather conditions (Appendix B, condition 10) to assist in observing long term emission trends
  - requirement to monitor and report on the presence of tonality (Appendix B, condition 10) to understand what extent tonal emissions affect urban areas and whether further measures to eliminate tonality may be required.
- In addition to regular annual reporting requirements, the EPA recommends a report on all noise and airblast levels since 2010 be required at the end of the first year of the new approval (Appendix B, condition 12), with this reporting, as far as practicable, to be in accordance with the newly proposed noise monitoring requirements and updated NVMMP. For subsequent years, reporting on that years' annual monitoring results only will be required (Appendix B, condition 12).

The EPA acknowledges that noise emission levels from Fimiston Gold Mine operations will not comply with the assigned levels in the Noise Regulations at the nearby noise sensitive locations in the City of Kalgoorlie-Boulder. However, the EPA considers that, given the proximity of the mining operation to sensitive premises, the long history of the mine in the area and that noise emissions are reported to be within the limits of the current Regulation 17 Approval, the grounds for previous approvals in 2009 and 2016 remain current, and a further Regulation 17 is appropriate. The EPA notes that the proponent has made various efforts to manage and reduce noise emissions from the Fimiston Gold Mine Operations, however it is likely that the next opportunity to significantly reduce noise emissions will occur when electrification of the haul truck fleet occurs in the future. The EPA also acknowledges the limited complaints received, the extension of the ENB and that the noise levels will reduce as the mining in the pit deepens. For these reasons, the EPA considers that the noise emission limits in the current Regulation 17 Approval are still relevant, whilst recommending the addition of the noise exposure modelling exercise.

The EPA considers that, given the potential extent of the Kalgoorlie-Boulder population exposed to noise, the additions and modifications to the existing Regulation 17 Approval will ensure the EPA objective for social surroundings will be met in relation to noise impacts.

2.2.9 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on social surroundings. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 4. The EPA has also considered the principles of the EP Act (see Appendix E) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A). The EPA has also considered whether the current Regulation 17 Approval is able to continue to regulate noise, and has proposed an updated draft Regulation 17 Approval, with revised and additional requirements (see Appendix B).

Table 4: Summary of assessment for social surroundings

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
1.	Direct impacts to Aboriginal heritage sites.	The EPA advises that there is a risk of residual impacts to Aboriginal cultural heritage associated with unauthorised ground disturbance or disturbance to potentially unknown sites. The recommended conditions will ensure the environmental outcome is consistent with the EPA objective for social surroundings.	**Condition A1 (Limitations and extent of proposal)** **Condition B5 (Aboriginal cultural heritage)** Requiring avoidance of disturbance to Aboriginal cultural heritage sites, unless consented to through approvals under Aboriginal heritage legislation.
2	Noise impacts to the City of Kalgoorlie-Boulder.	Noise impacts will continue to be above the prescribed limits in the Noise Regulations. The noise impacts are able to continue to be regulated through a Regulation 17 Approval, with revised and additional requirements.	**Draft proposed Regulation 17** Requires the proponent to implement a noise management plan and to minimise noise emissions and impacts of noise on the City of Kalgoorlie-Boulder.

2.3 Flora and Vegetation

2.3.1 Environmental objective

The EPA environmental objective for flora and vegetation is *to protect flora and vegetation so that biological diversity and ecological integrity are maintained* (EPA 2016a).

2.3.2 Investigations and surveys

The EPA advises the following investigations and surveys were used to inform the assessment of the potential impacts to flora and vegetation:

- Flora and vegetation, and fauna surveys for the proposed infrastructure within the Development Envelope of the Fimiston Gold Mine Operations (Phoenix Environmental Services 2018)
- Flora and vegetation assessments for the Fimiston Gold Mine Operations (Phoenix Environmental Services 2022)
- Targeted flora and short range endemic invertebrate survey for the FIM IIE Project Fimiston Gold Mine Operations (Phoenix Environmental Services 2019)
- Regional survey for *Eremophila praecox* for the FIM IIE Project Fimiston Gold Mine Operations (Phoenix Environmental Services 2019a)
- Revised flora and vegetation assessments for the Fimiston Gold Mine Operations (Phoenix Environmental Services 2024).

The surveys were consistent with the *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016d).

2.3.3 Assessment context – existing environment

As defined in the Interim Biogeographical Regionalisation for Australia, the proposal occurs within the Eastern Goldfields Subregion of the Coolgardie Bioregion except for a small section which occurs in the Eastern Murchison subregion of the Murchison Bioregion.

The Eastern Goldfields subregion is characterised by tertiary soils dominated by calcareous earths overlaying eroded gneisses and granites and vegetation consisting of mallees, *Acacia* thickets and shrub-heaths on sandplains and dwarf shrublands (Cowan 2001a).

The Eastern Murchison subregion is characterised by extensive areas of elevated red desert and plains with minimal dune development and vegetation dominated by Mulga woodlands, often rich in ephemerals; hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (Cowan 2001b).

Table 5 shows the regional scale vegetation mapping for Western Australia (Beard *et al.* 2013; DPIRD 2018) which identifies three vegetation associations within the significant amendment area. It is noted that each of these vegetation associations currently represent over 96% of their pre-European extent.

Table 5: State-wide extent of pre-European vegetation associations

Vegetation Association	Description	Pre-European extent (ha)	Remaining (%)	Area within development envelope (ha)
20	Low woodland, mulga mixed with *Allocasuarina cristata* and *Eucalyptus* species	1,295,103.39	99.8	827
468	medium woodland; salmon gum (*Eucalyptus salmonophloia*) and Goldfields blackbutt (*Eucalyptus lesouefii*)	592,022.32	98.63	6,912
1294	medium woodland: Coral gum (*Eucalyptus torquate*)	6,295.54	96.05	56

The dominant land use within the Eastern Goldfields subregion is Unallocated Crown Land and Crown reserves (Cowan 2001a). This accounts for most of the land use in the subregion with grazing on native pastures, freehold, conservation and mining making up the remainder. The closest crown reserves to the significant amendment area include:

- Lakeside Timber Reserve (2,390 ha), 6.5 km southeast
- Kurrawang Nature Reserve (625 ha,) 13 km southwest
- Bullock Holes Timber Reserve (13, 226 ha), 27 km northeast.

The majority of vegetation proposed to be cleared is in Good condition (68.5%) with almost 15% in Very Good (11.3%) or Excellent (3.6%) condition, and almost 17% in Degraded (1.8%) or Completely Degraded (14.8%) condition (KCGM 2024b).

Approximately 58% of the area proposed to be cleared consists of Mid open woodland to woodland of Salmon Gum (*Eucalyptus salmonophloia*), followed by 15% of Low woodland of Goldfields Blackbutt (*Eucalyptus lesouefii*) and 11.8% of Mid open woodland variable composed of *Eucalyptus celastroides*, Goldfields Blackbutt, and/or Gimlet (*Eucalyptus salubris*) (KCGM 2024b).

No threatened or priority ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), or *Biodiversity Conservation Act 2016* (BC Act) were recorded within the significant amendment development envelope.

A total of 270 flora species were recorded during surveys, representing 42 families and 108 genera (Phoenix Environmental Services 2024). No species listed as 'Threatened flora' under the EPBC Act or BC Act were recorded within the significant amendment development envelope.

One priority flora species, *Eremophila praecox* (Priority 2), was recorded within the development envelope. This species is a broom-like shrub, 1.5–3.0 m high with purple flowers in October to December. It is most frequently recorded in clay loam soils in *Eucalyptus* and/or *Allocasuarina* woodland with a variable understorey, frequently with *Acacia* species (Phoenix Environmental Sciences 2019).

Nine introduced species have been recorded in the vicinity of the proposal of which two have been identified as a Declared Pest under the *Biosecurity and Agriculture*

Management Act 2007 (WA); Paterson's curse (*Echium plantagineum*), and Riverina pear (*Opuntia elata*). African boxthorn (*Lycium ferocissimum*) which is a weed of national significance, has also been identified (Phoenix Environmental Sciences, 2024).

2.3.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the RtS document (KCGM 2024d). During the public review, issues were raised regarding:

- impact to vegetation from seepage from the TSF
- indirect and cumulative impacts to *Eremophila praecox*
- management measures to preserve *Eremophila praecox*.

The key issues raised during the public consultation on the proposal and how they have been considered in the assessment are described in Sections 2.3.5, 2.3.6 and 2.3.9.

It is noted that the proponent will act to recover seepage at the TSF, if required, through production bores and seepage interception trenches, monitor and manage groundwater levels to minimise seepage and ensure long-term management of ground and surface water systems through implementation of the Mine Closure Plan required under the *Mining Act 1978*. The implementation of the "Kalgoorlie Consolidated Gold Mines Fimiston Seepage and Groundwater Management Plan" dated June 2020 to improve management of seepage from the proponent's TSFs is also a requirement under Licence L6420/1988/14 issued under Part V of the EP Act. See Appendix F for further information relating to potential impacts to Inland Waters.

The proponent consulted with the Department of Biodiversity, Conservation and Attractions (DBCA) regarding management measures to preserve *Eremophila praecox* from indirect impacts through the implementation of a Significant Species Management Plan (see Section 2.3.9).

2.3.5 Potential impacts from the proposal

The proposal has the potential to significantly impact on flora and vegetation from:

- clearing of up to 1,580 ha of native vegetation
- clearing 126 individuals of *Eremophila praecox*
- introduction/spread of weeds
- changes to surface water regimes
- impact from dust emissions.

2.3.6 Avoidance measures

The mine layout (significant amendment disturbance footprint) has been designed to avoid 60 known *Eremophila praecox* individuals within the significant amendment development envelope.

2.3.7 Minimisation measures

The proponent outlined the following minimisation measures to reduce direct and indirect impacts to flora and vegetation:

- designing TSFs and stockpiles to limit areas to be cleared
- installing diversion channels to minimise changes to surface water regimes
- implement good hygiene practices when vehicles and mine equipment enter or depart the site
- management of dust deposition though implementation of a DMMP
- minimising and controlling of weeds in the area though implementation of a Weed Management Procedure as part of the Significant Species Management Plan Flora (SSMP Flora).

2.3.8 Rehabilitation measures

The proponent is required to rehabilitate the site in accordance with a Rehabilitation and Closure Management Plan required under condition 8 of MS 188 and condition 11 of MS 782, in addition to the requirement for a Mine Closure Plan under *Mining Act 1978* regulated by DEMIRS. It is stipulated in condition 11-4 of MS 782 that DEMIRS is the lead agency for co-ordinating the Rehabilitation and Closure process for this proposal.

The proponent has established a process for managing vegetated areas of land to be cleared to enable operational areas to be developed. This process includes the vegetation clearing and rehabilitation material stripping guideline which was developed to advise on the activities that must occur prior to, during and after vegetation clearing activities (KCGM 2024b).

The proponent developed a revised Mine Closure Plan. In this plan, the proponent states that the on-ground rehabilitation activities have been concentrated on progressive rehabilitation of TSF and WRD areas including 139 ha of the 795 ha (17.5%) of TSF areas and 427 ha of the 1175 ha (36.3%) of WRD sites (KCGM 2022). Approximately 175 ha of rehabilitation have been re-worked for other expansions and vegetation to be cleared for this proposal includes 98 hectares of rehabilitated areas (KCGM 2024c). This leaves approximately 300 ha of rehabilitation undertaken at the site.

The proponent has proposed the following key rehabilitation measures for this proposal:

- stockpile cleared / mulched vegetation for use in rehabilitation to improve the nutrient value of the soil
- retain and utilise soil from cleared areas for TSF rehabilitation
- rehabilitate TSF post-closure
- the open pit becoming a saline pit lake at closure
- construction of an abandonment bund around the site to prevent inadvertent access.

2.3.9 Assessment of impacts to environmental values

The EPA considers that the key environmental values for flora and vegetation likely to be impacted by the proposal are impacts to the Priority 2 flora species *Eremophila praecox*.

Eremophila praecox species were discovered in the area relatively recently by the proponent and therefore a combined assessment is not possible as the previous assessment undertaken in 2008 did not identify this species. Other developments

nearby indicate that *Eremophila* species were found in their developments; however, no *Eremophila praecox* had been recorded at these locations (i.e. Kalgoorlie Rare Earths Processing Facility (EPA Assessment 2269), Binduli North Project (Clearing Permit CPS 8950/1) and Apache Project (Clearing Permit CPS 10036/1).

Mining and mineral processing has occurred in the vicinity of this site since gold was first discovered in 1893 (KCGM 2024c). It is therefore difficult to assess impacts to *Eremophila praecox* on a cumulative level given the lack of survey data for this species at this site prior to the proposed extension to operations; however, the below section describes the current knowledge and potential impact, as well as mitigation, research and rehabilitation that can be considered for this species.

Eremophila praecox (Priority 2)

At present, there are 729 individual *Eremophila praecox* plants within a 100 km radius of the significant amendment development envelope with approximately 26% of the known population (193 individuals) being identified in nearby crown reserves including Lakeside Timber Reserve, Kurrawang Nature Reserve and Bullock Holes Timber Reserve (KCGM 2024b). The mapped distribution for *Eremophila praecox* spreads roughly from 140 km north-south and 110 km east-west across an area of 31,400 km^2 and it is likely that suitable habitat exists within and beyond the current distribution. *Eremophila praecox* populations are frequently sparse, comprised of a low number of individuals, sometimes spaced hundreds of meters apart (KCGM 2024d).

Within the significant amendment development envelope, there are 13 populations of *Eremophila praecox* consisting of 186 individuals (KCGM 2024b). The proposal will involve the direct removal of 126 of those individuals (17% of the known population), however will not involve the removal of any one population in its entirety. See Figure 5 for locations of *Eremophila praecox* within and close to the significant proposal development envelope.

The EPA has considered that the proponent will be avoiding 60 known *Eremophila praecox* individuals within the significant proposal development envelope through changes to the design of the mine layout.

It is noted by the EPA that it is likely that suitable habitat exists beyond the current distribution, given that the regional vegetation associations are well represented in the area, and it is likely the species would be found more broadly should further surveys be undertaken. The EPA considered that records of *Eremophila praecox* are found within the wider region which indicates the proposal is unlikely to change the conservation status of the species.

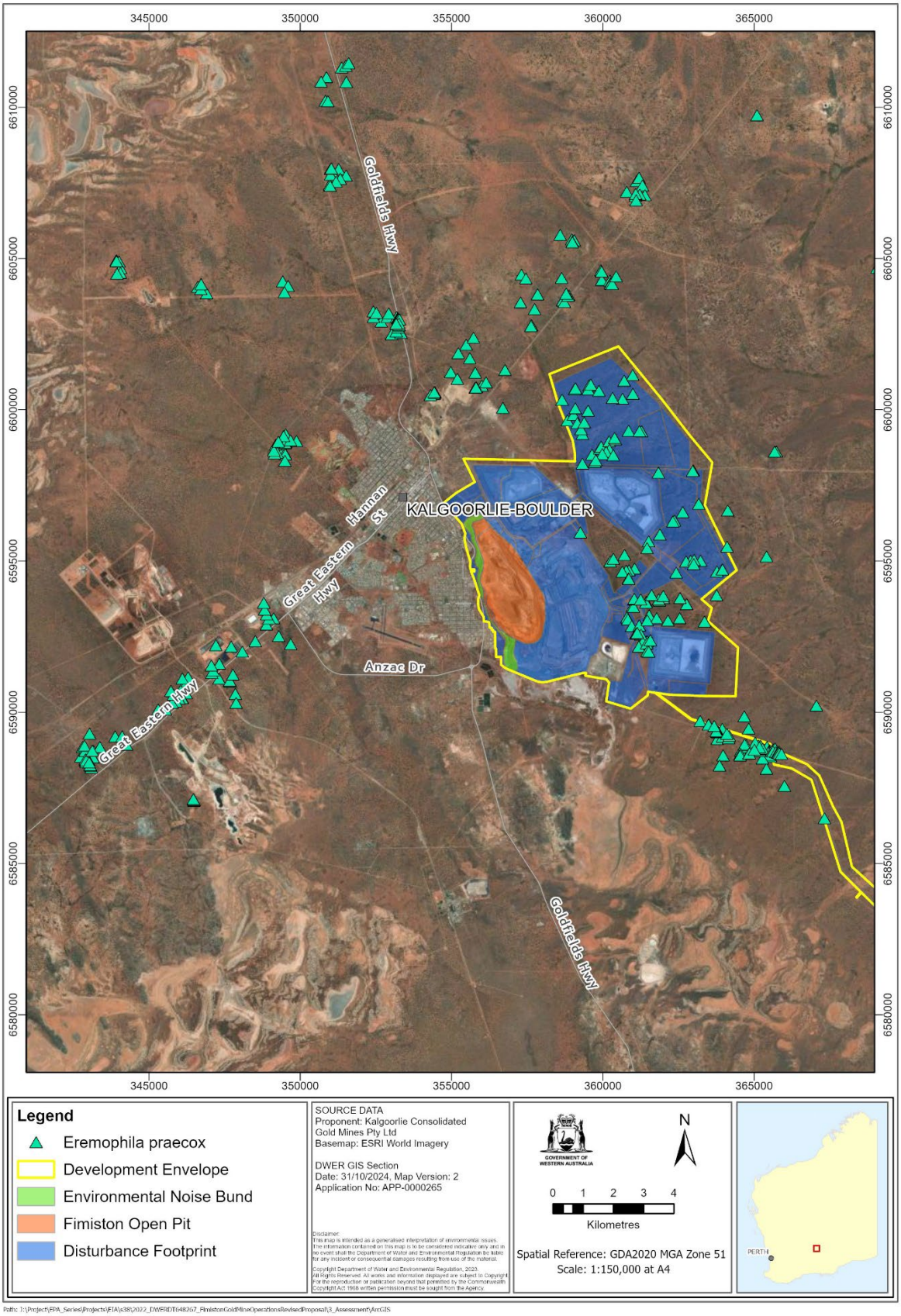


Figure 5: Regional occurrences of Eremophila praecox near the development envelope

The EPA acknowledges the potential for indirect impacts to *Eremophila praecox* and it is the EPA's preference that the proponent avoids indirect impacts to this species. The proponent has developed an SSMP Flora to minimise the direct and indirect impact to *Eremophila praecox* populations within the significant proposal development envelope. This plan includes the following management measures:

- prevention of access to remaining individuals in the development envelope
- design surface hydrology to avoid changes in hydrology in sensitive areas
- weed control is undertaken using physical and chemical control
- dust generation is minimised from mining and road use that could cause temporary disturbance to flora
- monitoring of *Eremophila praecox* populations and comparing population health to populations outside the area of potential impact.

The monitoring plan for *Eremophila praecox* is included in Appendix B of the SSMP Flora. This monitoring plan sets out the monitoring locations for the remnant floodway population as well as two reference sites (south along Borefield Road). To monitor for potential indirect impacts within the significant proposal development envelope, the condition of the vegetation surrounding *Eremophila praecox* individuals will be monitored and compared to the condition of vegetation surrounding regional *Eremophila praecox* populations. The EPA notes that the proponent has proposed annual monitoring of *Eremophila praecox* and annual spring surveys to continue contributing to the baseline data for this species. The additional data will be used to work towards a better understanding of regional populations and the SSMP Flora will incorporate new data as it is collected.

The EPA advises that the potential residual impact to *Eremophila praecox* can be regulated through reasonable conditions, namely, condition B1-1 which limits the removal of *Eremophila praecox* to 126 individuals directly impacted by the proposal. The EPA has considered whether a significant residual impact remains and needs to be counter-balanced by offsets for *Eremophila praecox*. The EPA advises that a significant residual impact is not likely to occur as impacts are not likely to meet the definition of significant residual impact in the WA Environmental Offset Guidelines (Government of Western Australia 2014), given the impact is not expected to cause plants to become rare or endangered. Even though further surveys for *Eremophila praecox* are proposed and would likely show the level of impact is low, the EPA has determined that the residual impact to this species can be mitigated through limitations on removal in this case. The EPA has also recommended in condition B1-1 that there be no adverse impacts to *Eremophila praecox* outside the disturbance footprint. This is to be demonstrated through the implementation of a revised SSMP Flora (condition B1-2).

The DBCA has provided advice on the content of the SSMP Flora and has recommended modifications to the plan relating to the monitoring regime for *Eremophila praecox* populations. The EPA has recommended condition B1-2 that these modifications be incorporated into a revised SSMP Flora which is to be updated on advice of the DBCA prior to operations commencing within the significant amendment development envelope.

The EPA considers that rehabilitation and closure outcomes, including progressive rehabilitation, can be undertaken via the requirements of a Mining Proposal and Mine Closure Plan under the *Mining Act 1978*; however, given the mine is currently proposed to operate to 2034 and noting the existing condition regarding rehabilitation

and closure in MS 782, the EPA has recommended a rehabilitation condition should be retained which focuses on environmental outcomes to be achieved (condition B6).

The EPA also considers there is an opportunity to incorporate *Eremophila praecox* in rehabilitation onsite to enhance long-term resilience of the species. Therefore, the EPA recommends further research and trials are undertaken via the Mine Closure Plan on the viability of including *Eremophila praecox* in rehabilitation (conditions B6 and B7).

The EPA considers that with the limitations on impacts and conditions on indirect impacts and proposed rehabilitation, the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.

2.3.10 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on flora and vegetation environmental values. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 6. The EPA has also considered the principles of the EP Act (see Appendix E) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 6: Summary of assessment for flora and vegetation

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
1.	Clearing of up to 1,580 ha of native vegetation mostly in 'Good' to 'Excellent' condition.	The clearing of 'Excellent' to 'Very Good' condition vegetation represents a residual impact. The EPA advises that this residual impact can be regulated through conditions including limitations on clearing, and progressive rehabilitation to meet rehabilitation and closure outcomes. The EPA has concluded that the environmental outcome is likely to be consistent with the EPA objective for flora and vegetation.	**Condition A1 (Limitations and extent of proposal)** **DMA regulation** Progressive rehabilitation to meet rehabilitation and closure outcomes through the Mine Closure Plan under the *Mining Act 1978*.
2.	Clearing of up to 126 individuals of priority species *Eremophila praecox* (P2) and indirect impacts to flora and vegetation	The EPA advises that the potential impacts to priority flora and indirect impacts to flora and vegetation are residual impacts. The EPA advises that the residual	**Condition B1 (Flora and Vegetation)** Limits on clearing of priority flora and implementation of a Significant Species Management Plan to meet

Residual impact or risk to environmental value		Assessment finding or Environmental outcome	Recommended conditions and DMA regulation
	associated with dust deposition, spread of weeds and altered hydrological regimes.	impact should be subject to recommended conditions B1, B6 and B7 to ensure the environmental outcome is consistent with the EPA objective for flora and vegetation.	environmental objectives including management measures for the spread of weeds, dust deposition and altered hydrological regimes. **Condition B6 (Rehabilitation)** Undertake trials to incorporate restoration of *Eremophila praecox* in mine rehabilitation, where possible. **Condition B7 (Restoration and Research)** Undertake research that will investigate the biological and ecological requirements of the species and address knowledge gaps that have been identified as a research priority needed to improve the management and protection for the species.

2.4 Terrestrial fauna

2.4.1 Environmental objective

The EPA environmental objective for terrestrial fauna is *to protect terrestrial fauna so that biological diversity and ecological integrity are maintained (EPA 2016c).*

2.4.2 Investigations and surveys

The EPA advises the following studies, reports and peer review were used to inform the assessment of the potential impacts to terrestrial fauna:

- Flora and vegetation, and fauna surveys for the proposed infrastructure within the Development Envelope of the Fimiston Gold Mine Operations (Phoenix Environmental Services 2018).
- Targeted flora and short range endemic invertebrate survey for the FIM IIE Project Fimiston Gold Mine Operations (Phoenix Environmental Services 2019).
- Targeted *Camponotus* sp. nr. *terebrans* Survey (Phoenix Environmental Services 2021).
- Terrestrial fauna assessment for the Fimiston Gold Mine operations (Phoenix Environmental Services 2022a).
- Environmental Impact Assessment for *Jalmenus aridus* (AECOM 2022)
- Hydrological Assessment of *Jalmenus aridus* habitat (Golder Associates Pty Ltd 2022a)
- Assessment of Malleefowl Activity and Habitat for the Fimiston South Project (Alexander Holm & Associates 2023).
- Terrestrial fauna assessment for the Fimiston Gold Mine operations (revised) (Phoenix Environmental Services 2024a).
- Summary of the *Jalmenus aridus* (Inland Hairstreak) Spring 2024 Butterfly Surveys for KCGM (Eastwood 2024).

The terrestrial fauna surveys were consistent with the Technical Guidance – Terrestrial Vertebrate Fauna Surveys for environmental impact assessment (EPA 2020).

The short range endemic invertebrate fauna surveys were consistent with the Technical Guidance – Sampling of Short-range Endemic Invertebrate Fauna (EPA 2016e).

2.4.3 Assessment context – existing environment

Three broad fauna habitat types were identified during studies, comprising of Open woodland, Shrubland and Rehabilitation (Figure 6). An additional habitat, Shrubland in Drainage Lines, was designated for short range endemic species (SREs) to distinguish microhabitat along ephemeral drainage lines; this habitat is present in the infrastructure corridor through the centre of the significant amendment area.

Figure 6: Fauna habitat near the development envelope

A total of 131 vertebrate fauna species have been recorded during studies, representing 75 families. No Threatened vertebrate fauna species have been recorded from inside the current operations and within the significant amendment development envelope (Phoenix Environmental Services 2024).

Conservation significant fauna with a high likelihood of occurring in the significant amendment development envelope were (Phoenix Environmental Services 2024):

- Malleefowl (*Leipoa ocellata*) - Vulnerable under the EPBC Act and BC Act
- Chuditch (*Dasyurus geoffroii*) - Vulnerable under the EPBC Act and BC Act
- Fork-tailed swift (*Apus pacificus*) - Migratory under the EPBC Act and BC Act
- Peregrine falcon *(Falco peregrinus*) - species otherwise in need of special protection (other specially protected) under the BC Act
- Western rosella (inland) (*Platycercus icterotis xanthogenys*) - DBCA Priority 4 fauna.

Malleefowl were identified approximately 5 km to the northeast of the significant amendment development envelope, however, the results of an additional study conducted in March 2023 showed no evidence of recent Malleefowl use and none of the proposed impact areas contain critical or marginal habitat suitable for breeding and survival (Alexander Holm & Associates 2023). One vegetation unit mapped to the east of the significant amendment development envelope may be marginally suitable for foraging and dispersal, however, there is a high probability that transient individuals will be deterred by the level of off-road vehicle activity and presence of urban-based predators (Alexander Holm & Associates 2023). Given this, Malleefowl are considered unlikely to occur in the significant amendment development envelope and is not discussed further in this assessment.

Evidence of Chuditch was found 7 km east northeast of the significant amendment development envelope. Chuditch may potentially use parts of the significant amendment development envelope intermittently for dispersal and foraging (marginal), but not as breeding residents (Phoenix Environmental Services 2024). Chuditch records in the area are sparse with the closest known desktop records over 40 km to the south at Kambalda, north-west of Lake Lefroy (Phoenix Environmental Services 2024). Given this, Chuditch are considered unlikely to occur in the significant amendment development envelope and is not discussed further in this assessment.

Fork-tailed Swifts are summer migrants to Australia and may be found over various habitat types, where they forage in the airspace above, however, are unlikely to land or nest in the significant amendment development envelope (Phoenix Environmental Services 2024). Peregrine Falcons have large foraging ranges and are considered likely to occasionally forage within and in the vicinity of the significant amendment development envelope and may also nest in open woodland habitat where suitable tall trees are present (Phoenix Environmental Services 2024). The Western Rosella is endemic to south-western Western Australia with primary habitat for this species being eucalypt and casuarina woodlands which is abundant within and outside the significant amendment development envelope (Phoenix Environmental Services 2024). Given this, impact to these species is considered to be very low and are not discussed further in this assessment.

A targeted survey for ant species (*Camponotus* sp. nr. *terebrans*) which acts as a host for the larvae of the critically endangered Arid Bronze Azure Butterfly (*Ogyris*

subterrestris petrina) was undertaken within the significant amendment area. The host ant species was not detected during the survey and therefore, it is considered that no habitat is present for the Arid Bronze Azure Butterfly (Phoenix Environmental Services 2021).

A population of a Priority 1 species, the Inland Hairstreak Butterfly (*Jalmenus aridus*), was identified within the significant amendment development envelope. *Jalmenus aridus* habitat consists of shrubland in the eastern goldfields and wheatbelt of WA, favouring specific plant species, *Senna artemisioides ssp. filifolia* or *Acacia tetragonophylla*, growing in shallow gullies with a gentle slope to lay their eggs. This species has a mutualistic relationship with the ant species *Froggattella kirbii* whereby the butterfly larvae produce secretions from which the ants feed. In return, the presence of the ants protects the *Jalmenus aridus* larvae from parasitoids and predators (Phoenix Environmental Services 2024).

SRE taxa have been collected comprising of one confirmed SRE species, *Missulena harewoodi*, and 25 potential SRE species. Of these, three potential SRE species, *Nesidiochernes* 'sp. Fi01', *Spherillo* 'sp. indet. A1 and *Austrohorus* 'sp. Fi01', only occur within the significant amendment development envelope. No SREs are listed threatened or priority species.

2.4.4 Consultation

Matters raised during stakeholder consultation and the proponent's responses are provided in the RtS document (KCGM 2024d). During the public review, issues were raised regarding the potential impact to the viability to the *Jalmenus aridus* population in the area.

The key issues raised during the public consultation on the proposal and how they have been considered in the assessment are described in Sections 2.3.5, 2.3.6 and 2.3.9.

The proponent consulted with DBCA regarding the management measures to preserve habitat for *Jalmenus aridus* through the implementation of a Significant Species Management Plan designed to manage direct and indirect impacts to this species. The DBCA concerns were around lack of knowledge on breeding within regional populations and that the onsite population was the largest confirmed known breeding population of *Jalmenus aridus*.

2.4.5 Potential impacts from the proposal

The proposal has the potential to directly and indirectly impact terrestrial fauna from:

- clearing vegetation that supports terrestrial fauna habitat
- clearing two shrubs, in a population of between eight to 15 shrubs, used as breeding habitat for *Jalmenus aridus* within the development envelope
- remaining breeding shrubs for *Jalmenus aridus* potentially indirectly impacted though dust, weeds, fire and an altered hydrological regime.

2.4.6 Avoidance measures

The proponent has designed the proposal to avoid impacts to terrestrial fauna by:

- designing the WRD to avoid impacting all the onsite *Jalmenus aridus* population

- designing surface hydrology to avoid changes in hydrology in the *Jalmenus aridus* habitat area.

2.4.7 Minimisation measures

The proponent outlined the following minimisation measures to reduce direct and indirect impacts to terrestrial fauna:

- setting a 50-meter buffer around the *Jalmenus aridus* breeding shrubs.
- management of dust deposition though implementation of a DMMP
- controlling weeds though implementation of a Weed Management Procedure within the SSMP Fauna.

2.4.8 Assessment of impacts to environmental values

The EPA considered that the key terrestrial fauna value likely to be impacted by the proposal is the direct and potential indirect impact to breeding habitat for *Jalmenus aridus* and potential indirect impacts to SRE species.

Jalmenus aridus was re-discovered relatively recently by the proponent (not recorded since 1997) and therefore a combined assessment is not possible as the previous assessment undertaken in 2008 did not consider this species. One other development nearby, the Apache Project (Clearing Permit CPS 10036/1) indicated that while some potential habitat for the species existed within the surveyed area, no evidence of the mutualistic ant species nor the butterfly itself were recorded.

Mining and mineral processing has occurred in the vicinity of this site since gold was first discovered in 1893 (KCGM 2024c). It is therefore difficult to assess impacts to *Jalmenus aridus* on a cumulative level, especially given the cryptic nature of the species which was originally discovered in 1983 in the wider area; however, the below section describes the current knowledge and potential impact, as well as mitigation, research and rehabilitation that can be considered for this species.

Jalmenus aridus (Priority 1)

In 2021, the known extant population for *Jalmenus aridus* consisted of 10 populations (two in crown reserves) with a range of 277,645 ha (KCGM 2024c). Survey of this species can be difficult as they emerge for a short time (approximately two weeks) each year, and they are a small species. The EPA notes that the proponent has since undertaken a series of regional surveys which are yet to be finalised, with preliminary results indicating that 18 populations of *Jalmenus aridus* with a range of approximately 900,000 ha have been identified (Eastwood 2024). Five of these populations are found in DBCA managed land (Eastwood 2024). The surveys indicate that the habitat for this species is likely to be more common than originally considered at the time the proposal was referred to the EPA.

One population of *Jalmenus aridus* is located within the significant amendment development envelope, consisting of 15 breeding shrubs (Eastwood 2024) and several other habitat shrubs. The area where the *Jalmenus aridus* has been located is surrounded on three sides by existing infrastructure (KCGM 2024c). Members of the *Jalmenus* genus tend to have strong site fidelity and may feed on a single tree or shrub for at least 12 years and perhaps as long as 24 years (Braby 2011).

Implementing the proposal will involve relocating *Jalmenus aridus* egg material from two breeding shrubs (*Senna artemisioides ssp. filifolia* and *Acacia tetragonophylla*)

via relocation of limbs of the shrubs to suitable shrubs outside the significant amendment disturbance footprint but within the affected population. Although transfers of *Jalmenus aridus* eggs have yet to be attempted, the process of relocating eggs of other members of the *Jalmenus genus* is known to be successful. It is considered that the Fimiston breeding population is very healthy and active, and the colony would quickly make up any small losses from relocation activities (Eastwood 2024a). Given the level of disturbance around the current population at Fimiston, it is considered that provided the ongoing host plant species and *Froggattella kirbii* are present, this population should remain viable.

The EPA has considered that the proponent redesigned the WRD to avoid clearing the entire population of *Jalmenus aridus* in the significant amendment development envelope. The EPA also considered the proponent's proposal to include a 50 m buffer around the remaining population and notes that observations by a qualified entomologist indicate that such a distance is likely to be adequate for this particular species, as it remains close to the habitat shrubs (R, Eastwood, pers comm 2024; KCGM 2024d).

The EPA notes that, given neither breeding shrub species is a threatened species and that both species appear to be well represented in the area, and the ant species is not likely to be restricted, that it is likely that suitable *Jalmenus aridus* habitat exists beyond the current distribution. The EPA considers that the disturbance of two breeding habitat shrubs is unlikely to change the conservation status of this species.

The EPA acknowledges the potential for indirect impacts to *Jalmenus aridus* habitat. The proponent has developed an SSMP Fauna to minimise the direct and indirect impact to *Jalmenus aridus* habitat within the significant amendment development envelope. This plan includes the following management measures:

- prevention of access to remaining *Jalmenus aridus* breeding shrubs within the significant amendment development envelope
- design surface hydrology to avoid changes in hydrology in sensitive areas
- weed control is undertaken using physical and chemical control
- minimising dust generation from mining and road use that could cause dust deposition
- monitoring of *Jalmenus aridus* breeding shrubs and comparing population health to populations outside the significant amendment development envelope.

The EPA advises that the potential residual impact to *Jalmenus aridus* is likely to be able to be regulated through reasonable conditions, namely, condition B2-1 which limits the removal of breeding shrubs considered to be habitat for *Jalmenus aridus* population to two individuals of the species *Senna artemisioides ssp. filifolia* or *Acacia tetragonophylla.* The EPA has considered whether a significant residual impact remains and needs to be counter-balanced by offsets for *Jalmenus aridus*. The EPA advises that a significant residual impact is not likely to occur as impacts are not likely to meet the definition of significant residual impact in the WA Environmental Offset Guidelines (Government of Western Australia 2014) as the impact is not expected to cause plants or animals to become rare or endangered. Even though preliminary results of further surveys for *Jalmenus aridus* show the level of impact is low, the EPA has determined that the impact to *Jalmenus aridus* can be mitigated through limitations on removal of two individuals of the species *Senna artemisioides ssp. filifolia* or *Acacia tetragonophylla* in this case.

The EPA has also recommended condition B2-2 which advises when relocation should be undertaken and who it should be undertaken by, and condition B2-3 which states that there is to be no adverse impacts to *Jalmenus aridus* habitat outside the removal of those two breeding shrubs, demonstrated through the implementation of a revised SSMP Fauna. It is proposed that a condition requiring the SSMP Fauna to be updated, on advice of DBCA, prior to disturbing the shrubs/constructing the WRD would allow for the data to be updated in the SSMP Fauna and consultation with DBCA to be undertaken.

The EPA considers there is an opportunity to re-establish habitat for *Jalmenus aridus* in rehabilitation, and therefore condition requiring rehabilitation and research have been recommended (conditions B6 and B7).

The EPA considers that with the limitations on impacts and conditions on indirect impacts, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna.

Short-Range Endemic species

The confirmed SRE species, *Missulena harewoodi*, is a mygalomorph spider known from three locations, two of which are outside of the current operations and outside the significant amendment development envelope. A female was identified during surveys from a burrow outside the current operations and outside the significant amendment development envelope, indicating breeding is likely occurring outside the areas of impact.

The three undescribed, potential SRE species are only known from within the significant amendment development envelope. Two of these species (Nesidiochernes ‘sp. Fi01’ and Spherillo ‘sp. indet. A1) are known from rehabilitation areas (Phoenix Environmental Services 2024). One potential SRE species (Austrohorus ‘sp. Fi01’) is known only from the Shrubland in Drainage Lines habitat within the significant amendment development envelope; however, this species is not located within the proposed significant amendment development footprint (KCGM 2024d).

The EPA considers that the SRE species are unlikely to be significantly impacted from direct impacts but may be impacted by indirect impacts. The EPA notes that the management measures in the SSMP Fauna are likely to provide benefits for the SRE species, such as designing surface hydrology to avoid changes in hydrology, and therefore indirect impacts are unlikely to be significant.

2.4.9 Summary of key factor assessment and recommended regulation

The EPA has considered the likely residual impacts of the proposal on terrestrial fauna values. In doing so, the EPA has considered whether reasonable conditions could be imposed, or other decision-making processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 7. The EPA has also considered the principles of the EP Act (see Appendix E) in assessing whether the residual impacts will be consistent with its environmental factor objective and whether reasonable conditions can be imposed (see Appendix A).

Table 7: Summary of assessment for terrestrial fauna

Residual impact		Assessment finding	Recommended conditions and DMA regulation
1.	Clearing of up to 2 shrubs considered to be breeding habitat for *Jalmenus aridus.* Indirect impact to remaining breeding shrubs for *Jalmenus aridus* though dust, weeds, fire and an altered hydrological regime.	The EPA advises that the potential impacts to priority fauna habitat and indirect impacts to priority fauna habitat are residual impacts. The EPA advises that the residual impact should be subject to recommended conditions B2, B6 and B7 to ensure the environmental outcome is consistent with the EPA objective for terrestrial fauna.	**Condition B2 (Terrestrial Fauna)** Limits on clearing of priority fauna habitat and implementation of a Significant Species Management Plan Fauna to meet environmental objectives including exclusion zones and weed management. **Condition B6 (Rehabilitation)** To rehabilitate areas to support terrestrial fauna including trials to re-establish habitat for *Jalmenus aridus*. **Condition B7 (Restoration and Research)** Undertake research that will address knowledge gaps that have been identified as a research priority needed to improve the management and protection for *Jalmenus aridus*.

2.5 Greenhouse Gas Emissions

2.5.1 Environmental objective

The EPA environmental objective for greenhouse gas (GHG) emissions is *to* minimise *the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable* (EPA 2024).

2.5.2 Supporting information

The EPA recognises that the proponent has prepared its information relating to this factor in accordance with the 2023 version of the *Environmental Factor Guideline – Greenhouse Gas Emissions* (EFG GHG; EPA 2023b).

The proponent submitted a revised '*Greenhouse Gas Management Plan Kalgoorlie Consolidated Gold Mines Fimiston Gold Mine Operations Extensions (Stage 3) Fimiston South Project Revised Proposal'* (GHGMP; KCGM 2024f) with the RtS document (KCGM 2024d). The EPA considers it has adequate information to have due regard to its recently updated EPA (2024) EFG GHG in its assessment of the proposal's GHG emissions.

The proponent provided an independent expert review of the GHGMP best practice mitigation measures, sectoral benchmarking and offsets (MAG 2024) with the RtS document (KCGM 2024d).

2.5.3 Consultation

Key issues and matters raised in relation to GHG emissions during public consultation for the proposal and the proponent's responses are provided in the RtS document (KCGM 2024d) and include:

- alignment of the GHGMP with the EFG GHG
- identification and accuracy of the GHG emission sources and estimates
- emission baseline and trajectory
- emission intensity and best practice technology.

The key issues raised during public consultation on the proposal and how they have been considered in the assessment are described in Sections 2.5.4 to 2.5.10.

2.5.4 GHG emission sources and estimates

The proposal will produce scope 1 GHG emissions from the direct combustion of diesel fuel (primarily from mining activities such as haul trucks, excavators, drill rigs, graders, loaders, dozers and in explosives), direct consumption of grease and oil, and vegetation clearing (KCGM 2024f).

Scope 2 emissions generated by the proposal are associated with the consumption of purchased electricity sourced from the South West Interconnected System (SWIS) primarily for processing operations such as crushing and grinding (KCGM 2024f).

Scope 3 emission sources are primarily associated with purchased goods, services and capital goods, fuel and energy related consumables, upstream transport and distribution and employee commute (KCGM 2024f).

MS 782 currently authorises approximately 440,800 t CO_2-e per year, which comprises both scope 1 and 2 emissions combined. The proponent reported 228,777 t CO_2-e of scope 1 emissions for existing Fimiston Operations for financial year (FY) 2022-2023 under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act; CER 2024).

The following average GHG emission estimates (without mitigation) are proposed for the combined proposal (KCGM 2024f):

- Scope 1: 281,477 t CO_2-e per annum
- Scope 2: 224,639 t CO_2-e per annum
- Scope 3: 71,984 t CO_2-e per annum.

The total scope 1 and scope 2 GHG emissions over the 10-year life of the proposal are expected to be 2,814,774 t CO_2-e and 2,246,385 t CO_2-e, respectively, without any mitigations (KCGM 2024f). This includes approximately 63,233 t CO_2-e per annum of scope 1 emissions associated with the clearing of vegetation for the proposal, expected to occur over approximately three years between 2025 and 2027. Scope 3 emissions are expected to be approximately 935,794 t CO_2-e over the life of the proposal.

2.5.5 Minimisation measures

Scope 1 emissions

The proponent has adopted the following mitigation measures to minimise scope 1 GHG emissions (KCGM 2024f):

- upgrade to 40 mechanical drive haul trucks that increase fuel efficiency and reduce associated emissions per tonne of product
- replacement of underground vehicles with more efficient engines
- replacement of 47 diesel mobile lighting plants with more efficient light emitting diode (LED) plants.

Scope 1 emissions from the proposal are primarily expected to be reduced through the gradual electrification of the mining fleet and as new technology becomes available (KCGM 2024f). Battery electric haul trucks and mobile fleet electrification technology is being investigated by the proponent and is not currently considered to be feasible due to the size and scale of the mining operations and the efficiency of battery technology available (KCGM 2024f). Fleet electrification for the proposal, including loading, haulage and drilling units, dewatering pumps and ancillary fleet, is planned for implementation and anticipated to mitigate approximately 204,575 t CO_2-e between 2028 to 2034 (KCGM 2024f).

The proponent proposes fuel reduction and substitution such as fuel catalysts and additives, hydrogen fuels (including partial injection systems), renewable diesel products and the upgrade to more efficient combustion engines, and is expected to mitigate approximately 42,806 t CO_2-e of scope 1 emissions between 2025 to 2034 (KCGM 2024f). Other mitigations and continuous improvements for operating practices are proposed such as undertaking progressive rehabilitation, optimisation of haulage routes, consideration to blasting patterns and explosive usage, and the construction of haul roads to minimise rolling resistance (KCGM 2024f).

Scope 2 emissions

The proponent proposes to mitigate scope 2 emissions through the implementation of two renewable energy projects including (KCGM 2024f):

- a 200 megawatt (MW) wind farm and 100 MW solar photovoltaic (PV) facility to supply electricity behind-the-meter to the operations (avoidance of approximately 190,092 t CO_2-e over the life of the proposal); and
- green grid Power Purchase Agreements (PPAs; avoidance of approximately 79,819 t CO_2-e over the life of the proposal).

Other future mitigation measures currently under consideration to reduce proposal scope 2 emissions and are yet to be adopted include the following (KCGM 2024f):

- The repower of existing thermal firming assets with newer more fuel-efficient technology (i.e. battery energy storage or synchronous condenser technology to minimise thermal run-time for capacity or grid stability support).
- Implementing processing plant design efficiencies, including minimising power usage, replacement of older equipment with new more efficient equipment and improving the efficiency of the processing stream.
- Removing isolated thermal generation units by connecting to the lower emission site distribution network or changing to a hybrid unit that incorporates renewable generation.

Scope 3 emissions

The proponent proposes to mitigate scope 3 emissions through continued support of local businesses and the delivery of services and employment locally to reduce the need for staff relocation and fly-in fly-out resourcing, sourcing low carbon goods from manufacturers, optimising transportation logistics, implementing maintenance schedules and policies that promote reuse and recycling of capital good components and materials (KCGM 2024f).

2.5.6 Commonwealth Safeguard Mechanism

The GHG EFG (EPA 2024) notes that emissions covered under the strengthened Commonwealth Safeguard Mechanism laws are required to be reduced along a straight line trajectory to net zero by 2050, commencing with baselines determined by the Clean Energy Regulator. Covered emissions are GHG emissions from a designated large facility under the Safeguard Mechanism, which are subject to a baseline and ongoing decline rates consistent with the Safeguard Mechanism regime in force in November 2024 (EPA 2024). Scope 1 emissions attributable to land clearing are not covered by the Safeguard Mechanism.

Fimiston Operations are covered by the Safeguard Mechanism and the proposal's scope 1 emissions of 2,814,774 t CO_2-e are considered to be covered under the Safeguard Mechanism as a large designated facility, with the exception of approximately 63,233 t CO_2-e per annum (between 2025 and 2027) from vegetation clearing. The proposal GHG emissions associated with vegetation clearing do not exceed 100,000 t CO_2-e of scope 1 emissions in any year (KCGM 2024f).

Scope 2 and scope 3 emissions from the proposal are not covered under the Safeguard Mechanism.

2.5.7 Environmental values and assessment context

GHG emissions from a cumulative range of sources have an impact on WA's environment, even if the specific impact of a particular proposal's emissions may not be known with certainty. This is because there is an established link between GHG emissions and the risk of climate change. The EPA recognises that climate change will have an impact on WA's environment and environmental values. For example, climate change has already caused a significant drying of the State's south-west, which in turn places significant additional pressures on water resources, flora and fauna, marine environmental quality, and social surroundings. The EPA therefore considers GHG emissions to be a key environmental factor in the assessment of the proposal. There is also an established correlation between global temperature rise and GHG emissions. The EPA advises that for every 1,000 giga tonnes (Gt) of CO_2-e emitted by human activity, global surface temperature rises by 0.45°C (best estimate) with a likely range from 0.27°C to 0.63°C (IPCC 2023).

The EPA has assessed the proposal in the context of the approved proposals (MS 188 and MS 782) while having regard to the combined and cumulative GHG emissions of the proposal. WA's yearly scope 1 emissions based on 2022 levels were 82.5 Mt CO_2-e (DCCEEW 2024b) and national emissions for 2022 were 432.9 Mt CO_2-e (DCCEEW 2023). The total annual estimated combined scope 1 GHG emissions (without mitigation) from the proposal at commencement would constitute approximately 0.25% of WA's total emissions and 0.05% of Australia's total reported GHG emissions.

The EFG GHG (EPA 2024) provides that GHG emissions from a proposal will be considered where they are reasonably likely to exceed 100,000 t CO_2-e of scope 1 or scope 2 emissions in any year. This is the same as the (scope 1) threshold criteria for designation of a large facility under the Australian Government's Commonwealth Safeguard Mechanism. The scope 1 and 2 emissions provided by the proponent for this proposal exceed this threshold. Scope 3 emissions for the proposal are not likely to exceed 100,000 t CO_2-e per annum in any year and therefore have not been assessed further.

2.5.8 Emissions baseline, intensity and benchmarking

The proponent provided benchmarking and comparisons of operations emission intensities against comparable mining operations in Australia (KCGM 2024f; MAG 2024). The proposal comprises an emission intensity of 1.02 t CO_2-e/oz, which sits at the higher end of the benchmarking provided, with the lowest being Carosue Dam (0.62 t CO_2-e/oz), the highest being Telfer (1.27 t CO_2-e/oz) and the average being 0.81 t CO_2-e/oz (KCGM 2024f).

The EPA notes that the site-specific emission intensity of 0.01262 t CO_2-e per tonne of ore mined (MAG 2024) is greater than the Safeguard Mechanism default emissions intensity for run of mine (ROM) metal ore of 0.00859 t CO_2-e per tonne of ROM metal ore (DCCEEW 2024a). The GHGMP provides that electrification of mining fleet and increased mill optimisation is planned to reduce the proposal emission intensity over time from 2028 (KCGM 2024f). The Safeguard Mechanism facility emissions intensity will be achieved after 2030 given the primary scope 1 mitigation measure of fleet electrification is planned for implementation in 2028 (KCGM 2024f; MAG 2024).

The EPA concluded that the proponent's baseline emissions estimates calculated for FY 2024 are plausible and is satisfied that the proponent's average annual emission estimates for the combined proposal of 281,477 t CO_2-e (scope 1) and 224,639 t CO_2-e (scope 2) per annum, the forecasted emissions (KCGM 2024f; GHGMP Table 2 and Table 3), and the proposed emissions reduction targets (GHGMP Table 9; KCGM 2024f), are appropriate to form the basis for the EPA's assessment.

2.5.9 Emissions trajectory and offsets

The proponent's five yearly interim reduction targets propose to reduce scope 1 emissions by approximately 39% by 2030 and to net zero by 2035 (KCGM 2024f; GHGMP Table 9). The targets note that annual emissions have been averaged for the operational phase of the project (2025 to 2034), and the scope 1 emission quantities decline sharply after 2034 due to reduced mining activity (KCGM 2024f).

The proponent's mitigation measures for scope 1 emission reductions (detailed in section 2.5.5) are primarily focused on electrification of the mining fleet from 2028 (KCGM 2024f). The proponent has opted to initially focus on scope 2 emission reductions implementation and rely on future technology development to reduce scope 1 emissions (KCGM 2024f). The proponent notes that offsets such as Australian Carbon Credit Units (ACCUs) will be used as a last resort if required reduction targets cannot be met (KCGM 2024f).

The proponent estimates that carbon offsets (ACCUs) will be required for approximately 34% of the expected scope 1 emissions in FY 2024 to meet the emissions reductions required under the Safeguard Mechanism and less than 20% between FY 2025 and FY 2029 (KCGM 2024f). The proponent estimates that ACCUs will not be required from FY 2030 onwards (KCGM 2024f). The EPA advises that any carbon offsets which may be required to be surrendered at the end of a relevant reporting period should demonstrate they meet offset integrity principles, and be based on clear, enforceable and accountable methods.

ACCUs are administered by the Clean Energy Regulator and assured by the Emissions Reduction Assurance Committee, an independent statutory committee which assesses ACCUs compliance against the offsets integrity standards set out in section 113 of the *Carbon Credits (Carbon Farming Initiative) Act 2011*. The EPA notes that, until emissions are under 100,000 t CO_2-e per annum, the proponent will be subject to reporting requirements of the Clean Energy Regulator under the NGER Act and Safeguard Mechanism, which requires facilities with net emissions exceeding the Safeguard Mechanism threshold to keep emissions at or below baseline requirements.

The EPA has not been able to assess the specific amount or type of offsets at this stage. However, given the quantity of offsets likely involved, and the regulatory regimes governing offsets, the EPA is satisfied that the offsets are likely to be reasonably available and have sufficient integrity at the time they are required.

Scope 2 emissions

The scope 2 emissions of 281,477 t CO_2-e per annum from the proposal exceed the 100,000 t CO_2-e per annum threshold in the EFG GHG (EPA 2024) for consideration by the EPA. The proponent's mitigation of scope 2 emissions is primarily proposed

through the implementation of renewable energy projects including a 200 MW wind farm, 100 MW solar PV facility on mining tenure nearby to the operations, and green grid PPAs which are expected to mitigate approximately up to 260,000 t CO_2-e per annum and commence between 2026 and 2028 (KCGM 2024f). Once complete, approximately 80% of the proponent's electricity supply is expected to be provided through renewable energy sources (KCGM 2024f).

The proponent's five yearly reduction targets propose to reduce scope 2 emissions by approximately 34% by 2030 and to net zero by 2035 (KCGM 2024f; GHGMP Table 9). The targets note that annual emissions have been averaged for the operational phase of the project (2025 to 2034) and the scope 2 emission quantities decline sharply after 2034 due to reduced mining activity (KCGM 2024f).

2.5.10 Consideration of conditions

The EPA recognises that the significantly strengthened Commonwealth Safeguard Mechanism requires the proponent to take actions to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australian emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 are achieved. The EPA is of the view that emissions reductions required under the Safeguard Mechanism represent an as far as practicable reduction of the proposal's scope 1 GHG emissions, and therefore the likely environmental effects of the proposal can be mitigated to achieve consistency with the environmental factor objective for GHG emissions. The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism (recommended condition B4).

The EPA notes that scope 2 emissions of 224,639 t CO_2-e per annum exceeds the 100,000 t CO_2-e per annum threshold in the EFG GHG (EPA 2024). The EPA notes that these emissions are primarily associated with the consumption of purchased electricity sourced from the SWIS and the proponent's commitment to mitigate scope 2 emissions through implementation of renewable energy projects (wind farm, solar facility and PPAs), expected to mitigate up to approximately 260,000 t CO_2-e per annum. The EPA notes proponent's reduction targets to reduce scope 2 emissions by approximately 34% by 2030 and net zero by 2035. The EPA also acknowledges the decarbonisation of the SWIS through State government's commitment to net zero GHG emissions by 2050 and *Sectoral emissions reduction strategy for Western Australia* (Government of Western Australia 2023) which provides pathways for this transition to net zero emissions and decarbonisation.

The EPA acknowledges the proponent's proposed commitments to mitigate scope 2 emissions and emissions reduction targets, and has not recommended conditions relating to scope 2 emissions for the proposal. The EPA supports the mitigation measures proposed and the continued reduction of scope 2 to ensure the environmental outcome is consistent with the EPA objective for GHG emissions.

2.5.11 Summary of key factor assessment and recommended regulation

The EPA has considered whether the residual emissions from the proposal are consistent with the principles of the EP Act (see Appendix E) and with the EPA factor objective for GHG emissions. In doing so, the EPA has also considered whether reasonable conditions can be imposed (Appendix A), or other regulatory processes can ensure consistency with the EPA factor objective. The EPA assessment findings are presented in Table 8.

Table 8: Summary of assessment for greenhouse gas emissions

Residual emissions		Assessment finding	Recommended conditions and DMA regulation
1.	The average combined proposal scope 1 emissions are expected to be approximately 281,477 t CO_2-e per annum and total expected scope 1 emission are expected to reduce to net zero by 2050. The average combined proposal scope 2 emissions are expected to be approximately 224,639 t CO_2-e per annum. The average combined proposal scope 3 emissions are expected to be approximately 71,984 t CO_2-e per annum.	The combined proposal is expected to produce 2,814,774 t CO_2-e of scope 1 GHG emissions over 10 years. The annual estimated scope 1 emissions from the proposal would constitute approximately 0.25% of WA's total emissions and 0.05% of Australia's total reported GHG emissions for 2022. The EPA recognises that the Commonwealth Safeguard Mechanism requires the proponent to take actions to reduce GHG emissions, including imposing annual baseline decline rates to ensure Australian emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 are achieved. In consideration of this, the EPA is of the view that emissions reductions required under the Safeguard Mechanism represent an as far as practicable reduction of the proposal's scope 1 GHG emissions, and therefore the likely environmental effects of the proposal can be mitigated to achieve consistency with the environmental factor objective for GHG emissions. The combined proposal is expected to produce 2,246,385 t CO_2-e scope 2 emissions over the proposal life. The EPA supports the proponent's proposed commitments to mitigate scope 2 emissions through implementation of renewable energy projects and proposed emission reduction targets and has not recommended conditions relating to scope 2 emissions for the proposal. The EPA supports the mitigation measures proposed and the continued reduction of scope 2 emissions to ensure the environmental outcome is consistent with the EPA objective for GHG emissions.	**Condition B4: (Greenhouse Gas Emissions)** Reporting if obligations change under the NGER Act and Safeguard Mechanism.

3 Holistic and cumulative assessment

While the EPA assessed the impacts of the proposal against the key environmental factors and environmental values individually in the key factor assessments above, given the link between the key environmental factors, and other factors, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

The EPA has considered the proposal in the context of cumulative and holistic impacts within the regional setting.

Actions which may cause impacts to air quality are likely to also impact social surroundings as increased dust emissions have the potential to interfere with the health, welfare, convenience and comfort of people. The EPA has recommended condition B3 which aims to minimise impact to residents adjacent to the proposal by requiring the proponent to manage dust emissions.

The potential impact to flora and vegetation, specifically the removal of vegetation considered as habitat for terrestrial fauna, may impact the *Jalmenus aridus* population. The EPA has considered the impact to *Jalmenus aridus* for this proposal in the context of the objectives and principles of the EP Act and has recommended condition B2 which aims to minimise impacts to vegetation condidered as *Jalmenus aridus* habitat.

The EPA recognises the cultural links between the Marlinyu Ghoorlie Traditional Owners and flora, vegetation and fauna environmental values. The EPA advises that indirect impacts to Aboriginal cultural heritage associated environmental values within and beyond the development envelope are likely to be consistent with the EPA objective for social surroundings, if the proposal implementation is subject to the EPA's recommended conditions for terrestrial flora and vegetation, and terrestrial fauna. These conditions will ensure that impacts on the physical and biological environment are reduced to the extent they are not likely to significantly impact on social surroundings values.

Cumulative impacts to air quality, social surroundings (noise), flora and vegetation, and terrestrial fauna have been considered in Section 2. For air quality and noise, background data has been considered in the predictive modelling, which includes existing emission sources in the area, and provides a basis for a holistic assessment. For flora and vegetation and terrestrial fauna, the key species of interest have only recently been discovered, and a region wide information gathering exercise is currently underway. Mitigation and management has been proposed based on known understanding and opportunities to add to the knowledge of the species to ensure any cumulative impacts are not significant.

There is an established link between greenhouse gas emissions and the risk of climate change. Consequently, cumulative greenhouse gas emissions have the potential to impact on all other environmental factors through the effects of climate change. The EPA recognises that climate change will impact on Western Australia's environment and environmental values. The EPA considers that the regulation of GHG emissions via the Commonwealth Safeguard Mechanism will be appropriate to ensure the inter-related impacts to the health of other factors of the environment including the values associated with flora and vegetation, terrestrial fauna, air quality

and social surroundings are likely to be consistent with the EPA environmental factor objectives.

Summary

When the separate environmental factors and values affected by the proposal were considered together in a holistic assessment, along with the potential cumulative impacts, the EPA formed the view that the impacts from the proposal would not alter the EPA's views about consistency with the EPA's factor objectives as assessed in Section 2.

The EPA has recommended condition B8 in which a five-yearly environmental performance report should continue to be required in implementation conditions, given the interconnected environmental values in the area likely to be affected by the proposal. This environmental performance reporting will provide the proponent and the Minister with renewed and current information about the performance of the proposal with respect to environmental values over the life of the project. Given the cumulative nature of many impacts in the area likely to be affected by the proposal, the EPA recommends the proponent be permitted to prepare the report in whole or part with other proponents who have proposals operating there.

4 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the EP Act.

The EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix A.

Appendix A: Recommended conditions

Section 44(2)(b) of *Environmental Protection Act 1986* specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This appendix contains the EPA's recommended conditions and procedures.

Recommended Environmental Conditions

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(Environmental Protection Act 1986)

FIMISTON GOLD MINE OPERATIONS EXTENSION (STAGE 3) AND MINE CLOSURE PLANNING: REVISED PROPOSAL - FIMISTON SOUTH PROJECT

Proposal:	The continuation of mining operations at the Fimiston site and mining a cutback of the existing Fimiston Open Pit, with associated life of mine tailings deposition, waste capacity and associated infrastructure.
Proponent:	Kalgoorlie Consolidated Gold Mines Pty Ltd Australian Company Number 97 009 377 619
Proponent address:	Black Street KALGOORLIE WA 6430
Assessment number:	2354

Report of the Environmental Protection Authority: 1779

Introduction: The proposal is a significant amendment to the existing Fimiston Project Stage 2 – Mine and Waste Dumps which was agreed to be implemented under Ministerial Statement 188 and Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning which was agreed to be implemented under Ministerial Statement 782. The EPA's Report for the existing Fimiston Project Stage 2 – Mine and Waste Dumps is Report 539, EPA Assessment Number 249. The EPA's Report for the existing Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning is Report 1273, EPA Assessment Number 1581.

Pursuant to section 45 of the *Environmental Protection Act 1986*, it is now agreed that:

1. the significant amendment proposal described and documented in the proponent's Proposal Content Document (4 December 2022), may be implemented

2. Ministerial Statement 188 for the existing Fimiston Project Stage 2 – Mine and Waste Dumps and Ministerial Statement 782 for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning is superseded under section 40AA (6) (b) of the *Environmental Protection Act 1986*

3. the implementation of the significantly amended proposal (being the existing approved proposal as amended by the significant amendment proposal) is subject to the following implementation conditions and procedures.

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance and other conditions

PART A: PROPOSAL EXTENT

A1 Limitations and Extent of Proposal

A1-1 The proponent must ensure that the significant amendment proposal is implemented in such a manner that the following limitations or maximum extents / capacities / ranges are not exceeded:

Significant amendment proposal element	Location	Maximum extent
Physical elements		
Mine Development envelope including of: • Fimiston Open Pit • Environmental Noise Bund • Waste rock dumps (including stockpiles) • Tailings Storage Facilities • ROM and processing plant • Infrastructure corridors and workshop area. Managed Aquifer Reinjection (MAR) within existing Kaltails Supply Borefield.	Figure 1 Figure 2 Figure 3	Clearing of no more than 5,841 ha within 7,795 ha development envelope.
Timing elements		
Mine life		Up to 2034

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Flora and Vegetation

B1-1 The proponent must ensure the implementation of the significant amendment proposal achieves the following **outcome**:

(1) **Disturb** no more than 126 individuals of *Eremophila praecox* within the disturbance footprint as shown in Figure 1.

(2) No **adverse impacts** to *Eremophila praecox* outside the disturbance footprint as shown in Figure 1.

B1-2 The proponent must, in consultation with the Department of Biodiversity, Conservation and Attractions, review and update the Significant Species Management Plan Flora (Version 6, November 2024, or any future revisions) that demonstrates how achievement of the environmental **outcomes** in condition B1-1 will be monitored and substantiated, and satisfies the requirements of C4, and submit it to the **CEO**.

B2 Terrestrial Fauna

B2-1 The proponent must ensure the implementation of the significant amendment proposal achieves the following **outcome**:

(1) **Disturb** no more than two (2) plants considered to be **breeding shrubs** for the Inland Hairstreak Butterfly (*Jalmenus aridus*).

(2) Branches of the **breeding shrubs** described in condition B2-1(1) are to be relocated to other breeding shrubs within the development envelope.

(3) No **adverse impacts** to **breeding shrubs** for the Inland Hairstreak Butterfly (*Jalmenus aridus*) other than the **disturbance** described in condition B2-1(1).

B2-2 During ground disturbing activities, the proponent must undertake the following actions:

(1) Only undertake disturbance/relocation of branches of the **breeding shrubs** identified in condition B2-1(1) for the Inland Hairstreak Butterfly (*Jalmenus aridus*) during non-breeding/non-active times of the year.

(2) Ensure the presence of relevant **fauna expert/handler**(s) during disturbance/relocation activities.

B2-3 The proponent must, in consultation with the Department of Biodiversity, Conservation and Attractions, review and update the Significant Species Management Plan Fauna (Version 6, November 2024, or any future revisions) that demonstrates how achievement of environmental **outcomes** in condition

B2-1 will be monitored, substantiated and satisfies the requirements of C4, and submit it to the **CEO**.

B3 Air Quality

B3-1 The proponent must implement the significant amendment proposal to meet the following environmental **outcomes** for dust emissions associated with the implementation of the proposal:

(1) Comply with ambient PM_{10} limit of 50 micrograms per cubic metre averaged over a 24-hour period at **community-based monitors** (Figure 4).

(2) Comply with ambient PM_{10} limit of 75 micrograms per cubic metre averaged over a 24-hour period at **boundary monitors** (Figure 4).

B3-2 To meet the requirements in condition B3-1, the proponent must:

(1) Monitor dust emissions at the dust monitoring locations (Figure 4).

(2) Ensure continuous dust monitoring data is available on the proponent's website within 24 hours of the recording of that data.

B3-3 The proponent must review and update the Fimiston Air Quality Management Plan (Version 13, July 2024, or any future revisions) that demonstrates how achievement of the air quality environmental **outcome** in condition B3-1, and how the requirements of condition B3-2 will be achieved, and satisfies the requirements of condition C4, and submit it to the **CEO**.

B3-4 The proponent must conduct a triennial review of the plan required in condition B3-3 which includes a review of the dust levels applicable to actions and alerts used to adequately control offsite impacts from onsite dust generation, and submit it to the **CEO**.

B3-5 The proponent must implement the significant amendment proposal to meet the following environmental **objectives** for detonating explosives:

(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 mining operations are 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 Australia on those **State Registered Places**.

B4 Greenhouse Gas Emissions

B4-1 The proponent must notify the **CEO** in writing within one month of it becoming aware that implementation of the significant amendment proposal will not be or is not expected to be regulated under the **Safeguard Legislation** as a designated large facility (the notifiable event) and such notice must briefly describe the reasons for and expected duration of the notifiable event.

B4-2 The proponent must, if requested in writing by the **CEO**, provide the **CEO** with a report on the implications for the significant amendment proposal of any amendment or proposed amendment to the **Safeguard Legislation**, or a decision or proposed decision made under the **Safeguard Legislation** that is specified in the **CEO**'s request.

B4-3 The report required by condition B4-2 must:

(1) Be submitted to the **CEO** within three months of the date of the **CEO**'s request or such longer period as the **CEO** agrees to in writing.

(2) Explain the implications that the specified amendment or decision has had or is expected to have on:

(a) the obligation to reduce net **Scope 1 greenhouse gas** emissions from implementation of the significant amendment proposal under the **Safeguard Legislation**

(b) the quantity of actual and net **Scope 1 greenhouse gas emissions** likely to result from the future implementation of the significant amendment proposal.

B5 Aboriginal Cultural Heritage

B5-1 The proponent must implement the significant amendment proposal to meet the following **environmental outcome:**

(1) No disturbance to **Aboriginal cultural heritage sites** in the **development envelope**, unless consent is granted to disturb that site under WA legislation which specifically relates to Aboriginal heritage and has required informed consultation with **relevant Traditional Owners**.

(2) Subject to reasonable health and safety requirements, no interruption of ongoing access to land utilised for traditional use or custom by relevant Traditional Owners.

B5-2 The proponent must implement the significant amendment proposal to meet the following environmental **objective**:

(1) Avoid, where practicable, or otherwise minimise **adverse impacts** to **Aboriginal cultural heritage** within and surrounding the **development envelope**.

B6 Rehabilitation

B6-1 The proponent must implement the significant amendment proposal to meet the following environmental **outcomes**:

(1) Rehabilitated vegetation is **self-sustaining**, including not **adversely impacted** by **environmental weeds**.

(2) Rehabilitation includes the use of native seeds and propagated material collected from native vegetation within the disturbance footprint.

(3) Rehabilitate habitat for the benefit of fauna where practicable to provide **self-sustaining**, re-established fauna habitat.

(4) Establish vegetation to support dust mitigation.

(5) Rehabilitated landforms are stable and do not cause pollution or environmental harm.

(6) Rehabilitated drainage lines are stable, not prone to erosion, and support ecological processes.

(7) Long term sustainability of water balance and water quality for beneficial uses in the affected area.

(8) Undertake trials, in consultation with the Department of Biodiversity, Conservation and Attractions, to investigate the ability to successfully establishing a self-sustaining sub-population of *Eremophila praecox* within a modified habitat, within rehabilitation areas that are not likely to be re-disturbed and which will provide connectivity to other sub-populations, including through research as identified in condition B7-1(3).

(9) Undertake trials, in consultation with the Department of Biodiversity, Conservation and Attractions, that will determine if the re-establishment of vegetation associated with habitat for *Jalmenus aridus* is practical and, if successful, implement this re-establishment in rehabilitation areas that are not likely to be re-disturbed and which will provide connectivity with the other populations.

(10) Annual reporting on progressive rehabilitation against completion criteria, to ensure they are evidence-based, effective and achievable.

(11) Closure planning and rehabilitation are undertaken in a **progressive manner** consistent with achievement of the above **outcomes** during operations, where practicable, and as soon as practicable upon closure.

B6-2 The proponent must include the environmental **outcomes** of condition B6-1 in the Mine Closure Plan required under the *Mining Act 1978* and submitted for approval to the Department of Energy, Mines, Industry Regulation and Safety.

B7 Restoration and Research

B7-1 The proponent shall contribute to a research program for *Eremophila praecox* and *Jalmenus aridus* within twelve (12) months of implementation of the significant amendment proposal. The research program should:

(1) Identify the objectives and intended **outcomes**, and specify the deliverables.

(2) Identify opportunities for management contributions on reserved lands in consultation with the Department of Biodiversity, Conservation and Attractions.

(3) For *Eremophila praecox* only, investigate the biological and ecological requirements of the species, in consultation with the Department of Biodiversity, Conservation and Attractions.

(4) Identify how the research will result in a positive conservation **outcome** and will address knowledge gaps that have been identified as a research priority needed to improve the management and protection for the species.

(5) Provide an implementation and reporting schedule, including an outline of key activities, all deliverables, stages of implementation, reporting of research results (including interim results), reporting on implementation status, and targets or milestones.

(6) Identify the governance arrangements including responsibilities for implementing, and oversight of, the research program, agreements with government agencies, agreements with any third parties, and **contingency measures**.

(7) Identify how a research program summary, and the results (including interim results) of the research program will be communicated and/or published in an open access format.

(8) Identify the third party to carry out the work required to meet the **outcomes** of condition B7-1, who is satisfactory for the role to the **CEO**. In applying to the **CEO** for endorsement of the selected third parties, the proponent shall provide:

(a) demonstration of the track record, experience, qualifications and competencies of the proposed third party to carry out the work and achieve the **outcomes**.

(9) Make results publicly available, in a manner approved by the **CEO**.

B8 Environmental Performance Reporting

B8-1 The proponent shall submit an Environmental Performance Report to the Minister every five (5) years.

B8-2 The first Environmental Performance Report shall be submitted within three months after five (5) years from the date this statement is issued, or such other time as may be approved by the **CEO**.

B8-3 Each Environmental Performance Report shall report on the following matters:

(1) Noise impacts:

(a) Complaints received and actioned.

(b) Results of any noise modelling exercise(s).

(c) Improvements in technology that reduce noise emissions.

(d) Results of compliance with the set noise limits via the Regulation 17 and a comparison of noise emissions from operations to the **noise regulations**.

(2) Air emissions (dust) impacts:

(a) Complaints received and actioned.

(b) Results of any air quality modelling exercise(s).

(c) Improvements in technology that reduce air emissions.

(d) Review emission levels against the relevant **air quality standard**.

(3) *Eremophila praecox* restoration and research.

(4) *Jalmenus aridus* relocation, restoration and research.

(5) Stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed.

(6) The proposed environmental objectives over the next five years, including improvements in technology and management processes.

B8-4 The environmental performance report must include:

(1) A comparison of the matters identified in condition B8-3 at the end of the 5-year period; against the state of each matter at the beginning of the 5-year period.

(2) A comparison of the matters identified in condition B8-3 at the end of the 5-year period; against the state of the matters identified in first environmental performance report submitted in accordance with condition B8-1.

(3) Proposed adaptive management and continuous improvement strategies.

B8-5 The Environmental Performance Report may be in whole, or part, prepared in conjunction with other proponents where there are cumulative impacts from their proposals.

B8-6 Each Environmental Performance Report must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being provided to the Minister.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

C1 Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal

C1-1 The proponent must not undertake:

(1) **Mining activities** forming part of the **expanded and revised proposal** until the **CEO** has confirmed in writing that the environmental management plan required by condition B3-3 meets the requirements of those conditions and condition C4.

(2) **Construction** of the Waste Rock Dumps forming part of the **expanded and revised proposal** until the **CEO** has confirmed in writing that the environmental management plan required by condition B2-3 meet the requirements of those conditions and condition C4.

C2 Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the **CEO** under condition C1-1 that the environmental management plan(s) required in Part B satisfies the relevant requirements, the proponent must:

(1) Implement the most recent version of the **confirmed** environmental management plan; and

(2) Continue to implement the **confirmed** environmental management plan referred to in condition C2-1(1), other than for any period which the **CEO** confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C2-2 The proponent:

(1) May review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan;

(2) Must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO;** and

(3) Must revise and submit to the **CEO** the **confirmed** environmental management plan if there is a material risk that the outcomes or objectives it is required to achieve will not be complied with, including but not limited to as a result of a change to the significant amendment proposal.

C2-3 Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-4 If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:

(1) The revised environmental management plan clearly showing the minor revisions;

(2) An explanation of and justification for the minor revisions; and

(3) An explanation of why the minor revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.

C2-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.

C2-6 **Confirmed** environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C3 Conditions Related to Monitoring

C3-1 The proponent must undertake annual monitoring capable of:

(1) Substantiating whether the significant amendment proposal limitations and extents in Part A are exceeded; and

(2) **Detecting** and substantiating whether the environmental outcomes identified in Part B are achieved (excluding any environmental outcomes in Part B where an environmental management plan is expressly required to monitor achievement of that outcome).

C3-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:

(1) Outlines the monitoring that was undertaken during the implementation of the significant amendment proposal;

(2) Identifies why the monitoring was capable of substantiating whether the significant amendment proposal limitation and extents in part a are exceeded;

(3) For any environmental outcomes to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of **detecting** whether the environmental outcomes in part b are met;

(4) Outlines the results of the monitoring;

(5) Reports whether the significant amendment proposal limitations and extents in Part A were exceeded and (for any environmental outcomes to which condition C3-1(2) applies) whether the environmental outcomes in Part B were achieved, based on analysis of the results of the monitoring; and

(6) Reports any actions taken by the proponent to remediate any potential non-compliance.

C4 Environmental Management Plans: Conditions Relating to Monitoring and Adaptive Management for Outcomes Based Conditions

C4-1 The environmental management plans required under conditions B1-2, B2-3 and B3-3 must contain provisions which enable the substantiation of whether the relevant outcomes of those conditions are met, and must include:

(1) **Threshold criteria** that provide a limit beyond which the environmental outcomes are not achieved;

(2) **Trigger criteria** that will provide an early warning that the environmental outcomes are not likely to be met;

(3) Monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure **threshold criteria** and **trigger criteria**. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future;

(4) Baseline data;

(5) Data collection and analysis methodologies;

(6) Adaptive management methodology;

(7) **Contingency measures** which will be implemented if **threshold criteria** or **trigger criteria** are not met; and

(8) Reporting requirements.

C4-2 The plan required under condition B1-2 is also required to include:

(1) Confirmation of the following:

(a) location and number of each *Eremophila praecox* monitoring plot

(b) location and number of each monitoring point to identify indirect impacts to *Eremophila praecox.*

(2) Justification for the proposed monitoring regime in its ability to identify indirect impacts to *Eremophila praecox*.

(3) Protocol for any new *Eremophila praecox* populations identified as a result of monitoring undertaken for this significant amendment proposal.

C4-3 The plan required under condition B2-3 is also required to include:

(1) Confirmation of the following:

(a) *Jalmenus aridus* breeding at proposed control sites

(b) location and number of each *Jalmenus aridus* habitat transect

(c) location and number of each breeding and potential *Jalmenus aridus* breeding shrub

(d) location and number of each monitoring point to identify indirect impacts to Jalmenus aridus breeding shrubs.

(2) Justification for the proposed monitoring regime in its ability to identify indirect impacts to *Jalmenus aridus* breeding shrubs.

(3) Protocol for any new *Jalmenus aridus* breeding shrubs identified as a result of monitoring undertaken for this significant amendment proposal.

C4-4 The plan required under condition B3-3 is to be updated if new community-based or boundary monitor(s) are established.

C4-5 Without limiting condition C3-1, failure to achieve an environmental outcome, or the exceedance of a **threshold criteria**, regardless of whether threshold **contingency measures** have been or are being implemented, represents a non-compliance with these conditions.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

(1) Report this to the **CEO** within seven (7) days;

(2) Implement **contingency measures**;

(3) Investigate the cause;

(4) Investigate environmental impacts;

(5) Advise rectification measures to be implemented;

(6) Advise any other measures to be implemented to ensure no further impact;

(7) Advise timeframe in which contingency, rectification and other measures have and/or will be implemented; and

(8) Provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted on the first 31 March after the Ministerial Statement is issued, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

(1) State whether each condition of this Statement has been complied with, including:

(a) exceedance of any proposal limits and extents;

(b) achievement of environmental outcomes;

(c) achievement of environmental objectives;

(d) requirements to implement the content of environmental management plans;

(e) monitoring requirements;

(f) implement **contingency measures**;

(g) requirements to implement adaptive management; and

(h) reporting requirements;

(2) Include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, and any outcomes or any objectives are being met;

(3) Provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;

(4) Include the corrective, remedial and preventative actions taken in response to any potential non-compliance;

(5) Be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and

(6) Be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2.

D2-6 The Compliance Assessment Plan must include:

(1) What, when and how information will be collected and recorded to assess compliance;

(2) The methods which will be used to assess compliance;

(3) The methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;

(4) The retention of compliance assessments;

(5) The table of contents of compliance assessment reports, including audit tables; and

(6) How and when compliance assessment reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Public Availability of Data

D4-1 Subject to condition D4-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the significantly amended proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the significantly amended proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this significant amendment proposal and implementation of this Statement.

D4-2 If:

(1) Any data referred to in condition D4-1 contains trade secrets; or

(2) Any data referred to in condition D4-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

D4-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D5 Independent Audit

D5-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental outcomes and/or the environmental objectives and/ or environmental performance with the conditions of this statement, as and when directed by the **CEO**.

D5-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D5-1.

D5-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.

D5-4 The independent audit report required by condition D5-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 1: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Adverse impact / adversely impacted	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value. Adverse impacts can arise from direct or indirect impacts, or other impacts from the significantly amended proposal. Includes but is not limited to, a definable change in spatial coverage or a change in the health, species diversity, structure and plant density of vegetation, vegetation and flora mortality, spread or introduction of environmental weeds, introduction or spread of disease and edge effects. In relation to Aboriginal cultural heritage this includes but is not limited to, hydrological change, structural damage, introduction or spread of non-indigenous flora and/or fauna, alteration of fauna behaviour, artificial light, dust, vibration and noise emissions.
Aboriginal cultural heritage	Means the tangible and intangible elements that are important to the Aboriginal people of the state, and are recognised through social, spiritual, historical, scientific or aesthetic values, as part of Aboriginal tradition to the extent they directly affect or are affected by physical or biological surroundings.
Aboriginal cultural heritage site(s)	A place which has **Aboriginal cultural heritage** which is subject to a WA law, and/or has been newly identified within a survey, study, report, (or similar), and/or is lodged under a WA law but not yet registered, relating specifically to Aboriginal heritage from time to time.
Active mining	Means any method of working by which the earth or any rock structure, coal seam, stone, fluid, or mineral-bearing substance is disturbed, removed, washed, sifted, crushed, leached, roasted, floated, distilled, evaporated, smelted, refined, sintered, pelletised, or dealt with for the purpose of obtaining any mineral or rock from it for commercial purposes or for subsequent use in industry, whether it has been previously disturbed or not, and includes: • developmental and construction work associated with opening or operating a mine • the removal and disposal of overburden or waste or residues by mechanical or other means and the stacking, depositing, storage, and treatment of any substance considered to contain any mineral • transport of ore or other mining product that takes place on a road which is not a road as defined in the *Road Traffic Act 1974*, but for the purpose of this condition does not include:

Acronym or abbreviation	Definition or term
	• construction of a noise bund which is not part of any active mining activity • rehabilitation of any area • administration buildings or other similar facilities from which noise emissions comply with the Environmental Protection (Noise) Regulations 1997 • exploration operations • operations for the care, security and maintenance of a mine and plant at the mine undertaken during any period when production or development operations at the mine are suspended • operations undertaken to leave a mine safe to be abandoned • underground mining.
Air quality standard	Values identified in the National Environment Protection (Ambient Air Quality) Measure (NEPM), as amended 15 April 2021.
Boundary monitors	The boundary monitors for air quality monitoring are Boulder Shire Yard (BSY), Hewitt Street (HEW), Clancy Street (CLY), Hopkins Street (HOP) and Mt Charlotte (MTC), as shown on Figure 4.
Breeding shrubs	Plants of the species *Senna artemisioides filifolia* and *Acacia tetragonophylla* , which are confirmed breeding shrubs for the *Jalmenus aridus*, and are within the area depicting the *Jalmenus aridus* population extent in Figure 1 of the Report; *[CONFIDENTIAL] Environmental Impact Assessment for Jalmenus Aridus* 22 August 2022 – Appendix U Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal – Fimiston South Project 14 October 2022.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or the **CEO's** delegate.
CO_2-e	Carbon dioxide equivalent.
Community-based monitors	The community-based monitors for air quality monitoring are Hannan's Golf Course (HGC) and Metals Exploration Yard (MEX) as shown on Figure 4. A replacement community-based monitor is being investigated that will be wholly located within sensitive receptors to replace MEX.
Confirmed	In relation to a plan required to be made and submitted to the **CEO**, means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition. In relation to a plan required to be implemented without the need to be first submitted to the **CEO**, means that plan until it is revised, and then means, at the relevant time, the plan that the **CEO**

Acronym or abbreviation	Definition or term
	confirmed, by notice in writing, meets the requirements of the relevant condition.
Construction	Activities that are associated with the substantial implementation of a proposal including but not limited to, earthmoving, vegetation clearing, grading or construction of right of way. Construction activities do not include Geotechnical investigations (including potholing for services and the installation of piezometers) and other preconstruction activities where no clearing of vegetation is required.
Contingency measures	Planned actions for implementation if it is identified that an environmental outcome, environmental objective, threshold criteria, or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance or **adverse impacts** to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold, management target and to ensure that the environmental outcome and/or objective can be met.
Detecting	The smallest statistically discernible effect size that can be achieved with a monitoring strategy designed to achieve a statistical power value of at least 0.8 or an alternative value as determined by the **CEO**.
Development envelope	The spatial area as depicted in Figure 1 and defined by geographic coordinates in Schedule 1.
Disturb/ Disturbance	Flora – result in death, destruction, removal, severing or doing substantial damage to. Fauna – has the effect of altering the natural behaviour of fauna to its detriment. Direct – causes or immediately has the disturbance effect. Indirect – materially contributes to the disturbance effect.
Environmental weeds	Any plant declared under section 22(2) of the *Biosecurity and Agriculture Management Act 2007*, any plant listed on the Weeds of National Significance List and any weeds listed on the Department of Biodiversity, Conservation and Attractions' Goldfields Impact and Invasiveness Ratings list (27/04/2023) as amended or replaced from time to time
Expanded and revised proposal	Area of land included in Figure 1 not previously regulated under Ministerial Statement 188 or Ministerial Statement 782.
Fauna handler	A person who is qualified and has attained the appropriate licence/s and authorisation/s under section 40 of the *Biodiversity Conservation Act 2016* and Biodiversity Conservation Regulations 2018.

Acronym or abbreviation	Definition or term
GHG emissions	Greenhouse gas emissions expressed in tonnes of carbon dioxide equivalent (CO_2-e) as calculated in accordance with the definition of 'carbon dioxide equivalence' in Section 7 of the *National Greenhouse and Energy Reporting Act 2007* (Cth), or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister.
Greenhouse gas or GHG	Has the meaning given by Section 7A of the *National Greenhouse and Energy Reporting Act 2007* (Cth) or, if that definition is amended or repealed, the meaning set out in an Act, regulation or instrument concerning greenhouse gases as specified by the Minister
Mining activities	Extraction of ore and/or utilising of waste rock dumps.
Noise regulations	Environmental Protection (Noise) Regulations 1997, as amended 1 September 2024.
Objective(s)	An objective is the proposal-specific desired state for an environmental factor/s to be achieved from the implementation of management actions.
Outcome(s)	A proposal-specific result to be achieved when implementing the Proposal.
Progressive manner / Progressive rehabilitation	Progressive rehabilitation is expected to be undertaken in stages using conventional techniques to maximise retention of biological function in topsoil. The proponent will complete rehabilitation trials and research to ensure rehabilitation outcomes are achieved in a manner that results in successful mine closure with local provenance species (including priority flora and other species that are not of conservation significance).
Relevant Traditional Owner	In relation to the land subject to the significant amendment proposal, means one or more of the following: - a registered native title body corporate for the land; or - a registered native title claimant for the land; or - a group of persons with Aboriginal traditional and cultural associations with the land.
Safeguard Legislation	The Commonwealth *National Greenhouse and Energy Reporting Act 2007* and associated *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015*.
Scope 1 emissions / Scope 1	Scope 1 emissions of greenhouse gas, in relation to a facility, means the release of greenhouse gas into the atmosphere as a direct result of one or more activities, which are part of the significant amendment proposal, that generate greenhouse gas emissions

Acronym or abbreviation	Definition or term
Self-sustaining	Refers to vegetation that can survive (continue indefinitely) without on-going management actions such as watering, weed control or infill planting.
State Registered Places:	Means the Boulder Railway Station, Subway and Loopline, and the Cornwall Hotel
Trigger criteria	Indicators that have been selected for monitoring to provide a warning that, if exceeded, the environmental outcome may not be achieved. They are intended to forewarn of the approach of the threshold criteria and trigger response actions.
Threshold criteria	The indicators that have been selected to represent limits of impact beyond which the environmental outcome is not being met.

Figures (attached)

Figure 1 Location of the current operations and significant amendment development envelope
Figure 2 Location of the pit and environmental noise bund
Figure 3 Location of the Kaltails Supply Borefield and managed aquifer recharge scheme
Figure 4 Air quality monitoring locations

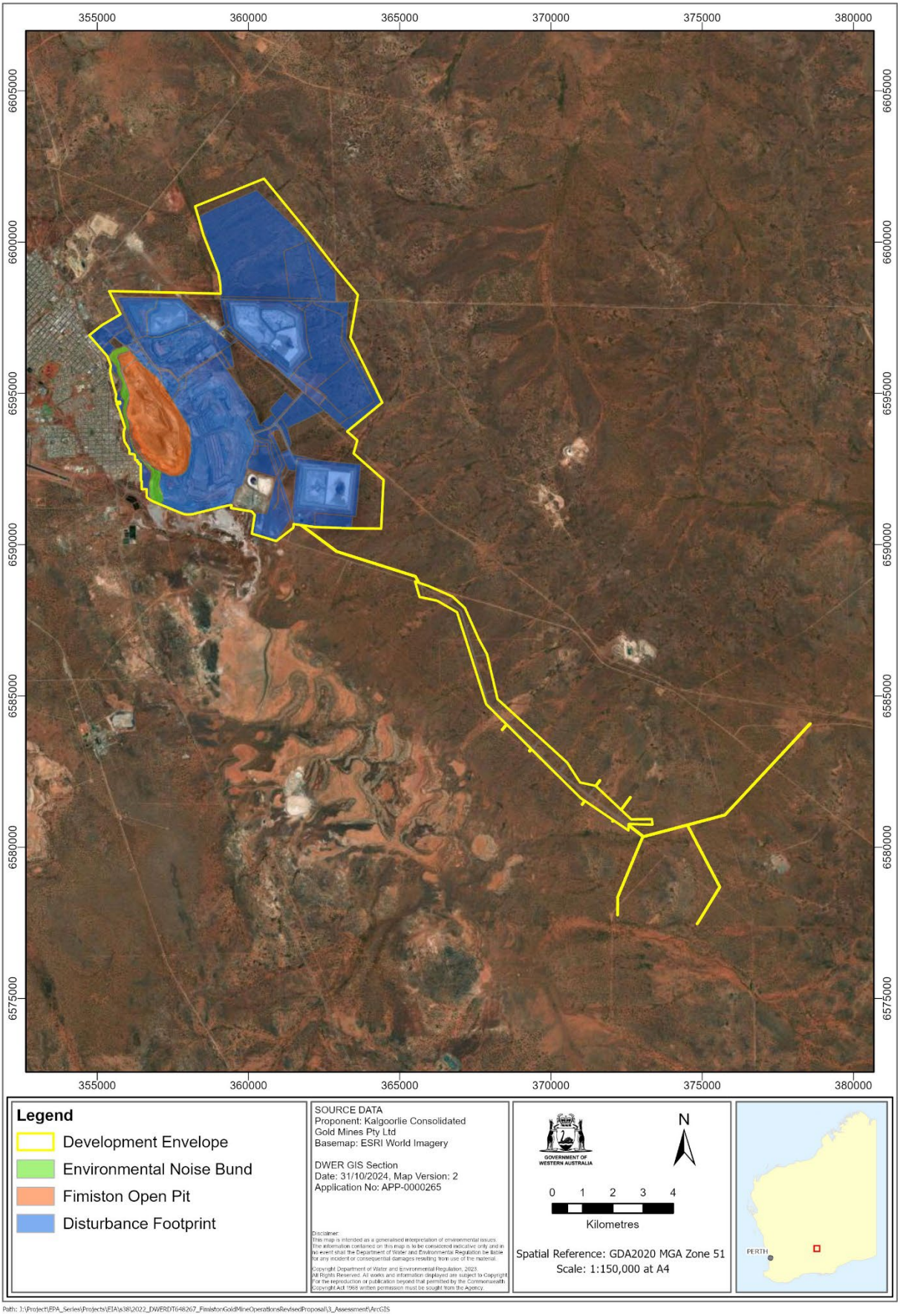


Figure 1: Significant amendment proposal development envelope

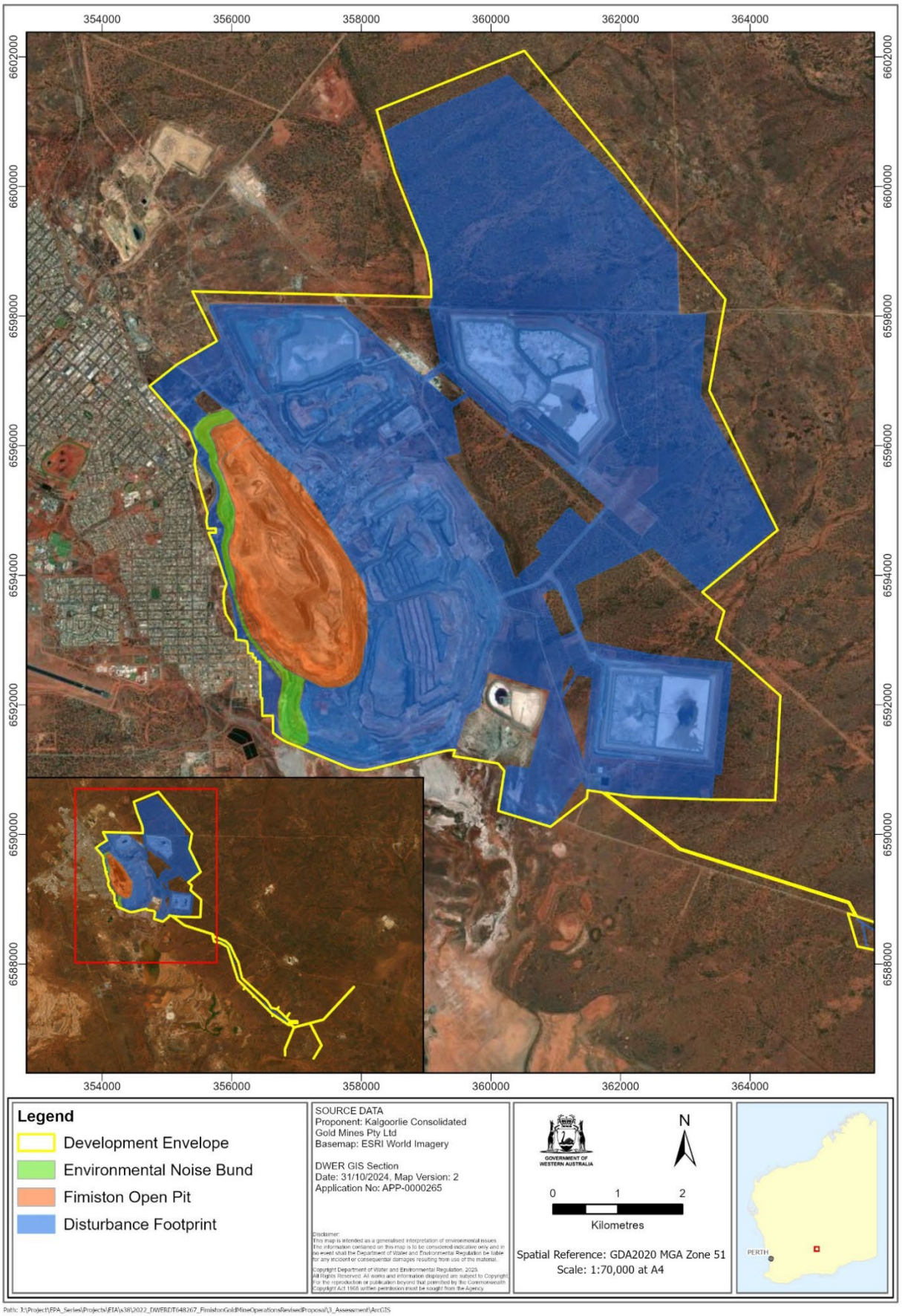


Figure 2 Location of the open pit and environmental noise bund

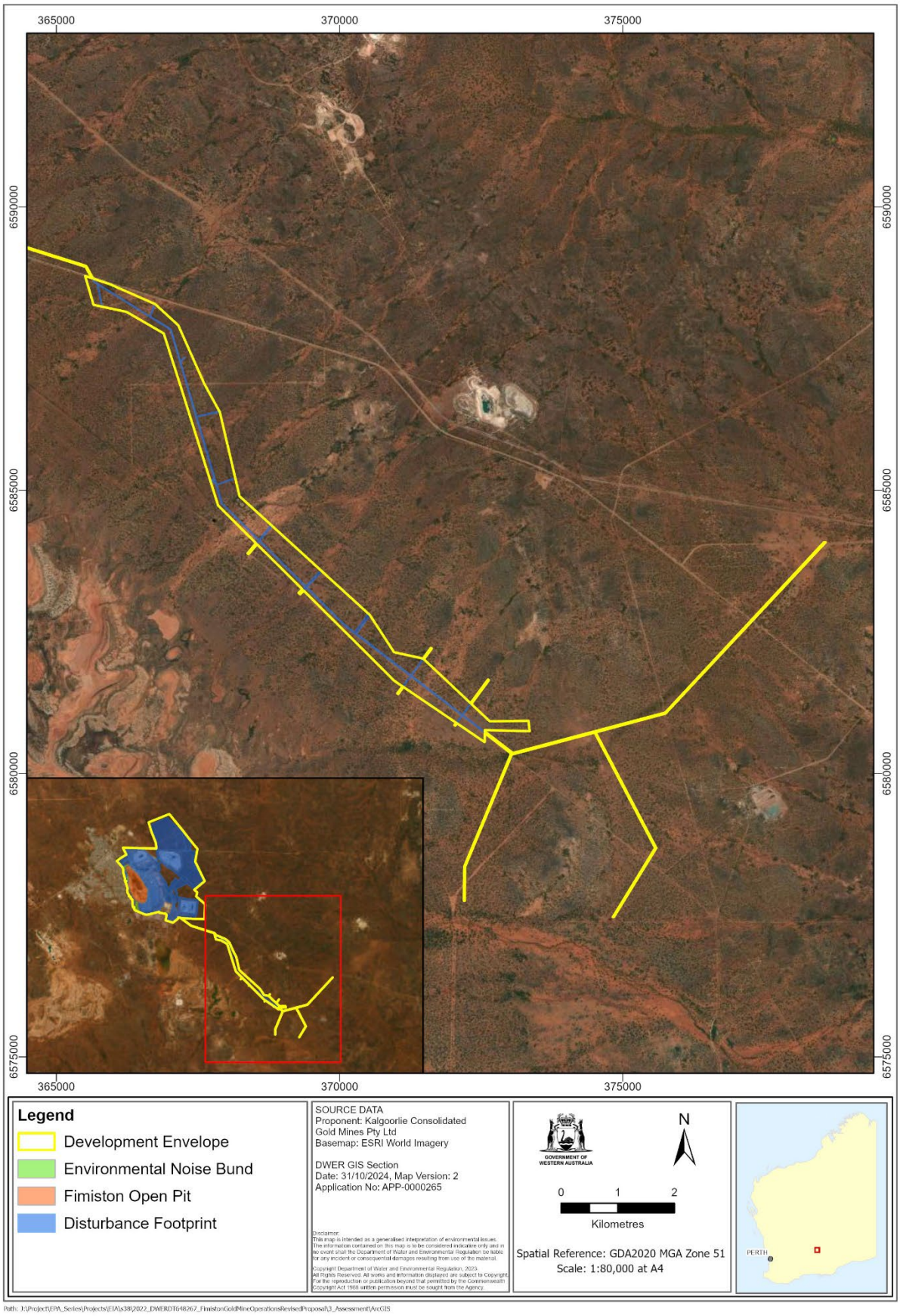


Figure 3 Location of the Kaltails Supply Borefield and managed aquifer recharge scheme

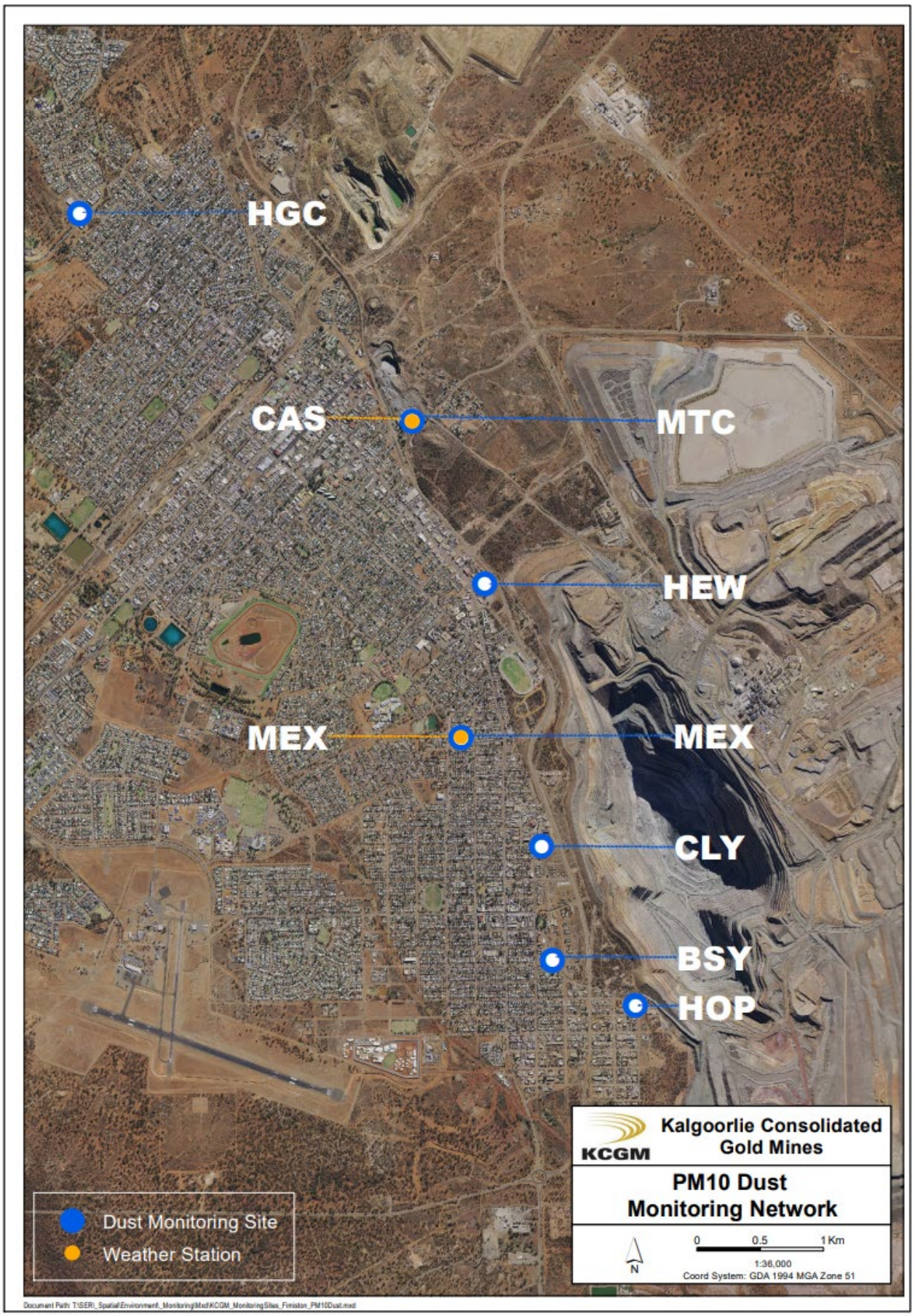


Figure 4 Air quality monitoring locations

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 51 (MGA Zone 51), datum of Geocentric Datum of Australia 2020 (GDA2020).

Spatial data depicting the figures are held by the Department of Water and Environmental regulation. Record no. APP-0000265.

Appendix B: Draft proposed regulation 17

Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025

Approval of the Minister under the *Environmental Protection (Noise) Regulations 1997* regulation 18B.

1. Citation

This approval is the *Environmental Protection (Fimiston Gold Mine Noise Emissions) Approval 2025*.

2. Commencement

This approval comes into operation on the day on which it is published in the *Gazette*.

3. Terms used

In this approval —

airblast level has the meaning given in regulation 11(1);

Barton Street Williamstown (***BSW***) means any place at or adjacent to the intersection of Barton Street and Baden Street, Williamstown;

blasting has the meaning given in regulation 2(1);

Boulder Primary School (***BPS***) means any place within the boundary of the premises known as Boulder Primary School at 200 Lane Street, Boulder;

CEO has the meaning given in the *Environmental Protection Act 1986* section 3(1);

daytime means any time in the period —

(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;

evening means any time in the period between the hours of 1900 and 2200;

Fimiston Gold Mine means the land coloured blue on the map in Schedule 1;

impulsiveness has the meaning given in regulation 9(1);

Kalgoorlie Technical School (***KTS***) means any place within the boundary of the premises known as Kalgoorlie Technical School at 13 Davidson Street, South Kalgoorlie;

KCGM means Kalgoorlie Consolidated Gold Mines Pty Ltd ACN 009 377 619;

$L_{A\ 10}$ approved level means an approved level that, measured as an $L_{A\ Slow}$ value, is not to be exceeded for more than 10% of the representative assessment period;

$L_{A\ max}$ approved level means an approved level that, measured as an $L_{A\ Slow}$ value, is not to be exceeded at any time;

$L_{A\ Slow}$ has the meaning given in regulation 2(1);

location means a location specified in Schedule 2 Table 1 column 1;

$L_{Z\ peak}$ has the meaning given in regulation 11(1);

Metal Exploration Premises (***MEP***) means any place within the boundary of the premises known as Metal Exploration Premises at 29 to 31 Holmes Street, Boulder;

mining operations has the meaning given in the *Mining Act 1978* section 8(1);

modulation has the meaning given in regulation 9(1);

night means any time that is not daytime or evening;

Oroya Street Boulder (OSB) means any place at or adjacent to the intersection of Oroya Street and Waverley Street, Boulder

regulation means a regulation of the *Environmental Protection (Noise) Regulations 1997*;

representative assessment period has the meaning given in regulation 2(1);

sensitive site has the meaning given in regulation 11(1);

start date means the day on which notice of this approval is published in the *Gazette*;

tonality has the meaning given in regulation 9(1);

York Street Boulder (***YSB***) means any place on York Street, between the intersections of York Street with Lane Street and Hamilton Street, Boulder.

4. Approval

(1) Approval is granted to KCGM to allow the level of noise emitted from the Fimiston Gold Mine to exceed the standards prescribed under regulation 7 if the level of noise when received at a location at the time specified in Schedule 2 Table 1 column 2 opposite that location does not exceed —

(a) the $L_{A\ 10}$ approved level specified in column 3 for that location at that time; and

(b) the $L_{A\ max}$ approved level specified in column 4 for that location at that time;

(2) Approval is granted to KCGM to allow the airblast level emitted from the Fimiston Gold Mine to exceed the standards prescribed under regulations 11(4)(a)(i) and (6)(a)(i) when the airblast

level –

(a) is received at a sensitive site on a residential property owned by KCGM at the time of day specified in Schedule 3 Table 1 column 1; and

(b) does not exceed —

(i) the approved airblast level specified in column 2 for that time of day; and

(ii) the approved airblast level specified in column 3 for that time of day.

(3) For the purposes of calculating under subclause (1) the $L_{A\ 10}$ approved level or the $L_{A\ max}$ approved level for a location, WIF means the weather influencing factor determined under Schedule 2 Table 2 for the weather conditions, as measured under the noise management plan submitted or revised under clause 11, prevailing at that location at the time the noise is received.

(4) For the purposes of assessing under regulation 9(3) if noise emitted from the Fimiston Gold Mine when received at a location is taken to be free of the characteristics specified in regulation 7(1)(b), the adjustment in regulation 9(3) Table 2 column 1 where tonality is present is varied to 0 dB.

5. Duration of approval

(1) This approval has effect for 5 years from the start date, unless a longer period applies under subclause (2).

(2) If KCGM applies, within 4 years after the start date, for a further approval under regulation 17(1) in relation to noise emissions from the Fimiston Gold Mine then this approval continues to have effect until the Minister grants, or refuses to grant, the further approval.

6. Condition of approval

This approval is subject to the condition that KCGM ensures that clauses 7 to 12 are complied with.

7. Early-stage mining activity in northern section of the Ivanhoe Cutback only during daytime

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.

8. Construction of new bund before existing bund is removed

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.

9. Minimisation of noise emissions and impact of noise

(1) KCGM is to take all reasonable measures to reduce the level, and eliminate the tonality, of noise emissions from the Fimiston Gold Mine.

(2) KCGM is to utilise best practices for blasting to minimise airblast levels from the Fimiston Gold Mine.

10. Noise monitoring

(1) KCGM is, as far as practicable, to continuously record levels of noise received at —

(a) Boulder Primary School; and

(b) Metal Exploration Premises.

(2) For the purposes of subclause (1), recorded levels of noise are to be measured using the L_{AS10}, L_{AS50}, L_{AS90} and L_{Aeq} parameters reported over a period consistent with the monitoring of weather conditions under clause 11(2)(c).

(3) KCGM is to record levels of noise and the presence of tonality received at each location in accordance with the noise monitoring programme for that location in the noise management plan submitted or revised under clause 11.

(4) KCGM is to record airblast levels at each blast monitoring station in accordance with the airblast level monitoring programme for that station in the noise management plan submitted or revised under clause 11.

(5) KCGM is to keep a record under subclauses (1), (2) and (3) for a period of at least 10 years from the day on which the record is made.

11. Noise management plan

(1) KCGM is to submit a noise management plan for the Fimiston Gold Mine to the CEO within 3 months after the start date.

(2) The noise management plan is to include the following —

(a) details of a noise and airblast level monitoring programme;

(b) 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;

(c) 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);

(d) details of a programme for the provision of information to the community regarding noise and airblast levels from mining operations;

(e) procedures to be adopted by KCGM to respond to complaints about noise emissions;

(f) procedures to be adopted by KCGM to identify major noise emission sources;

(g) 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

(ii) based on responses to complaints about noise emissions;

(h) procedures to be adopted by KCGM to eliminate tonality, modulation and impulsiveness in noise emissions from mining operations;

(i) procedures to be adopted by KCGM to minimise noise emissions from equipment used for mining operations;

(j) procedures to be adopted by KCGM to minimise airblast levels;

(k) 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;

(l) details of a programme to develop a noise exposure model for the Kalgoorlie Boulder population to better understand the noise impacts of Fimiston operations;

(m) any other matter that the CEO may require.

(3) After receiving the noise management plan the CEO may, by notice in writing, require KCGM to provide a revised noise management plan including details of any matter specified in the notice.

(4) A revised noise management plan required under subclause (3) is to be provided within 14 days after the day the notice is received or by such other time as the CEO specifies in the notice.

12. Annual report

(1) KCGM is to prepare a written report —

(a) for the year beginning on the start date; and

(b) for each year that begins on the anniversary of that day.

(2) The report for the first year of the approval after the start date is to contain —

(a) a summary of the noise and airblast levels during the year recorded –

(i) under clause 10; and

(ii) in accordance with the noise management plan submitted or revised under clause 11;

(b) a summary of the noise and airblast levels from 2010 to the start date recorded as far as is reasonably practicable in accordance with –

(i) clause 10; and

(ii) the noise management plan submitted or revised under clause 11;

(c) a summary of the progress of the implementation of the noise management plan submitted or revised under clause 11.

(3) The report for each year after the first year of the approval is to contain —

(a) a summary of the noise and airblast levels during the year recorded –

(i) under clause 10; and

(ii) in accordance with the noise management plan submitted or revised under clause 11;

(b) a summary of the progress of the implementation of the noise management plan submitted or revised under clause 11.

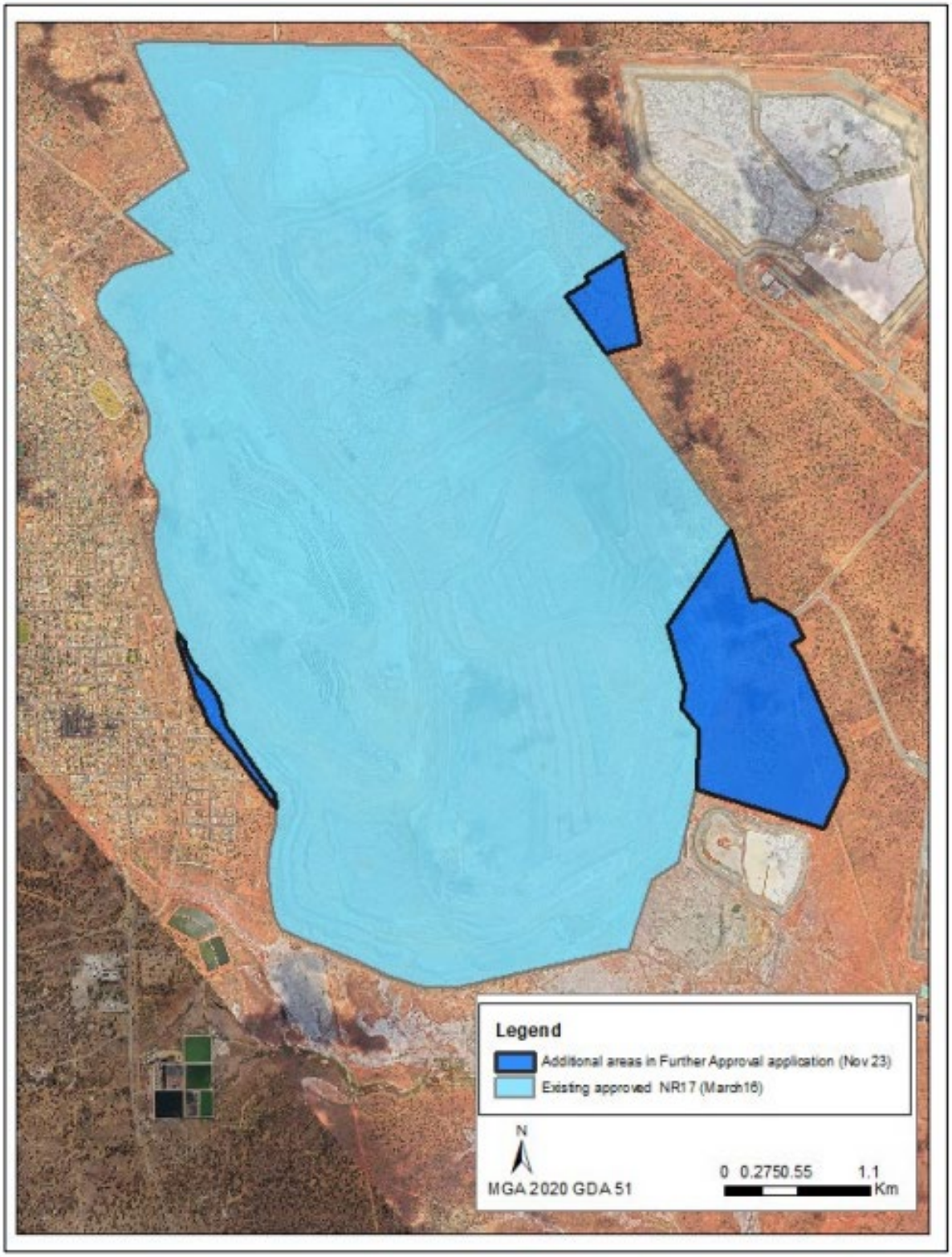
(4) KCGM is to give the report for a year to the CEO within one month after the end of the year or by such other time as the CEO approves in writing.

(5) At the time of giving the report to the CEO, KCGM is to provide all noise, airblast and weather condition monitoring data relevant to the report to the CEO in a format agreed to by the CEO.

(6) On the request of the CEO, KCGM is to give the CEO any assistance or information necessary to enable the report to be understood by members of the public.

Schedule 1 — Fimiston Gold Mine map

[cl. 3]



Schedule 2 — Noise emissions other than from blasting

[cl. 4(1)]

Table 1

Location	Time	$L_{A\ 10}$ approved level (dB)	$L_{A\ max}$ 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
Oroya 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 2

Weather conditions		**Weather influencing factor (dB)**				
		Location				
Wind Direction	Wind speed (km/hr)	BSW	BPS	KTS	OSB	YSB
Calm	< 2	3	6	6	5	4
Northerly	≥ 2	- 2	6	6	5	5
North Easterly	≥ 2	2	6	6	4	5
Easterly	≥ 2	4	6	6	4	5
South Easterly	≥ 2	4	6	6	3	5
Southerly	≥ 2	4	4	6	2	5
South Westerly	≥ 2	3	2	5	2	4
Westerly	2 - 7	0	2	3	3	2
Westerly	> 7	- 4	- 3	- 2	3	- 3
North Westerly	2 - 7	- 4	4	3	4	2
North Westerly	> 7	- 6	3	- 1	3	- 1

Schedule 3 — Noise emissions from blasting

[cl. 4(2)]

Table 1

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

Schedule 4 — Daytime only operations northern section of Ivanhoe Cutback

[cl. 7]

Appendix C: Decision-making authorities

Table C1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972* - section 18 consent to impact a registered Aboriginal heritage site)
2. Minister for Environment	*Biodiversity Conservation Act 2016* - section 40 authority to take or disturb threatened species
3. Minister for Health	*Health Act 1911* - Air quality management plans
4. Minister for Mines and Petroleum	*Mining Act 1978* - granting of a new mining lease
5. Minister for Water	*Rights in Water and Irrigation Act 1914* - groundwater abstraction licence - licence to construct bores - dewatering licence
6. Chief Executive Officer, Department of Biodiversity, Conservation and Attractions	*Biodiversity Conservation Act 2016* - authority to take flora and fauna (other than threatened species)
7. Chief Dangerous Goods Officer Department of Energy, Mines, Industry Regulation and Safety	*Dangerous Goods Safety Act 2004* - storage and handling of dangerous goods
8. Executive Director Resource and Environmental Compliance, Department of Energy, Mines, Industry Regulation and Safety	*Mining Act 1978* - mining proposal
9. Mining Registrar, Department of Energy Mines, Industry Regulation and Safety	*Mining Act 1978* - miscellaneous license
10. Director Worksafe Mines Safety, Department of Energy, Mines, Industry Regulation and Safety	*Work Health and Safety Act 2020* - mine safety - approval to commence mining operations
11. Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986* - part V works approval and licence - Regulation 17(7) of the Environmental Protection (Noise) Regulations 1997

Decision-Making Authority	Legislation (and approval)
12. Chief Executive Officer City of Kalgoorlie-Boulder	*Local Government Act 1995* - development approval *Health Act 1911* - permit for treatment of sewage *Health Act 1911* and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974 *Building Act 2011* - permit for worker accommodation

Appendix D: Regulation under other statutory processes

Table D1: Identified relevant decision-making authorities for the regulation of outcomes for the proposal

Statutory decision-making process	Environmental outcome
Aboriginal Heritage Act 1972	No disturbance to Aboriginal cultural heritage unless consent is granted to disturb that site under the *Aboriginal Heritage Act 1972* and has involved reasonable steps to consult with relevant Traditional Owners.
Biodiversity Conservation Act 2016	The taking of threatened flora, fauna and ecological communities does not result in any species or community being listed under a higher conservation status.
Environmental Protection Act 1986 *(Part V Division 3)*	Emissions and discharges to the environment and associated with the prescribed premises, defined under Schedule 1 of the Environmental Protection Regulation 1997 (EP Regulations) regulated by the DWER under Part V Division 3 of the EP Act to achieve the following outcomes: 1. No significant pollution of land, surface water and groundwater (including TSF). 2. Emissions to air do not exceed human health criteria at sensitive receptors. 3. New or increased emissions must be reported unless in accordance with a works approval or licence, which provides a regulatory control for environmental harm from pollution.
Environmental Protection (Noise) Regulations 1997	Noise sensitive premises are protected from unreasonable noise levels.
Mining Act 1978	The EPA notes that regulation of waste rock landforms management is via the continued application and implementation of a Mining Proposal and a Mine Closure Plan, required under the *Mining Act 1978* (Mining Act). DEMIRS will assess the risk associated with waste structures and by-product landforms under the Mining Act with the outcome that final / rehabilitated landforms are stable and do not cause pollution or environmental harm.
Rights in Water and Irrigation Act 1914	The abstraction of groundwater regulated to ensure: 1. The drawdown and taking of water from the proposal is ecologically sustainable. 2. Potential impacts to nearby groundwater users are monitored and there are no adverse impacts.
National Greenhouse and Energy Reporting Act 2007 (Cth) Safeguard Mechanism	Reduction of net greenhouse gas emissions over time on a trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.

Appendix E: Environmental Protection Act principles

Table E1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by –* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*	The EPA has considered the precautionary principle in its assessment and has had particular regard to this principle in its assessment of flora and vegetation, terrestrial fauna, social surroundings, air quality and greenhouse gas (GHG) emissions. The proponent has undertaken appropriate studies and investigations to provide scientific information to identify environmental values and understand the potential risks on the environment and human health. The proponent has provided management and mitigation measures to manage these risks to human health and the environment. The EPA notes that the proponent has considered different options in designing the proposal and proposed avoidance measures to avoid impacts on the environment by: • designing the mine layout (significant amendment disturbance footprint) to avoid 60 known *Eremophila praecox* (Priority 2) individuals within the significant amendment development envelope • designing the waste rock dump (WRD) to avoid impacts to the *Jalmenus aridus* (Priority 1) population on site • designing surface hydrology to avoid changes to hydrology in the *Jalmenus aridus* habitat area • avoiding known Aboriginal cultural heritage sites. The proponent has also proposed limits on impacts and mitigation measures to reduce impacts on the environment. The EPA has recommended conditions to impose limits on the disturbance of Priority flora and habitat for terrestrial fauna. The EPA has considered the potential impacts from the approved and combined proposal, and the cumulative impact of the proposal's additional air emissions on air quality at nearby sensitive receptors. The EPA has recommended conditions requiring the proponent to monitor dust emissions and comply with guideline values and levels at sensitive receptors, and objectives for the detonation of explosives.

EP Act principle	Consideration
	The EPA has applied conditions where there is uncertainty to prevent and avoid environmental impacts from occurring, and imposed conditions to counterbalance residual impacts where they may occur. The EPA has concluded that subject to the implementation of the recommended conditions, the proposal is unlikely to pose a threat of serious or irreversible harm. The EPA is satisfied that these measures, if implemented, would mean that the significant amendment and approved proposal is likely to be consistent with the EPA objectives and that the measures are consistent with the precautionary principle. **Greenhouse gas emissions** The EPA notes that climate change from cumulative GHG emissions has the potential to cause serious damage to Western Australia's environment. The specific impacts of any single proposal's GHG emissions are not able to be known with certainty at this time. However, the EPA has not used this as a reason for postponing assessment of the proposal's contribution to the State's GHG emissions or recommending practicable conditions to reduce emissions to minimise the risk of environmental harm associated with climate change. The EPA notes that as a result of proposal implementation residual scope 1 and 2 emissions will be emitted prior to the proponent reaching net zero. The EPA considers the Commonwealth's Safeguard Mechanism represents an as far as practicable reduction of the proposal's GHG emissions., The EPA has recommended a condition that requires the proponent to notify the State of a substantial change to its obligations under the Safeguard Mechanism (recommended condition B4). The EPA has also considered previous ministerial conditions and commitments in Ministerial Statements (MS) 188 and MS 782, and if still relevant, has replaced them with contemporary conditions, otherwise they have been deleted (see Appendix I and Appendix J), so that the EPA's objectives continue to be met for the proposal.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	The EPA has considered the principle of intergenerational equity in its assessment, and has had particular regard to this principle in its assessment of flora and vegetation, GHG emissions, social surroundings and terrestrial fauna. The EPA notes the proponent has considered this principle by: • preparation of a GHG management plan (GHGMP; KCGM 2024f) for the proposal that provides emissions targets and a process to reduce emissions

EP Act principle	Consideration
	over time, consistent with the net-zero by 2050, and providing offsets as a contingency if reduction targets are not met over the life of the mine • working collaboratively with Traditional Owners to allow for the preservation of Indigenous social and cultural heritage values and future enjoyment of the land • undertaking consultation with Traditional Owners and the co-development of the Aboriginal Cultural Heritage Management Plan (ACHMP). The EPA considers consistency with this principle could be achieved with the implementation of its recommended conditions, which requires to the proponent to: • not disturb Aboriginal cultural heritage sites in the development envelope, unless consent is granted under WA legislation which specifically relates to Aboriginal heritage and has required informed consultation with the relevant Traditional Owners • develop and implement a greenhouse gas management plan and requiring the proponent to demonstrate trajectory to net zero emissions by 2050 through emission reporting • maintain levels of ecological protection within the terrestrial environment such as limits on the extent of disturbance to flora and vegetation, and terrestrial fauna habitat. The EPA has concluded that the environmental values will be protected, and the health, diversity and productivity of the environment will be maintained for the benefit of future generations. **Greenhouse gas emissions** The EPA has noted that GHG emissions pose a risk to future generations, however, also notes that the proponent's obligations under the Commonwealth's Safeguard Mechanism to net zero emissions by 2050 consistent with the Paris Agreement and IPCC 1.5 report, and to use offsets should these targets not be met by continuous improvement. The EPA has recommended condition B4 which requires the proponent to report to the CEO if obligations change under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and Safeguard Mechanism.
3. The principles of the conservation of biological diversity and ecological integrity	The EPA has considered the principle of conservation of biological diversity and ecological integrity in its assessment and has had particular regard to this principle in its assessment of flora and vegetation and terrestrial fauna. The EPA has considered to what extent the potential impacts from the proposal to flora and

EP Act principle	Consideration
Conservation of biological diversity and ecological integrity should be a fundamental consideration.	vegetation and terrestrial fauna can be ameliorated to ensure consistency with the principle of conservation of biological diversity and ecological integrity. To ensure biodiversity and ecological integrity of environmental values within the development envelope, the EPA has recommended the application of conditions including specific disturbance limits for terrestrial fauna habitat (*Jalmenus aridus* breeding habitat) and relocation of egg material. The EPA recommends conditions for the protection of Priority flora (*Eremophila praecox*) through disturbance limits within the disturbance footprint, no adverse impacts outside the disturbance footprint and research the opportunity to reinstate this species in rehabilitation. The EPA has concluded that the actions to avoid and minimise impacts to environmental values, which are also recommended as conditions, would likely ensure that environmental outcomes are achieved. The application of limits on disturbance and any associated conditions are to ensure there is no significant residual impact on the biodiversity diversity and ecological integrity of these values.
4. Principles relating to improved valuation, pricing and incentive mechanisms ▪ *Environmental factors should be included in the valuation of assets and services.* ▪ *The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.* ▪ *The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.* ▪ *Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.*	In considering this principle, the EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal. The EPA has had regard to these principles in considering proposal-related impacts to flora and vegetation, terrestrial fauna and social surroundings. The EPA notes the proponent has pursued these principles by: • undertaking surveys to identify and confirm environmental values within the development envelope • taking into consideration environmental factors to reduce significant impact when designing the location of mines and infrastructure • implementing procedures to ensure emissions and discharges are minimised as far as practicable • preparing and implementing a Mine Closure Plan that includes environmental management and mitigation, rehabilitation and closure planning costs. The proponent will be responsible for bearing the costs of implementing measures to reduce and offset GHG emissions, including the costs of adopting advances in process management and other measures in the future to further reduce and offset GHG emissions to achieve Australian emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050.

EP Act principle	Consideration
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	The EPA has considered the principle of waste minimisation in its assessment and has had particular regard to this principle in its assessment of social surroundings and GHG emissions. The EPA notes that the proponent is required to adhere to other statutory processes associated with waste management such as the *Mining Act 1978* and the proponent has stated that waste will be minimised during construction, operation and closure by adopting the hierarchy of waste controls of avoid, minimise, reuse, recycle and safe disposal. The EPA notes that the proponent commits to efficiently utilising natural resources such as energy and water and minimise emissions to air including dust pollution and GHG emissions. The EPA recommended condition B4 which requires the proponent to report to the CEO if obligations change under the NGER Act and Safeguard Mechanism.

Appendix F: Other environmental factors

Table F1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Subterranean fauna	Groundwater in the immediate area is likely to be hypersaline and unlikely to contain subterranean fauna.	Public comments • No comments received. Agency comments • No comments received.	The EPA did not identify subterranean fauna as a preliminary key environmental factor when the EPA decided to assess the proposal. It is unlikely that subterranean fauna is present due to the hypersaline environment, and it is unlikely that the proposal would have a significant impact on subterranean fauna. The EPA did not consider the revised proposal to represent significant additional or different impacts to subterranean fauna and is likely to meet the EPA objectives. Accordingly, the EPA did not consider subterranean fauna to be a key environmental factor at the conclusion of its assessment.
Landforms	Proposal will likely add to the mining-based landforms (pits, WRDs, TSFs) visible in the landscape.	Public comments • No comments received. Agency comments • No comments received.	The EPA did not identify landforms as a preliminary key environmental factor when the EPA decided to assess the proposal. Hard rock mining has occurred within the Kalgoorlie-Boulder area for more than a century. Mining landforms such as the Fimiston open pit, waste rock dumps (WRDs) and tailings storage facilities (TSF) form part of the landscape and the Super Pit is a tourist attraction for the area. Natural landforms in the local area include rock outcrops, breakaway areas and salt lakes. The key values that have the potential to be associated with landforms have been assessed under flora and vegetation, terrestrial fauna and social surroundings and these are likely to meet the EPA's objectives (refer to Section 2.3, 2.4 and 2.2). The final landform design criteria for the proposal are the same as for the existing proposal and no additional impact to landforms are proposed.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			The EPA did not consider the revised proposal to represent significant additional or different impacts to landforms and is likely to meet the EPA objectives. Accordingly, the EPA did not consider landforms to be a key environmental factor at the conclusion of its assessment.
Terrestrial environmental quality	Possible contamination of soils through spillage of reagents, chemicals, hydrocarbons or saline water; increased erosion and impact from TSFs and WRDs	Public comments • No comments received. Agency comments • Contamination risks at closure.	The EPA did not identify terrestrial environmental quality as a preliminary key environmental factor when the EPA decided to assess the proposal. Most of the proposal disturbance is located within the existing proposal area and there are no new sources or potentially elevated levels of impacts to terrestrial environmental quality. Groundwater in the Wollubar Sandstone is hypersaline and acid sulfate soils are not present in the area. Department of Energy, Mining, Industry Regulation and Safety (DEMIRS) assesses biodiversity, water resources, land and soils, and rehabilitation and mine closure through mining proposals and mine closure plans submitted under the *Mining Act 1978* (Mining Act). TSF seepage will be recovered through production bores and seepage interception trenches, groundwater levels will be monitored to ensure long term management through implementation of the mine closure plan and Part V licence (L6420/1988/14). Waste structures including WRDs and TSFs will be designed to ensure they will be physically safe, geotechnically stable, and geochemically non-polluting and non-contaminating, consistent with the Statutory Guidelines for Mining Proposals (DEMIRS 2023). The risk associated with waste structures, including TSFs and WRDs will be regulated under the Mining Act, ensuring the waste structures meet closure objectives so that the environmental outcomes from potential impacts meet the EPA's objectives for terrestrial environmental quality. The closure design of the WRD and TSFs will manage contamination risks for closure (KCGM 2024d). Considering the above, the EPA notes that the likely impacts to terrestrial environmental quality can be regulated by other decision-making authorities including:

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			• the Mining Act will mitigate impacts to soil and water quality from the TSF and WRDs • Part V Division 3 of the EP Act will mitigate emissions to land and water quality, in a manner that will meet the EPA objectives for terrestrial environmental quality and that this factor does not require further assessment under Part IV of the EP Act. Accordingly, the EPA did not consider terrestrial environmental quality to be a key environmental factor at the conclusion of its assessment.
Water			
Inland waters	Potential impacts from groundwater mounding under TSFs, changes in surface water hydrology and local drainage patterns and pit lake formation post closure.	<u>Public comments</u> • Impact from seepage from the TSF • Impact to downstream dams and local aquifer upstream. <u>Agency comments</u> • reinjection of mine dewater (already approved) • TSF design at closure • Ongoing sampling and characterisations of tailings should continue.	The EPA identified inland waters as a preliminary key environmental factor when the EPA decided to assess the proposal. The proponent investigated impacts to inland waters, including a hydrological assessment of the Eastern Floodway and hydrogeological review of the Fimiston I, Fimiston II and Kaltails TSFs (KCGM 2024c). The proposal is located in a hydrogeological region that comprises numerous drainage systems flowing to terminal salt lake systems, clay pans and other natural surface depressions. Specifically, the proposal is located within an elevated area which forms a topographic divide between two drainage systems. Groundwater at the site is naturally saline with pH being neutral to slightly alkaline. The Fimiston open pit will be a groundwater sink and develop a hypersaline pit lake post closure. Reinjection of mine dewater into the Kaltails borefield has been approved and managed under existing MS 782, Part V licence (L6420/1988/14) and groundwater licence (GWL64266(9)) under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The significant amendment does not propose any changes to the aspect of the proposal. There are no known dams within the vicinity of the TSF or in the downstream portion of the Eastern Floodway (KCGM 2024d). The proponent will maintain the 4 m separation distance between the surface and groundwater to prevent groundwater and seepage entering

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			the root zone of vegetation, consistent with the existing Part V licence (L6420/1988/14). The proponent will recover TSF seepage through production bores and seepage interception trenches, monitor and manage groundwater levels to minimise seepage and ensure long-term management of ground and surface water systems, through implementation of the Part V licence (L6420/1988/14) and the mine closure plan. The ore and tailings from the proposal do not produce acid rock drainage. The proponent's mine closure plan will include analysis of tailings geochemical properties (KCGM 2024d). The risk associated with waste structures, including TSFs and WRDs, will be regulated under the Mining Act, ensuring the waste structures meet closure objectives so that the environmental outcomes from potential impacts meet the EPA's objectives for inland waters. Considering the above, the EPA notes that the likely impacts to inland waters can be regulated by other decision-making authorities including: • Part V Division 3 of the EP Act will mitigate emissions and impacts to water quality • the Mining Act will mitigate impacts to water from the TSF and WRDs • the RIWI Act will mitigate impacts to groundwater, in a manner that will meet the EPA objectives for inland waters and that this factor does not require further assessment under Part IV of the EP Act. Accordingly, the EPA is satisfied that other decision-making authorities and regulatory provisions can manage impacts to inland waters and did not consider inland waters to be a key environmental factor at the conclusion of its assessment.

Appendix G: List of submitters

7-day comment on referral

Organisations and public

- Two public submissions were received from individuals.

Government agencies

- No submissions were received from government agencies.

Public review of proponent information

Organisations and public

- Six public submissions were received from individuals.

Government agencies

- Department of Biodiversity, Conservation and Attractions.
- Department of Energy, Mines, Industry Regulation and Safety.
- Department of Water and Environmental Regulation.

Appendix H: Assessment timeline

Date	Progress stages	Time (weeks)
15 December 2022	EPA decided to assess – level of assessment set	
6 February 2023	EPA requested additional information	7
11 March 2023	EPA received additional information	5
5 May 2023	EPA accepted additional information	21
25 March 2024	EPA released additional information for public review	1
24 April 2024	Public review period for additional information closed	4
5 December 2024	EPA received final information for assessment	32
5 December 2024	EPA accepted Response to Submission	0
12 December 2024	EPA completed its assessment	1
30 January 2025	EPA provided report to the Minister for Environment	6
3 February 2025	EPA report published	3 days
24 February 2025	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

Appendix I: Contemporising of Ministerial Statement 188[1]

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 1 Fulfill commitments	NA	Delete condition	See individual commitments included in this Appendix.
Condition 2 Conform with designs, specifications and plans	NA	Delete condition	Condition does not relate to any specific environmental factor or outcome.
Condition 3 Implement rehabilitation plan	Inland waters, flora and vegetation	Delete condition	Condition was superseded by condition 11 of Ministerial Statement 782.
Condition 4 Achieve reasonable noise levels	Social surroundings	Delete condition	Condition was superseded by condition 8 of Ministerial Statement 782.
Condition 5 Implement noise and vibration monitoring and management programme	Social surroundings	Delete condition	Condition was superseded by conditions 8 and 9 of Ministerial Statement 782.
Condition 6 Dumping of Waste within five hundred metres of Residences	Social surroundings	Delete condition	Condition was superseded by condition 6 of Ministerial Statement 782.
Condition 7	Inland waters	Delete condition	Deleting condition reduces regulatory duplication.

[1] Note that where the conditions of MS 782 are in conflict with the conditions of MS 188, the conditions of MS 782 shall prevail as confirmed in page 1 of MS 782.

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Review of operation of borefields and pipelines			Condition 10 of DWER Licence L6420/1988/14 requires the proponent to ensure that all pipelines containing environmentally hazardous substances are either: (a) equipped with automatic cut-outs in the event of a pipe failure; or (b) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.
Condition 8 Implement Decommissioning and Rehabilitation Plan	Inland waters, flora and vegetation	Delete condition	Condition was superseded by condition 11 of Ministerial Statement 782.
Condition 9 Proponent Nomination	NA	Delete condition	Condition was superseded by condition 2 of Ministerial Statement 782.
Condition 10 Time Limit of Authorisation	NA	Delete condition	Condition was superseded by condition 3 of Ministerial Statement 782.
Commitment 1 Implement Environmental Management Programme	NA	Delete condition	Commitment does not relate to any specific environmental factor or outcome.
Commitment 2 Prepare Annual Reports for Mining and Rehabilitation	NA	Delete condition	Condition was superseded by condition 4 of Ministerial Statement 782.

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Commitment 3 Conduct ongoing geotechnical investigations	Terrestrial environmental quality	Delete condition	Slope stability is managed under legislation regulated by the Department of Energy, Mines, Industry Regulation and Safety.
Commitment 4 Develop surface drainage system	Inland waters	Delete condition	Deleting condition reduces regulatory duplication. Condition 16 of DWER Licence L6420/1988/14 requires the proponent to ensure that where wastes produced on the licence holder's prescribed Premises are not taken offsite for lawful use or disposal, they are managed in accordance with the requirements in Table 11. Table 11 includes reference to inert waste including sediments.
Commitment 5 Install Dust Monitoring Programme	Social surroundings	Delete condition	Commitment was superseded by condition 7 of Ministerial Statement 782.
Commitment 6 Undertake noise monitoring	Social surroundings	Delete condition	Commitment was superseded by condition 8 of Ministerial Statement 782.
Commitment 7 Implement progressive rehabilitation programme	Inland waters, flora and vegetation	Delete condition	Commitment was superseded by condition 11 of Ministerial Statement 782.

Appendix J: Contemporising of Ministerial Statement 782

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 1 Proposal Implementation	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended condition A1. EPA recommends condition 1 is replaced with a new condition setting the maximum limits on proposal characteristics which will ensure the implementation of the proposal is consistent with EPA objectives. This condition reflects a contemporary condition setting approach recommended by the EPA.
Condition 2 Proponent Nomination and Contact Details	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended condition D3. The requirements of this condition are still relevant and will be retained consistent with contemporary condition setting approach recommended by the EPA.
Condition 3 Time Limit of Authorisation	NA	Delete Condition	The requirements of this condition are no longer relevant as the proposal has substantially commenced. Condition no longer required.
Condition 4 Compliance Reporting	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended conditions D1 and D2. The requirements of this condition are still relevant and will be retained consistent with contemporary condition setting approach recommended by the EPA.
Condition 5 Performance Review	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B8. The requirements of this condition are still relevant and will be retained consistent with contemporary condition setting approach recommended by the EPA.
Condition 6	Social surroundings	Delete condition.	Waste management is regulated under condition 16 of Licence L6420/1988/14 issued under Part V of the

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Dumping of Waste within five hundred metres of Residences			EP Act. As this is duplication, a condition is no longer required.
Condition 7 Air Quality	Air quality	Delete condition and replace with consolidated contemporary style condition.	Recommend condition B3 The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.
Condition 8 Noise	Social surroundings	Delete condition.	The draft proposed Regulation 17 (Appendix B) is proposed to provide noise management.
Condition 9 Airblast Overpressure and Vibration from Blasting	Social surroundings	Delete condition and replace with consolidated contemporary style condition.	Recommend condition B3 The proponent should comply with *Australian Standard 2187.2-2006 Explosives – Storage and use – Use of explosives.* Condition duplicated by the *Work Health and Safety Act 2020* and associated regulations regulated by the Department of Energy, Mines, Industry Regulation and Safety and *Environmental Protection (Noise) Regulations 1997* regulated by the Department of Water and Environmental Regulation and therefore most of the condition is redundant/duplicated. Retained the condition to detonate explosives on the premises between the hours of 0700 hours and 1800 hours.
Condition 10 Set-back for Mining Activities	Social surroundings	Retain condition and update with consolidated contemporary style condition.	Recommend condition B3 Condition prohibits mining operations within 400 metres of a property zoned “Residential” under the Town Planning Scheme “Residential” under the Town

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
			Planning Scheme. The proponent owns all properties within this area and has an Annexure to the tenancy agreement which requires the tenant to vacant the property on the request of the proponent if required. Condition still applicable to ensure that further tenancy agreements have the Annexure.
Condition 11 Rehabilitation and Closure Management Plan	Flora and vegetation	Retain condition and update with consolidated contemporary style condition.	Recommend condition B6 The *Mining Act 1978* regulated by DEMIRS requires a Mine Closure Plan to ensure the appropriate management of demolition, decommissioning and management of the post closure landscape. This condition adds to the requirements in the Mine Closure Plan and has been retained and contemporised.
Condition 12 Aboriginal Heritage	Social surroundings	Delete condition and replace with consolidated contemporary style condition.	Recommend condition B5 Condition regulated by the *Aboriginal Heritage Act 1972* which requires approval be sought under this act should an Aboriginal cultural heritage site be planned to be disturbed. However, have conditioned access for the Traditional Owners during ground disturbing work and activities.

Appendix K: Relevant policy, guidance, procedures and references

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

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