

Appendix 14: Financial Provision Reports

REASSESSMENT OF THE FINANCIAL PROVISION FOR MTHATHA QUARRY, MAGISTERIAL DISTRICT OF MTHATHA, EASTERN CAPE PROVINCE

MINING RIGHT: 120/2009
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MAY 2025

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EXECUTIVE SUMMARY

Greenmined Environmental (Pty) Ltd was appointed by Transkei Quarries (Pty) Ltd (hereafter referred to as the “MR Holder”) to conduct the annual review of the financial provision calculations for the mining right held over 48.7446 ha of a portion of Administrative Area No 11 called Zitatele in the Mthatha Magisterial District of the Eastern Cape.

The previous (2024) financial provision value submitted by the MR Holder to the Department of Mineral Resources and Energy (DMRE) for the rehabilitation of the site was in the sum of R9 165 170.27. The MR Holder has a financial guarantee lodged with the DMRE to the value of R 7 607 783.00.

The purpose of this document is to review the financial provision submitted by the holder of the mining right in terms of Section 24P of the NEMA Amendment Act, 2014 (Act No 25 of 2014) read with the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, November 2015 (Financial Provision Regulations 2015). The annual review of the financial provision is a review of the following requirements:

1. Annual rehabilitation as reflected in the annual rehabilitation plan;
2. Final rehabilitation, decommissioning and closure of the mining operations at the end of the life of operations as reflected in the final rehabilitation, decommissioning and mine closure plan;
3. Remediation of latent or residual environmental impacts which may become known in the future, as reflected in the environmental risk assessment report.

Annual Rehabilitation Plan:

The MR Holder continues with the rehabilitation of the eastern side of the quarry pit (± 0.5 ha area) that will also improve the integrity of the nearby haul road passing the area. Rehabilitation of this area will continue during the forthcoming 12-month period.

Rehabilitation, Decommissioning and Mine Closure Plan:

The approved mining area is 54.9874 ha in extent with ± 35 ha thereof disturbed to date. The Rehabilitation, Decommissioning and Mine Closure Plan details the closure objectives, -actions,

relinquishment criteria, monitoring, auditing, and reporting commitments for the earmarked area. It is proposed that upon closure of the mining area all infrastructure, equipment, plant, temporary housing, and other items used during the mining period will be removed. The area will be landscaped to rehabilitate the disturbance and will subsequently revert to agricultural/residential use. The quarry pit will be rendered safe and left as a landscape feature.

At this stage it is proposed that the final rehabilitation of the mining area will take approximately twelve months to complete.

The 2025 financial provision amount, to be provided to the Department of Mineral Resources and Energy by Transkei Quarries (Pty) Ltd, was calculated to be R 9 612 508.81. The 2024 financial provision exceeds the value of financial guarantee in place at the DMRE. However, the mine has a Section 102 amendment application pending with the DMRE to expand the mining footprint. In accordance with this application (S102) the financial guarantee of the mine will need to be increased should the S102 application be successful. The increased financial guarantee will then also account for the 2025 financial provision shortfall calculated earlier, and therefore it is proposed that the guarantee is only increased when a decision is made on the Section 102 application.

Environmental Risk Assessment Report:

At this stage no latent risks that will potentially arise during closure phase of the mining area were identified. By reason of the fact that no latent risks regarding the management of the mining area were identified no additional monitoring, auditing, or reporting requirements are required for this auditing period (2025).

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1. INTRODUCTION

Greenmined Environmental (Pty) Ltd was appointed by Transkei Quarries (Pty) Ltd (hereafter referred to as the “MR Holder”) to conduct the annual review of the financial provision calculations for the mining right held over 48.7446 ha of a portion of Administrative Area No 11 called Zitatele in the Mthatha Magisterial District of the Eastern Cape.

The previous (2024) financial provision value submitted by the MR Holder to the Department of Mineral Resources and Energy (DMRE) for the rehabilitation of the site was in the sum of R9 165 170.27. The MR Holder has a financial guarantee lodged with the DMRE to the value of R 7 607 783.00.

The purpose of this document is to review the financial provision of the quarry in terms of Section 24P of the NEMA Amendment Act, 2014 (Act No 25 of 2014) read with the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, November 2015 (Financial Provision Regulations 2015). The annual review of the financial provision is a review of the following requirements:

1. Annual rehabilitation as reflected in the annual rehabilitation plan;
2. Final rehabilitation, decommissioning and closure of the mining operations at the end of the life of operations as reflected in the final rehabilitation, decommissioning and mine closure plan;
3. Remediation of latent or residual environmental impacts which may become known in the future, as reflected in the environmental risk assessment report.

2. ANNUAL REHABILITATION PLAN

Appendix 3 to the Financial Provision Regulations, 2015 states that the objective of the annual rehabilitation plan is to:

- a) review concurrent rehabilitation and remediation activities already implemented;
- b) establish rehabilitation and remediation goals and outcomes for the forthcoming 12 months, which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified the holder's final rehabilitation, decommissioning and mine closure plan;
- c) establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
- d) identify and address shortcomings experienced in the preceding 12 months of rehabilitation; and
- e) evaluate and update the cost of rehabilitation for the 12-month period and for closure, for purposes of supplementing the financial provision guarantee or other financial provision instrument.

2.1 DETAIL OF THE AUTHOR

Greenmined Environmental (Pty) Ltd was appointed to prepare the annual rehabilitation plan. Ms. Christine Fouche is the consultant responsible for the project and holds a Diploma in Nature Conservation and a BSc in Botany and Zoology. Ms Fouché is a registered Environmental Assessment Practitioner (registration no: 2019/1003) with EAPASA (Environmental Assessment Practitioners Association of South Africa). See Append A for a copy of the EAP's CV.

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2.2 IMPLEMENTATION AND REVIEW TIMEFRAMES

This rehabilitation plan will be applicable for a 12-month period commencing from the date of approval thereof by the Department of Mineral Resources and Energy. The document will be reviewed during the 11th month of the operative period to ensure the timeous submission of the subsequent annual review.

2.3 ENVIRONMENTAL AND PROJECT CONTEXT RELATING TO ANNUAL REHABILITATION

Mthatha Quarry was established in the 1960's and operated under old order mining licenses, until 2009 when a new order Mining Right was granted to Sunshine Enterprises (Pty) Ltd trading as Transkei Quarries. The approved mining area is 48.7446 ha, however only ±35 ha, has been altered for mining purposes. Mining is undertaken in a benched open pit at elevations. The boundaries of the pit are limited by the mine boundaries that stand in relation to the adjacent Korana River and at the north by the crushing plant. The current depth of the quarry is approximately 100 m from the immediate ground level. Rock breaking is done initially by drilling and blasting using crawler mounted rigs and emulsion type bulk explosives. Oversized boulders are placed aside in the pit and large oversize boulders are broken with explosives utilizing secondary blasting methods. The broken rock is sorted and loaded onto articulated dump trucks. Broken rock is hauled to the primary crushing plant, where various products are further conveyed to secondary-, tertiary- and quaternary crushing and screening processes to result in the desired products. Mthatha Quarry produces aggregates and road pavement layering products for the construction and building industry of the Eastern Cape.

During 2024, the Quarry continued with the rehabilitation of the area identified by the rock engineer (Rock SSS) in 2023 and shown below.



Figure 1: Image showing the special area to be rehabilitated (image obtained from the Rock SSS Report, 2023).

Overburden and topsoil removed from the south-western corner of the quarry pit was used to improve the slopes of the benches at the earmarked rehabilitation area (± 0.5 ha) as indicated below.



Figure 2: Satellite view of the south-eastern corner of the quarry pit where the eastern benches (± 0.5 ha) are being rehabilitated (yellow polygon). (Image obtained from Google Earth).

2.4 MONITORING RESULTS

2.4.1 Blast Monitoring

The ground vibrations of each blast event are monitored and subsequently captured into a report stating its compliance with the USBM limits (RI 8507, 1980).

2.4.2 Fallout Dust Monitoring

Mthatha Quarry conducts monthly monitoring of fallout dust levels, and the results are compared with the dust fall rate determined in the Department of Labor Accredited laboratories of Ebenaeser Environmental Consultants CC Accreditation Certificate No. 0H0064 – CI048. The site has six dust monitoring units that are situated at the following locations:

1. Next to scrap yard;
2. Next to G5 stockpile;
3. Next to the old plant;
4. Next to the pit;
5. Boarder of new plant;
6. Boarder of quarry pit.

Figure 3 shows the monitoring results as stipulated in the compliance table published in the January 2023 – April 2025 Dust Fall Monitoring Report. The results at all the sampling positions recorded values well below the target value of 600 mg/m² – 30day average, and dust fall at the mine does not seem to be influencing the neighbours.

Location Description	Total Dust fall rate (D) (mg.m-2.day-130-day average) Insoluble & Soluble Matter											
	2024											
	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec
1. Entrance to weighbridge	339	282	350	439	298	275	309	265	293	327	278	301
2. 200mts North of river	196	278	295	363	152	143	277	256	286	248	189	173
3. 100mts South East of river	261	253	279	470	248	256	287	205	328	471	321	204
4. 50mts South East of river	303	310	335	402	316	223	300	254	264	271	179	153
5. 50mts South of river	319	256	282	437	133	228	267	296	297	225	128	117
6. 100mts West of quarry pit	304	280	389	286	155	136	217	207	303	215	159	145

Location Description	Total Dust fall rate (D) (mg.m-2.day-130-day average) Insoluble & Soluble Matter											
	2025											
	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec
1. Entrance to weighbridge	325	290	340	246								
2. 200mts North of river	182	250	269	210								
3. 100mts South East of river	281	257	326	336								
4. 50mts South East of river	191	313	263	237								
5. 50mts South of river	156	236	198	279								
6. 100mts West of quarry pit	212	230	255	299								

Figure 3: Dust fall monitoring results of January 2023 – April 2025.

2.4.3 Occupational Hygiene Monitoring

Ebenaeser Environmental Consultants conducts quarterly occupational hygiene surveys to monitor and report on matters such as the personal noise exposure of the employees working at the quarry. The consultant provides guidance on

the appropriate PPE, is responsible for the submission of the monitoring results to DMRE, and the identification of noise zones to be demarked on site.

2.4.4 Water Quality Monitoring

The quarry receives potable municipal water of credible quality standards; the mine does conduct water quality tests of the water accumulated in the quarry pit.

2.5 SHORTCOMINGS IDENTIFIED

This report presents the Annual Rehabilitation Plan in terms of the Financial Provision Regulations 2015 to be submitted to DMRE for approval. No shortcomings have been identified in the preceding 12 months.

2.6 REHABILITATION ACTIVITIES FOR FORTHCOMING 12 MONTHS

As mentioned earlier, the rehabilitation of the benches along the eastern side of the quarry pit is in progress and will continue for the forthcoming 12 months. The area under rehabilitation is ± 0.5 ha in size.

2.7 REVIEW OF PREVIOUS YEAR'S REHABILITATION ACTIVITIES

Unwanted overburden, large rocks and topsoil were used in the sloping of the said benches along the eastern side of the quarry pit. It is important that the topsoil is only placed after final rehabilitation as the top layer. No overburden and topsoil may be mixed.

2.8 COSTING

The cost associated with the proposed rehabilitation is listed in the table below, as well as the cost incurred by the company regarding the monitoring plans.

Table 1: Annual rehabilitation and monitoring related cost.

PROPOSED ANNUAL MONITORING COST	
ITEM	COST
Rehabilitation of the southern corner benches	±R 1 500 000.00
Blast Monitoring	No additional cost
Noise and Fallout Dust Monitoring	±R 86 496.00
Water Quality Monitoring	±R 15 900.00
TOTAL	±R 1 602 396.00

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3. REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The objective of the final rehabilitation, decommissioning and mine closure plan is to identify a post-mining land use that is feasible through:

- a) providing the vision, objectives, targets and criteria for final rehabilitation, decommissioning and closure of the project;
- b) outlining the design principles for closure;
- c) explaining the risk assessment approach and outcomes and link closure activities to risk rehabilitation;
- d) detailing the closure actions that clearly indicate the measures that will be taken to mitigate and/or manage identified risks and describes the nature of residual risks that will need to be monitored and managed post closure;
- e) committing to a schedule, budget, roles and responsibilities for final rehabilitation, decommissioning and closure of each relevant activity or item of infrastructure;
- f) identifying knowledge gaps and how these will be addressed and filled;
- g) detailing the full closure costs for the life of project at increasing levels of accuracy as the project develops and approaches closure in line with the final land use proposed; and
- h) outlining monitoring, auditing and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

3.1 DETAIL OF THE AUTHOR

Greenmined Environmental (Pty) Ltd was appointed to prepare the final rehabilitation, decommissioning and mine closure plan. Ms. Christine Fouche is the responsible consultant for the project and holds a Diploma in Nature Conservation and a BSc in Botany and Zoology. Ms Fouché is a registered Environmental Assessment Practitioner (registration no: 2019/1003) with EAPASA (Environmental Assessment Practitioners Association of South Africa) since 2019 (Full CV is attached as Appendix A).

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3.2 PROJECT CONTEXT

Mthatha Quarry entails the mining of a hard rock quarry on state land at Zitatele, Administrative Area 11 approximately 5 km north-east of the CBD of Mthatha. The quarry has seen its inception since 1969 and was operated by Sunshine Enterprises (Pty) Ltd trading as Transkei Quarries until April 2018 when Raumix Aggregates (Pty) Ltd procured the quarry. As mentioned earlier, the approved mining area is 48.7446 ha, of which ±35 ha has been altered for mining purposes.

Mining is undertaken in a benched open pit at elevations. The boundaries of the pit are limited by the mine boundaries that stand in relation to the adjacent Korana River and at the north by the crushing plant. The current depth of the quarry is approximately 100 m from the immediate ground level. Rock breaking is done initially by drilling and blasting using crawler mounted rigs and emulsion type bulk explosives. Oversized boulders are placed aside in the pit and large oversize boulders are broken with explosives utilizing secondary blasting methods. The broken rock is sorted and loaded onto articulated dump trucks. Broken rock is hauled to the primary crushing plant, where various products are further conveyed to secondary-, tertiary- and quaternary crushing and screening processes to result in the desired products. Mthatha Quarry produces aggregates and road pavement layering products for the construction and building industry of the Eastern Cape.

3.2.1 Regional Setting and Land Use

Mthatha Quarry occurs on Ngolo community land that has been secured by Sunshine Enterprises (Pty) Ltd on a 99-year lease (expiring 2068). The mining area is serviced by Eskom electricity and is accessed via the gravel district road DR08645 through the village of Hadini. There are no servitudes registered within the mine footprint. The quarry footprint and all land surrounding the quarry is state owned land falling within the Zitatele Administrative District No 11 in the Mthatha Magisterial District. Rural land usage including grazing, crop planting and residential dwellings dominate the landscape, with formal township

establishment to the west and south-west. The quarry footprint is bisected from west to east by an ephemeral drainage channel that feeds surface runoff towards the perennial stream that flows southwards to the east of the quarry boundary. This perennial stream is a tributary of the larger Mthatha River that meanders from west to east through the city of Mthatha, ± 5 km south-west of the quarry area.

The surrounding land uses include the following:

- Divisional Road DR08645 located west of the quarry connecting the works to the N2 via the village of Hadini
- The closest occupied residence belongs to the local community to the west, south-west of the quarry.
- Undeveloped rural land occurs to the north, east and south of the quarry boundaries.

3.2.2 Topography

Mthatha Quarry is located on the flanks of a localised valley, where rolling hills have been eroded by rivers that feed surface run-off towards the regional Mthatha River to the south. Gentle to moderate north-easterly and easterly sloping grades dominate the southern part of the quarry area, whilst moderate, southerly sloping grades occur in the northern part of the quarry area.

The river channels generally occur at heights of about 720 masl in the northern part of the quarry and about 700 m masl along the south-eastern boundary of the study area.

According to the EMP the floor of the existing excavation occurs at a height of ± 685 masl, which equates to a level of between 15 – 35 metres below natural river level. The EMP further specifies that the floor level of the quarry will be maintained during future mining phases with further mining at depth not provided for in the document.

3.2.3 Soil

In undisturbed areas the soil at the Mthatha Quarry site would generally be considered Mispah Form of the Myhill Series. This soil family has a non-calcareous A-horizon that is not bleached and is underlain by hard rock (residual dolerite) at shallow depth.

There is little evidence of erosion at the site but the small volumes of topsoil in the area must be properly stockpiled and protected for post-mining rehabilitation purposes. There is no sub-soil at the quarry. The thin and patchy topsoil is directly underlain by slightly to un-weathered dolerite bedrock, which is frequently exposed in outcrop as residual sheetrock. Adequate topsoil will, therefore, must be imported to the mine area to ensure adequate rehabilitation.

3.2.4 Natural Vegetation

According to the EMP the Butterworth-Mthatha areas fall within the Maputoland-Pondoland Region floristic unit, which stretches from the Kei River up to the Xai-Xai north of Maputo in Mozambique. The vegetation of the region generally comprises grassland and occasionally thicket. Natural vegetation at the Mthatha Quarry and surroundings is composed of Tsomo Grassland, which corresponds to the Moist Upland Grassland of Low and Rebelo (1996).

This vegetation type is often evident on disturbed, ploughed or heavily overgrazed and degraded sites, indicating a secondary status of many of the representative plant communities. Poor grazing management of these grasslands encourages unpalatable grasses and the invasion of herbaceous weeds.

The EMP states that the impact that mining at the quarry will have on the vegetation within the mining footprint, is insignificant as the natural vegetation has long been removed to facilitate previous agricultural and current mining activities. The natural vegetation on neighbouring properties has also been

significantly transformed by current land use activities such as livestock overgrazing.

The EMP stipulates that the removal of weeds and alien vegetation (which includes regular follow up programmes) should be completed within one year (12 months) of mining right authorisation. Progress of all weeds and alien vegetation control and eradication measures should be monitored by an appointed ECO and reported to the DMRE in annual environmental audit submissions to ensure ongoing compliance.

3.2.5 Fauna

The study area is significantly transformed and enclosed within an area that has experienced mining activities for nearly 35 years. Any animal species that may occur in the region, therefore, probably have migrated as disturbance levels increased. Short-term faunal impacts are obviously high within the local environment but become less as the species migrate away from the mine area. Long-term impacts on the faunal environment is considered less significant as once mining ceases re-colonisation of the property will begin to take place.

3.2.6 Hydrological Environment

The perennial tributary of the Mthatha River flows southwards along the eastern boundary of the Mthatha Quarry, about 50 metres east of the current quarry exaction. This drainage channel is protected from mining activities by a rock berm structure that isolated the drainage system from the quarry excavation. The bedrock from the quarry has been removed to a depth of about 20 m lower than river level in the south-eastern part of the quarry. The EMP prescribes storm water measures to be implemented on site.

There are no boreholes on the property or in the surrounding area. Water for washing and dust control are extracted from the floor of the quarry, which collects surface run-off after wet periods.

3.2.7 Air Quality and Noise

The EMP states that dust is produced as follows during current mining operations:

- dust generated by wind over un-vegetated or denuded areas;
- dust generated by vehicles on unsurfaced roads;
- dust generated during topsoil and overburden removal and loading of material onto trucks and tipped into the plant;
- crushing and screening activities at the crusher infrastructure.

As mentioned earlier Mthatha Quarry conducts quarterly fallout dust monitoring.

Noise at the Mthatha Quarry is generated by blasting, loading operations, crushing and screening and vehicular traffic. Ebenaeser Environmental Consultants conducts quarterly occupational hygiene surveys to monitor and report on matters such as the personal noise exposure of the employees working at the quarry.

3.2.8 Archaeological and Cultural Interest

There are three grave sites within or near the quarry operations. One burial area apparently used to occur in the area currently exposed as the quarry excavation. A memorial was built on the western bench of the quarry pit to commemorate at least 11 mine workers.

3.2.9 Visual Aspects

A visual assessment plan is included in Appendix 1 of the EMP. The digital data set suggests that should the entire mine boundary be mined the Mthatha Quarry will be visible within a radius of about 7 km. The quarry will, however, only be totally visible from very small localities immediately to the south-east at a small village along the R61 road to Port St Johns, about 2 km to the south/south-east.

The quarry scar will be partially visible to large areas to the west, south-west, south, east and north of the Mthatha Quarry footprint. Once completed the quarry will be partially visible to the north-western parts of the city of Mthatha and along sections of the N2 highway to the west and north-west of the quarry. It should be noted that the quarry occurs within an existing residential area and poses a significant visual impact on neighbouring landowners. The clean-up of the quarrying environment and rehabilitation of the post-mining environment will ensure that the rehabilitated quarry will blend better into the surrounding landscape upon mining completion in the area.

3.2.10 Socio-Economic Context

The closest town is Mthatha located about 5 km south-west of the Quarry. This quarry is linked to Mthatha via the N2 highway. Mthatha is a high order service centre providing a full spectrum of services to the community. The town has a full water reticulation system and receives electricity from Eskom supply. These benefits are enjoyed at the Mthatha Quarry as well. The nearest formal development to the quarry is the residential footprint located to the west/south-west of the quarry. Informal housing encroachment did however occur to the western/north-western side of the quarry boundaries. Mthatha Quarry assist the local community and has provided financial assistance in terms of the goals stipulated in the social and labour plan.

3.2.11 Mine Plan

The following section provides a description of the various aspects of the mine and highlights the closure requirements. The mining area is 48.7446 ha in extent and the mineable material occurs at an average depth of 0 – 3 metres. The areas used in the calculation of the quantum mainly resemble those used in the 2024 financial provision calculation as only the quarry pit was increased with ± 1 ha during the audit period and no rehabilitation was completed yet. The table below provides an indication how the various areas were used in the calculation of the quantum.

Table 2: Areas to be rehabilitated upon closure of the site.

AREAS TO BE REHABILITATED UPON CLOSURE OF THE SITE		
NO	DESCRIPTION	CALCULATION OF QUANTITIES
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	5 500 m ²
2(A)	Demolition of steel buildings and structures	196 m ²
2(B)	Demolition of reinforced concrete buildings and structures	324 m ²
3	Rehabilitation of access roads	N/A – The roads will remain upon closure of the Quarry
4(A)	Demolition and rehabilitation of electrified railway lines	N/A – No electrified railway lines to be rehabilitated
4(B)	Demolition and rehabilitation of non-electrified railway lines	N/A – No non-electrified railway lines to be rehabilitated
5	Demolition of housing and/or administration facilities	1 658 m ²
6	Opencast rehabilitation including final voids and ramps	17.7 ha
7	Sealing of shaft, adits, and inclines	N/A – No shaft, adits, and inclines to be rehabilitated
8(A)	Rehabilitation of overburden and spoils	6.5 ha
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	N/A – No processing waste deposits and evaporation ponds to be rehabilitated.

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AREAS TO BE REHABILITATED UPON CLOSURE OF THE SITE		
NO	DESCRIPTION	CALCULATION OF QUANTITIES
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	N/A – No acidic or metal-rich waste deposits or evaporation ponds to be rehabilitated.
9	Rehabilitation of subsided areas	N/A – No subsided areas to be rehabilitated
10(a)	General surface rehabilitation (with remnants requiring removal)	2.4 ha
10(b)	General surface rehabilitation (without remnants requiring removal)	8.9 ha
11	River diversions	N/A – No river diversions to be rehabilitated
12	Fencing	N/A – No fencing to be rehabilitated
13	Water Management	N/A
14	2 to 3 years of maintenance and aftercare	34.53 ha

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3.3 CLOSURE STRATEGY GUIDED BY ENVIRONMENTAL RISK ASSESSMENT

The overall objective of the closure plan is to minimize adverse environmental impacts associated with the quarrying activities whilst maximising the future utilisation of the property. The idea, therefore, is to leave the mined out dolerite quarry in a conditions that reduces all negative impacts associated with a mined out area.

Significant aspects to be borne in mind in this regard is visibility of the mining scar, revegetation of the mining footprint and stability and environmental risk in an old mine environment. The depression and immediate area of the working must also be free of weeds and alien vegetation.

The proposed quarrying and rehabilitation procedures have been formulated to optimise the extraction of raw material while creating stable quarry sides that will not present an unreasonable safety risk once mine closure has been approved. Mining operations will be conducted in stages corresponding to the creation of precision blasted quarry sides and benches towards the base of the working.

The decommissioning phase and closure of the quarry will in addition to precision blasted quarry faces involve removal of all debris and rehabilitation of areas not rehabilitated during the operational phases of the project. This will comprise the scarification of compacted areas, reshaping of areas, topsoiling and regeneration of all prepared surfaces. The crusher and screening plants will be dissembled, and all other infrastructural development such as haulage roads and stockpile areas will be rehabilitated.

3.4 DESIGN PRINCIPLES

Upon closure of the quarry the mining right holder will contract the expertise of a rock engineer to guide the final design of the quarry pit. The rock engineer will be directed by the rehabilitation objectives proposed in the approved EMP, as summarized below:

1. Land Forming –

- Quarrying and rehabilitation operations, in the long term, must be aimed at creating a final work face secured at safe angles that can be revegetated where practical to reduce the visual impact associated with bedrock mining.
- All final quarry slopes will be profiled to suitable angles (not steeper than 85°) as negotiated with the DMRE in accordance with the rehabilitation requirements being imposed on similar quarries in the region.
- The cliff section must not exceed 10 m in height and the bench section may not be narrower than 3 m.
- The EMP stipulates the following final land surface objectives:
 - An upper face precision blasted to a gradient of 1:3 down to a depth of about 6 m below surface;
 - A precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections;
 - 3 m wide bench levels between 10 m cliff face down to the floor of the quarry located at a height of not less than 685 masl;
 - Post-quarrying landscape may not be prone to erosion at an unacceptable rate.

2. Rehabilitation of Vehicle Yard and Secured Storage Area –

- On completion of mining the above areas shall be cleared if any contaminated soil, which must be dumped at a licenced waste disposal facility;
- All buildings, structures or objects on the vehicle maintenance yard and secured storage areas shall be dealt with in accordance with Section 44 of the MPRDA;
- The surface shall be ripped or ploughed to a depth of at least 200 mm and the topsoil previously stored adjacent to the site shall be spread evenly to its original depth over the whole area;
- The site shall be seeded with a vegetation mix adapted to reflect the local grassy vegetation.

- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects arising from the mining operation be corrected and the area be seeded with a mix to his/her specifications.

3. Rehabilitation of Processing Areas –

- On completion of mining the surface of the processing areas (especially if compacted due to hauling and dumping operations) shall be scarified to a depth of at least 200 mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area;
- The area shall be seeded with local indigenous seed mix. Fertilisers should be avoided as far as possible to avoid nutrient loading of the nearby drainage channel.

4. Revegetation –

- Disturbed surfaces will be profiled so that re-laid topsoil / overburden can be keyed into position to minimise erosion;
- All prepared surfaces must be seeded with a suitable grass species to provide an initial ground cover and stabilise the soil surface.

3.5 POST-MINING LAND USE

Upon rehabilitation the mining area will either revert to agricultural use and be suitable for grazing purposes or be incorporated into the nearby residential area. The quarry pit will be left as a landscape feature.



Figure 4: Satellite image of the mining area to be rehabilitated upon closure. The processing and mining related areas (green) will revert to agricultural/residential use upon rehabilitation, and the quarry pit (blue) will be rendered safe and left as a landscape feature.

3.6 CLOSURE ACTIONS

The following closure actions were stipulated in the Environmental Management Programme (EMPR) to successfully rehabilitate Mthatha Quarry:

- Infrastructure being removed from site;
- The quarry pit being benched;
- The site landscaped with stockpiled overburden;

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- The area vegetated using an appropriate grass mix.

Rehabilitation of Vehicle Yard and Secured Storage Area:

In summary the closure requirements will apply:

- Clear the above areas of any/all contaminated soil (remove to a licenced waste disposal facility);
- Deal with all buildings, structures or objects on the vehicle maintenance yard and secured storage areas in accordance with Section 44 of the MPRDA;
- Rip/plough the surface to a depth of at least 200 mm and spread the previously stockpiled topsoil evenly to its original depth over the whole area;
- Seed the area with a vegetation mix adapted to reflect the local grassy vegetation.

Rehabilitation of Processing Areas:

In summary the closure requirements will apply:

- Scarify the surface of the processing area (especially if compacted due to hauling and dumping operations) to a depth of at least 200 mm and grade the area to an even surface condition;
- Return the previously stored topsoil to its original depth over the area;
- Seed the area with a local indigenous seed mix. Avoid fertilisers as far as possible to prevent nutrient loading of the nearby drainage channel.

Land Forming

In summary the closure requirements will apply:

- Blast an upper face to a gradient of 1:3 down to a depth of ± 6 m below surface;
- Create a precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections;
- Create 3 m side bench levels between each 10 m cliff face down to the floor of the quarry;
- Ensure rehabilitated quarry area is not prone to erosion.

Final Rehabilitation

In summary the closure requirements will apply:

- Rehabilitating the worked-out areas to take place concurrently within prescribed framework in the EMP.
- Remove all infrastructure, equipment, plant and other items used during the mining period;
- Remove all waste materials entirely from the mining area and dispose of at a recognised landfill facility. Not to be buried or burned on the site;
- Clear the mining area of all weeds and/or alien plants regarded as Category 1a or b invasive species in terms of the National Environmental Management Act, 2004 (Act No 10 of 2004) and the Alien and Invasive Species list, 2014;
- Rehabilitation must be completed within a period specified by the Regional Manager.

3.7 CLOSURE SCHEDULE

At this stage it is proposed that the rehabilitation of the mining area will take approximately twelve months to complete.

Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been completed in an area. Site management will implement an alien invasive plant management plan during the 12-month aftercare period to address germination of problem plants in the area. Final rehabilitation shall be completed within a period specified by the Regional Manager.

Table 3: Closure schedule.

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
QUARRY PIT AREA	
Quarry Pit: - Blast an upper face to a gradient of 1:3 down to a depth of ± 6 m below surface; - Create a precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections; - Create 3 m side bench levels between each 10 m cliff face down to the floor of the quarry; - Ensure rehabilitated quarry area is not prone to erosion.	Week 1 – 25
VEHICLE YARD & SECURED STORAGE AREA & PROCESSING AREAS	
Vehicle Yard and Secured Storage Area: - Clear the above areas of any/all contaminated soil (remove to a licenced waste disposal facility); - Deal with all buildings, structures or objects on the vehicle maintenance yard and secured storage areas in accordance with Section 44 of the MPRDA; - Rip/plough the surface to a depth of at least 200 mm and spread the previously stockpiled topsoil evenly to its original depth over the whole area; - Seed the area with a vegetation mix adapted to reflect the local grassy vegetation.	Week 26 - 38
Processing Areas: Remove all remaining stockpiled material;	Week 39 - 44
Supporting infrastructure: - Scarify the surface of the processing area (especially if compacted due to hauling and dumping operations) to a depth of at least 200 mm and grade the area to an even surface condition; - Return the previously stored topsoil to its original depth over the area; - Seed the area with a local indigenous seed mix. Avoid fertilisers as far as possible to prevent nutrient loading of the nearby drainage channel.	Week 45 – 52

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
MAINTENANCE AND AFTER CARE	
- Erosion Monitoring - Weeds and Invader Plant Control	12 months duration after final closure of the mining area

3.8 IMPLEMENTATION AND RESPONSIBILITY OF CLOSURE PLAN

Implementation of the closure plan is ultimately the responsibility of the mining right holder. Upon commencement of the closure phase, daily compliance monitoring will be the responsibility of the site manager. The site manager will be responsible for ensuring compliance with the guidelines stipulated in the EMPR as well as the prevention and/or rectification of environmental incidents. The applicant will appoint an Environmental Control Officer to oversee compliance with the rehabilitation/closure activities.

3.9 IDENTIFIED GAPS IN THE PLAN

The assumptions made in this plan, which relate to the closure objectives and associated impact on the receiving environment, stem from site specific information gathered by the project team. No gaps in the Rehabilitation, Decommissioning and Mine Closure Plan could be identified.

3.10 RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES

The following relinquishment criteria is proposed for the closure activities of Mthatha Quarry.

Table 4: Relinquishment criteria for closure activities.

RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES			
CATEGORY	RELINQUISHMENT CRITERIA	INDICATORS	REPORTING REQUIREMENTS
Slope stability and safety	The site is safe for use by humans and animals for the foreseeable future.	Code of practice to combat rock fall and slope instability related accidents in surface mines.	Appropriate risk assessment undertaken, and control measures are in place that will continue to meet agreed requirements.
Decommissioning of all structures and haul roads	No visible man-made structures should remain. Haul roads should be removed and sloped to blend in with the natural landscape.	Close-out inspection by site management upon end of decommissioning phase.	Photographic evidence that infrastructure has been removed.
Soil erosion	Implementation of erosion control measures or the establishment of vegetation in denuded areas.	Engineered structures to control water flow	Proof in final closure report that required structures are in place and functional.
Vegetation	Seeding of a cover crop after topsoiling.	Biodiversity monitoring	Monitoring report
Invader plant management	Continuous management of invader plants until the establishment of the first cover crop.	Biodiversity monitoring	Monitoring report
Land Use	Land capability and productivity like that which existed prior to mining.	Land capability and productivity	Comparison to equivalent areas.

3.11 CLOSURE COST ESTIMATE

The methodology used to calculate the quantum for financial provision was according to Section B of the working manual for the determination of the closure cost of mining area.

3.11.1 Mine Type and Saleable Mineral By-Product

According to Tables B.12, B.13 and B.14

Table 5: Mine type and saleable mineral by-product

Mine type	Dolerite
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Saleable mineral by-product	None
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3.11.2 Primary Risk Class

According to Tables B.12 or B.13

Table 6: Primary risk class

Primary risk ranking	Class C
Revised risk ranking	N/A

3.11.3 Environmental Sensitivity of the Mine Area

According to Table B.4

Table 7: Environmental sensitivity of the mine area

Environmental sensitivity of the mine	Low
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3.11.4 Level of Information

According to Step 4.1

Table 8: Level of information

Level of information available	Extensive
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3.11.5 Identification of Closure Components

According to Table B.5 and site-specific conditions

Table 9: Identification of closure components

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
		Open-cast Mine	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	YES	-

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Component No.	Main description	Applicability of closure components (Circle Yes or No)	
		Open-cast Mine	
2(A)	Demolition of steel buildings and structures	YES	-
2(B)	Demolition of reinforced concrete buildings and structures	YES	-
3	Rehabilitation of access roads	-	NO
4(A)	Demolition and rehabilitation of electrified railway lines	-	NO
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	NO
5	Demolition of housing and facilities	-	NO
6	Opencast rehabilitation including final voids and ramps	YES	-
7	Sealing of shafts, adits, and inclines	-	NO
8(A)	Rehabilitation of overburden and spoils	YES	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	NO
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	NO
9	Rehabilitation of subsided areas	-	NO
10(A)	General surface rehabilitation, including grassing of all denuded areas (with remnants)	YES	-
10(B)	General surface rehabilitation, including grassing of all denuded areas (without remnants)	YES	-
11	River diversions	-	NO
12	Fencing	-	NO
13	Water management (Separating clean and dirty water, managing polluted water, and managing the impact on groundwater)	-	NO
14	2 to 3 years of maintenance and aftercare	YES	-

3.11.6 Unit Rates for Closure Components

The calculation of the financial provision amount required to manage and rehabilitate the environment was aligned with the guideline document prescribed in terms of Regulation 54 (1). The master rate for each closure component was taken from the 2024 financial provision calculation and inflated by the current (March 2025) CPIX of 2.7% to account for escalation over the past year as presented in the table below:

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Table 10: Unit rates for closure components

Component No.	Main description	2024 FP Master Rate	2025 FP Master Rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	R 19.79	R 20.32	1.00
2(A)	Demolition of steel buildings and structures	R 275.66	R 283.10	1.00
2(B)	Demolition of reinforced concrete buildings and structures	R 406.25	R 417.22	1.00
3	Rehabilitation of access roads	-	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-	-
5	Demolition of housing and facilities	R 551.33	R 566.22	1.00
6	Opencast rehabilitation including final voids and ramps	R 280 599.84	R 288 176.04	0.04
7	Sealing of shafts, adits and inclines	-	-	-
8(A)	Rehabilitation of overburden and spoils	R 192 676.62	R 197 878.89	1.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-	-
9	Rehabilitation of subsided areas	-	-	-
10(A)	General surface rehabilitation, including grassing of all denuded areas (with remnants)	R 152 632.38	R 156 753.45	1.00
10(B)	General surface rehabilitation, including grassing of all denuded areas (without remnants)	R 101 754.93	R 104 502.31	1.00
11	River diversions	-	-	-
12	Fencing	-	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-	-
14	2 to 3 years of maintenance and aftercare	R 20 312.30	R 20 860.73	1.00

3.11.7 Determine Weighting Factors

According to Tables B.7 and B.8

Table 11: Determine weighting factors.

Weighting factor 1: Nature of terrain/accessibility	1.00 (Flat)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.00 (Urban)

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3.11.8 Calculation of Closure Costs

Table 12: Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

CALCULATION OF THE QUANTUM							
Mine:	Mthatha Quarry			Location:	Mthatha		
Evaluators:	C Fouché			Date:	02 June 2025		
No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor 1	E = A*B*C*D Amount (Rands)
			Step 4.5	Step 4.3	Step 4.3	Step 4.4	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m³	5 500	20.32	1.00	1.00	R 111 760.00
2(A)	Demolition of steel buildings and structures	m²	196	283.10	1.00	1.00	R 55 487.60
2(B)	Demolition of reinforced concrete buildings and structures	m²	324	417.22	1.00	1.00	R 135 179.28
5	Demolition of housing and/or administration facilities	m²	1 658	566.22	1.00	1.00	R 938 792.76
6	Opencast rehabilitation including final voids and ramps	ha	17.7	288 176.04	0.52	1.00	R 2 652.372.27
8(A)	Rehabilitation of overburden and spoils	ha	6.5	197 878.89	1.00	1.00	R 1 286 212.79
10(A)	General surface rehabilitation (with remnants)	ha	2.4	156 753.45	1.00	1.00	R 376 208.28
10(B)	General surface rehabilitation (without remnants)	ha	8.9	104 502.31	1.00	1.00	R 930 070.56
14	2 to 3 years of maintenance and aftercare	ha	34.5	20 860.73	1.00	1.00	R 719 695.19
Sum of items 1 to 15 above							R 7 205 778.72
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.00	R 7 205 778.72		Sub Total 1		R 7 205 778.72
1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 R100 000 000.00					R 432 346.72
		12% of Subtotal 1 if Subtotal 1 R100 000 000.00					-
2	Contingency	10.0% of Subtotal 1					R 720 577.87

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Table 12: Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

CALCULATION OF THE QUANTUM	
Sub Total 2	
(Subtotal 1 plus management and contingency)	R 8 358 703.32
Sub Total 3	
Vat (15%)	R 1 253 805.50
GRAND TOTAL	
(Subtotal 3 plus VAT)	R 9 612 508.81

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3.11.9 Conclusion

In view of the above calculations the 2025 financial provision amount, to be provided to the Department of Mineral Resources and Energy by Mthatha Quarry, was calculated to be R 9 612 508.81.

The 2025 financial provision exceeds the value of financial guarantee in place at the DMRE (table below). However, the mine has a Section 102 amendment application pending with the DMRE to expand the mining footprint. In accordance with this application (S102) the financial guarantee of the mine will need to be increased should the S102 application be successful. The increased financial guarantee will then also account for the 2025 financial provision shortfall calculated earlier, and therefore it is proposed that the guarantee is only increased when a decision is made on the Section 102 application.

Table 13: Comparison of the financial provision calculation outcome, with the current financial guarantee at DMRE

DOCUMENT	AMOUNT (RANDS)
2025 Financial Provision Calculation	R 9 612 508.81
Value of the financial guarantee in place at DMRE	R 7 607 783.00
SHORTFALL	-R 2 004 725.81

3.12 MONITORING, AUDITING AND REPORTING

In compliance with applicable legislation the mining right holder will conduct monitoring of the mining activities for the duration of the operational- and decommissioning phases. The compliance of the site will be audited, and reporting will be done to the relevant authorities. The table below stipulates the actions to be followed in this regard.

Table 14: Monitoring, auditing, and reporting requirements.

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
LEGISLATED AUDITING AND REPORTING			
Environmental Auditing	<u>Internal Review</u>		
	Site manager to ensure compliance with Environmental Authorization, Environmental Management Programme and Closure Plan.	Daily compliance monitoring.	Any non-conformance must immediately be addressed by site management and weekly reported on.
	<u>External Auditing</u>		
	Environmental Assessment Practitioner	Annual auditing and reporting to the Department of Mineral Resources and Energy.	Depending on the significance of the findings site management has a maximum of four weeks to address and close out auditing results.
Financial Provision Review	<u>Financial Provision Review</u> Greenmined Environmental (Pty) Ltd	Annual review of the financial provision and reporting of the findings to the Department of Mineral Resources and Energy.	Should the review of the financial provision indicate a shortfall the holder of the right will increase the financial provision to meet the audited financial provision within 90 days from the date of approval received from DMRE.
Health and Safety Auditing	Health and Safety Manager	Monthly auditing of health and safety aspects on-site. Monthly reporting to the Mine Health and Safety division of the Department of Mineral Resources and Energy.	Depending on the significance of the findings site management has a maximum of 48 hours to address and close out auditing results.

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MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
MONITORING			
Blast Monitoring	B&E International (Pty) Ltd	Monitoring done during each blasting event.	Should the study indicate results of concern, the blast design of the following blast needs to be adapted to prevent a recurrence. Any damage that results because of the blast needs to be repaired or compensated for by the mining right holder.
Fallout Dust Monitoring	Ebenaeser Environmental Consultants CC	Quarterly Fallout Dust Monitoring	Site management has a maximum of two weeks to develop and implement a dust management plan should the dust level standard (600mg/m ² /day) be exceeded.
Invader Plant Monitoring	Independent Consultant	Annual Monitoring	Site management has a maximum of two weeks to review and implement the invader plant control plan should Category 1a & b plants in terms of the National Environmental Management: Biodiversity Act, 2004 (Act 15 of 1973) and the Alien and Invasive Species Regulations, 2014 (amended 2016) germinate on-site.
Noise Monitoring	Ebenaeser Environmental Consultants CC	Quarterly Noise Monitoring	Site management has a maximum of one week to designate additional noise zone where applicable. Hearing protection equipment must always be available to employees.

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MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
Water Monitoring	Accredited Laboratory	Annual Quality Monitoring	Immediate action is required should the results of the water quality test exceed the SANS 241:2006 & 2015 levels.

3.12.1 Schedule of reporting requirements providing an outline of internal and external reporting including disclosure of updates of the plan to stakeholders

The following table stipulates the reporting requirements and how document updating will be handled.

Table 15: Reporting requirements.

REPORTING REQUIREMENTS			
AUDIT	LEGISLATION	REPORTING REQUIREMENTS	UPDATE DISCLOSURE
Environmental Auditing	NEMA; EIA Regulations, 2014 (as amended)	Reporting on the environmental compliance of the mining area will be in accordance with Regulation 34 of the NEMA EIA Regulations, 2014 (as amended). The environmental audit report will contain the information set out in Appendix 7 of the said Regulation.	The environmental audit report will indicate the ability of the EMPR and Closure Plan to adequately manage the activity. Should the reports not sufficient, amendment will be proposed.
Financial Provision Review	NEMA Amendment Act, 2014 (Act No 25 of 2014) Financial Provision Regulations, 2015	Reporting on the financial provision for closure of the mining area will be in accordance with Section 24P of the NEMA Amendment Act, 2014 (Act No 25 of 2014) read with the Financial Provision Regulations 2015.	The auditor will report on the adequacy of the financial provision and any adjustments that need to be made to the financial provision.
Health and Safety Auditing	Occupational Health and Safety Act, 1993	Reporting on the health and safety compliance of the mining area will be in accordance with the Mine Health and Safety Act, 1996.	The safety manager will annually update the Code of Practices applicable to the site.

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REPORTING REQUIREMENTS			
AUDIT	LEGISLATION	REPORTING REQUIREMENTS	UPDATE DISCLOSURE
	Mine Health and Safety Act, 1996		

3.12.2 Monitoring Plan and Compliance Assessment

The following list presents the monitoring programmes to be implemented on site for the duration of the decommissioning phase.

Table 16: Monitoring plan and compliance assessment.

MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
DUST MONITORING	
Fallout Dust Monitoring: Fallout dust monitoring is an effective method to identify priority control areas that result in excessive dust emissions. Fallout dust, also known as precipitating dust, is monitored to identify the fine dust particles that are liberated and can travel from the site to another location. The site already has six fallout dust units in place that will be used to monitor the dust levels during the decommissioning phase. The dust units are emptied monthly, and the collected matter weighed to determine the dustfall rate averaged over 30 days. The residential fallout dust standard allocation of 0 – 600 mg/m²/day is used for the dust units at the site.	Monthly until final closure of the site
Gravimetric Dust Monitoring: Gravimetric sampling of dust is the internationally acceptable method to determine respirable dust concentrations of a site. This monitoring is implemented to determine the level of exposure employees are subjected to during each shift as prolonged exposure to atmospheric dust can give rise to several lung disorders or diseases. Personal and/or static monitoring is done by a qualified Occupational Hygienist in accordance with the guidelines for gravimetric sampling published under the auspices of	Quarterly until final closure of the site

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MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
the Department of Mineral Resources and Energy – Guidelines for the Compilation of a Mandatory Code of Practice – No. 1 Personal Exposure to Airborne Pollutants.	
NOISE MONITORING	
Personal Noise Monitoring: Personal noise exposure monitoring is done to determine the noise levels employees are exposed to during an eight-hour shift. Excessive noise exposure can lead to hearing loss and therefore continuous monitoring and demarcation of noise zones are of the utmost importance. This monitoring is conducted by a qualified Occupational Hygienist who must submit his findings on Form 21.9(2)(e) prescribed by the Department of Mineral Resources and Energy in terms of the National Environmental Management: Air Quality Act, 2004 (Act No 39. of 2004).	Quarterly until final closure of the site
SOIL EROSION MONITORING	
Soil Erosion: The definition for erosion is defined in the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983) as the loss of soil through the action of water, wind, or other agents including the subsidence of soil. Soil erosion monitoring must be implemented by site management to prevent the loss of exposed soil because of the mining activities. If the replaced topsoil stay exposed, it is especially vulnerable to soil erosion. It is therefore proposed that a cover crop be planted if vegetation does not establish within the first six months of topsoil spreading.	Weekly monitoring for the first 6 months or until the first cover crop has established
WEEDS AND INVADER PLANT MONITORING	
Management of Weed or Invader Plants: All species listed in terms of the Alien and Invader Species (AIS) regulations published in terms of section 97(1) of NEM:BA as amended 2016, are deemed to be declared invasive species, and should be managed accordingly. When identifying weeds that need to be eradicated from the site the plants listed in the AIS regulations are used as guideline. Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been done in an area. Site management must	Monthly monitoring for the duration of the decommissioning phase.

MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
implement an alien invasive plant management plan during the 12-months aftercare period to address germination of problem plants in the area.	
STORM WATER MONITORING	
Storm Water Monitoring: The risk of erosion or loss of topsoil due to uncontrolled storm water flowing through the decommissioning area can be reduced through proper monitoring and implementation of effective storm water infrastructure. Monitoring needs to continue during the 12 months aftercare period.	Monthly monitoring for the duration of the decommissioning phase.
HEALTH AND SAFETY MONITORING	
Management of Health and Safety Risks All operations must comply with the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as well as the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	Daily monitoring for the duration of the decommissioning phase.

3.13 MOTIVATION FOR AMENDMENTS MADE TO FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

Not applicable as no amendments were made to the Final Rehabilitation, Decommissioning and Mine Closure Plan.

4. ENVIRONMENTAL RISK ASSESSMENT REPORT

The objective of the environmental risk assessment report is to:

- a) ensure timeous risk reduction through appropriate interventions;
- b) identify and quantify the potential latent environmental risks related to post closure;
- c) detail the approach to managing the risks;
- d) quantify the potential liabilities associated with the management of the risks; and
- e) outline monitoring, auditing, and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

4.1 DETAIL OF THE AUTHOR

Greenmined Environmental (Pty) Ltd was appointed to prepare the environmental risk assessment report. Ms. Christine Fouche is the consultant responsible for the project and holds a Diploma in Nature Conservation and a BSc in Botany and Zoology (Full CV is attached as Appendix A).

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4.2 ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS

4.2.1 Methodology

The methodology for the assessment of the potential latent risks entailed the use of the following:

DEFINITIONS AND CONCEPTS:

Environmental significance:

The concept of significance is at the core of impact identification, evaluation, and decision-making. The concept remains largely undefined and there is no international

consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement.
- The degree of environmental significance depends on the nature of the risk.
- The importance is rated in terms of both biophysical and socio-economic values.
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into risk magnitude and risk significance. Risk magnitude is the measurable change (i.e. intensity, duration, and likelihood). Risk significance is the value placed on the change by different affected parties (i.e. level of acceptability)

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of consequences being realised (Environment Australia (1999) Environmental Risk Management).

Impact

The positive or negative effects on human well-being and / or the environment.

Consequence

The intermediate or outcome of an event or situation OR it is the result, on the environment, of an event.

Likelihood

A qualitative term covering both probability and frequency.

Frequency

The number of occurrences of a defined event in a given time or rate.

Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

Methodology that will be used

The environmental significance assessment methodology is based on the following determination:

Environmental Significance = Overall Consequence x Overall Likelihood

Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information, and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 1 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 17: Rating of severity used in the assessment of potential latent risks.

TYPE OF CRITERIA	RATING				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous / Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact. Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

Table 18: Rating of duration used in the assessment of potential latent risks.

RATING	DESCRIPTION
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

Determination of Extent/Spatial Scale

Extent or spatial scale is the area affected by the event, aspect or impact.

Table 19: Rating of extent / spatial scale used in the assessment of potential latent risks.

RATING	DESCRIPTION
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighboring farm area
5	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

Table 20: Example of calculating overall consequence in the assessment of potential latent risks.

CONSEQUENCE	RATING
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	10
TOTAL CONSEQUENCE: (Subtotal divided by 3)	3.3

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Table 21: Rating of frequency used in the assessment of potential latent risks.

RATING	DESCRIPTION
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

Determination of Probability

Probability refers to how often the activity or aspect has an impact on the environment.

Table 22: Rating of probability used in the assessment of potential latent risks.

RATING	DESCRIPTION
1	Almost never / almost impossible
2	Very seldom / highly unlikely
3	Infrequent / unlikely / seldom
4	Often / regularly / likely / possible
5	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 23: Example of calculating overall likelihood in the assessment of potential latent risks.

CONSEQUENCE	RATING
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3

Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the significance of the risk, which is a number that will then fall into a range of **Insignificant risk**, **Uncertain risk** or **Significant Risk**, as shown in the table below.

Table 24: Determination of overall environmental significance in the assessment of potential latent risks.

SIGNIFICANCE OR RISK	INSIGNIFICANT RISK (CC)	UNCERTAIN RISK (BB)	POTENTIAL SIGNIFICANT RISK (AA)
Overall Consequence X Overall Likelihood	1 - 4.9	5 - 9.9	10 – 19.9

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

Table 25: Description of environmental significance and related action required in the assessment of potential latent risks.

SIGNIFICANCE	AN INSIGNIFICANT RISK (CC)	AN UNCERTAIN RISK (BB)	A POTENTIAL SIGNIFICANT RISK (AA)
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Improve management measures to reduce risk.

Based on the above, the significance rating scale has been determined as follows:

- | | |
|----------------------------|---|
| A potential Risk (aa) | Risks of a substantial order. Mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. |
| An uncertain risk (bb) | Risk would be negligible. Almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. |
| An insignificant risk (cc) | There would be very small to no risk. |

4.2.2 Description of Latent Risks

At this stage no latent risks that will potentially arise during closure phase of the mining area were identified.

4.2.3 Results and Finding of Risk Assessment

Not applicable as no latent risks were identified.

4.2.4 Changes to the Risk Assessment Results

N/A

4.3 MANAGEMENT ACTIVITIES

No additional management activities are necessary as no latent risks were identified.

4.4 COST ESTIMATE

Not applicable as no latent risks were identified.

4.5 MONITORING, AUDITING AND REPORTING REQUIREMENTS

By reason of the fact that no latent risks regarding the management of the quarry were identified no additional monitoring, auditing or reporting requirements are required for this auditing period.

5. SIGNATURE OF AUTHOR

NAME	SIGNATURE	DATE
Christine Fouché	<i>Christine Fouché</i>	01 June 2025

APPENDIX A

CV AND EXPERIENCE RECORD OF EAP



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