QUEENSTOWN QUARRY (PTY) LTD
A PORTION OF THE FARM LESSEYTON NO 81, CHRIS HANI MAGISTERIAL DISTRICT, EASTERN CAPE PROVINCE

CLOSURE PLAN

FILE REF NO: EC 30/5/1/2/2/009 MR – 00052 MR/102

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EXECUTIVE SUMMARY

Greenmined Environmental (Pty) Ltd is the consultants responsible for the Section 102 amendment application submitted by Queenstown Quarry (Pty) Ltd over a portion of the Farm Lesseyton No 81, and in support of this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was compiled.

The purpose of this document is to provide site management with an Annual Rehabilitation Plan as well as the Final Rehabilitation, Decommissioning and Closure Plan, compiled in terms 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 (GN 1228, Financial Provision Regulations 2015 (as amended). The amendment of the closure plan entails a review of the following aspects:

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:

Upon approval of the Section 102 amendment application and receipt of the EA, the Right Holder will annually report on the planned rehabilitation actions.

Rehabilitation, Decommissioning and Mine Closure Plan:

Upon approval of the Section 102 application, the mining area will be 66.7419 ha in extent. 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, and other items used during the mining period (and not required by the landowner) will be removed. The unexcavated area will be landscaped to rehabilitate the disturbance and will subsequently revert to agricultural or residential use. The excavations will be rendered safe and left as a landscape feature.

Environmental Risk Assessment Report:

The Environmental Risk Assessment identified potential latent risks that may arise during the decommissioning phase of the mine. The report also proposes mitigation and monitoring measures to ensure long-term stability

and compliance with closure objectives. If these measures are implemented, all identified risks are expected to be reduced to an insignificant level.

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Abandonment: The act of abandoning and relinquishment of a mining claim or intention to mine, a voluntary surrender of the claim or mine to the next party.

Appropriately qualified: A person who has training in the skills appropriate to the type of work to be done, and experience of the type of mine and of the size, complexity and safety classification of the deposit or the environmental conditions (or both) pertaining to the specific project.

Closure Plan: Annual Rehabilitation and Final Rehabilitation, Decommission and Closure Plan.

Biodiversity: Biodiversity is an abbreviation of “biological diversity”. It means the variety of living things – the different plants, animals and microorganisms, the genes they contain and the ecosystems of which they are a part.

Closure: The act of reinstating a redundant mine which is acceptable for final mine closure.

Context of an environmental impact: The overall environmental setting in which an environmental impact occurs. It includes all "natural" components and characteristics (or both) and all "human and social" components and characteristics (or both). It has both spatial and time dimensions.

Design: The documented result of a systematic process during which all relevant factors and criteria are considered. The design includes the design report, the working drawings and the operations manual.

Environmental impact: Any change in the state of a component of the environment, whether adverse or beneficial, that wholly or partially results from activities, projects or developments.

Environmental integrity: The reliability of performance of the environmental impact management measures associated with the facility, with respect to the environmental performance objectives.

Environmental management programme: A programme contemplated in the Mineral and Petroleum Resources Development Act, 2002 submitted to and approved by the Director: Mineral Development and detailing the plan to be adopted and implemented by a mine for managing the environmental effects of the operations of the mine.

Environmental objectives: Those objectives that represent the desired state of environmental components that have been adopted for the mine.

Intensity of an environmental impact: The severity of the consequences of an environmental impact, as judged by suitably qualified persons.

Manager of a mine (general manager): Any competent person appointed in terms of the Mine Health and Safety Act, 1996 (Act 29 of 1996), to be responsible for the control, management and direction of a mine.

Rehabilitated land: Is defined as land that has previously been mined through or areas, which have been disturbed by the mining process. These areas have been sloped, covered with topsoil (where possible), fertilized (if needed), seeded and can support a sustained long-term vegetation cover.

Redundant: No longer required for mining operation.

Reliability: The probability that a specified event will not occur in a specified time (usually expressed as a ratio, when measured in quantitative terms).

Risk: The probability that a specified event, such as failure, will occur in a specified time.

Scheduled closure: Planned closure of the mine

Significant environmental impact: An impact in respect of which consultation (with the relevant authorities and other interested and affected parties) on the context and intensity of its effects provides reasonable grounds for mitigating measures to be included in the environmental management programme. Significance is determined by the integration of the context and intensity of the effects of the impact, and the likelihood that the impact will occur.

Topsoil: means the layer of soil covering the earth which –

(a) provides a suitable environment for the germination of seed;

(b) allows for penetration of water; and

(c) Is a source of microorganisms, plant nutrients and in some cases seed.

Unscheduled closure: The closure cost associated with immediate closure and provision.

LIST OF ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DMPR	Department of Mineral and Petroleum Resources
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMLM	Enoch Mgijma Local Municipality
EPA	Environmental Performance Assessment
EMPR	Environmental Management Program
I&AP's	Interested and Affected Parties
MPRDA	Mineral and Petroleum Resources Act, 2002 (Act No 28 of 2002)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
S102	Section 102 Amendment Application in terms of the MPRDA
TBIA	Terrestrial Biodiversity Impact Assessment
WCMR	Waste Classification and Management Regulations
WWF	World Wildlife Fund

1. INTRODUCTION

Queenstown Quarry entails the mining of a hard rock quarry over a portion of the Farm Lesseyton No 81, ±6 km west of Komani. The Right Holder applied for consent of the Minister to (amongst others) expand the mining footprint to 66.7419 ha in terms of Section 102 of the Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002).

Greenmined Environmental (Pty) Ltd ("Greenmined") is the consultants responsible for the Section 102 amendment application, and in support of this application, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted. This report (the Closure Plan) stipulates the rehabilitation methods to be followed in the restoration of Queenstown Quarry. The report was compiled in line with Government Notice 940 of the National Environmental Management Act, 1998 [NEMA] (Act No. 107 of 1998) together with Regulation 62 of the Minerals and Petroleum Resources Development Act, 2002 [MPRDA] (Act No. 28 of 2002). The information used in this report was sourced during the EIA process.

The purpose of this document is to provide site management with an Annual Rehabilitation Plan as well as the Final Rehabilitation, Decommissioning and Closure Plan, compiled in terms 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, 2015 (GN 1228, Financial Provision Regulations 2015) (as amended).

1.1 BACKGROUND INFORMATION

Queenstown Quarry was established in the 1970's over a portion of the farm Lesseyton No 81, within the Enoch Mgjima Municipal Area of the Eastern Cape. The old order mining licence (ML 15 / 96) was converted, and a mining right was granted to Queenstown Quarry (Pty) Ltd in 2015. The protocol number of the mining right is 179/2015 and the file reference number is EC 30/5/1/2/2/009 MR. The right is valid until 24 March 2045 and currently extends over 36.2505 ha.

Table 1: GPS Coordinates of the approved mining right area.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	31º53'21.00"	26º47'37.00"	-31.889167º	26.793611º
B	31º53'25.00"	26º47'57.00"	-31.890278º	26.799167º
C	31º53'35.00"	26º47'56.00"	-31.893056º	26.798889º
D	31º53'40.00"	26º47'48.00"	-31.894444º	26.796667º
E	31º53'41.00"	26º47'41.00"	-31.894722º	26.794722º
F	31º53'35.00"	26º47'28.00"	-31.893056º	26.791111º

Figure 1: Satellite view of the approved footprint (yellow polygon) of Queenstown Quarry where the white line shows the eastern and southern boundaries of the Farm Lesseyton No 81 (image obtained from Google Earth)

1.2 PROJECT PROPOSAL

The Right Holder applied for consent of the Minister to:

- update the 2011 EMPR; and
- expand the mining footprint;

, in terms of Section 102 of the MPRDA, 2002 (S102).

Should the S102 application (including EA) be approved, the Right Holder intends to expand the mining footprint to 66.7419 ha within the GPS coordinates as listed in the following table and depicted in the subsequent figure.

Table 2: GPS Coordinates of the proposed expansion area.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
Q1	31º53'11.72"	26º47'43.28"	-31.886589º	26.795356º
Q2	31º53'26.98"	26º48'05.98"	-31.890829º	26.801660º
Q3	31º53'45.03"	26º47'55.23"	-31.895841º	26.798676º
Q4	31º53'46.34"	26º47'34.27"	-31.896205º	26.792853º

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
Q5	31º53'35.00"	26º47'28.00"	-31.893056º	26.791111º
Q6	31º53'34.06"	26º47'25.13"	-33.892794º	26.790314º
Q7	31º53'29.75"	26º47'26.38"	-33.891597º	26.790661º
Q8	31º53'30.75"	26º47'30.35"	-33.891875º	26.791764º
Q9	31º53'21.00"	26º47'37.00"	-33.889167º	26.793611º

Figure 2: Satellite view of the proposed expansion area (blue polygon) in relation to the mining footprint (yellow polygon) (image obtained from Google Earth).

Upon approval of the Section 102 (S102) amendment application, the Right Holder will be able to extend the dolerite pit in a southern to south-eastern direction. The quartzite pit can be expanded towards the north and north-east.

The mining method employed at the Quarry will remain unchanged, with bench mining also being applied within the proposed expansion areas. Mining-related equipment and machinery expected to operate within the expansion areas will include, at minimum, the following:

- Dumper trucks;
- Earthmoving machinery;
- Excavation equipment; and
- Water cart/s.

The Quarry will occasionally operate two shifts per day, six days per week, resulting in operations extending beyond normal daytime working hours when required. Blasting will, however, be restricted to weekdays between 08:00 and 17:00.

1.3 OBJECTIVES OF THE CLOSURE PLAN

The purpose of the Closure Plan is to describe the rehabilitation processes that need to take place so the mine reaches its full environmental potential upon closure.

The primary objective, at the end of the mine's life, is to obtain a closure certificate in compliance with the requirements of the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) [MPRDA]. To realise this, the following main objectives must be achieved:

- Demolish and remove all buildings and/or infrastructure that will no longer be required by the landowner, as well as all waste material, in accordance with the requirements of this EMPr and/or the Provincial Department of Mineral and Petroleum Resources (DMPR).
- Shape and contour all disturbed areas in accordance with the approved Closure Plan.
- Ensure that permanent changes to the topography resulting from mining activities are sustainable and do not pose erosion risks or safety hazards to the landowner or surrounding community.
- Effectively utilise available topsoil to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining with adequate vegetation cover.
- Eradicate all invasive and alien plant species by intensive management of the mining area.

2. DETAILS OF THE AUTHOR

Queenstown Quarry (Pty) Ltd appointed Greenmined Environmental (Pty) Ltd to compile the Closure Plan for Queenstown Quarry. Ms Christine Fouché is the responsible consultant for the project and holds a Diploma in Nature Conservation and a B.Sc. in Botany and Zoology with twenty-one years' experience in doing environmental impact assessments and compliance monitoring in South Africa (see CV and proof of experience attached as Appendix N to the BAR & EMPR).

Name of the Practitioner: Ms Christine Fouché (Senior Environmental Specialist)
Tel No: 021 851 2673

E-mail address: christine.f@greenmined.co.za

Declaration of Independence:

I, Christine Fouché, in my capacity as environmental assessment practitioner declare that–

- I act as independent environmental officer in this matter;
- I will perform the work relating to this matter in an objective manner, even if the results and findings are not favourable to the holder of the authorisation;
- I have expertise in conducting environmental related projects, including knowledge of the Act and regulations that have relevance to the activity;
- I will adhere to and comply with all responsibilities as indicated in the National Environmental Management Act and Environmental Impact Assessment Regulations.
- I do not have and will not have any vested interest in the activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014 (as amended).

Christine Fouché Date: 11 August 2026

3. LEGAL BACKGROUND AND BEST PRACTICES

This section provides an overview of the legislative requirements applicable to the project, including the acts, guidelines and policies considered in the compilation of the Closure Plan.

3.1 THE CONSTITUTION OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996)

The legislative motivation for this project is underpinned by The Constitution of South Africa, 1996 (Act No. 108 of 1996), which establishes a duty on the State to respect, protect, promote, and fulfil the rights enshrined in the Bill of Rights, as set out in Section 7(2).

Section 24 of the Constitution – Environment

Section 24 states that:

Everyone has the right-

(a) to an environment that is not harmful to their health or well-being; and

(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-

(i) prevent pollution and ecological degradation;

(ii) promote conservation; and

(iii) secure ecologically sustainable development and use of natural resources while promoting a justifiable economic and social development.

This constitutional provision requires that activities which may significantly affect the environment must be assessed and authorised in accordance with applicable legislation to ensure environmental protection and sustainable development.

In addition, Section 24 of the Constitution forms the basis for national environmental management legislation, such as the National Environmental Management Act, 1998 (Act No. 107 of 1998), which empowers the Minister of Forestry, Fisheries and the Environment (or relevant MECs) to identify:

- New activities that require environmental authorisation;
- Areas within which specified activities require environmental authorisation; and
- Existing activities that require assessment and reporting to ensure compliance with environmental standards.

3.2 THE MINERALS AND PETROLEUM RESOURCES ACT, 2002 (ACT NO. 28 OF 2002) [MPRDA]

The table below summarises the relevant sections in terms of the MPRDA, 2002.

Table 3: Summary of the relevant rehabilitation sections of the MPRDA, 2002

SECTION	REQUIREMENT	DISCUSSION
Section 37	Environmental Principles	Requires that the principles in Section 2 of NEMA apply to all prospecting and mining operations. Also obliges sustainable development by integrating social, economic, and environmental factors into planning and implementation.
Section 38	Integrated Environmental Management	Requires mining right holders to manage environmental impacts in accordance with their approved EMPrs. Ensures environmental management throughout the lifecycle of operations.
Section 39	Environmental Management Programme (EMPr)	Details requirements for an EMPr, including baseline assessments, mitigation measures, closure objectives, and financial provisioning to manage environmental impacts. Note: Under One Environmental System (2014), EMPrs are submitted under NEMA but these MPRDA provisions still provide context.
Section 41	Financial Provision	Requires holders to provide financial provision for rehabilitation before commencing operations. Also requires annual assessment of environmental liability to ensure adequacy of financial provisioning.

SECTION	REQUIREMENT	DISCUSSION
Section 42	Consultation with Landowners and Interested Parties	Requires consultation with landowners and lawful occupiers regarding environmental management and closure.
Section 43	Closure and Closure Certificate	States that a mining right holder remains responsible for environmental liabilities until a closure certificate is issued. Requires application to the Regional Manager and verification that final rehabilitation, decommissioning, and closure objectives have been met.
Section 44	Removal of Infrastructure	Prohibits removal of buildings, structures, or objects without approval when operations end, ensuring that remaining infrastructure is either properly decommissioned or retained for post-mining land use where beneficial.
Section 45	Minister's Responsibility for Remediation	Provides that if a holder fails to rehabilitate or remediate environmental damage, the Minister may undertake such work and recover costs from the holder.

3.2.1 Mineral Petroleum Resources Development Regulations, 2004 (GN R. 527 of 23 April 2004)

In terms of Government Notice R.527 of 23 April 2004 (MPRDA Regulations), the following closure objectives must be incorporated into an EMPr:

- "Identify key objectives for closure to guide project design and operational management";
- "Develop measures to manage environmental impacts during operations and closure";
- "Provide future land use objectives for the site post-closure"; and
- "Provide proposed closure costs to inform financial provisioning".

Note: Under the One Environmental System, EMPRs are now compiled in terms of the NEMA EIA Regulations, which integrate these requirements with updated financial provision and closure planning standards.

The table below summarises the relevant sections.

Table 4: Summary of the relevant sections of the Mineral Petroleum Resources Development Regulations, 2004

SECTION	REQUIREMENT
Regulation 62 (Chapter 3, Part IV)	EMPrs must include closure objectives, proposed final land uses, management of residual and latent impacts, and detailed costing for closure to ensure financial provisioning aligns with operational and closure requirements.
Regulation 56-59 (Part III:	Sets out processes for compiling, assessing, and approving EMPrs.

SECTION	REQUIREMENT
Environmental Management Plans)	
Regulation 60-63 (Part IV: Environmental Management Programmes)	Details content of EMPrs including closure objectives, environmental risk management, and progressive rehabilitation.

3.2.2 Closure Certificate Process (Section 43)

The requirements for issuing a closure certificate is contained in Section 43 of the MPRDA as summarised below:

1. Application to the Regional Manager upon cessation of mining activities.
2. Demonstration of compliance with EMPr commitments, including final rehabilitation and mitigation of residual impacts.
3. DMPR inspection to verify closure implementation.
4. Issuance of certificate to formally release holder from ongoing environmental liabilities, except for latent or residual environmental impacts.

Under the One Environmental System, environmental authorisation (including closure activities) is regulated under NEMA, but closure certificates remain issued under the MPRDA by DMPR.

3.3 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998) [NEMA]

The following sections of NEMA are relevant.

Table 5: NEMA, 1998 applicable sections

SECTION	REQUIREMENT	DISCUSSION
Section 2	Environmental Management Principles	All decisions and activities must integrate environmental, social, and economic factors to ensure sustainable development.
Section 24	Environmental Authorisation	Requires activities listed in the EIA Regulations (including mine closure activities) to undergo environmental impact assessments and obtain authorisation prior to commencement.

SECTION	REQUIREMENT	DISCUSSION
Section 24P	Financial Provisioning	Holders of environmental authorisations for mining operations must make financial provision for rehabilitation, closure, and remediation of environmental damage, reviewed annually.
Section 28	Duty of Care	Any person who causes, has caused, or may cause significant pollution or degradation must take reasonable measures to prevent, minimise, or remedy such damage.
Section 44	Regulations	Empowers the Minister to make regulations regarding rehabilitation, closure, and financial provisioning for mining and related activities.

3.3.1 NEMA Financial Provisioning Regulations (GN R. 1147 of 2015, amended)

The National Environmental Management Act (NEMA) Financial Provisioning Regulations, initially published as GNR 1147 in Government Gazette 39425 on 20 November 2015, required holders of mining rights, permits, and authorisations to make financial provision for rehabilitation, decommissioning, closure, and remediation of environmental damage. A transitional period of 39 months was originally provided, with the initial compliance date set for 19 February 2019, later extended multiple times, with the most recent extension moving the compliance deadline to 19 February 2024 in terms of GNR 1889 of 2022.

The draft Financial Provisioning Regulations, 2021, and subsequent draft amendments published in 2022 and 2023, indicate that the finalisation of new regulations is imminent, with an emphasis on risk-based costing, concurrent rehabilitation, and improved auditing and reporting standards.

In terms of these regulations, the MR Holder must annually review and update their financial provision assessments to cover:

- Annual rehabilitation (progressive rehabilitation during operations)
- Final rehabilitation and decommissioning
- Remediation of latent and residual environmental impacts

These updates must comply with the format and minimum content requirements stipulated in the regulations, including detailed cost tables and calculations similar to those set out in Appendix 5 (Annual Rehabilitation Report) and Appendix 6 (Final Rehabilitation, Decommissioning and Remediation Report) of the 2015 regulations.

The upcoming revised regulations are expected to replace the 2015 provisions, introducing more flexible financial instruments, enhanced auditing obligations, and stronger alignment with mine closure objectives under the One Environmental System.

3.3.2 NEMA EIA Regulations (GN R. 982, as amended)

Under the NEMA EIA Regulations, the decommissioning and closure of facilities, including mining infrastructure and associated activities, may trigger listed activities under Listing Notices 1, 2, or 3, requiring environmental authorisation prior to implementation. Furthermore, Part 3 (Regulations 31 to 35) of the EIA Regulations specifies the requirements and procedures for obtaining amendments to existing environmental authorisations or obtaining specific decommissioning authorisations related to mine closure.

3.3.3 NEMA Waste Act, 2008 (Act No 59 of 2008) [NEM:WA]

The rehabilitation measures must align with the objectives of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA), which aims to protect health, well-being, and the environment by providing reasonable measures for minimising natural resource consumption, avoiding and minimising waste generation, promoting waste reduction, re-use, recycling, and recovery, treating and safely disposing of waste as a last resort, preventing pollution and ecological degradation, securing ecologically sustainable development while promoting justifiable economic and social development, ensuring effective delivery of waste services, remediating land where contamination presents or may present a significant risk to health or the environment, and achieving integrated waste management reporting and planning.

It further aims to ensure that people are aware of the impact of waste on their health, well-being, and the environment, provides for compliance with these measures, and generally gives effect to Section 24 of the Constitution to secure an environment that is not harmful to health and well-being.

The Waste Classification and Management Regulations, 2013 (GNR 634), promulgated under NEM:WA, facilitate the implementation of the waste hierarchy to divert waste away from landfill towards re-use, recovery, and treatment, separate waste classification from waste management, and provide measures to monitor progress. These regulations enable improved and efficient waste classification and management, safe and appropriate handling, storage, recovery, re-use, recycling, treatment, and disposal of waste, and facilitate accurate reporting on waste generation and management. All waste generators, excluding domestic generators,

must classify the waste they generate within 180 days of generation, while wastes classified under the previous “Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste” (DWAF, 1998) must be re-classified and assessed within three years of the commencement of these regulations.

Additionally, Part 8 of Chapter 4 of NEM:WA introduces a legal regime for identifying contaminated land, determining its status and risks, and regulating the remediation process. It obliges owners of significantly contaminated land to report such contamination, imposes obligations on both landowners and polluters with potential financial consequences, and applies where pollution manifests after contamination has occurred or where activities such as excavation change pre-existing contamination. This part is supported by norms and standards for remediation of contaminated land and soil quality, specifying soil screening values for human health and environmental protection. Importantly, it also affects land sales, as sellers who knowingly fail to disclose contamination commit an offence under this Act.

3.4 THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) [NWA]

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide for the management of South Africa’s national water resources to achieve sustainable and equitable use for the benefit of all water users. The Act requires that water resources are protected to ensure their quality and availability, promotes integrated water resources management, and provides for the delegation of powers to institutions at regional or catchment level to enable effective governance. The purpose of the NWA is to ensure that the nation’s water resources are protected, used, developed, conserved, managed, and controlled in ways that take into account the meeting of basic human needs of present and future generations, the promotion of equitable access to water, the redress of the results of past racial and gender discrimination, the sustainable use of water to benefit all users, the facilitation of social and economic development, and the protection of aquatic and associated ecosystems and their biological diversity.

The following sections of the NWA, 1998 are relevant.

Table 6: NWA, 1998 applicable sections

SECTION	REQUIREMENT	DISCUSSION
Section 19	Pollution Prevention	Imposes a duty on any person who owns, controls, occupies, or uses land to take reasonable measures to prevent pollution of water resources from occurring, continuing, or recurring. Where pollution cannot be prevented, appropriate measures must be taken to minimise and rectify it.

SECTION	REQUIREMENT	DISCUSSION
Section 20	Emergency Incidents	Requires any person responsible for a polluting incident, or any other incident which detrimentally affects a water resource, to report it immediately and to take reasonable measures to contain and minimise the effects, undertake clean-up, and remedy the situation.
Section 21	Water Uses	Defines water uses that require authorisation, including activities such as taking or storing water, impeding or diverting flow, discharging waste or water containing waste into a water resource, disposing of waste in a manner that may detrimentally impact a water resource, altering the bed, banks, course or characteristics of a watercourse, removing underground water, or activities that may impact water quantity or quality.
Section 22	Water Use Authorisation	Specifies that a water use must be authorised by a general authorisation or licence or be permissible under Schedule 1. Authorisation includes compliance with conditions set by the Department of Water and Sanitation.

3.5 ADDITIONAL LEGISLATION RELEVANT TO MINE REHABILITATION

- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983);
- Mine Health and Safety Act, 1996 (Act 29 of 1996)
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEM:BA)
- National Forests Act, 1998 (Act 84 of 1998)
- National Heritage Resources Act, 1999 (Act 25 of 1999)
- Occupational Health and Safety Act, 1993 (Act 85 of 1993)

3.6 BEST PRACTICE AND INTERNATIONAL GUIDELINES

Mine closure remains a global environmental and socio-economic challenge, with regulatory frameworks and best practice continuously evolving to address legacy impacts, sustainability, and social transition. In South Africa, several key guidelines and regulations guide mine closure planning and implementation.

The Department of Mineral and Petroleum Resources (DMPR) has published the “Financial Provisioning Regulations” (GNR. 1147 of 2015, as amended) under the National Environmental Management Act (NEMA), which outline requirements for financial provisioning to manage rehabilitation, decommissioning, and closure obligations. These regulations aim to ensure that funds are available for environmental liabilities throughout the mine’s life and post-closure. The DMPR Mine Closure Guidelines (2005) remain a formal reference under Regulation 54(1) of the Mineral and

Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), particularly for closure cost assessments. However, an updated national mine closure guideline is under development to align with integrated environmental management and the One Environmental System approach.

The Council for Geoscience (2020) has advanced work on the National Mine Closure Strategy, which focuses on risk-based closure planning, prioritisation of high-risk sites, and sustainable post-mining land use to reduce South Africa's burden of derelict and ownerless mines.

Internationally, the ICMM (International Council on Mining and Metals) 2019 "Integrated Mine Closure: Good Practice Guide" (2nd edition) sets out industry-leading principles for closure planning. This guide emphasises:

- Early integration of closure into project design.
- Stakeholder engagement to support post-mining land use goals.
- Progressive rehabilitation to reduce residual liabilities.
- Social transition planning to mitigate economic impacts on communities post-closure.

Similarly, the Australian Department of Industry, Science, Energy and Resources (2021) published its "Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure" guideline. This updated document reaffirms that mine closure planning should begin during the project's feasibility stage and continue as an iterative process throughout the life of mine. This ensures realistic final landform designs, cost-effective rehabilitation, and effective relinquishment pathways.

The World Bank (2018) in its report "Mine Closure: A Checklist for Governments" highlights that successful mine closure requires a combination of regulatory oversight, enforceable financial provision mechanisms, clear accountability for closure outcomes, and planning for post-mining economic diversification to avoid ghost towns or socio-economic decline.

Finally, the WWF-SA (2012) discussion document remains relevant in emphasizing financial adequacy for closure, but newer research by Centre for Environmental Rights (CER, 2019) and WWF-SA (2020) has stressed the persistent gaps in financial provision compliance and the urgent need for enforceable closure strategies to prevent the proliferation of abandoned mines.

4. ENVIRONMENTAL AND PROJECT CONTEXT

4.1 PROJECT LOCATION

Table 7: Location of the activity.

Farm Name	Lesseyton No 81		
Mining Area (Ha)	Once the expansion (S102) application is approved the mining area will be 66.7419 ha. ♦ Approved Mining Footprint = 36.2505 ha ♦ S102 Expansion Area = 30.4914 ha ♦ Total Expanded Footprint = 66.7419 ha		
Magisterial District	Chris Hani District (Enoch Mgijima Local Municipality)		
Distance and direction from the nearest town	Queenstown Quarry is situated ±6 km west of Komani central along the N6 National Road.		
21 digit Surveyor General Code for each farm portion	C06200010000008100000		
Mining Right Site Coordinates	A	31º53’21.00”	26º47’37.00”
	B	31º53’25.00”	26º47’57.00”
	C	31º53’35.00”	26º47’56.00”
	D	31º53’40.00”	26º47’48.00”
	E	31º53’41.00”	26º47’41.00”
	F	31º53’35.00”	26º47’28.00”
S102 Extension Area Coordinates	Q1	31º53’11.72”	26º47’43.28”
	Q2	31º53’26.98”	26º48’05.98”
	Q3	31º53’45.03”	26º47’55.23”
	Q4	31º53’46.34”	26º47’34.27”
	Q5	31º53’35.00”	26º47’28.00”
	Q6	31º53’34.06”	26º47’25.13”
	Q7	31º53’29.75”	26º47’26.38”
	Q8	31º53’30.75”	26º47’30.35”

	Q9 31º53’21.00”	26º47’37.00”

Figure 3: Satellite view of Queenstown Quarry mining footprint (yellow polygon). The Section 102 Extension Area is indicated by the blue polygon (image obtained from Google Earth).

4.2 SITE ESTABLISHMENT PHASE

Queenstown Quarry has been in operation since the 10970s. As such, the site has already undergone full establishment in accordance with the applicable regulatory requirements.

Should the expansion application be approved the mining method will remain unchanged. No additional infrastructure needs to be established in the expansion area as the motivation for the proposed extension is to expand the excavation perimeters. The Right Holder will continue to use the existing offices, workshops, storerooms, plant etc. of the Quarry and therefore no construction/site establishment phase is applicable.

4.3 OPERATIONAL PHASE

4.3.1 Site Infrastructure

Queenstown Quarry has well established buildings and infrastructure on site. The following main areas are defined at the mine:

A. Site offices, parking area, and weighbridge;
B. Staff Change Rooms & Kitchen;
C. Workshop, wash bay and stores;
D. Gas Storage Cages;
E. Loading area;
F. Diesel depot;
G. Various stockpile areas;
H. Crushing plant area;
I. Washing plant area;
J. Plant Control Rooms;
K. Salvage yard;
L. Quartzite quarry;
M. Dolerite quarry;
N. Settling pond.

Figure 4: Satellite view of the various developed areas at Queenstown Quarry where the yellow polygon presents the current mining footprint (image obtained from Google Earth).

4.3.1 Process Description

The Queenstown Quarry operation is an opencast mine in which quartzite and dolerite are extracted from two separate excavations. Following the removal of topsoil (where present) and overburden, both rock types are mined using conventional drilling and blasting methods. Topsoil and overburden are stockpiled separately at designated stockpile areas and are utilised for the progressive rehabilitation of mined-out sections as required.

The blasted material is loaded onto haul trucks and transported to a primary crusher, after which it is conveyed to the relevant secondary processing plants. Here, the material is crushed, washed, screened, and stockpiled. Finished products are loaded onto clients' trucks and dispatched via a weighbridge to ensure compliance with load limits. The resulting quartzite and dolerite aggregates are primarily supplied to the construction sector.

4.3.2 Water Use

Potable Water

Potable water is pumped from the excavations to a storage tank, where it undergoes treatment through a water purification plant before being supplied for employee use.

Process Water

Process water for dust suppression and use at the washing plant is also obtained from the excavations. The water used at the plant for washing and screening of the material is pumped to an adjacent settling pond. The overflow of the pond is then piped back into the quartzite quarry for recirculation.

Sanitation and Wash Bay

Sanitation at the Quarry is provided through the use of enclosed septic tanks that are serviced when needed.

Berms and channels within the workshop and service bay area keep clean water out and direct the dirty water into a catchment trap with an oil separator.

Stormwater

The mine uses berms and channels to separate clean- and dirty water from the various operational areas that may originate due to stormwater runoff. Dirty water areas include the:

- workshop and service bay area;
- diesel depot;
- sanitation tanks;
- plant and stockpile area; and
- overburden and topsoil areas.

The stormwater berms are carefully graded and vegetated to slow the flow of clean water and minimize erosion. Coarser material is strategically incorporated to create seepage points within the berms, which trap sediment while allowing filtered water to pass through. Dirty water is contained in the oil sump, settling pond and/or septic tanks.

4.3.3 Electrical Requirements

The electricity for the plant, workshops, and administration offices is provided by Eskom. Generators are used as back-up power when needed.

4.3.4 Waste Management

The mine generates limited amounts of general- and hazardous waste. The Right Holder has an integrated waste management policy, and the company strives to recycle where possible.

Presently, waste is separated into waste that can be re-used, recycled, and those that must be removed from the site. General waste (that cannot be reused on site) is removed to the Komani municipal landfill site. Hazardous waste is removed from site by qualified hazardous waste handling contractors.

Waste materials that can be reused/recycled is stored at the salvage yard of the mine until needed.

4.4 SECTION 102 APPLICATION

Should the expansion application be approved the mining method will remain unchanged. No additional infrastructure needs to be established in the expansion area as the motivation for the proposed extension is to expand the excavation perimeters. The Right Holder will continue to use the existing offices, workshops, storerooms, plant etc. of the Quarry and therefore no construction/site establishment phase is applicable.

4.5 TOPOGRAPHY

The broader region surrounding Queenstown Quarry is characterised by moderately undulating terrain typical of the interior Eastern Cape. Elevations generally range between 1 050 m and 1 350 m above sea level (masl), with the landscape comprising a combination of gently sloping valley floors and more pronounced ridges. The area forms part of the upper reaches of the Great Kei River system, and the river and its tributaries have shaped a series of valleys separated by rolling hills. Overall, the regional topography can be described as moderately dissected, with a clear distinction between flatter valley bottoms and surrounding higher-lying slopes and ridgelines.

The topography at Queenstown Quarry (existing operation) varies between 1 207 mamsl in the south-east (being the highest point) and 1 138 mamsl in the north-west (the lowest point). The current

topography is largely unnatural as a result of the mining activities that resulted in steep gradients; most obvious on the sides of the pits.

The proposed S102 application area extends beyond the current mining right to include land located to the north-east, east and south of the existing quarry. The area is characterised by a combination of previously disturbed quarry land and adjoining natural terrain that has not yet been affected by mining activities.

The most prominent topographic feature within the application area is an elevated ridge situated in the central to eastern portion of the site, with elevations reaching approximately 1 275 mamsl. This ridge forms the highest point within the application area and separates the existing quarry from the relatively undisturbed eastern extent. To the north-east, the terrain is comparatively gentle, gradually sloping from approximately 1 128 mamsl towards the existing quarry workings. The southern portion of the application area comprises gently undulating ground that transitions into the existing excavated areas.

The proposed expansion area encompasses both elevated ground and lower-lying slopes, resulting in an overall elevation range of approximately 1 117 mamsl to 1 275 mamsl. The existing quarry excavation occupies the western portion of the application area, where the natural landform has already been substantially modified through the development of benches, quarry faces and haul roads. In contrast, the far eastern and southern portions remain largely representative of the natural topography and have not been subjected to mining-related earthworks.

Should the proposed amendment to the mining right be approved, future quarry development would progressively extend into these currently undisturbed areas. Expansion towards the north-east, east and south would result in the gradual excavation of the natural hillside and ridge, replacing the existing landform with engineered quarry benches and excavation faces. The most pronounced topographic change would occur within the eastern portion of the application area, where the elevated ridge would be progressively reduced as extraction advances. The southern expansion would extend the existing quarry footprint into lower-lying terrain, while the north-eastern expansion would modify the gently sloping ground adjoining the current workings.

Figure 5: Elevation profile of the proposed expansion area (Image obtained from Google Earth).

4.6 VISUAL CHARACTERISTICS

The quarry is located on a prominent ridge immediately west of Komani and has been in operation since the 1970s. The surrounding landscape is characterised by gently undulating plains interspersed with prominent ridges, resulting in elevated landforms being visible over relatively long distances. The existing quarry has consequently become an established visual feature within the local landscape.

The proposed expansion will extend quarrying activities within the existing operational area and along the same ridgeline that has historically been mined. As such, the development is not expected to introduce a new landscape element but will extend an existing and established visual feature. Notwithstanding this, the exposure of additional rock faces and working areas will remain visually evident from a number of surrounding viewpoints and the visual impact is therefore expected to persist for the duration of mining and to a certain extent post-mining.

4.7 AIR AND NOISE QUALITY

The existing Queenstown Quarry has been operational for several decades and currently contributes to the site's ambient air quality and acoustic environment through routine quarrying activities. Air

emissions are primarily associated with drilling, blasting, excavation, loading, hauling, crushing, screening and the movement of vehicles along unpaved haul roads. These activities generate dust and combustion-related emissions typical of hard-rock quarrying operations and occur intermittently in accordance with production requirements.

Similarly, the existing noise environment within and immediately surrounding the quarry is influenced by operational activities including drilling, blasting, crushing, screening, loading, hauling and the operation of fixed and mobile plant. Blasting is restricted to weekdays between 08:00 and 17:00, while excavation, hauling, crushing, screening and associated maintenance activities may continue during extended shifts when production requirements necessitate it. The intensity and duration of these activities vary according to production demands and market requirements.

To monitor the effectiveness of the implemented environmental management measures, the quarry currently operates a comprehensive air quality monitoring programme comprising fallout dust monitoring, occupational gravimetric dust monitoring and a continuous real-time air quality monitoring system. These monitoring programmes provide ongoing information regarding dust generation and enable operational controls to be implemented where necessary. Occupational noise exposure of employees is similarly monitored by a qualified Occupational Hygienist in accordance with the applicable occupational health and safety requirements.

The proposed expansion does not introduce a new mining method, processing technology or operational activity. While operational activities will progressively extend into the approved expansion area as mining advances, the nature, characteristics and management of the emissions are expected to remain consistent with those currently experienced at the site. The existing monitoring programmes and operational controls will continue to provide a mechanism for monitoring environmental performance throughout the life of the quarry and for identifying any trends that may require additional management measures.

4.8 GEOLOGY AND SOIL

(*Information extracted from the Queenstown Quarry – Resource-Reserve Estimation, MLB Consulting 2026.)*

Although the Adelaide Subgroup consists mainly of sandstones and red mudstones, the quarry is found in a dolerite intrusion within the Middleton Formation. The targeted commodities of interest in the quarry are therefore the dolerite and quartzite, which forms the majority of the rock mass of the quarry.

The dolerite deposit at Queenstown Quarry is a competent rock mass deposit with a general trend of increased competence the deeper the working levels become. Above the competent intact dolerite is

a weathered zone (varying in thickness) consisting of weathered dolerite and a veneer of clayey and silty colluvial and alluvial deposits. The typical Karoo dolerite, i.e., a medium to fine grained, hard igneous rock with the pyroxene and plagioclase crystals in the matrix exhibiting strong interlocking ophitic intergrowths has a small percentage of interstitial quartz grains that enhances the hardness of the rock.

The quartzite deposit at Queenstown Quarry is a competent rock mass deposit with a general trend of increased competence, the deeper the working levels become. Above the competent intact quartzite is a weathered zone (varying in thickness) consisting of weathered dolerite and a veneer of clayey and silty colluvial and alluvial deposits. The typical Karoo quartzite is a medium- to fine-grained, hard, competent, low-grade metamorphic meta-sedimentary rock predominantly composed of recrystallized quartz grains exhibiting strong interlocking textures. Minor feldspar grains may locally occur within the quartz-rich matrix. The rock mass is generally dense, silica-rich, and mechanically competent, with brittle failure characteristics typical of quartzitic lithologies.

4.9 HYDROLOGY

The study area is situated in the Kei sub-water management area that forms part of the greater Mzimvubu to Kieskamma Water Management Area (ID 21). According to the National Freshwater Ecosystem Priority Areas (NFEPA) map as presented by SANBI, the NFEPA status of the study area is classified as a no priority area.

The Klaas Smits River passes the study area ±1.8 km to the west, but no rivers or other natural open water sources is present in the proximity to the mining area.

According to Vegter (1995b), the mean depth to the water table in the region of the site is 10 m to 20 m below surface, with a standard deviation of 8 m to 15 m.

No rivers, streams, wetlands or other natural surface water features occur within either the existing operational footprint or the proposed expansion area. Surface runoff generated within the quarry is managed through the established stormwater management system and internal drainage infrastructure designed to minimise erosion and prevent the uncontrolled discharge of sediment-laden runoff.

4.10 TERRESTRIAL BIODIVERSITY

There are two regional vegetation types in the study area, namely Queenstown Thornveld (Gs16) and Tarkastad Montane Shrubland (Gs17).

The Terrestrial Biodiversity Impact Assessment (TBIA) (Appendix E of the BAR & EMPR) confirmed that the site comprises the existing transformed quarry workings surrounded by natural vegetation occurring in different ecological condition states. A distinct difference was identified between the vegetation associated with the ridge and rocky outcrops and that occurring on the plains, particularly between the existing quarry and the N6 National Road.

The ridge and associated rocky outcrops are relatively intact and in good ecological condition. The ridge has a high ecological value and provides biodiversity habitat and connectivity, while the rocky outcrops provide specialised microhabitats, including potential habitat for Species of Conservation Concern.

In contrast, the plains between the existing quarry and the N6 are in poor ecological condition as a result of long-term secondary impacts associated with the quarry, severe livestock overgrazing and surrounding land uses. These pressures have resulted in reduced vegetation cover, soil erosion and changes in vegetation composition and structure and are expected to continue irrespective of whether the proposed quarry expansion proceeds.

The intact ridge and rocky outcrops have a higher ecological value, while the degraded plains make a substantially reduced contribution to biodiversity pattern and ecological processes. The existing quarry workings are transformed and have very low current habitat value.

The TBIA confirmed that the remaining natural vegetation within the proposed expansion area occurs within mapped CBA2 and that ecological condition varies across the site. The plains between the existing quarry and the N6 are substantially degraded, while the ridge and associated rocky outcrops are relatively intact and have higher ecological value.

The proposed expansion will result in the permanent loss of portions of both degraded CBA2 plains habitat and relatively intact CBA2 ridge habitat. The specialist assessed both impacts as Low significance, as the affected areas represent a small proportion of the broader CBA2 network and their loss is not expected to fragment the network or materially affect landscape-scale ecological connectivity or processes.

The TBIA further concluded that the proposed expansion can be accommodated without materially compromising the ecological functionality of the CBA2 network, provided that mining and associated activities remain confined to the approved footprint. The likelihood of impacts on terrestrial plant and animal Species of Conservation Concern was also determined to be low.

4.11 CULTURAL AND HERITAGE ENVIRONMENT

No sites of cultural or archaeological interest occur in the mining area.

A detailed pedestrian Heritage Impact Assessment (HIA) was undertaken by Mr Coetzee, a qualified archaeologist, across the proposed expansion area to identify any archaeological, historical or cultural heritage resources that may be affected by the proposed development. The survey covered the accessible portions of the application area, with only limited exclusions where existing quarry operations or steep terrain restricted access.

The field investigation did not identify any archaeological sites, isolated artefacts, historical structures, graves or other heritage features within the proposed mining footprint. Similarly, no Stone Age or Iron Age artefacts, assemblages, features or settlements were recorded during the survey. The application area is therefore considered devoid of identifiable surface heritage resources based on the findings of the site inspection.

A desktop Palaeontological Impact Assessment (PIA) was undertaken to verify the palaeontological sensitivity of the application area. The assessment indicates that the existing quarry and proposed expansion area are situated predominantly on Jurassic dolerite, with portions of the site mapped as overlying the Burgersdorp Formation. The existing quarry extracts dolerite, which is regarded as non-fossiliferous.

Based on the geological characteristics of the site and the absence of previously recorded fossil occurrences associated with the resources, the specialist verified the palaeontological sensitivity of the application area as Low.

4.12 SOCIO-ECONOMIC CONTEXT

The mining area is in Ward 18 of the Enoch Mgijima Local Municipality (EMLM). The EMLM is a Category B Municipality in the Chris Hani District of the Eastern Cape Province. The municipality was formed in 2016 by merging Tsolwana, Inkwanca, and Lukhanji municipalities. It is the largest local municipality in the district and serves as an important regional node due to its transport links (road, rail, small airport) and rural–urban mix.

The historical GDP growth of the EMLM has been weak or slightly negative, below provincial and national averages, indicating limited economic expansion. The key sectors include agriculture, government services, retail, community services, and finance/business. Some areas act as economic hubs, while others lag with underdeveloped infrastructure.

Overall, the Enoch Mgijima Local Municipality is a demographically growing area with mixed socio-economic conditions. It has important regional potential due to its geography and service access improvements, but continues to grapple with structural economic challenges, high unemployment, poverty, and uneven service delivery. Effective planning and sustained investment in infrastructure, education, and job creation are central to improving socio-economic outcomes in the municipality.

5 ANNUAL REHABILITATION PLAN

Appendix 3 to the Financial Provision Regulations, 2015 (as amended) 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.

5.1 IMPLEMENTATION AND REVIEW TIMEFRAMES

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

5.2 MONITORING RESULTS

5.2.1 Blast Monitoring

Ground vibrations generated during blasting are monitored using calibrated blast vibration monitoring equipment installed at strategic locations. Parameters such as peak particle velocity (PPV) and dominant frequency are recorded for each blast. The data is subsequently analysed and presented in a formal report, which assesses compliance with the United States Bureau of Mines (USBM) guidelines (RI 8507, 1980). This monitoring process is implemented to ensure that vibration levels remain within permissible limits, thereby safeguarding nearby infrastructure and reducing potential environmental impacts.

5.2.2 Fallout Dust Monitoring

Queenstown Quarry currently operates four dustfall monitoring units located near the boundary of the mining area, positioned to account for prevailing wind directions and surrounding receptor locations, as indicated in the figure below.

Figure 6: Dust Fallout Monitoring network – Queenstown Quarry.

Dustfall monitoring results are interpreted in relation to the sensitivity and land use characteristics of the receptor represented by each monitoring location. The monitoring units are located within or adjacent to operational mining areas and are representative of non-residential land uses. Dustfall results recorded at these monitoring locations are therefore assessed against the applicable non-residential dustfall limit of 1 200 mg/m²/day (30-day average).

The quarry also implements a real-time air quality monitoring system as part of its ongoing dust management and environmental compliance programme. The system will provide continuous monitoring of ambient air quality conditions within and around the quarry operational area to support proactive dust control and environmental management measures.

5.2.3 Water Quality Monitoring

Queenstown Quarry implements a water quality monitoring programme that includes the annual testing of water samples taken from the wash bay oil sump to screen for the presence of hydrocarbons, ensuring that potential contamination is promptly identified and addressed. The water quality of the quarry pit is also monitored to track any changes that may arise from

mining-related activities. These monitoring efforts form part of the quarry's broader commitment to environmental compliance and pollution prevention. All laboratory results and associated records are maintained on site and are readily available for auditing and regulatory review.

5.2.4 Control of Invasive Alien Vegetation

The Right Holder continuously monitors the mining footprint for the invasion of alien vegetation in accordance with the Alien Invader Plant Species Management Plan for the site (Appendix J of the BAR & EMPR). This practice will continue throughout the site establishment-, operational-, and decommissioning phases of the project.

5.3 SHORTCOMINGS IDENTIFIED

Currently, no shortcomings were identified that require amendment of the Annual Rehabilitation Plan in terms of the Financial Provision Regulations, 2015 to be submitted to DMPR for approval. Site management must take note that rehabilitated areas must be managed as no-go areas to allow the re-establishment of the cover crop. Rehabilitation is only deemed successful once the cover crop is well established.

5.4 REHABILITATION ACTIVITIES FOR FORTHCOMING 12 MONTHS

Although this Closure Plan must still be approved as part of the Section 102 amendment application to expand the footprint of the mine, site management will continue to rehabilitate the western side of the quartzite quarry during the next 12 months. The oversize rock and unwanted material removed from the north-eastern side of the dolerite quarry (amongst others) are used to develop a safety berm at the quartzite quarry.

5.5 REVIEW OF PREVIOUS YEAR'S REHABILITATION ACTIVITIES

As mentioned earlier, site management is still in the process of rehabilitating the area to the west of the quartzite quarry as proposed in the 2025 Annual Rehabilitation Plan.

5.6 COSTING

The cost of the proposed progressive rehabilitation (for the 2026/2027 period) is included in the following table. The mine will also continue to monitor fallout dust, noise generation and water quality.

Table 8: Annual rehabilitation and monitoring related cost.

PROPOSED ANNUAL MONITORING COST	
ITEM	**COST (2026)**
Progressive Rehabilitation at Quartzite Quarry	±R 311 000.00
Blast Monitoring	No additional cost
Fallout Dust Monitoring	±R 84 800.00
Water Quality Monitoring	±R 5 850.00
TOTAL	±R 401 650.00

5 REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The objective of the final rehabilitation, decommissioning and mine closure plan (according to MPRDA) 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)

The following objectives are leading closure indicators, which need to be applied across all the domains, and read in conjunction with the principles, which embody the strategic objectives. The closure plan must address all the areas associated with closing the operations, of which rehabilitation and re-vegetation forms part of a component. The first step in developing the overall mine closure strategy is to identify potential post mining land use options and establish key objectives for closure to be incorporated in the project design.

The preferred post mining land use for the mine is to establish a self-sustaining landform capable of supporting a range of land uses, with agriculture or residential development identified as a potential option. In this context, the primary objectives for the closure of the mining operations are:

- Demolish and remove all buildings and/or infrastructure that will no longer be required by the landowner, as well as all waste material, in accordance with the requirements of this EMPr and/or the Provincial Department of Mineral and Petroleum Resources (DMPR).
- Shape and contour all disturbed areas in accordance with the approved Final Closure Plan.
- Ensure that permanent changes to the topography resulting from mining activities are sustainable and do not pose erosion risks or safety hazards to the landowner or surrounding community.
- Effectively utilise available topsoil to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining with adequate vegetation cover.

- Eradicate all invasive and alien plant species by intensive management of the mining area.

6.1 CLOSURE STRATEGY GUIDED BY ENVIRONMENTAL RISK ASSESSMENT

The overall objective of the closure plan is to minimize adverse environmental impacts associated with the mining activity whilst maximising the future utilisation of the property. The idea, therefore, is to leave the mined areas in a condition that reduces all negative impacts associated with the activity. Significant aspects to be borne in mind in this regard is visibility of the mining scars, re-vegetation of the mining footprint, stability, and environmental risk in an old mine environment. The rehabilitated and immediate surroundings must also be free of invasive plant species.

The rehabilitation procedures were formulated to optimise the extraction of the raw materials ensuring that disturbed areas are progressively restored (where possible) to a stable and safe condition that will not pose an unreasonable risk upon closure. Mining operations will be conducted in a phased manner, corresponding to the creation of benches towards the base of the workings. The decommissioning phase and closure of the quarry will also 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. All infrastructure/equipment not required by the landowner will be dissembled, and all other infrastructural development such as haulage roads and stockpile areas will be rehabilitated.

6.2 DESIGN PRINCIPLES

The design principles proposed for the rehabilitation of Queenstown Quarry was determined through discussions with site management, and the minimum closure objectives as prescribed by DMPR.

Upon closure of the Quarry the Right Holder will contract the expertise of a rock engineer to guide the final design of the excavations. The rock engineer will be directed by the following rehabilitation objectives.

6.2.1 Excavations

Quarrying and rehabilitation operations, in the long term, must be aimed at creating final work faces 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 85º) as negotiated with the DMPR 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 8 m (or as indicated by the rock engineer at the time of closure).
- The mine must strive to achieve 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 85º in 10 m high cliff sections.
  - 8 m wide bench levels between 10 m cliff face down to the floor of the quarry.
  - Post-quarrying landscape may not be prone to erosion at an unacceptable rate.

6.2.2 Rehabilitation of Offices, Vehicle Yard and Storage Areas

- On completion of mining the above areas shall be cleared of any contaminated soil, which must be disposed at a licenced hazardous 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 buildings and roads at the property will most likely be retained for future use by the landowner and will therefore not be demolished unless required by the landowner.
- 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 mi to his/her specifications.

6.2.3 Rehabilitation of Processing and Stockpile Areas

The processing- and stockpile areas will be reinstated and the footprint landscaped as listed below.

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavation.

- Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
  - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
  - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the processing area, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMPR Regional Manager.
- On completion of mining operations, the surface of these areas, 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. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

6.2.4 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.

6.2.5 Residual Impact after Closure

- Overburden will be reintroduced to the quarry excavations to soften sides and assist with shaping of the excavation during post-quarrying rehabilitation. Provided all final slopes are maintained at 1:3 batters (quarry rim and mine residue infill) and successfully revegetated, there will be no long-term instability in the rehabilitated area. The quarry cliffs precision blasted to angles of not steeper than 85˚ also provide an element of stability to hard rock quarry cliffs.

- The mine excavations will, nevertheless, behave as a sump and collect surface run-off after wet periods. The floor of the quarries may, therefore, reveal fluctuating water levels

depending on rainfall patterns. Considering this, it is important to adequately fence/wall the excavation off to prevent unauthorized access to humans (especially children) and domestic animals upon closure of the mine. It is important that the fencing of the excavations upon mine closure is conducted with very close participation and support of the local community, to ensure the fencing remains in place and is not stolen.

6.2 POST-MINING LAND USE

Should the excavations expand up to the proposed S102 application boundaries, ±40 ha of the ±66 ha mining footprint will be excavated. This will leaves an area of ±26 ha that can be returned to agricultural/residential use. Due to the impracticality of importing large volumes of fill to restore the excavations to its original topography, the rehabilitation option is to develop the quarry pits into landscape features.

Figure 7: Satellite image of the mining area (blue polygon) to be rehabilitated upon closure. The mining and processing related areas (yellow) will revert to agricultural/residential use upon rehabilitation, and the quarry excavations (green) will be rendered safe and left as a landscape feature. (Image obtained from Google Earth

6.3 CLOSURE ACTIONS

The closure goals and objectives are to ensure that post-use rehabilitation achieves a stable and functioning landform consistent with the surrounding landscape, other environmental values and agreed land use.

The following closure actions will be applicable to the study area:

- Removal of unwanted infrastructure;
- Benching and sloping of the excavations;
- Removal of stockpiled material and reinstatement of the processing area;
- Vegetating the area using an appropriate grass mix.

6.3.1 Rehabilitation of Offices, Vehicle Yard and Storage Areas

In summary the closure requirements will entail:

- 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.
- Leave all buildings, equipment and/or infrastructure that will remain on the property after closure in a good and functional condition and obtain written transfer of liability of the structures to the landowner.
- 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.

6.3.2 Rehabilitation of Processing and Stockpile Areas

In summary the closure requirements will entail:

- Remove all unwanted structures and stockpiled materials.
- Scarify the surface of the processing and stockpile areas (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.

6.3.3 Land Forming

In summary the closure requirements will entail:

- 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 85º in 10 m high cliff sections.
- Create 8 m side bench levels between each 10 m cliff face down to the floor of the quarries (or as indicated by the rock engineer at the time of closure).
- Ensure rehabilitated excavations are not prone to erosion.
- Fence/wall the rehabilitated excavations to prevent unauthorized access.

6.3.4 Final Rehabilitation

In summary the closure requirements will apply:

- 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.

6.3.5 Revegetation of Rehabilitated Areas

All reinstated areas must be revegetated to establish a stable grass layer that will tie-in with the end-use of the site. The use of a commercial seed mix is recommended, and for dryland areas, the seed mix should be less than half the standard sowing rate and include annuals (e.g. wheat or rye) and perennials e.g. Couch Grass (*Cynodon dactylon*). The seed mix can be augmented by Love Grass (*Eragrostis curvula*) and Finger Grass (*Digitaria eriantha*).

6.3.6 Maintenance and Monitoring

Rehabilitated areas need to be monitored and managed after the initial rehabilitation. The mines primary tool for maintenance of the rehabilitated area will be monitoring of the reinstated areas until the closure certificate is issued. If areas are identified that are considered unsatisfactory then maintenance may include, but not be limited to:

- Replanting failed or unsatisfactory areas;
- Repairing any erosion problems; and
- Pest and weed control.

6.3.7 Success Criteria and Monitoring

To assess when the rehabilitation and re-vegetation process is complete, the mine will develop a set of completion criteria. These criteria will be reviewed by senior management before being submitted to the regulatory authorities (DMPR) for approval and sign off.

The approved set of completion criteria will be used as a basis for assessing the closure of the mining operations, with the mine required to comply with the specified criteria before the land management can be relinquished. The completion criteria will be reviewed every two years with the closure plan and updated to include findings of the mine rehabilitation research and development program as well as additional requirements of the regulatory authorities.

When selecting completion criteria, consideration must be given to the climatic conditions in the area. Using simple percentage species and percentage cover may not be appropriate, as this is dependent on when the samples are taken. If the baseline was established during a wet year and the assessment undertaken during drought, the criteria will not be met. The rehabilitated and re-vegetated areas will be monitored to determine the progress of the programme. Monitoring is likely to be a combination of methods and may include photographic monitoring, transects and standard plot areas.

6.3.8 Impact Specific Procedures

The table below provides a summary of the impact specific procedures associated with the closure of the mine.

Table 9: Summary of the impact specific procedures

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
SOCIO-ECONOMIC		
♦ The retrenchment process will be followed as per requirements of the applicable legal process; and ♦ All existing social investments will be phased out over an agreed period with beneficiaries.	♦ Progressive rehabilitation must be implemented if possible as mining progress.	♦ Any commitments made to I&AP'S will be attended to the relevant I&AP's satisfaction as agreed upon between the I&AP'S and the mine.
TOPOGRAPHY AND EROSION CONTROL		
♦ The area will have contours constructed to prevent soil erosion.	♦ All slopes which may incur erosion will be profiled in such a way that a preferential down drain can be installed; ♦ Erosion control measures such as contour banks and cut off berms should be constructed, and soil vegetated in rehabilitated areas. On gentle slopes, water will be encouraged to flow off the rehabilitated surface as surface flow, as quickly as possible without causing erosion.	♦ Should it be noted that designs are not being followed, rehabilitation activities will cease, and corrective measures will be taken to ensure design specifications are achieved. Specialists will be consulted if necessary; ♦ Any erosion will also be addressed utilising contour berms, gabion structures if necessary or a specialist will be consulted if necessary. Any eroded soils will be lifted and returned to the affected area; ♦ Any deficiencies will be corrected by placing material in these areas as per the closure plan; ♦ Any compacted soils will be ripped or disked and re-vegetated with indigenous flora. Vegetation will then be monitored in these areas; ♦ All recommendations made by the specialists will be implemented where deemed appropriate; ♦ An alien invasive management program will be implemented for the control and eradication of alien invasive species on site. This plan will give preference to mechanical control methods. Any chemicals utilised will be used

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
		responsibly. Where required DWS will be consulted with regards to the use of certain chemicals.
ECOLOGY		
♦ The rehabilitated area will be protected from surface disturbance to allow vegetation to establish and stabilise.	♦ Vegetation in rehabilitated areas will have equivalent values as surrounding natural ecosystems; ♦ The rehabilitated ecosystem will have equivalent functions and resilience as the target ecosystem; ♦ Soil properties will be appropriate to support the target ecosystem; ♦ The rehabilitated areas will provide appropriate habitat for fauna.	♦ Should it be noted that designs are not being followed, rehabilitation activities will be amended to ensure corrective measures will be taken to ensure design specifications are achieved. Specialists will be consulted if necessary; ♦ An alien invasive management programme will be implemented for the control and eradication of alien invasive species on site. This plan will give preference to mechanical control methods. Any chemicals utilised must be used responsibly.
LAND USE		
♦ To ensure that rehabilitation is done to such an extent that land use potential is regained for agricultural use and associated zoning.	♦ Only after the levelled areas have been inspected and approved by the Mine Manager/Site Manager will topsoil be placed. The topsoil layer must be as even as possible, i.e. it must be smooth, and the depth must remain consistent throughout; ♦ Once the topsoil has been replaced, vehicle movement will be restricted to prevent compaction of the topsoil; ♦ Rehabilitated areas will be vegetated within the same growing season (at the end of the rainy season). A suitable seedbed will be prepared to enhance the penetration and absorption of water, thereby giving the seed the best possible chance to germinate. The seeding depth should be very shallow to provide better germination. For most grass species seeding depth is approximately 5-15 mm;	♦ N/A

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
	♦ Rehabilitated areas will be re-vegetated with local indigenous flora as far as possible; and ♦ Once the seed mixture has been sown, the land must be rolled to ensure consolidation around the seeds and effective moisture retention.	

6.4 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 the period specified by the Regional Manager.

According to the MPRDA Section 43 (4) refers to the issues of a closure certificate and stipulates the following:

"Section 43(4) Issuing of a closure certificate -

(4) An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report.

Table 10: Closure schedule.

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	**TIMEFRAME**
EXCAVATIONS	
Excavations: ♦ 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 85º in 10 m high cliff sections. ♦ Create 8 m side bench levels between each 10 m cliff face down to the floor of the quarries (or as advised by the rock engineer). ♦ Ensure rehabilitated quarry areas are not prone to erosion. ♦ Fence/wall the rehabilitated excavations to restrict unauthorised access.	Week 1 – 25

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	**TIMEFRAME**
VEHICLE YARD & SECURED STORAGE AREA & PROCESSING AREAS	
Offices, Vehicle Yard and Storage Areas: ♦ 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. ♦ Leave all buildings, equipment and/or infrastructure that will remain on the property after closure in a good and functional condition and obtain written transfer of liability of the structures to the landowner. ♦ 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. ♦ Remove the processing plant.	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
MAINTENANCE AND AFTER CARE	
♦ Erosion Monitoring ♦ Weeds and Invader Plant Control	12 months duration after final closure of the mining area

6.5 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 of the rehabilitation/closure activities.

6.5.1 Site Management Responsibility List

Inspect area for erosion, pooling and/or compaction;

- Floral surveys need to be conducted to monitor cover abundance, plant succession and community structure;
- Monitor any ecologically sensitive species should it be observed on site.

6.5.2 Management of Information and Data

The Final Closure Plan must include a description of the management strategies, and all information and data relevant to mine closures. These records are valuable during all phases of mining to provide:

- A history of closure and implementation at the site;
- A history of past developments;
- Information for incorporation into state and national natural resource databases; and
- The potential for improved future land use planning and/or site development.

6.6 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 presently be identified.

6.7 RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES

The specific rehabilitation outcomes against which the effectiveness of rehabilitation must be measured are:

- that the topography has been sufficiently rehabilitated without unsafe excavation edges;
- that topsoil has been spread on the surface;
- that there is a potential rooting depth of at least 30 cm, of non-compacted soil material, which is suitable for root growth, across the mining area;
- that there is no visible erosion across the area, or down-slope of it because of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
- that a successful cover crop has been established across the area.

In addition to the above, the following relinquishment criteria are proposed for the closure activities of Queenstown Quarry.

Table 11: 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.

6.8 CLOSURE COST ESTIMATE

Financial provision, as required under Section 41 and Regulations 53 and 54 of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA), refers to the amount that must be set aside to rehabilitate environmental damage caused by mining operations. This provision covers both sudden and premature closure during the operational life of the project as well as final, planned closure. The financial provision must reflect the actual cost the Department would incur to rehabilitate the area should the holder of the right liquidate or abscond. Financial provision for environmental rehabilitation and mine closure is therefore an integral requirement of the MPRDA framework to ensure that mining does not leave a legacy of environmental degradation.

Based on the extent of the current disturbance and by utilizing the Department of Mineral and Petroleum Resources guideline document for calculating financial provision the Quarry needs to provide a financial provision value of R 7 245 198.51 (calculated August 2026). Refer to Part B(1)(f)(i)(e) *Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline* of the 2026 BAR & EMPR for an explanation as to how the financial provision amount was calculated.

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

The Final Rehabilitation, Decommissioning and Mine Closure Plan of Queenstown Quarry was amended to include the proposed expansion area and update the plan to comply with the latest rehabilitation objectives.

7 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 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 12: 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	**Internal Review**		
	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.
	External Auditing		
	Environmental Assessment Practitioner	Annual auditing and reporting to the Department of Mineral and Petroleum Resources	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	Independent Competent Consultant	Annual review of the financial provision and reporting of the findings to the Department of Mineral and Petroleum Resources.	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 DMPR.
MONITORING			
Blast Monitoring	Qualified Blaster	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 reoccurrence. Any damage that results because of the blast needs to be repaired or compensated for by the mining right holder.
Fallout Dust Monitoring	Dust Monitoring Consultant	Monthly Fallout Dust Monitoring	Site management has a maximum of two weeks to review and implement the dust

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	**RESPONSIBLE PERSON**	**FREQUENCY OF AUDIT**	**CLOSE OUT APPROACH**
			management plan should the dust levels increase.
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.
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	Occupational Hygienist	Quarterly Noise Monitoring	Site management has a maximum of one week to designate additional noise zones where applicable. Hearing protection equipment must always be available to employees.

7.1 SCHEDULE OF REPORTING REQUIREMENTS

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

Table 13: 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	The environmental audit report will indicate the ability of the EMPR and Closure Plan to adequately manage the activity. Should the

REPORTING REQUIREMENTS			
AUDIT	**LEGISLATION**	**REPORTING REQUIREMENTS**	**UPDATE DISCLOSURE**
		(as amended). The environmental audit report will contain the information set out in Appendix 7 of the said Regulation.	reports not be sufficient, amendment will be proposed.
Financial Provision Review	NEMA Amendment Act, 2014 (Act No 25 of 2014) Financial Provision Regulations, 2015 (as amended)	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 (as amended).	The auditor will annually 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 Mine Health and Safety Act, 1996	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.

8 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) quantity the potential liabilities associated with the management of the risks; and
e) outline monitoring, auditing, and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

8.1 ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS

8.1.1 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 particular 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.

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

Table 14: 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 15: 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 16: 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 17: 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 18: 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 19: 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 20: 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.

Determination of Overall Environmental Significance

Table 21: 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 22: Description of environmental significance and related action required in the assessment of potential latent risks.

SIGNIFICANCE	AN INSIGNIFICANT RISK (CC)	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.

8.2 LATENT RISKS, MITIGATION AND MONITORING MEASURES

The following potential latent risks have been identified for the site, together with the associated mitigation and monitoring measures to ensure long-term stability and compliance with closure objectives.

Table 23: Potential latent risks, mitigation and monitoring measures

LATENT RISK	MITIGATION / MANAGEMENT MEASURES	MONITORING REQUIREMENT	RESPONSIBILITY
Slope instability and slumping	Reprofile slopes to safe angles; avoid steep faces; compact and stabilise backfilled areas.	Visual inspections of slopes, especially after rainfall events.	Mine Management / ECO
Erosion and sedimentation	Implement stormwater controls; establish vegetation cover; install erosion protection measures where required.	Inspection of drainage lines and rehabilitated areas for erosion.	ECO
Water body safety risks (open water in quarry pit, unstable edges)	Shape edges to gentle slopes; restrict access to pit where necessary; install signage if required	Routine safety inspections of water bodies.	Mine Management / ECO
Residual infrastructure impacts	Remove all infrastructure not required for future land use; rehabilitate disturbed areas.	Verification during closure audit.	Mine Management
Vegetation failure / alien invasion	Use appropriate seed mixes; apply soil amendments where required; implement alien invasive species control.	Monitoring of vegetation establishment and species composition.	ECO
Land use limitations post-closure	Ensure proper topsoil placement and soil preparation; avoid compaction; match rehabilitation to intended land use	Post-rehabilitation land capability assessment	Mine Management / ECO

8.3 LATENT RISK ASSESSMENT

The table below presents the latent risk assessment both prior to and following the implementation of the proposed mitigation and management measures.

Table 24: Potential latent risks, mitigation and monitoring measures

LATENT RISK	SIGNIFICANCE (PRIOR TO MITIGATION)							SIGNIFICANCE (AFTER MITIGATION)							
	Severity, Duration, Extent			Consequence	Probability, Frequence		Likelihood	Significance	Severity, Duration, Extent			Consequence	Probability, Frequence		Likelihood	Significance	Final Rating
Slope instability and slumping	4	5	1	3.3	4	2	3	9.9 (BB)	2	2	1	1.6	2	1	1.5	2.4 (CC)	Insignificant Risk
Erosion and sedimentation	4	5	1	3.3	4	2	3	9.9 (BB)	2	1	1	1.3	2	1	1.5	1.9 (CC)	Insignificant Risk
Water body safety risks (open water in quarry pit, unstable edges)	4	5	2	3.6	3	1	2	7.2 (BB)	2	2	1	1.6	2	1	1.5	2.4 (CC)	Insignificant Risk
Residual infrastructure impacts	3	5	1	3	3	1	2	6 (BB)	1	1	1	1	1	1	1	1 (CC)	Insignificant Risk
Vegetation failure / alien invasion	3	4	2	3	3	2	2.5	7.5 (BB)	2	2	1	1.6	2	1	1.5	2.4 (CC)	Insignificant Risk
Land use limitations post-closure	4	5	3	4	4	1	2.5	10 (AA)	2	2	1	1.6	1	1	1	1.6 (CC)	Insignificant Risk

8.1 COST ESTIMATE

If the mitigation measures proposed for the possible latent risks are implemented during the decommissioning phase, as part of the rehabilitation of the mining area, no additional costs will be incurred.

9 CONCLUSION

This Closure Plan needs to be followed together with the EMPR and its amendments when it is decided that the end of mining has been reached. This document gives the necessary information when planning the rehabilitation of the mine together with the cost associated with the rehabilitation.

Queenstown Quarry (Pty) Ltd commits itself to providing all the necessary resources to ensure that the rehabilitation of the mine is done in such a way that will be acceptable to all parties involved.

10 SIGNATURE OF AUTHOR

NAME	SIGNATURE	DATE
Christine Fouché	*Christine Fouché*	11 August 2026

11 UNDERTAKING BY RIGHT HOLDER

I, ……., the undersigned and duly authorised thereto by ..... Queenstown Quarry (Pty) Ltd..... ……. undertake that Queenstown Quarry (Pty) Ltd will comply with the provisions of the MPRDA and its Regulations as set out in Government Gazette no. 26275 (23 April 2004), as well as NEMA.

I have studied and understand the contents of this document and duly undertake to adhere to the conditions as set out therein, unless specifically or otherwise agreed to in writing.

Signed at …….. on this ……day of ……2026……

FINAL DOCUMENT TO BE SIGNED BY APPLICANT

_____

Name:

Designation:

12 REFERENCES

- Chamber of Mines of South Africa, 1981. Guidelines for the rehabilitation of land disturbed by surface product mining in South Africa, Johannesburg.
- Department of Water Affairs and Forestry, 2003. Draft: A practical procedure for the identification and delineation of wetlands andarian areas, Pretoria.
- Department of Environmental Affairs and Tourism: Integrated Environmental Management Information Series: Impacts Significance.
- Department of Water Affairs and Forestry (DWAF) (2007b) Best Practice Guideline A4: Pollution control dams. The Government Printer, Pretoria
- MLB Consulting, 2026 Queenstown Quarry – Resource-Reserve Estimation.