

**PROPOSED SAND MINE ON A PORTION OF THE
REMAINING PORTION OF THE FARM RHENOSTERKOP
NO 155, REGISTRATION DIVISION OF BEAUFORT
WEST,
WESTERN CAPE PROVINCE**

REHABILITATION AND CLOSURE PLAN CLOSURE



MAY 2025

REFERENCE NUMBER: WC30/5/1/3/2/10361MP

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EXECUTIVE SUMMARY

Greenmined Environmental (Pty) Ltd is the consultants responsible for the mining permit application, and in light of this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted for the proposed mine.

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 2017 (GN 1228, Financial Provision Regulations 2017). 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 mining permit application and receipt of the EA, the permit holder will annually report on the planned rehabilitation actions.

Rehabilitation, Decommissioning and Mine Closure Plan:

The decommissioning phase will entail removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. In order to return the site to its pre-mining condition, mine rehabilitation must be seen as a continuous process. Therefore, the Plan's goal is to guarantee that mine lifecycle activities are planned to avoid, reduce, or mitigate any potential negative long-term effects on the environment and society. The designated Environmental Control Officer (ECO) of the mine must oversee the Closure and Rehabilitation Plan. Before submitting a closure application to the Department of Mineral Resources and Energy (DMRE), rehabilitation will eventually entail the site's final landscaping, topsoil replacement on the last layer, excavator removal.

Environmental Risk Assessment Report:

At this stage, no latent risks that will potentially arise during closure phase of the mining area were identified. By reason of the fact that no latent risks with regard to the management of the mining area were identified no additional monitoring, auditing or reporting requirements are required at this stage.

LIST OF DEFINITIONS

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 taken into account. 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 levelled, covered with topsoil, fertilized, seeded and are capable of supporting 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
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
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)
WCMR	Waste Classification and Management Regulations
WWF	World Wildlife Fund

TABLE OF CONTENTS

1.	INTRODUCTION.....	9
1.1	PROJECT PROPOSAL.....	9
1.2	OBJECTIVE OF THE CLOSURE PLAN.....	10
2.	DETAILS OF THE AUTHOR.....	11
3.	LEGAL BACKGROUND AND BEST PRACTICES.....	12
3.1	THE CONSTITUTION OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996).....	12
3.2	THE MINERALS AND PETROLEUM RESOURCES ACT, 2002 (ACT NO. 28 OF 2002) [MPRDA].....	13
3.2.1	Regulation 527 of the MPRDA, 2002.....	14
3.3	THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) [NWA].....	14
3.4	THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998) [NEMA].....	15
3.4.1	Regulation 1228 of NEMA, 1998.....	16
3.5	THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO 57 OF 2008) [NEM:WA].....	17
3.5.1	Waste Classification and Management Regulations, 2013 (GNR 634).....	17
3.6	FURTHER ACTS RELEVANT TO MINE REHABILITATION.....	19
3.7	BEST PRACTICE AND INTERNATIONAL GUIDELINES.....	19
4.	ENVIRONMENTAL AND PROJECT CONTEXT.....	20
4.1	PROJECT LOCATION.....	20
4.2	PROPOSED MINING OPERATION.....	21
4.2.1	Site Establishment Phase.....	21
4.3	OPERATIONAL PHASE.....	23
4.4	TOPOGRAPHY.....	24
4.5	AIR AND NOISE QUALITY.....	25
	25
4.7	HYDROLOGY.....	26
	Should the Applicant implement t.....	30
4.9	EXISTING INFRASTRUCTURE.....	30
4.10	LAND CAPABILITY AND SURROUNDING LAND USE.....	30
5.	ANNUAL REHABILITATION PLAN.....	31
5.1	IMPLEMENTATION AND REVIEW OF TIMEFRAMES.....	31
5.2	MONITORING RESULTS.....	31
5.2.1	Control of Invasive Alien Vegetation.....	31
5.2.2	Noise Monitoring.....	31
5.2.3	Dust Monitoring.....	32
5.2.4	Waste Monitoring.....	32
5.3	SHORTCOMINGS IDENTIFIED.....	32
5.4	REHABILITATION ACTIVITIES FOR THE FORTHCOMING 12 MONTHS.....	32

5.5	REVIEW OF THE PREVIOUS YEAR'S REHABILITATION ACTIONS	33
5.6	COSTING.....	33
6.	REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN	33
6.1	CLOSURE STRATEGY GUIDED BY THE ENVIRONMENTAL RISK ASSESSMENT	34
6.2	DESIGN PRINCIPLES	34
6.2.1	Excavation.....	Error! Bookmark not defined.
6.2.2	Plant, Office and Service Areas	Error! Bookmark not defined.
6.3	POST-MINING LAND USE	35
6.4	CLOSURE ACTIONS	35
6.4.1	Rehabilitation of the Excavated Area	35
6.4.2	Rehabilitation of Plant, Office and Service Areas.....	Error! Bookmark not defined.
6.4.3	Final rehabilitation:.....	37
6.4.4	Revegetation of Rehabilitated Areas.....	37
6.4.5	Maintenance and Monitoring.....	37
6.4.6	Success Criteria and Monitoring	38
6.4.7	Impact Specific Procedures	38
6.5	CLOSURE SCHEDULE.....	41
6.6	IMPLEMENTATION AND RESPONSIBILITY OF CLOSURE PLAN	42
6.6.1	Site Management Responsibility List	42
6.6.2	Management of Information and Data.....	42
6.7	IDENTIFIED GAPS IN THE PLAN.....	42
6.8	RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES	43
6.9	CLOSURE COST ESTIMATE	43
6.10	MOTIVATION FOR AMENDMENTS MADE TO THE FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN.....	44
7.	MONITORING, AUDITING AND REPORTING	44
7.1	SCHEDULE FOR REPORTING REQUIREMENTS.....	46
8.	ENVIRONMENTAL RISK ASSESSMENT REPORT	47
8.1	ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS.....	47
8.1.1	Methodology	47
8.1.2	Description of Latent Risks	54
8.1.3	Results and Finding of Risk Assessment	54
8.1.4	Changes to the Risk Assessment Results	55
8.2	MANAGEMENT ACTIVITIES	55
8.3	COST ESTIMATE	55
8.4	MONITORING, AUDITING AND REPORTING REQUIREMENTS	55
9.	CONCLUSION.....	55
10.	SIGNATURE OF AUTHOR	55
11.	UNDERTAKING BY PERMIT HOLDER	56
12.	REFERENCES.....	56

LIST OF FIGURES

Figure 1: Satellite view showing the location of the mining permit application area (orange polygon) in relation to the surrounding area (image obtained from Google Earth)..... **Error! Bookmark not defined.**
 Figure 2: Elevation profile of the proposed mining footprint (Image obtained from Google Earth). **Error! Bookmark not defined.**

LIST OF TABLES

Table 1: Summary of the relevant rehabilitation sections of the MPRDA, 2002	13
Table 2: Requirements of Government Notice 527	14
Table 3: NWA, 1998 applicable sections	15
Table 4: NEMA, 1998 applicable sections	15
Table 5: GPS coordinates of the proposed mining footprint.....	20
Table 6: Summary of the impact specific procedures	39
Table 7: Closure schedule	41
Table 8: Relinquishment criteria	43
Table 9: Monitoring, auditing and reporting requirements	45
Table 10: Reporting requirements	46
Table 11: Monitoring Programmes	50
Table 12: Rating of duration used in the assessment of potential latent risks	51
Table 13: Rating of extent / spatial scale used in the assessment of potential latent risks	51
Table 14: Example of calculating overall consequence in the assessment of potential latent risks	51
Table 15: Rating of frequency used in the assessment of potential latent risks	52
Table 16: Rating of probability used in the assessment of potential latent risks	52
Table 17: Example of calculating overall likelihood in the assessment of potential latent risks.....	53
Table 18: Determination of overall significance in the assessment of potential latent risks	53
Table 19: Description of environmental significance and related action required in the assessment of potential latent risks.....	54

1. INTRODUCTION

The applicant CZ Sand Mine (Pty) Ltd, applied for environmental authorisation (EA) and a mining permit to mine sand on a portion of the remaining portion of the Farm Rhenosterkop no 155, Registration Division of Beaufort West, Western Cape province.

Greenmined Environmental (Pty) Ltd (“Greenmined”) is the consultants responsible for the mining permit application, and in light of this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted for the proposed sand mine. This report (the Closure Plan) stipulates the rehabilitation methods to be followed in the restoration of the earmarked mining footprint. 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, November 2017 (GN 1228, Financial Provision Regulations 2017).

1.1 PROJECT PROPOSAL

In light of the above, CZ Sand Mine (Pty) Ltd (hereinafter referred to as “the Applicant”) intends applying for a mining permit to mine sand on a portion of the remaining portion of the Farm Rhenosterkop no 155, Registration Division of Beaufort West, Western Cape province

The proposed mining footprint will be 5 ha and will be developed over an undisturbed area of the farm. The sand mining operation will employ approximately six workers and will include a temporary site office and a chemical toilet within the designated mining area. Access to the site will be via an existing farm road, haul roads will be extended as necessary and maintained throughout the operational phase.

In the proposed operation, a Front-End Loader (FEL) will be used to transport the extracted sand directly from the mining footprint to the stockpile area, following standard practices in the small-scale mining sector. If necessary, the sand will be screened before being

stockpiled. Once ready for distribution, a front-end loader will load the sand onto trucks for delivery to customers. No washing of sand will be required.

All mining related activities will be contained within the approved mining permit boundaries.

The applicant, intends to win material from the area for at least 2 years with a possible extension of another 3 years. The sand extracted from the mining area will be utilized for local construction, building projects, and potential renewable energy initiatives in the surrounding region. The proposed mining permit will contribute to the enhancement and maintenance of road infrastructure, as well as support building projects in and around the Beaufort West area.

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Screening, Stockpiling and transporting;
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

The mining site will contain the following:

- Excavating equipment;
- Earth moving equipment;
- Screening plants;
- Access Roads;
- Site office (Container);
- Site vehicles;
- Parking area for visitors and site vehicles;
- Weighbridge;
- Ablution facilities (Chemical toilet).

1.2 OBJECTIVE OF THE CLOSURE PLAN

The purpose of the Closure Plan is to describe the rehabilitation processes that need to take place to ensure that 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 at minimum cost and in as short a period as possible whilst still complying 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:

- Remove all temporary infrastructure and waste from the site as per the requirements of the EMPR and of the Provincial Department Mineral Resources and Energy.
- Shape and contour all disturbed areas in compliance with the EMPR.
- Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the damming of surface water.
- Make all excavations safe.
- Use the topsoil effectively to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- Eradicate all weeds/invaser plant species by intensive management of the mine site.

2. DETAILS OF THE AUTHOR


The Applicant, CZ Sand Mine (Pty) Ltd, appointed Greenmined Environmental to prepare the final rehabilitation, decommissioning and mine closure plan. Mrs. M Saal is the responsible consultant for the project and has twelve years of experience in environmental legal compliance audits, (GIS) geographic information system, mining right and permit applications and applications for environmental authorisations & Water use applications. Please find full CV attached in Appendix K.

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Declaration of Independence:

I, Murchellin Saal, in my capacity as environmental control officer declare that—

- I act as independent environmental control officer in this compliance audit;
- I will perform the work relating to the audit 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 compliance audits, 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.

Murchellin Saal	Date:
	9 May 2025

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 states that:

The State must, in compliance with Section 7(2) of the Constitution, respect, protect, promote and fulfil the rights enshrined in the Bill of Rights, which is the cornerstone of democracy in South Africa. Section 24 of the Constitution:

24. Environment

-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.*

Section 24 of the Constitution of South Africa requires that all activities that may significantly affect the environment and require authorisation by law must be assessed prior to approval. In addition, it provides for the Minister of Environmental Affairs or the relevant provincial Ministers to identify:

- New activities that require approval;
- Areas within which activities require approval; and
- Existing activities that should be assessed and reported on.

Section 28(1) of the Constitution of South Africa states that:

“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”.

If such pollution or degradation cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution or degradation. These measures may include:

- Assessing the impact on the environment.
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks;
- Ceasing, modifying or controlling actions which cause pollution/degradation;
- Containing pollutants or preventing movement of pollutants;
- Eliminating the source of pollution or degradation; and
- Remedying the effects of the pollution or degradation.

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 1: Summary of the relevant rehabilitation sections of the MPRDA, 2002

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Environmental Management	Section 37	<i>Requires that the principles set out in section 2 of NEMA must apply to all prospecting and mining operations, and that the generally accepted principles of sustainable development must be applied by integrating social, economic and environmental factors during the planning and implementation phases of mining projects.</i>
	Section 38	<i>Requires the applicant to manage all environmental impacts in accordance with his or her environmental management plan (EMP) or the approved EMPR.</i>
	Section 39	<i>Deals with the requirements of an EMP/EMPR, whichever is applicable.</i>
Financial Provision	Section 41	<i>Financial provision needs to be provided and annually assess the environmental liability.</i>
Closure Certificate	Section 43	<i>Holder of a mining permit is responsible for all environmental liabilities as may be identified in the EMP, application needs to be made to the regional manager for the closure certificate.</i>
Removal of Infrastructure	Section 44	<i>When the mining operation comes to an end the mine may not remove buildings, structures or objects which may not be demolished or removed in terms of any other law.</i>

3.2.1 Regulation 527 of the MPRDA, 2002

Government Notice No. R.527, as published in the Government Gazette, 23 April 2004 (GG No. 26275, Volume 466) of MPRDA stipulate that the following closure objectives must form part of the EMPR:

- Identify the key objectives for closure of the operation to guide the project design;
- Development and management of environmental impacts;
- Provide future land use objectives for the site; and
- Provide proposed closure costs.

Table 2: Requirements of Government Notice 527

AREA OF CONCERN	REGULATION	LEGAL REQUIREMENTS
The need to prevent and alleviate pollution arising from mining activities.	Regulation 42(1)	<i>Section 42(1) of the MPRDA stipulates that the closure process must start at the commencement of a mining operation and continue throughout the entire life of the mine. Furthermore, future closure and land use objectives must be included in the EMP. Section 42(1) d stipulates that any environmental damage or residual impacts that are identified during the Environmental Risk Assessment (ERA) phase must be acceptable to all Interested and Affected Parties (I&AP's) in line with Section 24(a) of the National Constitution.</i>
Mine Closure	Regulation 43	<i>A closure plan contemplated in Section 43(3)(d) of the Act, forms part of the EMPR or EMP, as the case may be, and must include – a summary of the results of progressive rehabilitation undertaken.</i>
Part III of R 527 deals with environmental regulations for mineral development, petroleum exploration and production.	Regulation 56	<i>In accordance with applicable legislative requirements for mine closure, the holder of a prospecting right, mining right, retention permit or mining permit must ensure that –The land is rehabilitated, as far as is practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms with the concepts of suitable development.</i>

3.3 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 management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the NWA is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways, which take into account:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of past racial discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water use;
- Protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations; and
- Managing floods and droughts.

The following sections of the NWA, 1998 are relevant.

Table 3: NWA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Prevention and remedying effects of pollution.	Section 19	<i>Any situation exists or which may cause or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.</i>
Control of emergency incidents.	Section 20	<i>Incidences of pollution needs to be reported the Department and the relevant catchment agency</i>
General principles: Water uses	Section 21	<i>The MR Holder has a valid General Authorisation issued by DWS in 2017.</i>

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

The National Environmental Management Act (NEMA) strives to regulate national environmental management policy and is focussed primarily on co-operative governance, public participation and sustainable development. NEMA makes provisions for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith.

The following sections are relevant.

Table 4: NEMA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Principles that may significantly affect the environment.	Section 28	<i>General duty of care on every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.</i>
Control of emergency incidents.	Section 30	<i>Incidences of pollution needs to be reported the Department.</i>
Environmental Management Plan.	Section 34	<p><i>A draft EMP must include –</i></p> <p><i>information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –</i></p> <p><i>(iv) rehabilitation of the environment;</i></p> <p><i>as far as reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally acceptable principle of sustainable development, including where appropriate, concurrent or progressive rehabilitation measures.</i></p>

3.4.1 Regulation 1228 of NEMA, 1998

NEMA, GNR 1228 GG 41236, known as the NEMA Financial Provision Regulations, 2015 (amended 2017), was promulgated in November 2015, and in terms of these regulations holders of a mining permit are allowed a transitional period of 39 months (19 February 2019) from the date of promulgation to comply. The compliance date was extended to June 2021.

As mentioned earlier the permit holder must annually update the annual rehabilitation, final rehabilitation and remediation of latent environmental impacts and ensure it is compliant with the Financial Provision Regulations of 2015. The reports need to be conducted in the format that was supplied in the regulations as per Appendix 5 and Appendix 6.

3.5 THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO 57 OF 2008) [NEM:WA]

The rehabilitation measures must be aligned with the objections of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA) which includes:

- (a) To protect health, well-being and the environment by providing reasonable measures for—
 - (i) Minimising the consumption of natural resources;
 - (ii) Avoiding and minimising the generation of waste;
 - (iii) Reducing, re-using, recycling and recovering waste;
 - (iv) Treating and safely disposing of waste as a last resort;
 - (v) Preventing pollution and ecological degradation;
 - (vi) Securing ecologically sustainable development while promoting justifiable economic and social development;
 - (vii) Promoting and ensuring the effective delivery of waste services;
 - (viii) Remediating land where contamination presents, or may present, a significant risk of harm to health or the environment; and
 - (ix) Achieving integrated waste management reporting and planning;
- (b) To ensure that people are aware of the impact of waste on their health, well-being and the environment;
- (c) To provide for compliance with the measures; and
- (d) Generally, to give effect to Section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being

3.5.1 Waste Classification and Management Regulations, 2013 (GNR 634)

Waste Classification and Management Regulations (WCMR) promulgated under the National Environmental Management: Waste Act, 2008 (NEM:WA) (effective 2013) provides mechanisms to:

- Facilitate the implementation of the waste hierarchy to move away from landfill;
- Reuse, recovery and treatment;
- Separate waste classification from the management of waste;
- Divert waste from landfill and into utilisation where possible; and
- Provide measures to monitor the progress

The Waste Classification and Management Regulations ultimately enables the improved and more efficient classification and management of waste; provide for safe and appropriate handling, storage, recovery, reuse, recycling, treatment and disposal of waste and will also enable accurate and relevant reporting on waste generation and management. All waste generators, excluding domestic generators, must ensure that the waste they generate is classified within 180 days of its generation.

All wastes that were classified in terms of the “Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste in terms of the Department of Water Affairs” (2nd Edition, 1998; Department of Water Affairs and Forestry) or alternative classifications that were approved prior to the WCMR taking effect, must be re-classified and assessed within three years from the commencement of these Regulations.

Reference is made to the NEM:WA, part 8 of Chapter 4 regarding contaminated land:

All owners of land that is significantly contaminated become obliged to report that contamination is occurring. Part 8 of Chapter 4 is concerned with the remediation of contaminated land. This new legal regime for identifying contaminated land, determining its status and the risk that it poses, and regulating the remediation process is introduced. This law imposes significant legal obligation on the owners of land and on those who cause contamination, with potentially serious financial consequences. Part 8 applies where the pollution only manifest sometime after the contamination occurred and also where the action of a person (for example, the excavation of land pursuant to a development) results in a change to pre-existing contamination. Along with the notice bringing Part 8 into effect, norms and standards for the remediation of contaminated land and soil quality (list certain contaminants and specify soil screening values for human health and environmental protection). This act also has several important implications for the sale of and, sellers who know that their lands is contaminated can no longer keep silent and this is classified as an offence.

3.6 FURTHER ACTS RELEVANT TO MINE REHABILITATION

- The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).
- The South African Mineral Resource Committee (SAMREC) Code. Of particular importance in this regard is the determination of whether the mine has made an adequate provision for environmental rehabilitation in terms of Section 41 of the MPRDA.

3.7 BEST PRACTICE AND INTERNATIONAL GUIDELINES

Mine closure is an international challenge. South Africa has produced various well-known and reputable guidelines on matters directly linked and or associated with mine closure. Such was the need for guidelines to manage mine closure provisions in a consistent manner provided for by the DMRE (2005).

These guidelines are the only official mine closure guideline as contemplated in Regulation 54(1) in the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002). Of particular importance is that this guideline document governs the closure cost assessment process in South Africa and is applied by the DMRE through its respective regional managers in each province.

The Chamber of Mines (CoM) (2007) issued a guideline for the rehabilitation of mined land. This document is a result of scientific knowledge experts. It is an on the ground reference document which provides written guidelines on the best rehabilitation techniques. Of value is how the document distinguishes between the financing, the planning and the licensing components of a typical mining program.

The World Wildlife Fund (WWF) in 2012 published a discussion document named the “Financial provision for the rehabilitation and closure in South African Mining: Discussion Document on Challenges and recommended improvements”. The document focuses on the adequacy of financial provisions and pulls a very strong link between insufficient financial allocations and that of derelict and abandoned mines in South Africa. The document further emphasizes the importance of establishing a dependency between the EMPR/EMP and financial provision which is updated and adequate.

Recently a released guideline from the Government of Western Australia (GWA 2011) provides insight to the importance of mine closure. The guidelines (GWA 2011) in particular state that planning for mine closure is a critical component of environmental management in the mining industry. Notably is that this industry leading practice also requires that

planning for mine closure should start before mining commence and should continue throughout the life of the mine until final closure and relinquishment. This approach enables better environmental outcomes. It is also good business practice, as it should avoid the need for costly remedial earthworks late in the project lifecycle.

4. ENVIRONMENTAL AND PROJECT CONTEXT

4.1 PROJECT LOCATION

The mining permit application was lodged over 5 ha over a portion of the remaining portion of the Farm Rhenosterkop no 155, Beaufort West District, Western Cape Province. The table below lists the GPS coordinates of the proposed mining footprint.

Table 5: GPS coordinates of the proposed mining footprint.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	32°14'17.563"S;	22°52'28.945"E	-32.238205°	22.874720°
B	32°14'14,708"S	22°52'33,071"E	-32.237420°	22.875877°
C	32°14'22,834"S	22°52'42,679"E	-32.239678°	22.878519°
D	32°14'25,93"S	22°52'38,568"E	-32.240529°	22.877416°



*Figure 1: Satellite view showing the access road entrance with (purple polygon), (green polygon) is an alternative option when the dam is at full capacity and the proposed mining area site alternative 1 (white polygon) **no alternative was identified for this site.***

4.2 PROPOSED MINING OPERATION

4.2.1 Site Establishment Phase

Site establishment entails the demarcation of the mining boundaries, clearance of vegetation, and stripping and stockpiling of topsoil to access the mineral.

4.2.1.1 Demarcation of Mining Boundaries

Pursuant to receipt of the Environmental Authorisation (EA) and Mining Permit (MP), and prior to site establishment, the boundaries of the mining area will be demarcated with visible beacons.

4.2.1.2 Access Road

The Applicant will make use of the existing farm road (turning right from the N1) to reach the mining area. The road will be upgraded and extended as the open cast mining progress and will be rehabilitated as part of the final reinstatement of the area. The proposed access road intersects with more than 2 drainage lines which necessitates a water use application in terms of Section 21 of the NWA, 1998. This was confirmed by the Risk Matrix Assessment conducted by the Biodiversity Company (Pty) Ltd (please see Appendix M1) initially prepared for the adjacent dolerite mine. An updated Aquatic Assessment was conducted specifically for the sand mine application and is included herein as Appendix M2.

A General Authorisation was previously obtained for the adjacent dolerite mine, and it is anticipated that similar authorisation may support the current sand mine application, subject to the necessary evaluations and approvals. Water required for the implementation of the project will be bought and transported to the site.

4.2.1.3 Vegetation Clearing

According to the Ecologist's report (Appendix M2), which was conducted for the adjacent dolerite mine, the following recommendations remain applicable and should be implemented for the proposed sand mine

development. A motivation letter is included, in which the specialist confirms support for the findings of the previous study and recommends that they be upheld for the current application.

- Contractor's ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place.
- Blanket clearing of vegetation must be limited to the proposed footprint and associated infrastructure.
- No clearing outside of the minimum required footprint to take place.
- Clearing of vegetation should be minimized and avoided where possible

4.2.1.4 Topsoil Stripping

It is proposed that topsoil removal will be restricted to the exact footprint of areas required during the operational phase of the activity. The topsoil will be stockpiled at a designated signposted area within the mining boundary to be replaced during the rehabilitation of the area. It will be part of the obligations of site management to prevent the mixing of topsoil heaps with overburden/other soil heaps. The complete A-horizon (the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil will be stripped. The topsoil berm will measure a maximum of 1.5 m in height in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.

4.2.1.5 Introduction of Mining Machinery and Site Equipment

As mentioned earlier, CZ Sand Mine (Pty) Ltd plans to establish mobile/temporary infrastructure within the mining footprint. It is proposed that the office/processing area (including offices, workshop, store rooms, ablution, and parking area) will occupy ± 1 ha of the proposed 5 ha area.

As no permanent infrastructure will be established, the production rate will dictate the layout of the proposed footprint area.

Presently, the mining infrastructure/equipment is expected to consist of at least:

- Excavating equipment;
- Earth moving equipment;
- Screening plants
- Access Roads;
- Site Office (Containers);
- Site vehicles;
- Parking area for visitors and site vehicles;
- Vehicle service area;
- Workshop (Containers);
- Salvage Yard;
- Bunded diesel and oil storage facilities;
- Generator on bunded area;
- Ablution Facilities (Chemical Toilets);
- Weigh Bridge; and
- Demarcated general and hazardous waste area

4.3 OPERATIONAL PHASE

The operational phase will involve the removal of topsoil off a strip of approximately 1 ha. The topsoil will be stockpiled at the edge of the strip to be replaced during the rehabilitation of the area. In the proposed operation, a Front-End Loader (FEL) will be used to transport the extracted sand directly from the mining footprint to the stockpile area, following standard practices in the small-scale mining sector. If necessary, the sand will be screened before being stockpiled. Once ready for distribution, a front-end loader will load the sand onto trucks for delivery to customers. No washing of sand will be required.

It is proposed that the trucks will visit the mining area approximately twenty times a week.

As mentioned in the Agricultural Impact Assessment (AIA) (full copy attached as Appendix G), it will be important to control the mining depths at a maximum of 3 metres.

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Screening, Stockpiling and transporting;
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

4.4 TOPOGRAPHY

The natural topography the proposed excavated area can be described as steep slopes of koppies, butts, mesas and parts of the Great Escarpment covered with large boulders and stones supporting sparse dwarf Karoo scrub with drought-tolerant grasses of genera such as *Aristida*, *Eragrostis* and *Stipagrostis*. The elevation loss from the proposed mining footprint to the town of Beaufort West to be 182 m over 29.4 km.



Figure 2: Elevation profile showing the topography between the proposed mining footprint (white line) and the town of Beaufort West. (Image obtained from Google Earth).

4.5 AIR AND NOISE QUALITY

The wind patterns in Beaufort West are somewhat influenced by seasonal variations. According to the wind statistics as presented on Windfinder.com the prevalent wind direction distribution of Beaufort West is in a north/north-eastern direction from December to March. From April the wind changes direction from east-north-east to east until September when it gradually returns to the north-eastern trend. The ambient noise levels of the surrounding area are low with the noise levels of the greater surrounding area are low representing that of a rural area, with the noise levels of the study area (immediate surroundings) impacted by farming operations and the N1.

4.6 GEOLOGY

The geology of the study area comprises primitive, skeletal soils in rocky areas developing over sedimentary rocks such as mudstones and arenites of the Adelaide Subgroup of the Karoo Supergroup and to a lesser extent also the Ecca Group (Waterford and Volksrust Formations) as well as Jurassic sand sills and dykes and subsummit positions of mesas and butts with sand boulder slopes. Almost entirely lb land type.

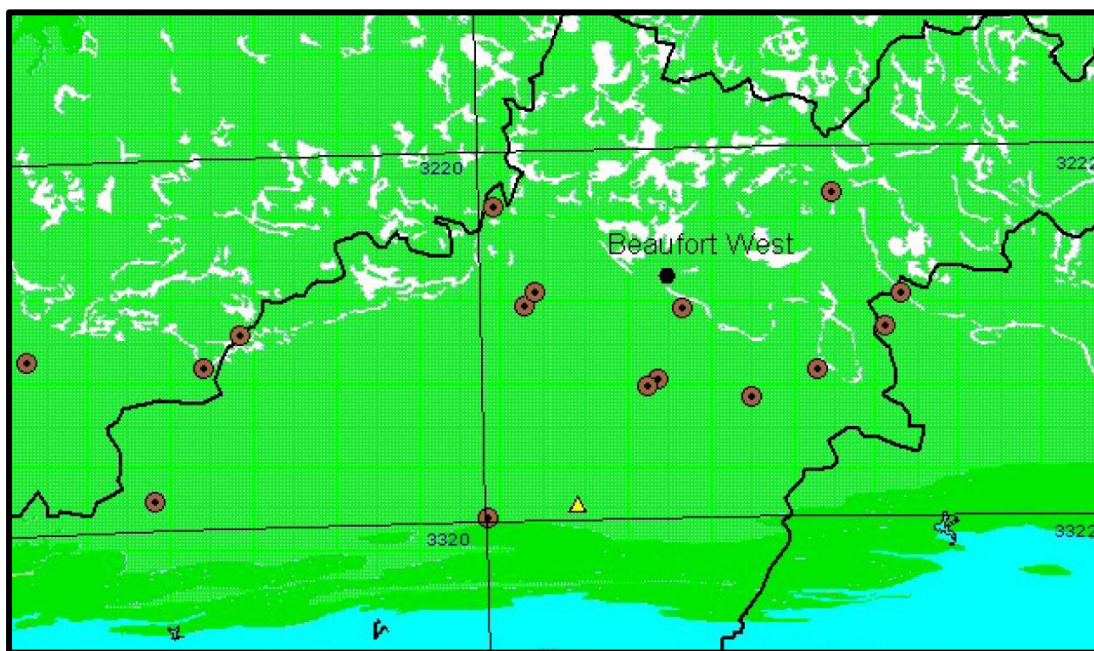


Figure 2: Indication of the simplified geology of the study area, where green represents the Beaufort Group. The proposed mining area is indicated by the red star. (Image obtained from the Council for Geoscience)

4.7 HYDROLOGY

As per the Aquatic Biodiversity Specialist Assessment conducted by the Biodiversity Company (Pty) Ltd, a single wet season survey was conducted on the 7th of March 2023 for the proposed project. The drainage lines and Platdoring River was dry although this was a wet season survey. The project area is situated in the L11F quaternary catchment and is in proximity of the Platdoring River and its unnamed tributary. The Platdoring River flows in a southerly direction into the Sout River. The project area falls within the L11F-07164-Platdoring Sub-Quaternary Reach (SQR) and the Great Karoo Level 1 Ecoregion. The project area is located within the Mzimvubu-Tsitsikama WMA. Temperature for the region ranges from average lows of 4°C during winter periods (April – August) and average highs of 29°C during the summer periods (September-March). Rainfall patterns indicate a mean annual precipitation of 210 mm, with summer and winter rainfall, and peak rainfall periods occurring between December and March. The study area is situated within two biomes: Azonal Vegetation and Nama Karoo Biome and situated in both the Gamka Karoo and the Southern Karoo Riviere vegetation types. The L11F-07164 SQR is derived to be moderately modified, category C. The moderately modified state of the reach was due to small impacts on riparian and wetland zone continuity and modification, moderate impacts on instream habitat continuity, potential impacts on physico-chemical conditions (water quality), and flow modification. The results of the IHIA for the Platdoring River and its tributaries indicated moderately modified instream and riparian conditions. Instream habitat was considered largely intact, however, several impacts were observed on site and from aerial imagery.

The National Web-based Environmental Screening Tool has characterised the aquatic sensitivity of the project area (mining area) as “Low”, whilst “Very High” for the access route to the mining area. The desktop assessment and site visit agreed with both of these ratings. The reach (Platdoring River) is susceptible to further impacts, particularly on water quality and physical disturbances to instream and riparian habitat. The proposed activities pose low to moderate risks during the construction, operational and decommissioning phases. Moderate risks are associated with the activities proximate to the watercourse, including the drainage patterns change due to road extent and crossings, clearing of riparian (and terrestrial) vegetation, stormwater management, excavation of riparian area, bed and/or banks, operation of heavy machinery adjacent/within the watercourse, alien vegetation encroachment, conducting road and crossings maintenance, sedimentation and erosion, and hydrocarbon contamination.

Due to the presence of existing roads and crossings, the implementation of mitigation measures will reduce the risks/impacts of Moderate-risk activities to Low if done effectively. If not done effectively, the construction will not reduce the risks of aspects/activities such as clearing riparian areas, deep excavation when mining, drainage patterns change due to road extent and crossings, dust precipitation (from backfilling), change in topography (from backfilling), dust precipitation (from shaping/contouring), change in topography (from shaping/contouring) and surface structures as well as stormwater, as these activities will result in direct loss of riparian vegetation, channel-, bed- and bank modification, and have a direct impact on the rivers and riparian areas.

Impact Statement

An impact statement is required as per the NEMA regulations with regards to the proposed development.

Based on desktop and survey findings in this report the specialist agrees with the “Low” rating for the mining area and the “Very High” for the access route to the mining area aquatic theme sensitivity as per the National Web based Environmental Screening Tool. This is attributed to:

- The project area is not located within a SWSA for surface water.
- The project footprint overlaps only with a Western Cape ESA1 and Other Natural Areas.
- There is no FEPA river and FEPA area within to the project area. However, the project area (proposed access road) is in proximity to an unclassified NFEPA wetland.
- The project area is located along a Least Threatened and Poorly Protected watercourse (Platdoring River).
- No protected areas detected within the project area or immediate downstream reaches. The Steenbokkie Private Nature Reserve is approximately 15 km downstream of the project area.

The proposed activities pose low to moderate risks during the construction, operational and decommissioning phases. However, all moderate risks can be reduced to low with the application of adequate mitigation measures and recommendations ascribed in this report. It is therefore the specialist's opinion that the project may continue as proposed and as the proposed access road will cross the Platdoring River and several drainage lines, a full water use authorisation application process is required and must adhere to the stipulations or directives that may arise consequently.

4.8 TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUND COVER

When the mining footprint is layered over the Mining and Biodiversity Map, it falls over an area of moderate biodiversity importance with a corresponding rating of moderate risk for mining. The Mining and Biodiversity Guideline's describes areas of moderate risk biodiversity importance as: "These areas are of moderate biodiversity value." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

According to the botanical assessment report conducted by Ecofloristix (Pty) Ltd, dated March 2023 attached as appendix M2, it is highly unlikely that this development will have an impact on ecosystem status or nationally listed vegetation types due to the limited extent of the mine, as well as the large extent of natural vegetation surrounding the mining area. Furthermore, this mine will not have a significant impact on the services and functions provided by the surrounding natural habitats, and development within this area is regarded as acceptable, provided that the mitigation measures given that in the Biodiversity Assessment report (Appendix M2) supported with the motivational letter dated 31 March 2025 is closely followed.

In terms of local plant species levels, the site is not exceptionally rich in species and therefore not highly sensitive in this regard. Moreover, no SCC or range restricted species are present within the study area. The extensive nature of the study area vegetation and plant community types within the wider landscape means that all species within the study area will highly likely also be found in the surrounding areas. Thus, given that the majority of impacts associated with the proposed activities are likely to be local in nature and not of wider significance, loss of particular species within the study area will not be problematic.

Five provincially protected species were found in the study area (but only in low numbers), as well in the surrounding areas. None of them are SCC and their loss from the study area will not be significant and will not compromise the viability of the local populations of these species.

In terms of the likely botanical impacts associated with the mine, impacts on vegetation during the construction and operational phases are likely to be relatively high (medium after mitigation), and are somewhat difficult to mitigate given the destructive nature of the proposed activities. However, given the large extent of the affected vegetation and plant community types, and given the small footprint of the mining area, the impact on the vegetation is likely to be of locally high intensity but not broadly significant. Potential cumulative impacts are also furthermore regarded limited and of low to moderate significance.

The proposed study area is well positioned to mostly avoid highly sensitive receptors and the proposed activities will not severely compromise the survival and continued persistence any specific plant or animal species within the study area and surrounds if mitigation measures are fully implemented.

CULTURAL AND HERITAGE ENVIRONMENT

According to the Notice of Intent to Develop conducted by Beyond Heritage (Pty) Ltd, a few CRM surveys have occurred close by with the most relevant being for a quarry access road immediately over the N1 from Rhenosterkop and the widening of the N1 through Courlandskloof just to the northeast (Orton 2010; the quarry itself has apparently been surveyed and permitted but no documentation of this is known and none could be sourced from the developer at the time of the road application), and a second quarry just further north (Gribble 2020).

These projects showed that scatters of LSA and MSA stone artefacts occur in places and rock engravings including both animals and scratching/rubbing occur in the area. Some engravings of high significance occur very close to the Renosterkop Quarry but do not seem to be under threat yet. A stone-walled kraal is also on record north of the N1. Historical structures, artefacts scatters and aspects of the historical nineteenth century Cape Town to Kimberley railway (which broadly follows the N1) were also recorded. The latter include cast iron and stone bridge and also an Anglo-Boer War blockhouse built at the bridge to guard it during the war.

Around Nelspoort, to the northeast of the study area, there are a number of rock engravings and some rock gongs that are quite well-known (Parkington et al. 2008).

More broadly, most Karoo farms include historical structures and graves and the kinds of archaeology noted above are expected to be widespread. Rock paintings are also known from the Karoo, but not from anywhere close to the study area. The only impact anticipated is to LSA scratched engravings on the sand rocks of the study area. While these “motifs” are poorly understood and might have once had significance beyond that which we might understand, they are also very common. A photographic record has been made of those in the study area and further work on this small sample is unlikely to accomplish anything further.

Should the Applicant implement the mitigation measures proposed in the EMPr the impact of the proposed activity on the surrounding area in general is deemed to be of low significance. In light of this, a Heritage Impact Assessment was not deemed necessary by the heritage specialist..

4.9 EXISTING INFRASTRUCTURE

The following is located within close proximity:

- Eskom power line approximately $\pm 720\text{m}$ from the mining permit area
- Farm house approximately $\pm 2.52\text{km}$ south - east of the site and another farmhouse north-west of the site
- The N1 passes the site on the north - western side

During the environmental impact assessment process the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

4.10 LAND CAPABILITY AND SURROUNDING LAND USE

A portion of the remaining portion of the Farm Rhenosterkop no 155, Registration Division of Beaufort West, Western Cape province. is situated in a rural setting. The current surrounding land uses can be classified as agricultural land, existing mining and tourism:

5. ANNUAL REHABILITATION PLAN

Appendix 3 to the Financial Provision Regulations, 2015 states that the objectives of the annual rehabilitation plan are 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 in 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 OF 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 Resources and Energy. The document will be reviewed during the 11th month of the operative period to ensure the timely submission of the subsequent annual review.

5.2 MONITORING RESULTS

5.2.1 Control of Invasive Alien Vegetation

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

5.2.2 Noise Monitoring

It is recommended that a qualified occupational hygienist will quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring will be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008.

5.2.3 Dust Monitoring

The above-mentioned occupational hygienist will also report on the gravimetric dust levels of the site. Site management must ensure that the dust generating activities at the site comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). Dust levels will be controlled through the management processes stipulated in the BAR & EMPR.

5.2.4 Waste Monitoring

Site management will be responsible to monitor the generation of all types of waste at the mining area, including general-, hazardous- and liquid waste. Solid (general) waste, generated during the operational phase, will be contained in sealable refuse bins that will be placed at the office area until the waste is transported to a recognised general waste landfill site. A recognized contractor will service the chemical toilets that will serve as ablution facilities to the employees.

Hazardous waste (such as spills) will be cleaned up immediately (within two hours of the occurrence) and the contaminated soil will be contained in designated hazardous waste containers that will be kept in a bunded area with impermeable surface until it is removed from site by a registered hazardous waste handling contractor to an approved facility.

5.3 SHORTCOMINGS IDENTIFIED

This report is the first Annual Rehabilitation Plan in terms of the Financial Provision Regulations, 2015 that was compiled for the proposed mine. No shortcomings have therefore been identified.

5.4 REHABILITATION ACTIVITIES FOR THE FORTHCOMING 12 MONTHS

Not yet applicable as mining has not yet commenced. Upon approval of the mining permit application and receipt of the EA, the permit holder will annually report on the planned rehabilitation actions.

5.5 REVIEW OF THE PREVIOUS YEAR'S REHABILITATION ACTIONS

This report is the first Annual Rehabilitation Plan in terms of the Financial Provision Regulations, 2015 that was compiled for the proposed mine. In this circumstance no annual rehabilitation activities have been identified and can be reviewed.

5.6 COSTING

To be determined once the annual rehabilitation objectives were established.

6. 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 (as described above);
- 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; 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 proposed mine is to restore the natural vegetation (where possible). In this context, the primary objectives for the closure of the mining operations are:

- Remove all temporary infrastructure and waste from the mine as per the requirements of this EMPR and of the Provincial Department of Minerals and Resources and Energy.
- Shape and contour disturbed areas in compliance with the EMPR.
- Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the damming of surface water.
- Make all excavations safe.
- Use the topsoil effectively to promote the re-establishment of vegetation.
- ❖ Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- ❖ Eradicate all weeds/invasiver plant species by intensive management of the mine site.

6.1 CLOSURE STRATEGY GUIDED BY THE 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 scar, 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 weeds and alien vegetation.

Rehabilitation will include activities to be divided into medium- and long term categories. In the medium term, rehabilitation will entail the continuous reinstatement and seeding of mined areas, and the management of weeds and invasive plant species. In the long term, rehabilitation will involve final landscaping of the site, the replacement of the topsoil on the final layer and the removal of the excavator and FEL prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE). The MR holder will further be responsible for the seeding of all rehabilitated areas.

6.2 DESIGN PRINCIPLES

6.2.1 The MP Holder proposed the following regarding the rehabilitation of the mined areas:

- The project entails the strip mining of site alternative 1 over an undisturbed portion of the farm.

- The mining plan will be such that topsoil is stockpiled for the minimum possible time through rehabilitating different mining layers progressively as mining continues.
- The MP Holder will strive to (when possible) spread topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, is minimized.
- A cover crop will be planted and established immediately after spreading of topsoil to stabilize the soil and protect it from erosion.
- The rehabilitated area as well as the land down slope of it will monthly be monitored for erosion, and appropriately stabilized if any erosion occurs.
- Topsoil stockpiles must be protected against losses by water and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion.
- The MP Holder will ensure monthly monitoring of weeds/invasive plants that may germinated within the rehabilitated areas. An invasive plant species management plan will be implemented on site.

6.2 POST-MINING LAND USE

As mentioned earlier, the preferred post mining land use for the proposed mine is to restore the natural vegetation (where possible) and return the area to its previous state.

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 applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

6.3.1 Rehabilitation of the Excavated Area

- The mine plan will be such that 30cm topsoil is stockpiled for the minimum possible time through rehabilitating each mining block as mining continues.

- Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.
- The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface.
- The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.
- No waste may be permitted to be deposited in the excavations.
- After mining, any steep slopes at the edges of excavations will be reduced to a minimum and profiled to blend with the surrounding topography. The entire surface will be sufficiently smoothed and profiled to allow cultivation.
- The stockpiled topsoil will then be evenly spread, to a depth of 300 mm, and smoothed over the entire mining area.
- The Applicant will strive to (when possible) spread topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, is minimized.
- A cover crop that ties in with the proposed land use will be planted, irrigated and established, immediately after spreading of topsoil to stabilize the soil and protect it from erosion. The cover crop will be fertilised for optimum biomass production, and any soil chemical deficiencies will be corrected, based on a chemical analysis of the re-spread soil.
- The rehabilitated area as well as the land down slope of it will monthly be monitored for erosion and appropriately stabilized if any erosion occurs.
- The Applicant will ensure monthly monitoring of weeds/invaser plants that may germinated within the rehabilitated area. The invasive plant species management plan (Appendix I) will continually be implemented on site.

6.3.2 Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), maintenance, and clearing of invasive plant species.
- All equipment, plant, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubble and tyres, must be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) need to be eradicated from the site.
- Final rehabilitation must be completed within a period specified by the Regional Manager (DMRE).

6.3.3 Revegetation of Rehabilitated Areas

If necessary, the area can be fertilized to hasten the establishment of flora. Should the site's natural vegetation not grow back within six months of its closure to spread the naturally existent flora in the area, the site could be seeded with a local or adapted indigenous seed mix. This area is seen to have low to medium agricultural potential due to the very sandy soils. Therefore the use of seed mixes should only be done after consultation with a qualified specialist with experience in the area as it might not apply. 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 and perennials.

6.3.4 Maintenance and Monitoring

Rehabilitated areas need to be monitored and managed after the initial rehabilitation. The proposed mine's 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.

6.3.5 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 (DMRE) 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.

6.3.6 Impact Specific Procedures

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

Table 6: Summary of the impact specific procedures

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
SOCIO-ECONOMIC		
<ul style="list-style-type: none"> ■ 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. 	<ul style="list-style-type: none"> ■ Progressive rehabilitation must be implemented if possible as mining progress. 	<ul style="list-style-type: none"> ■ 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		
<ul style="list-style-type: none"> ■ The area will have contours constructed to prevent soil erosion. 	<ul style="list-style-type: none"> ■ 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. 	<ul style="list-style-type: none"> ■ 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 pooling will be addressed by filling depression and / or grading areas and re-vegetating such sites; ■ 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 responsibly. Where required DWS will be consulted with regards to the use of certain chemicals

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
ECOLOGY		
<ul style="list-style-type: none"> ■ The rehabilitated area will be protected from surface disturbance to allow vegetation to establish and stabilise. 	<ul style="list-style-type: none"> ■ 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. 	<ul style="list-style-type: none"> ■ 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		
<ul style="list-style-type: none"> ■ To ensure that rehabilitation is done to such an extent that land use potential is regained for agricultural use and associated zoning. 	<ul style="list-style-type: none"> ■ Only after the levelled areas have been inspected and approved by the Mine Manager/Site Manager will topsoil be placed to a depth of 0.3 m. 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 re-vegetated with local indigenous flora as far as possible, 	<ul style="list-style-type: none"> ■ N/A

6.4 CLOSURE SCHEDULE

At this stage it is proposed that the final rehabilitation of the mining area will take approximately three months to complete. Rehabilitation will, however, not be considered complete until the first cover crop is well established and therefore the rehabilitation phase will extend over at least a six-month period.

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

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 7: Closure schedule

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
EXCAVATION	
<ul style="list-style-type: none"> ■ Dispose all waste off-site. ■ Replace the stockpiled topsoil over the mined-out area; ■ Landscape and level the area to prevent any depressions and allow for agricultural activities; ■ Seed reinstated area or arrange for planting of relevant cover crop. 	Within 1 week subsequent to area being mined-out
PLANT, OFFICE AND SERVICE AREAS	
<i>Reinstatement of final strip and any other area still in need of rehabilitation:</i> <ul style="list-style-type: none"> ■ Replace the stockpiled topsoil over the mined-out area; 	Week 1-6

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
<ul style="list-style-type: none"> ■ Landscape and level the areas in order to allow for agricultural activities; ■ Seed reinstated area, or arrange for planting of relevant cover crop. 	
MAINTENANCE AND AFTER CARE	
<ul style="list-style-type: none"> ■ Erosion Monitoring ■ Weeds and Invader Plant Control 	Monthly monitoring for 12 months after final rehabilitation of the mining area

6.5 IMPLEMENTATION AND RESPONSIBILITY OF CLOSURE PLAN

Implementation of the closure plan is ultimately the responsibility of CZ Sand Mine (Pty) Ltd. 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 as stipulated in the EMPR as well as the prevention and/or rectification of environmental incidents. The permit holder 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;
- Monitor any ecologically sensitive species should it be observed on site.

6.5.2 Management of Information and Data

The Closure Plan must include a description of the management strategies, and all information and data relevant to mine closures. These records are valuable during the 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 be identified.

6.7 RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES

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

1. that the topography has been sufficiently rehabilitated without unsafe excavation edges;
2. that topsoil has been spread on the surface;
3. 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;
4. that there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
5. that a successful cover crop has been established across the area.

In addition to the above, the following relinquishment criteria is proposed for the closure activities of the mining area:

Table 8: Relinquishment criteria

RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES			
CATEGORY	RELINQUISHMENT CRITERIA	INDICATORS	REPORTING REQUIREMENTS
Removal of all equipment.	No visible man-made structures should remain.	Closeout 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	If the natural vegetation does not grow back within 6 months, then seeding of a cover crop after topsoiling is required.	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 similar to that, which existed prior to mining.	Land capability and productivity	Comparison to equivalent areas.

6.8 CLOSURE COST ESTIMATE

Financial provision (Regulation 54 of the MPRDA, 2002) is the amount needed for the rehabilitation of damage caused by the operation, both at sudden closure during the normal

operation of the project and at final, planned closure. This amount reflects what it will cost the Department to rehabilitate the area disturbed in case of liquidation or abscondance. Financial provision for environmental rehabilitation and closure requirements of mining operations forms an integral part of the MPRDA. Section 41 of the MPRDA and Regulations 53 and 54 promulgated in terms of the MPRDA deal with financial provision for mine rehabilitation and closure.

Based on the extent of the current disturbance and by utilising the Department of Mineral Resources and Energy guideline document for calculating financial provision the proposed mine needs to provide a financial provision value of R 482 658,53. (calculated March 2023). 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 2023 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.

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

7 MONITORING, AUDITING AND REPORTING

In compliance with applicable legislation, the mining permit holder will conduct monitoring of the mining activities for the duration of the decommissioning and closure phase. 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. Monitoring, auditing and reporting needs to be conducted until mine closure has been approved by the DMRE and the closing certificate obtained.

Table 9: Monitoring, auditing and reporting requirements

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
LEGISLATED AUDITING AND REPORTING			
Environmental Auditing	<u>Internal Review</u>		
	Site manager to ensure compliance with Environmental Management Programme and Closure Plan.	Daily compliance monitoring.	Any non-conformance must immediately be addressed by site management and weekly reported on.
	<u>External Auditing</u>		
	External Environmental Consultant	Annual auditing and reporting to the Department of Mineral Resources and Energy.	Depending on the significance of the findings, site management has a maximum of four weeks to address and close out auditing results.
Financial Provision Review	Financial Provision Review	Annual review of the financial provision, and reporting of the findings to the Department of Mineral Resources and Energy.	Should the review of the financial provision indicate a shortfall the holder of the permit would increase the financial provision to meet the audited financial provision within 90 days from the date of the signature.
MONITORING			
Dust Monitoring	Site Management	Daily Dust Monitoring	Site management has a maximum of two weeks to develop and implement a dust management plan should the dust levels increase and such a plan is required by DMRE or the municipality.
Invader Plant Monitoring	Site Management	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.

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
Noise Monitoring	Noise Monitoring Specialist	Quarterly Noise Monitoring	Site management has a maximum of one week to designate additional noise zone where applicable. Hearing protection equipment must be available to employees at all times.

7.3 SCHEDULE FOR REPORTING REQUIREMENTS

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

Table 10: Reporting requirements

REPORTING REQUIREMENTS			
AUDIT	LEGISLATION	REPORTING REQUIREMENTS	UPDATE DISCLOSURE
Environmental Auditing	NEMA; EIA Regulations, 2014	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 contain the information set out in Appendix 7 of the said Regulation.	The environmental audit report will indicate the ability of the EMPR and Closure Plan to adequately manage the activity. Should the reports not be sufficient, amendment will be proposed.
Financial Provision Review	NEMA Amendment Act, 2014 (Act No 25 of 2014) Financial Provision Regulations, 2015	Reporting on the financial provision for closure of the mining area will be in accordance with Section 24P of the NEMA Amendment Act, 2014 (Act No 25 of 2014) read with the Financial Provision Regulations 2015.	The auditor will report on the adequacy of the financial provision and any adjustments that need to be made to the financial provision.
Health and Safety Auditing	Occupational Health and Safety Act, 1993 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 updates 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) quantify the potential liabilities associated with the management of the risks; and
- e) outline monitoring, auditing and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

8.3 ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS

8.3.1 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 final 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 to 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 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 affects 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 11: Monitoring Programmes

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 12: 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 13: 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 14: Example of calculating overall consequence in the assessment of potential latent risks

Consequence	Rating
Severity	Example 4
Duration	Example 2

Consequence	Rating
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 15: 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 16: 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

Rating	Description
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 17: Example of calculating overall likelihood in the assessment of potential latent risks

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3

Determination of Overall Environmental Significance:

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

Table 18: Determination of overall 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 19: Description of environmental significance and related action required in the assessment of potential latent risks

Significance	An insignificant risk (cc)	A 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.

8.3.2 Description of Latent Risks

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

8.3.3 Results and Finding of Risk Assessment

Not applicable as no latent risks were identified.

8.3.4 Changes to the Risk Assessment Results

N/A

8.4 MANAGEMENT ACTIVITIES

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

8.5 COST ESTIMATE

Not applicable as no latent risks were identified.

8.6 MONITORING, AUDITING AND REPORTING REQUIREMENTS

By reason of the fact that no latent risks with regard to the management of the mine were identified, no additional monitoring, auditing or reporting requirements are required at this stage.

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.

CZ Sand Mine (Pty) Ltd pledges to provide all necessary resources to guarantee that the rehabilitation of the mine is carried out in a manner that will be deemed acceptable by all parties.

10 SIGNATURE OF AUTHOR

NAME	SIGNATURE	DATE
Murchellin Saal		9 May 2025

11 UNDERTAKING BY PERMIT HOLDER

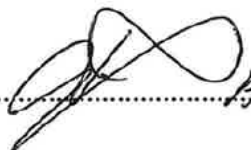
Undertaking

I, A. J. MARAIS.....the undersigned and duly authorised thereto by

CZ Sand Mine (Pty) Ltd will comply with the provisions of the MPRDA and its Regulations as set out in Government Gazette no. 2675 (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: DURBANVILLE.....on this 16.. day of APRIL.....2025.

Name:  A. J. MARAIS

Designation: DIRECTOR.....

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 and riparian 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