Mining Closure and Rehabilitation Plan

Sand Mining Permit Application

Application to mine Silica sand over an approximate 2.67 ha section over ERF 9231 Golden Gate on the Mzumbe River (KwaZulu-Natal)

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE PLAN IS SUBMITTED.

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1 BACKGROUND AND INTRODUCTION

INTRODUCTION

IDM Environmental has undertaken, on behalf of Dlulwa Trading (Pty) Ltd (the Applicant), to secure a sand mining permit from the Department of Mineral Resources (DMR), under the Mineral and Petroleum Resources Development Act 2002 (MPRDA), for a proposed 2.67 hectare sand mining area on the Mzumbe River, KwaZulu-Natal South Coast. As part of the environmental and DMR legislative assessment process, a Mining Closure and Rehabilitation Plan is required to accompany all other applicable permit application documents, particularly those relating to the environment. This is to ensure that an acceptable plan is in place – both during and post mining activities – to ensure that the affected site is adequately rehabilitated in accordance with the sustainable principals of Integrated Environmental Management, promoted by the National Environmental Management Act (Act No. 107 of 1998) (NEMA), that aims to prevent, minimise and mitigate against potential adverse long-term environmental and social impacts caused as a result of the relevant mining activities.

LOCATION OF PROJECT

The location of the proposed sand mine is situated in and around the Umzumbe River over ERF 9231 Golden Gate, approximately 16 km west of the town of Hibberdene off the road R102 (**Figure 1.1**). The application area is 2.67 ha and is located within the Umzumbe Local and the Ugu District Municipality respectively in the KwaZulu-Natal Province.

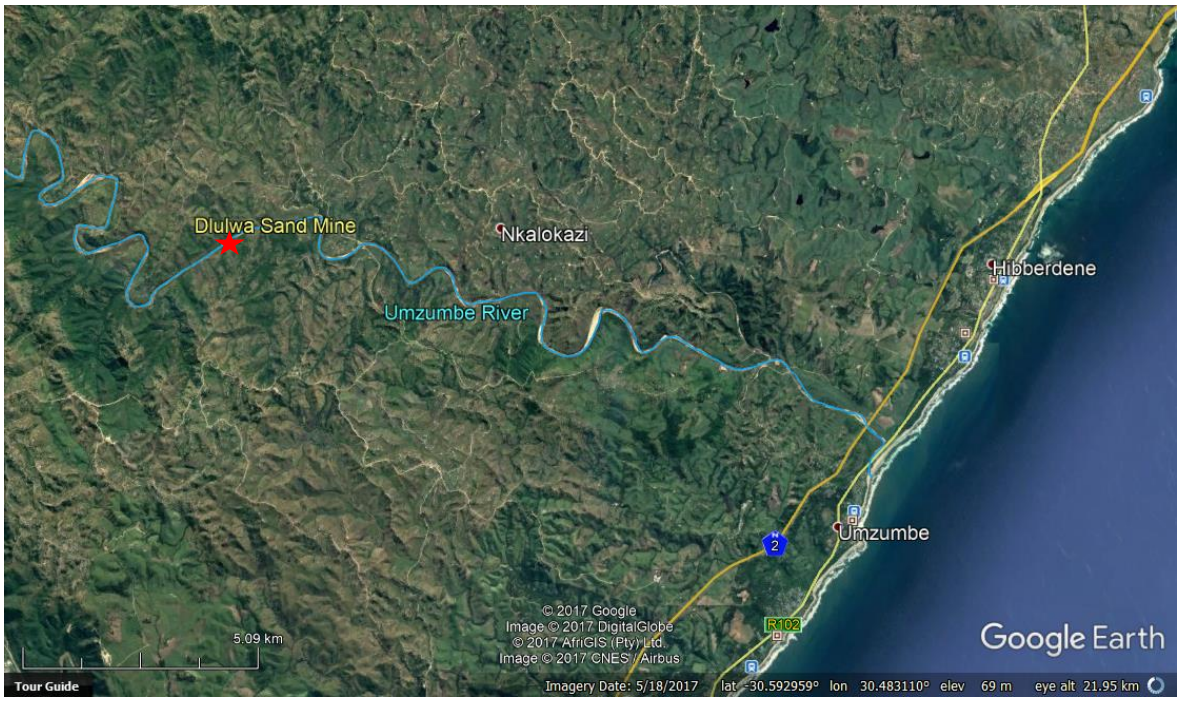

Figure 1.1. Locality of the proposed mine

MINE DESCRIPTION

The mineral proposed to be mined is silica sand. The method to be implemented is a very basic form of mining. Extraction of sand will be facilitated through the use of an excavator. An area less than 5 ha will be demarcated for mining and will not compromise any infrastructure, riparian vegetation or drainage lines.

The mechanical mining method involves the use of earth moving equipment in the form of a crawler excavator (**Figure 1.2**). The excavator will remove sand in a systematic sequence from the river, in a west-east direction. Furthermore, the excavator will be positioned into the sand bar that is exposed and lift the loose material and place it into an articulated dump truck (ADT). The ADT will traverse a fixed pathway along the sand bar and exit the river along an established route that joins the deposited sand bar to the river bank, so as to ensure maximum possible traction angle when exiting and minimal disturbance to the riparian area and established natural river course boundaries.

Figure 1.2. An example of an excavator being used to extract sand from a shallow channel

The ADT will directly deposit the sand onto the area demarcated for stockpiling of the mineral at the east end of the permit area. The sand will subsequently be loaded onto tip trucks for transport off the site and for sale to the local market. The sand will therefore not be processed on site.

Due to the fact that the site gradient is flat, storm water damage e.g. Erosion, siltation, pollution and any detrimental influence on any surrounding vegetation is deemed to be low. The Riparian zone will be avoided to ensure that the river and riverbanks will not be disturbed or diverted.

A more detailed operational explanation of the mine's proposed functioning is enclosed as **Annexure B to the EMP**.

CLOSURE AND REHABILTATION PLAN PURPOSE

This Closure and Rehabilitation Plan must be used to guide the construction, operation and decommissioning phases of the mining operation and guide the final rehabilitation of the permit site. Mine rehabilitation must be viewed as an on-going process aimed at restoring the site to a pre-mining state. The aim of the Plan is, therefore, to ensure activities associated with mine construction, operation and closure will be designed in a manner to prevent, minimise or mitigate against potential adverse long-term environmental and social impacts. The report must be updated in conjunction with a mine plan (to be formulated) on a regular basis to ensure that it is fully applicable to the activities associated with the proposed operations. The Plan is required to be monitored by the mine's appointed Environmental Control Officer (ECO) in accordance with and in conjunction with the Environmental Management Plan (EMP) prepared for mining application and mining operational purposes.

This Plan, in conjunction with the EMP, is required to be safeguarded in the possession of both the Mine Manager (MM) and the ECO at all times.

2 BASIS OF CLOSURE PLAN

2.1 LEGAL OBLIGATIONS

South African mining and associated legislation and policy places ultimate responsibility for mitigating environmental and social damage as a result of mining operations on mining companies themselves. The liability exists throughout the different phases of the mine, from commencement, during operations, post operations and mine closure. This includes compulsory legislative commitments for remediation and/or rehabilitation and ultimate close out. The key relevant legislation applicable to rehabilitation and closure includes the following:

- Constitution of the Republic of South Africa (Act 108 of 1996) (Constitution);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA);
- National Environmental Management Act (Act No. 107 of 1998) (NEMA);
- National Water Act (Act 36 of 1998) (NWA).

The following sections provide a brief description of the legislation as it pertains to the closure of a sand mining operation.

2.1.1 The Constitution (Act 108 of 1996)

While the constitution does not address rehabilitation specifically, it does pave the way for environmental legislation in South Africa. The constitution enshrines environmental wellbeing as a fundamental human right that must be protected. In terms of Section 24 of the Constitution, it states:

"*Everyone has the right –*

- *to an environment that is not harmful to their health or well-being;*
- *to have the environment protected, for the benefit of present and future generations*".

This must be achieved through reasonable legislative and other measures and ensures that environmental considerations are taken into consideration during the closure of a mine. The Constitution also provides rights pertaining to administrative justice, capacity or standing to institute legal proceedings and access to information. These all become relevant within the context of protection and management of the environment during all stages of the mine's life cycle.

2.1.2 Minerals and Petroleum Resources Development (Act 28 of 2002)

The MPRDA contains certain transitional measures with regards to mineral rights, prospecting permits, and mining authorizations. The legal framework for the regulation of the mining industry underwent transformation with the promulgation of the Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA), which came into effect on 1st May 2004. These requirements and a summary of other regulatory considerations are discussed in the following paragraphs.

In Section 37, the MPRDA confirms that the principles set out in the National Environmental Management Act 107 of 1998 (NEMA) apply to all prospecting and mining operations and that these operations must be carried out in accordance with the generally accepted principles of sustainable development. This is further supported by the stated objective of the MPRDA being to "*give effect to Section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development*".

Section 38 stipulates that the general objectives of integrated environmental management must be applied in accordance with NEMA and this will include the assessment and management of impacts identified as part of the Environmental Management Programme (EMP) process laid out in Section 39.

R527 specifies that the EMP must include environmental objectives and specific goals for mine closure. The applicant for a mining permit/right must make prescribed financial provision for the rehabilitation or management of negative environmental impacts.

R527 provides principles for mine closure which state that the holder of a mining permit/right must ensure:

- **The closure of its mining operation incorporates a process which starts at the commencement of operation and continues throughout the life of mine;**
- **Risks pertaining to environmental impact are quantified and managed proactively, which includes gathering relevant information throughout the mine's operations;**
- **Safety and health requirements of the Mine Health and Safety Act (MHSA) 29 of 1996 are complied with;**
- **Residual and possible latent environmental impacts are identified and quantified;**
- **The land is rehabilitated, as far as practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms to the concept of sustainable development;**
- **Mining operations are closed efficiently and cost effectively;**
- **Key objectives for mine closure to guide project design development and management of environmental impacts are included in the EMP, which include broad future land use objectives, and proposed closure and rehabilitation costs.**

As with NEMA and NWA, there is a provision in the MPRDA (Section 45) for the DMR to direct an operation to investigate, evaluate, assess and report on the impact of any pollution or environmental degradation and take such measures as may be specified within a specified time period. If the operation fails to carry out such a direction, the DMR can initiate the necessary actions and recover the costs from the MM. In addition, Section 38 makes the owners of the mine severally liable for any unacceptable negative impacts or failure to comply with this Plan read with the EMP.

2.1.3 National Environmental Management Amendment Act (Act No. 107 of 1998)

NEMA is the overarching and enforceable body of environmental legislation in South Africa. This act paves the way for an EIA process to assess developments that may have a harmful impact on the environment. NEMA aims to establish overarching guidelines and principles to help facilitate environmental management in South Africa. It promotes Integrated Environmental Management (IEM) (Sections 23 and 24), which aims to integrate environmental management with development.

Sections 28 (1) and (3) of NEMA set out the duty of care principle, which is applicable to all types of pollution and imposes a duty of care to prevent, or where permitted, to minimize environmental degradation. It also provides examples of steps that should be taken to prevent environmental degradation, including the provision for rehabilitation in Section 28 (3) (f), which states that the measures may include measures to "remedy the effects of pollution and degradation".

Section 2 of the Act lists a set of principles with which environmental management must comply and to which Section 37 (1) of the MPRDA refers directly as follows: "*The principles set out in Section 2 of the National Environmental Management Act, 1998 (Act No.107 of 1998)*

> (a) *apply to* ***all prospecting and mining operations****, as the case may be, and any matter relating to such operation; and*
>
> (b) *serve as guidelines for the interpretation, administration and implementation of the environmental requirements of this Act.*"

Section 2 (b) of NEMA states that they "*serve as the general framework within which environmental management and implementation plans must be formulated*".

The principles of Section 2 of NEMA that are particularly applicable to rehabilitation are:

- The precautionary principle (2 (4) (a) (vii)), which lays the onus on the developer or (mine) operator to take a risk averse and cautious approach during decision making, that recognises the "*limits of current knowledge about the consequences of decisions and actions*". Where uncertainty exists, action must be taken to limit the risk;
- The cradle-to-grave (or lifecycle responsibility) principle (2 (4) (e)) states that "*responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*";
- The polluter-pays principle (2 (4) (p)) is generally regarded as an important guiding principle for environmental management. and
- The project must comply with the requirements for sustainable development (2 (3)), which requires consideration of all relevant factors (2 (4) (a)). A holistic, integrated approach must be followed and the "*best practicable environmental option*", (defined as being "*the option that provides the*

most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term") must be selected.

2.1.4 National Water Act 36 of 1998

The provision of water in South Africa is divided into public water and private water, and its use is regulated by the National Water Act (NWA) (under the directorship of the Department of Water and Sanitation (DWS)). Various other acts also make provision for the management of water: the MPRDA regulations have general requirements for water management, the Conservation of Agricultural Resources Act (CARA) contains water management guidelines, and the Health Act is concerned with effective water management (Barnard, 1999).

It must be noted that, in terms of the NWA, it is an offence to pollute public and/or private water to render it unfit for the propagation of fish and aquatic life, including rainwater, seawater, and subterranean water. All water in South Africa is under the trusteeship of the national government (Bailie, 2006). Furthermore, development within a watercourse requires a water use license application, before a developer can proceed to construction (in this case the operator of a mine)

Section 19 of the Act sets out the principles for "*an owner of land, a person in control of land or a person who occupies or uses land*" to:

- Cease, modify or control any act or process causing pollution;
- Comply with any prescribed waste standard or management practice;
- Contain or prevent the movement of pollutants;
- Eliminate any source of pollution;
- Remedy the effects of the pollution;
- Remedy the effects of any disturbance to the bed and banks of a watercourse.

Regulation 9 of GN R704 promulgated in terms of the NWA, which deals with temporary or permanent mine closure, provides that any person in control of a mine or related activity must at the cessation of mining operations and its related activities, ensure that all pollution control measures have been designed, modified, constructed and maintained so as to comply with the regulations contained in GN R 704. Furthermore, the in-stream and riparian habitat of any water resource, which may have been affected or altered by the mine or activity, must be rehabilitated in accordance with the regulations contained in GN R. 704.

2.1.5 Other Legal Obligations

Legal obligations relating to the closure of a mine are contained in the EMP prepared in respect of the activities that occur or are planned within the proposed mine permit area. The EMP mitigation table compiled for this particular mining permit application mitigation table is included in **Appendix 1 of the EMP.**

2.2 CLOSURE VISION

The closure vision of the mining operation is to ensure that the mining area is left as a sustainable environment area, that is not harmful to the health and safety of the surrounding communities and protects and enhances the local biodiversity and the natural landscape of the mining area and surrounds.

CLOSURE OBJECTIVES

The following closure objectives are required to be implemented by the mine owner/operator to support the abovementioned closure vision:

- **Adhere to all statutory and other legal requirements (National and Local);**
- **Implement progressive rehabilitation measures where possible to ensure protection of the local environment;**
- **Maintain and minimize impacts to any functioning wetlands and water bodies within the area;**
- **To develop land-uses that are stable, sustainable and aesthetically acceptable on closure;**
- **Ensure safety & health of all stakeholders during closure and post closure and that communities using the site after closure are not exposed to unacceptable risks.**
- **Ensure that closure supports productive uses considering pre-mining conditions and are in agreement with commitments to stakeholders.**
- **Utilize closure strategies that promote a self-sustaining condition with little or no need for ongoing care and maintenance.**
- **Achieve agreed quality targets set by the Catchment Management Authority (CMA) and the Department of Water and Sanitation (DWS) as far as practical relative to impacts and reasonability to achieve.**

POST CLOSURE AND LAND USE

The land adjacent to the river section where the proposed mining operation is set to take place occurs on land owned by the applicant, viz. Dlulwa Trading (Pty) Ltd. Once rehabilitation has taken place, it will be the responsibility of the mine owner/operator to ensure that the land will be returned to a natural state and no further mining will occur.

HEALTH HAZARDS AND SAFETY

The closure health and safety hazards are likely to be similar to those encountered during operations. These have been highlighted in the applicable EMP (and corresponding mitigation measures set out) along with the necessary guidance from the health and safety program enclosed herewith as Annexure F to the EMP.

3 CLOSURE ACTION PLAN

A Closure Action Plan aims to create stable environment, capable of supporting a vegetation community and preventing pollution, erosion and alien species dispersal. Aesthetics associated with the mine will be improved as a consequence of the establishment of natural vegetation within the post-operational area. In order to gain the best possible rehabilitation outcomes from the resultant mining operation, different actions are required to occur at different times within the life cycle of the mine.

Typical mining phases include Construction, Operational and Decommissioning phases. Prior to construction and preparation of the land for mining, best practices need to be implemented and compliance to legislation needs to be adhered to.

The following three action phases are required to be implemented by the mine owner/operator in order to ensure successful rehabilitation:

3.1 LAND PREPARATION

The most important factors to bear in mind when preparing for applicable sand mining operations are:

- To limit the areas that will be affected by the proposed mining development;
- To minimize potential future contact of toxic or polluting materials with the environment; and
- To maximize the recovery and effective storage of those mining profile materials that could be most useful during the rehabilitation process after mining has been completed (Chamber of Mines, 2007; Department of Minerals and Energy, 2008).

The following points should be considered during the implementation and operational phase of the project:

Note: The specialist study in support of this Plan and sand mining application (and captured in the relevant permit EMP as Annexure C thereto) should be read with this section in so far as minimization of impacts is concerned.

- Mine planning should be designed in a way so as to ensure the area to be occupied by mine infrastructure is minimized.
- The affected area should be kept as small as is practically possible and should be clearly defined and demarcated;
- Care should be taken around sensitive landscapes e.g. wetlands to ensure that associated impacts are preferably non-existent but if marginal, are minimized, and that the buffer zones around these sensitive landscapes are addressed and respected.
- Mine operators should restrict their activities to planned areas. Clear instructions and control systems should be in place and compliance to the instructions should be policed by inter alia the mine manager and the ECO.

- All stockpiles should be located in demarcated and approved areas where they will not have to be removed prior to final placement.
- Sand and soils which cannot be replaced directly onto rehabilitated land should be stockpiled.
- All stockpiles should be clearly and permanently demarcated and located in defined no-go areas, re-vegetated and monitored on an annual basis;
- Infrastructure should be designed with closure in mind, and should either have a clearly defined dual purpose or should be easy to demolish.

3.2 SAND REMOVAL AND DISTURBANCE OF SOILS

Soil disturbance is only envisaged within the demarcated stockpile area.

Sufficient soil should be available for rehabilitation of the stockpile area and of adequate quality to support vegetation growth and thus ensure successful rehabilitation.

To minimize the impact on the soil located within the stockpile area, the following measures should be adhered to:

- Plan site clearance and alteration activities for the dry season (May to October);
- Restrict extent of disturbance within the designated areas of disturbance;
- Minimize the period of exposure of soil surfaces through dedicated planning;
- During stockpiling, preferably the 'end-tipping' method should be adopted to keep the stockpiled soils loose;
- Ensure stockpiles are placed on a free draining location to limit waterlogging; and
- Limit stockpile height.

The steps that should be taken during sand stockpiling are as follows:

1. Mark stockpile locations accurately on a plan to ensure that re-handling is minimized (i.e. sand will not have to be moved a second or third time);
2. Ensure that the location is free draining to minimize erosion loss and waterlogging;
3. Minimize compaction during stockpile formation.
4. Ensure that the stockpiled sand is only used for the intended purposes.

Progressive monitoring of stockpiles and replacing of topsoil will ensure successful post-mining land and soil reclamation. Assessing post-mining soil characteristics and associated land capability and land uses is necessary to ensure that the end land uses goals can be met.

The locations of the stockpile area should be on a topographical crest to ensure free drainage in all directions. If this is not possible then an alternative is a side-slope location with suitable cut-off berms constructed upslope.

Stockpiles that are placed in drainage lines result in soils becoming water logged and a loss of desirable physical and chemical characteristics. Such situations also result in a loss of soils due to erosion. Therefore, no stockpiling will occur in these areas.

3.3 INFRUSTRUCTURE REMOVAL

No infrastructure shall be erected within the permit site.

Due to the mine's small scale, the operation will require no permeant infrastructure on site. Temporary toilets located on site will be removed, as well as any mining machinery and designated waste bins.

Mine access roads that are not needed for closure and post-closure uses at the site (e.g. security and monitoring) will be closed and gravel removed.

There will also be the removal of all signage, fencing, traffic barriers, etc. All 'hard top' surfaces to be ripped and bitumen removed along with any culverts and concrete structures.

3.4 RE-VEGETATION

The main aim when re-vegetating is to restore the area back to the pre-mining environmental state. This is a self-sustaining system with a natural nutrient cycle in place and with ecological succession initiated. Although the rehabilitated land may have variable land capability, including arable land capability for some areas, the main aim of this re-vegetation process is to establish a stable, sustainable grass cover.

Re-vegetation of the stockpile area must occur. This is located adjacent to the Mzumbe River and thus is important in order to prevent erosion and runoff into the system. The stockpile pad surface will be ripped, have topsoil spread across the area and replanting and re-establishment of vegetative cover. The stockpile area will be deep ripped with a tractor drawn ripper and the entire stockpile area and access paths will be re-grassed.

The objectives for the re-vegetation of reshaped and top-soiled land are to:

- Prevent erosion;
- Re-establish eco-system processes to ensure that a sustainable land use can be established without requiring fertilizer additions; and
- Restore the biodiversity of the area as far as possible.

<u>Re-vegetation steps within the stockpile and access road zones include:</u>

- Ensure that any disturbed soils have been replaced correctly.
- Prepare the soil by adding lime and fertilizer and ploughing the area, followed by tillage to prepare the seed bed;
- Plant a grass seed mixture consisting of a range of indigenous or non-invasive naturalized species.

- The majority of plant species present in the un-mined areas will re-establish naturally, provided the soils are replaced correctly and the tillage is done correctly;
- Control and remove weeds where necessary;
- Repeat the procedure for the next growing season;
- Application of fertilizers is crop and site specific, analysis of the soils and stockpiles should be undertaken to determine the appropriate fertilizers to be used, if required;
- Grass needs regular defoliation if it is to be sustainable;
- Leave pasture to allow natural grasses to become re-established;
- Conduct annual monitoring (repeatable demarcated transect surveys); and

The common methods used to establish vegetation include seeding and hydroseeding.

Control and management of alien vegetation will contribute to the conservation of the natural vegetation.

The alien species should, therefore, be removed from site and control measures must be implemented to ensure spreading of these species does not occur to other parts of the project area or the surrounding lands.

3.5 ALIEN PLANT CONTROL

Alien invasive species tend to out-compete indigenous vegetation; this is due to the fact that they are vigorous growers that are adaptable and able to invade a wide range of ecological niches (Bromilow, 1995). If stockpile site could become over run with invasive species. Therefore, rehabilitation must involve control of invasive species. Alien species on site must be identified, categorized and removed, using one or a combination of methods.

Invasive alien plant species are difficult to control. Methods should be used that are appropriate for the species concerned, as well as to the ecosystem in which they occur. When controlling invaders, damage to the environment must be limited to a minimum. There are three basic methods by which encroachers or weeds are controlled:

Physical (mechanical):

- Uprooting (hand pulling);
- Cutting back;
- Chopping, slashing and felling; and
- Ring-barking (girdling)

Chemical:

- Foliar application;
- Stem notching and application;
- Stump treatment; and
- Soil treatment

Biological treatment:

- Which involves the use of host-specific natural enemies of weeds or invaders from the plant's country of origin, to either kill or remove the invasive potential of these plants.

The following additional measures are recommended in order to prevent the future introduction or spread of alien species, and to ensure the rehabilitation of transformed areas:

- There must be no planting of alien plants (e.g. black wattle, eucalyptus and pampas grass) anywhere within the mining area;
- Annual surveys, aimed at updating the alien plant list and establishing and updating the invasive status of each of the alien species, should be carried out;
- The transportation of soils or other substrates infested with alien species should be strictly controlled; and
- Benefits to local communities as a result of the alien plant control programme should be maximized by not only ensuring that local labour is employed, but by also ensuring that cleared alien trees are treated as a valuable wood resource that can be utilized.

3.6 WATERCOURSE REHABILITATION

Erosion control methods during operation and re-vegetation during the decommissioning phase are important to ensure protection of the Mzumbe river system.

The river section of the permit area will be rehabilitated by the following rainy season with flood waters depositing more sand across the mined area. During the decommissioning phase, the river access ramp will be repaired and regressed/ re-vegetated to prevent erosion and to prevent runoff from the rehabilitated stockpile area.

4 POST CLOSURE MONITORING AND MAINTENANCE

The objective of the monitoring program will be to document the recovery of the site towards the closure land use goals, in accordance with the overall closure objectives stated in **Section 2.3**. Rehabilitation will require monitoring on a monthly basis for the first 6 months, thereafter every 6 months for two years.

The monitoring that will be required during the post-closure period is summarized below:

Table 1: List of identified impacts requiring monitoring programmes

Surface	Alteration to stream flow
	Regulation and Runoff
	Pollution/ Sedimentation
Soil	Erosion
Vegetation	Destruction
	Alien Vegetation
Wildlife	Disturbance/Harm
	Barrier to movement/ Hazard
Climate	Atmospheric Emissions
Air Quality	Dust Generation
	CO and CO^2 Emissions
Noise	Noise Disturbance
Traffic Impact	Increased Traffic
	Safety
Domestic Waste	Litter

Whilst the Mine Manager must undertake to monitor activities on a daily basis, the ultimate responsibility for satisfying the monitoring requirements is the role of the Land Owner. The Environmental Control Officer (ECO) shall be responsible for ensuring compliance of all aspects of monitoring in accordance with the roles and responsibilities designated in terms of the EMP.

5 CLOSURE LIABILITY

The liability for closure of the aspects associated with the Project has been determined using the approach advocated in the Department of Minerals and Energy (DME) (now the Department of Mineral Resources (DMR)) Guideline Document for the Evaluation of the Quantum of Closure Related Financial Provisions Provided by a Mine (2005).

The approach to calculating the closure quantum as specified in the DMR Guideline which was utilized in this assessment is as summarized as follows:

- **Step 1:** Determine the Mineral Mined
  In the first step, the mineral mined has been identified in the tables provided in the DMR guideline (**Table B.12**) as "*Silica Sand*."
- **Step 2A:** Determine Primary Risk Class
  The "Primary Risk Class" has been determined from **Table B.12** of the DMR Guideline as "*B (Low Risk)".*
- **Step 2B:** Revision of Primary Risk Class
  The Primary Risk Class can be revised on the basis of saleable by-products if required. However, this is not applicable.
- **Step 3:** Determine Environmental Sensitivity
  The "*Environmental Sensitivity*" has been determined by reference to **Table B.4** of the DMR Guideline as "*Medium*".
- **Step 4:** Determination of weighting factors:
  Weighting Factor 1: The nature of the terrain where the operation is located is flat.
  Weighting Factor 2: The proximity of the operation to an urban center. Located in peri-urban setting.