BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

ENVIRONMENTAL IMPACT ASSESSMENT/ MANAGEMENT PROGRAMME FOR MINING PERMIT APPLICATION

FARM: BUSH RISE 702-MS, MAKHADO LOCAL MUNICIPALITY, LIMPOPO PROVINCE
DMR REF: LP 30/5/1/3/2/ 11715 MP

APPLICANT:

BRINK SCHLESINGER FAMILY TRUST

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DOCUMENT APPROVAL RECORD

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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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LIST OF ABBREVIATIONS:

ACRONYM	DESCRIPTION
BSFT	Brink Schlesinger Family Trust
CARA	Conservation of Agriculture Resources Act, 1983
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Environmental Integrity System
EMP	Environmental Management Report
EMF	Environmental Management Framework
GC	Gudani Consulting
I&APs	Interested and Affected Parties
IFR	In-stream Flow Requirements
IWULA	Integrated Water Use License Application
IWWMP	Integrated Water and Waste Management Plan
LIHRA	Limpopo Heritage Resource Agency
LOM	Life of Mine
MAE	Mean Annual Evaporation
MAR	Mean Annual Run-Off
MAP	Mean Annual Precipitation
MPRDA	Minerals and Petroleum Resources Development Act, 2002
NEMA	National Environmental Management Act, 1998
NWA	National Water Act, 1998
NWRS	National Water Resource Strategy
NHRA	National Heritage Resources Act, 1999
PCD	Pollution Control Dam
PES	Present Environmental Status
PFD	Process Flow Diagram
PM_{10}	Particulate Matter (with diameter of 10 micrometers or less)
PPP	Public Participation Process
REC	Recommended Ecological Class
ROM	Run of Mine
RQO	Resource Quality Objectives
SEA	Socio-Economic Assessment
SANAS	South Africa National Standard
SANBI	South Africa National Bio-Diversity Institute
SAHRA	South Africa Heritage Resource Agency
SDF	Spatial Development Framework
WMA	Water Management Area
MLM	Makhado Local Municipality
VDM	VHEMBE District Municipality

GLOSSARY OF TERMS

Aeromagnetic Survey	Surveys flown by helicopter or fixed wing aircraft to measure the magnetic susceptibility of rocks at or near the earth's surface
Alien species	A plant or animal species introduced from elsewhere: neither endemic nor indigenous.
Alternatives	A possible course of action, in place of another, that would meet the same purpose and need (of proposal). Alternatives can refer to any of the following but are not limited hereto: alternative sites for development, alternative site layouts, alternative designs, alternative processes and materials. In Integrated Environmental Management the so-called "no go" alternative refers to the option of not allowing the development and may also require investigation in certain circumstances.
Ambient	The conditions surrounding an organism or area.
Archaean	The oldest rocks of the Precambrian era, older than about 2 500 Ma
Assessment	The process of collecting, organising, analysing, interpreting and communicating data that is relevant to some decision.
Basement	The igneous and metamorphic crust of the earth, underlying sedimentary deposits
Biodiversity	Measure of the number and relative abundance of biological species. The variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.
Climate	A measure of the long-term averages, i.e., normal, of key atmospheric variables such as temperature, precipitation and wind.
Dip and dip direction	The dip direction is the azimuth of the direction of the dip as operationsed to the horizontal, which is 90° off the strike angle
Dyke	A vertical or near vertical sheet of igneous rock, the widths of which may range from centimetres to hundreds of meters
Ecology	The study of the interrelationships between organisms and their environments.
Effluent	Effluent is an out flowing of water from a man-made structure such as a process plant or tailings facility.
Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group; these circumstances include biophysical, social, economic, historical, cultural and political aspects.
Environmental impact	A change resulting from the effect of an activity on the environment, whether desirable or undesirable. Impacts may be the direct consequence of an organisation's activities or may be indirectly caused by them.
Environmental Impact Assessment	An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed operations, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives, as well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures for enhancing the positive aspects of the proposal, and environmental management and monitoring measures.
Environmental Management Plan	A legally binding working document, which stipulates environmental and socio-economic mitigation measures which must be implemented by several responsible parties throughout the duration of the proposed operations.
Fault	A fracture or fracture zone, along which displacement of opposing sides has occurred
Gabbro	Belongs to a group of dark, coarse-grained, intrusive mafic igneous rocks chemically equivalent to basalt.
Groundwater	Water which occurs below the surface of the Earth, where it occupies spaces in soils or geologic strata.
Industry	The use of land or a building for a factory, distributing depot, wholesale, storage, warehouse for the storage of wholesale merchandise, carting and transport services, laboratories, workshop and vehicle workshop and may also include offices which are normally associated with or which are reasonably essential for the main use as well as the sale of goods wholly or partially manufactured, processed or packed on the property.
Integrated environmental management	IEM provides an integrated approach for environmental assessment, management, and decision-making and to promote sustainable development and the equitable use of resources. Principles underlying IEM provide for a democratic, participatory, holistic, sustainable, equitable and accountable approach.

Interested and affected parties	Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.
Intrusion	Liquid rock (magma) which forms below the surface of earth and slowly cools into a solid rock mass
Key issue	An issue raised during the Scoping process which has not received an adequate response and which requires further investigation before it can be resolved.
Layered complex	A body of igneous rock which exhibits vertical layering or differences in composition and texture and shows evidence of fractional crystallisation. Ideally, the stratigraphic sequence of an ultramafic intrusive complex consists of ultramafic peridotites and pyroxenites toward the base with more mafic norites, gabbros and anorthosites in the upper layers
Listed activities	Development actions which are likely to result in significant environmental impacts as identified by the Minister of Environmental Affairs and Tourism in terms of Section 21 of the Environment Conservation Act.
Mitigation	To cause to become less harsh or hostile.
Negative impact	A change which reduces the quality of the environment (for example, by reducing species diversity and the reproductive capacity of the ecosystem, by damaging health, or by causing nuisance).
Positive impact	A change which improves the quality of life of affected people or the quality of the environment.
Property	Any piece of land indicated on a diagram or general plan approved by the Surveyor-General intended for registration as a separate unit in terms of the Deeds Registries Act and shall include an erf, a site and a farm portion as well as the buildings erected thereon
Public Participation Process	A process of involving the public in order to identify needs, address concerns, choose options, plan and monitor in terms of a proposed operations, programme or development
Relevant authority	The environmental authority on national, provincial or local level entrusted in terms of the Constitution and in terms of the designation of powers in Notice No. R. 1184 of 5 September 1997 with the responsibility for granting approval to a proposal or allocating resources.
Scoping	This refers to the process of determining the spatial and temporal boundaries (the extent) for the EIA and key issues to be addressed in an environmental assessment.
Scoping Report	A report describing the issues identified.
Study area	Refers to the entire study area encompassing all the alternative routes as indicated on the study area map.
Surrounding Owners	The registered owners of the properties directly bordering the property or across the road / street and also such owners that the Local Authority may specify.

1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and In terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provided all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represent the interpretation of the applicant.

2. Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process–

(a) Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to

determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
(ii the degree to which these impacts–
(aa) can be reversed;
(bb) may cause irreplaceable loss or resources; and
(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to–
(i) identify and motivate a preferred site, activity and technology alternative;
(ii) identify suitable measures to manage, avoid or mitigated identified impact; and
(iii) identify residual that need to be managed monitored.

PART A
SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

(a) Details of

i) Details of the EAP

Name of The Practitioner:	**Gudani Consulting (Elijah Monyai)**
Tel No.:	**(015) 291 3620**
Fax No.:	**(015) 291 4932**
e-mail address:	**elijah@gudaniconsulting.co.za**

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**

(With evidence).

- **Please refer to Annexure A for the Curriculum Vitae of the EAP**

(2) **Summary of the EAP's past experience.**

(In carrying out the Environmental Impact Assessment Procedure)

Elijah has 12 years working experience in the environmental management and the consulting industry and managing various clients he's equipped with project management and coordination skills, which especially enhances the service offered to clients within the environmental permitting system.

(b) Location of the overall Activity.

Farm Name:	Bush Rise 702-MS
Application area (Ha)	5 ha
Magisterial district:	Vhembe District
Distance and direction from nearest town	Makhado is approximately 50 km North of the mining area.
21 digit Surveyor General Code for each farm portion	TOMS000000000070200000

(c) Locality map

(show nearest town, scale not smaller than 1:250000)

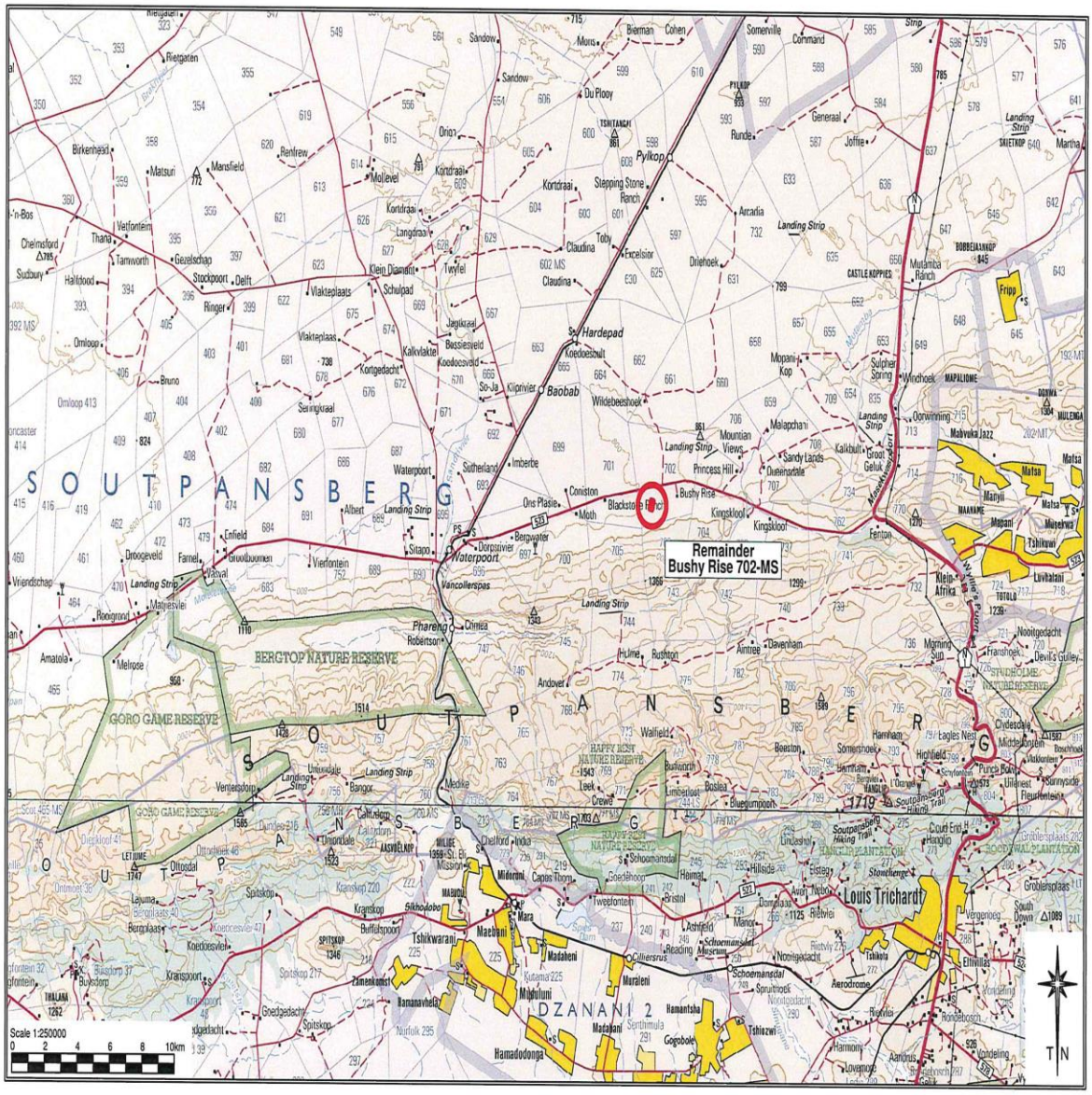
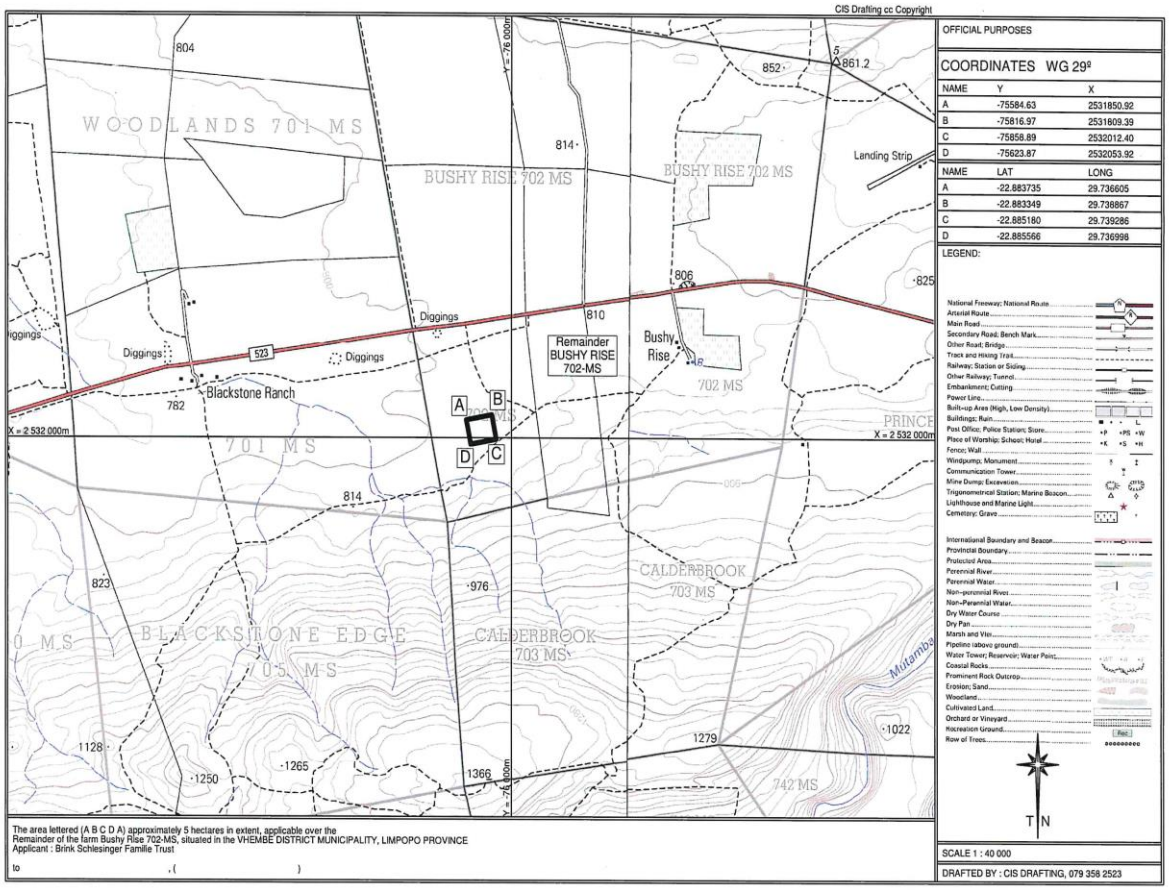


Figure 2: Locality Plan

(d) Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructures to be placed on site.



(i) Listed and specified activities

NAME OF ACTIVITY (**E.g. For prospecting-** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…** **E.g For mining, -** excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, etc…**)**	**Aerial extent of the Activity Ha or m^2**	**LISTED ACTIVITY Mark with an X where applicable or affected**	**APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)**
Excavations and Stockpiles	**5 Ha**	**X**	**Activities are listed under Regulations Listing Notice 1 (as per 2014 Regulations) previously Government Notice (GN) 544,** ***Activity 21 –*** *Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act no. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Developmental Act, 2002, (Act No. 28 of 2002)*
Site clearance	**5 Ha**	**X**	**Activities are listed under Regulations Listing Notice 1 (as per 2014 Regulations) previously Government Notice (GN) 544,** ***Activity 27-*** *The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for* *(i) the undertaking of a linear activity; or* *(ii) maintenance purposes undertaken in accordance with*

			a maintenance management plan.
Access and Haul Roads	**Ha**	**X**	**Listing Notice 1 (Activity 56)** The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.

(iii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

BSFT is proposing to mine Sand from the proposed farm. The equipment that is used for the mining of Sand includes excavators and the mined Sand is loaded onto 6 cubic metre tipper trucks. The proposed mining Sand will be mined using excavator and tipper trucks, and stockpiled a 100m away from the mining area, then transported to the local users within Makhado area.

Sand mining is the physical removal of Sand from anywhere that it exists. It can take place on a small-scale and that is taking a bucket or two or on a large-scale and that is truckloads that take it away for activities such as construction and road developments. The mining of Sand is done from beaches and inland dunes and dredged from ocean beds and river beds. Mining method is referred to as dry-pit mining. Dry-pit refers to pits excavated on dry ephemeral streambeds and exposed bars with conventional bulldozers/excavators, scrapers and loaders.

Sand is mined using an excavator and tipper trucks. The mined Sand is immediately loaded onto tipper trucks then transported to respective customers around Makhado – especially in property construction sites in and around the town and villages even the whole of Vhembe District.

Mining of Sand within a river bed is done by method of strip to a depth of not more than 1.5m. The area extent of the strip being mined at any one time is 50m x 30m. Following the mining the strip slopes are graded to conform to the horizontal alignment of the river bed in line with the river flow direction. This measure ensures that during rainy seasons, the river is able to flow naturally and replenish the mined out Sand and restore the river bed. Mining is conducted only along the river bed. The side banks are not mined to ensure that the flow integrity and alignment of the river and availability of water for down-stream users is maintained.

Equipment for the Sand mining operations includes the following: excavator, front end loader and tipper trucks. The equipment's are discussed in detail below.

Excavator
Excavators are engineering and construction vehicle made for many types of roles such as digging holes. They have a unique look with a long arm, a cab mounted on a pivot point, with an undercarriage that has wheels, or more commonly, tracks.
They are used most commonly in the digging of trenches and holes. An excavator is frequently used in heavy lifting and placement of pipes and in mining, primarily open-pit or strip mining. The machines can have the bucket customized to fit the job needed, because there are many types of buckets available for construction use.

Front end loader
Front end loaders are wheeled machines that employ a tilting bucket and movable arms for easy lifting and moving of construction materials. Most often, depending on the work being done at the time it is needed, the tilting bucket may be replaced by other devices. The front end loader will be used to push Sand into piles and load on tipper trucks.

Tipper trucks
These are trucks whose contents can be emptied without handling; the front end of the platform can be pneumatically raised so that the load is discharged by gravity. Tipper trucks are used for the transportation of Sand from mining site to the hardware or customers are $6m^3$ in size.

MINING Sand mining operations uses the equipment listed below.
1 x excavator;
1 x front-end loaders;
2 x 6m3 tipper truck;

(e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g In terms of the National Water Act a Water Use License has/ has not been applied for)
National Environmental Management : Biodiversity Act , 2004	The occurrence of Indigenous tree species	The EMP will regulate the applicant to apply for Tree Removal Permit prior to the potential removal of any sensitive and/or protected Species.
National Heritage Resources Act , 1999 (Act 25 of 1999)	The activity will trigger the requirements Under Section38 of the NHRA.	Proposed Sand mining has identified no significant impacts to archaeological material therefore no archaeological or cultural heritage remains were documented during the study. Otherwise The Feedback from the South African Heritage Resources Agency (SAHRA) will guide whether permits will be required.
National Environmental Management Act , 1998	This Basic Assessment Report & EMP	An Application for Environmental Authorisation will be submitted to the DMR together with this Basic Assessment Report and EMP documents.

Mineral and Petroleum Resources Development Act , 2002	Application for Prospecting in terms of Section 27	Mining Permit application to be submitted together with the BAR and EMP.

(f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

BSFT wishes to mine Sand from the farm Bushy Rise 702-MS, within the Makhado area. This project will only be a development strategy to provide a convenient standard of living and improve the lives of the community to have better access to building material as the community expands it modern settlements. The Sand mining permit applied is to provide locals with valuable building Sand. As it is not found easily within the area.

(g) Motivation for the overall preferred site, activities and technology alternative.

- **Overall preferred site.**

The proposed mining area targeted has adequate material required for the transporting and utilising of building material. The site is therefore regarded as the preferred site and alternative sites are not considered.

- **Technology alternative**

Due to the nature of the proposed activities future land use alternatives will not be compromised. All infrastructure will be temporary and/or mobile.

(h) Full description of the process followed to reach the proposed preferred alternatives within the site.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by the interested and affected parties, and the consideration of alternatives to the initially proposed layout.

The stakeholder consultation phase has been completed.

(i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

(a) The property on which or location where it is proposed to undertake the activity.

The applicant is applying for mining permit on the farm Bushy Rise 702-MS for preferred Sand material, adequate to transport for construction purposes.

(b) The type of activity to be undertaken

The proposed site will be demarcated at the boundaries with the appropriate safety measures in place. Sufficient vegetation will be cleared from the site only to create access roads. Topsoil will be removed from the site and stored and preserved separately from any other soil layers. The vegetation will be mulched in with the removed topsoil to assist in re-growth during rehabilitation (on access roads and banks). Topsoil stockpiles will not exceed a height of 2m and will have moderate slopes to prevent erosion and loss of the topsoil during raining seasons. Other material removed from the mining site that will not be used during the rehabilitation of the road will be stockpiled separately from the topsoil and will be used in the reshaping of the site during rehabilitation.

The Sand will be mined to a maximum depth of 6 to 30m. During rehabilitation of the site, the mine pits will be sloped to make it free draining. Heavy machinery will not be stored or repaired on site and all lubricants and fuels will be stored at the site office or camp inside designated areas.

(c) The design or layout of the activity

The area as indicated will not be exceeded to prevent any impacts on the surrounding environment and thus limiting the footprint of the development. Material will be loosened by use of machinery and loading with excavators directly onto haul vehicles. The material will then be transported to storage plant or directly to local customers.

(d) The technology to be used during the activity

Material will be loosened by use of machinery and loading with excavators directly onto haul vehicles. The material will then be transported to customers.

(e) The operational aspects of the activity; and

Due to the nature of the Sand mining activities, no permanent services in terms of water supply, electricity, or sewerage facilities are required. The manner on which the area is surveyed will ensure that the appointed contractor can clearly use the Sand mining demarcated area to the preferred manner in complying and making sure no unnecessary surface disturbance will be undertaken.

Material is planned to be mined to a maximum depth of 6 to 30m and will be loosened by use of machinery and loading with excavators directly onto haul vehicles. The material will then be transported to the local markets (straight from stockpile area).

During rehabilitation of the site, the mined pits will be sloped to make it free flow and draining of water current. Heavy machinery will not be stored or repaired on site and all lubricants and fuels will be stored at the site office or camp inside designated areas.

(f) The option of not implementing the activity.

If the proposed project does not occur, Sand that would have been mined will have to be bought from other (urban) commercial suppliers. The material will have to be transported over greater distances to the local communities which will entail the following:
More money will be spent to purchase and transport material over longer distances;

- Job opportunities and skills development (a positive socio-economic impact) at the proposed site will be lost as fewer individuals will have to be employed;
- More roads will have to carry extra loads as transportation vehicles will use them to transport material over greater distances; and
- The carbon footprint of this option will be greater as CO2 emissions will enter the atmosphere over a larger area.

(ii) **Details of the Public Participation Process Followed**

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on the use of their land.

- Identification of Stakeholders (Interested and Affected Parties)

Stakeholder engagement varies given the technical nature of the activity, the geographical location, extent, duration, intensity and frequency of potential impacts associated with the proposed activity, as well as the capacity of the receptive community to participate in the project. The processes outlined below are specific to this study.

I&APs were identified through several mechanisms. These include:

- Networking with local farmers, non-governmental agencies, community based organisations, local council representatives, and municipality;
- Advertising in the press, placement of community notices, and distribution of background information documents (discussed separately).

All I&AP identified were registered on the stakeholder database. The public participation consultant endeavoured to ensure that individuals / organisations from referrals and networking were notified of the project, in addition to efforts to notify and identify stakeholders at a geographical level.

- Placement of the Advertisements and Site Notices

To inform the surrounding public, I&APs, communities and immediately adjacent landowners to WOODLANDS 701-MS farm about the proposed Sand mining project, site notices were placed at various sites and locations which are visible and accessible within the area on **10th March 2022.** Site notices were placed at the following points/sites:

Table 1: Site Notice Placements:

	Areas	Strategic Places
A3 Posters placed within the project area	Makhado 10/04/2022	▪ Makhado Local Municipality
	Bush RiseFarm 10/03/2022	▪ Bushy Rise Farm gate

Plate 5: Site notices placed at various site

- Consultation Meetings:

Consultation with the councillors was undertaken through letters of consent. No response to date.

The concept of the meetings is adopted to allow more interaction between project proponent and members of the council and entail one to one discussions and small group discussions, picture and map illustrations about the proposed Selati Sand mining project and the EIA/EMP processes in pursuit of full comprehension by I&APs about the proposed project.

Salient points from the discussions with the various communities and responses thereto included the following:

Common Issues and Comments:

- This are very good news that you bring to the municipal council and we appreciate the fact that proper consultation is also conducted in terms of also seeking permission from the tribal authority;
- BSFT has the local community's best interest at heart. We only wish that they comply with the regulations so that they may carry out a progressive project.

- Common Authority Participation Concerns

Although much authority participation was not undertaken, Gudani Consulting is aware of the common concerns in relation to Sand mining methods. Such departmental offices are:

a) Limpopo Department of Mineral Resource;
b) Limpopo Department of Economic Development, Environmental and Tourism (LDEDET);
c) Limpopo Heritage Resource Agency (LIHRA)

Salient points from previous discussions include the following:

a. Summary of the process undertaken,
b. Alternatives,
c. Socio-economic impacts – including social and labour plan,
d. Poverty alleviation proposals and job creation for local people,
e. Air and water pollution,
f. Comments by the authorities prior to the final decision.

- Document Review

The EIA/EMP Reports will be made available at public places for review prior to finalisation and submission to DMR. Stakeholders on the database will be notified of the availability of these reports via email, fax and post. The reports will also be made available at the Makhado Local Municipality - office. The initial document review period for the report will be 30 days.

(iii) Summary of issues raised by I& Aps

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s					
				NOTED	**SEE APPENDIX C**
Lawful occupier/s of the land					
				NOTED	**SEE APPENDIX C**
Landowners or lawful occupiers on adjacent properties					
				NOTED	**SEE APPENDIX C**
Municipal councillor					
				NOTED	**SEE APPENDIX C**
Municipality					
Makhado Municipality **`None received to date.**					

Communities					
Non received to date					
Dept. Land Affairs					
Traditional Leaders					
N/A					
Dept. Environmental Affairs					
None received to date.					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					

iv) The Environmental attributes associated with the alternatives

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

1) Baseline Environment

(a) Type of environment affected by the proposed activity

(Its current geographical, physical, biological, socio- economic, and cultural character).

- **Topography**

The terrain morphology of the study area is broadly described as slightly undulating to strong undulating plains with high mountains. The study area (90 x 40 km) is divided into three zones, each of which presents different topographical characteristics, i.e. a northern section, the Soupansberg, and a southern section

• Northern Section

This section lies north of the Soutpansberg and can be described as a Lowland with hills, the slightly undulating plains gently slopes northward, with an elevation ranging from 680 m.a.s.l. in the north to 790 m.a.s.l. in the south. Apart from isolated rocky hills, that are characteristic of this region, slopes are generally not steeper than 3 degrees. The Mutamba river is the only major river in this region. It originates in the Soutpansberg, flowing north, then turning east along the foot of the mountain. The river is mostly dry, thus regarded as a non-perennial river.

• Central Section

The Soutpansberg presents a sharp contrast with the surrounding plains. It rises 1000 m above the landscape, making it a distinct feature that is visible from far distances. Weather-resistant quartzite rocks give rise to a mountainous, wedge-shaped terrain. The series of folded rocks stretches some 25 km from north to south, creating ranges of valleys and crests, providing for splendour and beauty. Access through the area is gained by means of a mountain pass, with a set of two tunnels in the middle section of the mountain.

Figure1.1 Cliffs and valleys of the Soutpansberg, with the Hendrik Verwoerd tunnel.

The geological history of this unique mountain range is summarised as follows:

About 1 800 million years ago the Soutpansberg depositional basin was formed as an east west trending asymmetrical rift or half-graben along the Palala Shear Belt. This belt formed between two major crustal blocks, e.g. the Kaapvaal craton in the south and the Limpopo Belt in the north. Deposition started with basaltic lavas and was followed by sedimentary rocks (syn-rift sequence). After an erosional period, pink massive quartzite was deposited (post-rift sequence) which covered a much larger area then the original rift. Until the deposition of the Karoo rocks the Soutpansberg rocks formed a flat featureless landscape.

Only after sedimentation had ceased (about 150 million years ago) was the area strongly block-faulted and then uniformly tilted to the north. During the last ± 60 million years erosion formed the landscape as we see it today. The pink resistant quartzite was instrumental in shaping the present morphology.

Streams created from leaching ground water follow cracks of faults and erosion channels, feeding into the Mutamba river (flowing north and east) and the Luvuvhu river (flowing south and east). It is noted that a section of the proposed power line partly follows the Luvuvhu river channel

- Southern Section

The southern section comprises the area south of the Soutpansberg, extending south towards Tabor Substation. It ranges in elevation between 900 m.a.s.l. in the north and 1100 m.a.s.l. in the south. This region presents two terrain types, i.e. Slightly Undulating Plains (west of the N1) and

Moderately Undulating Plains (east of the N1), with the latter becoming strongly undulated as erosion channels become more prominent. The difference in morphology is illustrated in the cross section graphs in Figure 7.2 & 7.3

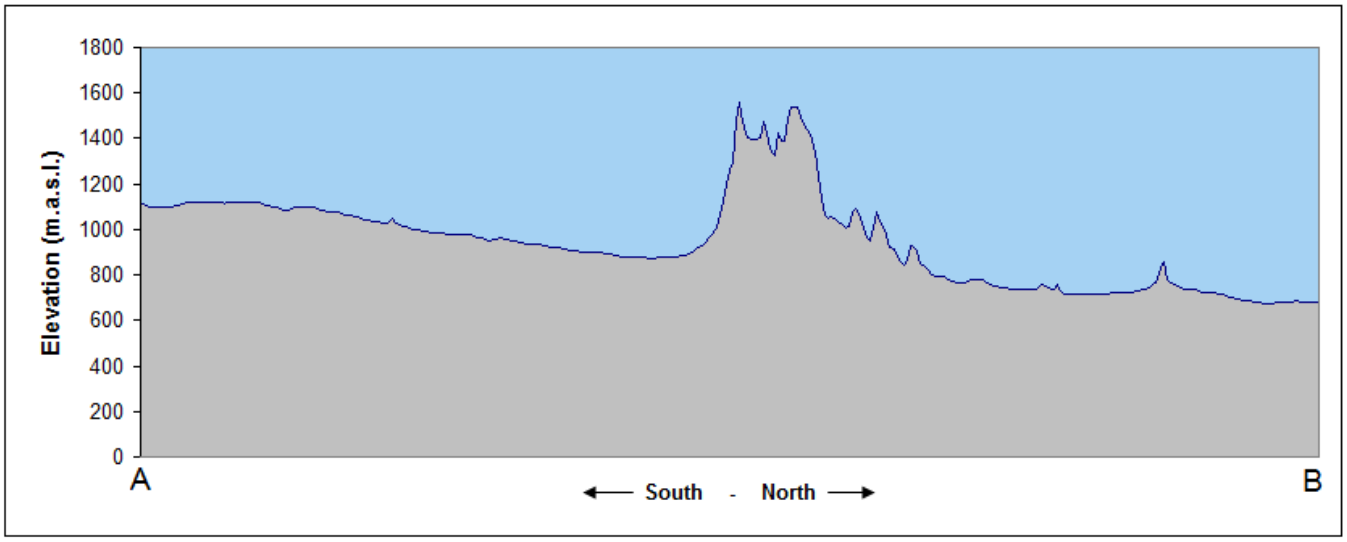


Figure 7.2: Cross section from north to south - western part of the study area

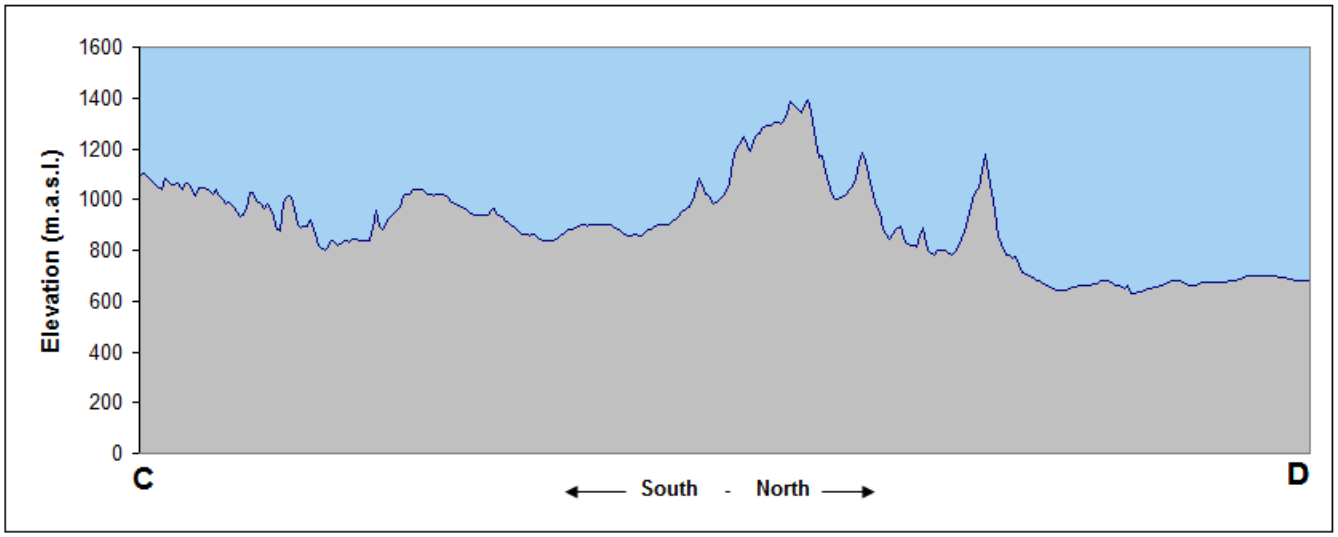


Figure 7.3: Cross section from north to south - eastern part of the study area.

Rivers are associated with the stronger undulating terrain. The main rivers in this region are the Luvuvhu and Khwali rivers.

- **Hydrology**

The river system and dams form part of the two major systems or catchment areas, namely the Limpopo and Olifants primary catchment areas respectively comprising 85,65% and 14,35%. The major river systems in these catchment areas include the Sand and Hout river system, the Levuvhu river system, the Little Letaba River and Nzhelele river system .It is more important for purposes of forward planning to focus on the protection status of the water source - rivers. The following rivers are regarded as either endangered or critical endangered and even vulnerable, namely: Dorinspruit, Sand (upper parts), Hout, Little Letaba, Soeketse, Middel Letaba, Luvuvhu (lower parts), Latonyanda, Mutshedzi,Tshiluvhadi, Dzindi, Muthindudi, Mutamba, Nzhelele and Nwanedzi Rivers.

- **Geology and soil**

Soil and vegetation resources are under severe stress because of overgrazing, bush encroachment, high rural population densities and poorly planned settlements. There are signs of ecological deterioration in the municipal are and this worsens during dry drought Seasons. The cutting of trees and gathering of wood is prevalent in the areas where wood is primary source of fuel for many people. In some villages the community clears trees in the mountains in order to prepare fields for ploughing. This has a negative impact on the soil quality and causes erosion during the rain seasons.

The Soutpansberg Mountain Range has significant natural beauty with a number of registered heritage sites. The registration of the Soutpansberg Conservatory should assist the local tourism industry in attaining a higher tourism grading as a result of its diverse tourism profile and attraction sites available. This could increase the number of tourists and also the average duration of their stay in the area. The communities know the area and history very well and should be encouraged to become partners of such venture.

A Regional Tourism Centre has been erected by the Municipality in partnership with the Department of Trade, Industry and Tourism. The project is a craft centre in Tree Park. The natural resources of the Municipality have, over the past years, not been developed fully resulting in an underutilisation of natural resources in terms of conservation, recreation and tourism. Poor infrastructure discourages potential tourism attraction and tourists from visiting or touring the study area. The underutilisation of the natural resources is mainly due to

- **Flora and Fauna**

- **Climate and rainfall**

The study area could be considered a subtropical climate. The winters are characterised by mild afternoons and cool evenings. Winters usually last from June to August. Summers experience warm and often humid temperatures with the occasional afternoon thunderstorm. Most of the rainfall occurs in the summer months, from November to March. The following figures show yearly weather trends with information on monthly weather averages and extremes for Louis Trichardt and Musina, which fall in the middle and to the north of the study area respectively.

The climate for Makhado area ranges between 18 degrees Celsius in the mountainous areas to 28 degrees Celsius in the rest of the area, with an average of 25,5 degrees Celsius. Maximum temperatures occur during the month of January while the minimum temperatures occur in July. The main period for rainfall is January to February with an annual rainfall of 450mm in the low-lying plains to 2300mm in the Soutpansberg. The general average rainfall for Makhado area ranges between 450mm to 800mm. The areas north of the Soutpansberg have less rainfall than the lower western foothills and central and eastern high lying areas of the mountain itself. In conclusion, higher rainfall occurs on the higher lying areas of the Soutpansberg and foothills of the mountain.

- **Temperature**

Average daily maximum and minimum summer temperatures (November to February) at the weather station range between ~33°C and ~20°C, while winter temperatures (May to August) range between ~28°C and ~7°C respectively. The high average temperatures are reflected by the fact that the minimum average daily summer temperature is a high 20°C and the minimum average daily winter temperature does not dip below 7°C.

- **Vegetation**

The proposed area is vacant and largely covered by natural bushveld. Subsistence farming on the other hand occurs in areas where rural villages and traditional authorities occur, to the southeast of the study area, whilst cultivated land occurs in the western part of the study area south of the Soutpansberg. The protection level of these vegetation types as set out above, are indicated in the following table.

- **Agriculture**

Makhado has areas with pivot irrigation and high agricultural activity to the west of the town. This corresponds with areas identified as cultivated land. On the other hand, areas to the south-east are mainly used for small-scale farming and subsistence farming and greatly correspond with Traditional Authority areas. There are also some areas in the Soutpansberg area (Witvlagroad) as well as Levubu area, where agricultural activities occur.

In total only 8, 54% of the total land of the Municipal area, is highly suited to arable agriculture where climate permits, and 32, 2% is intermediately suitable for arable agriculture where climate permits. These areas occur in the south-western and south-eastern parts of the Municipal area. Commercial farming areas and areas with high potential agricultural land are limited to four areas. In the west (south of Soutpansberg), north-west (north of Soutpansberg), central (on the Soutpansberg – Witvlag) and in the south-eastern parts Levubu area)

- **Water quality**

The objective with regard to water quality is to have the surface water qualities remain largely unaffected by the activities on site. Surface water quality should meet as a minimum drinking water standards or the DWA Water Quality Threshold (WQT) guideline until catchment-specific water quality objectives are developed for the Sand River and Mutamba River catchments. Water quality objectives will be reached by monitoring monthly water quality data for surface water with associated interventions as and when required

- **Air quality**

The area normally consists of open veld and bush.

- **Noise**

The only noise at the site is that of traffic from locals. Other noise in the area is noise associated with that of agriculture.

- **Visual**

The visual aspect of the site is of a nature bush veld reserve with no urban structures. The land adjacent to where the sand mine will be established is private game reserves. The closest residential area to this site is approximately 22km to the north west.

- **Sites of archaeological and cultural interests**

The probability of locating any significant artefacts during the phases of the development is likely very low.

- **Socio-economics**

The project will entail the employment of ±5 individuals from the surrounding area. This new job creation will contribute to skills development and an income for more households in the area. The project will thus have a positive impact on the regional socio-economic state of the area.

(b) Description of the current land uses

The land use of the property where the proposed activity will occur is game farming and agriculture (the land is used for grazing of livestock). However, the land uses of the mentioned areas will not be negatively affected by the proposed establishment of the Sand mine. This was confirmed during a site investigation process.

(c) Description of specific environmental features and infrastructure on the site

No current environmental features in the area that may be negatively affected by the proposed activity where identified.

iv) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

The following table illustrates the potential impacts associated with each activity.

Table 1: Potential impacts per activity and listed activities

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
Phase 1: Data Acquisition and Desktop Study						
Phase 1: Data Acquisition	N/A	Data collection and assessment (desktop only)	1. None identified.	N/A	N/A	N/A
Phase 1: Desktop Study	N/A	Data Assessment	2. None identified.	N/A	N/A	N/A
3. Phase 2: Excavations						
Phase 2: Ground geophysics survey	N/A	Ground survey	4. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Yes	No	Yes
Phase 2: Mining	Construction Phase	No construction or site establishment activities will be undertaken	5. No anticipated impacts.	N/A	N/A	N/A
	Operational Phase	Site access	6. Destruction and/or disturbance of on-site fauna and flora. 7. Poor access control resulting in impacts on cattle movement, breeding and grazing practices. 8. Vehicle traffic noise impact affecting	Partial Yes Yes	No No No	Yes Yes Yes

			cattle and / or **wildlife**. 9. Poor housekeeping could result in littering and the associated impacts this will have on the aesthetics of the area, contamination of river systems in the rainy season and also the potential health hazard to cattle. 10. Activities within the river bed could result in the disturbance to the natural geomorphology. 11. Activities within the river bed could result in safety hazards during rainy periods.	Yes Partial No	No Potential No	Yes Yes Yes
		Topsoil stripping and stockpiling	Soil disturbance and compaction and topsoil stockpiling resulting in soil erosion.	Yes	Partial	No

iv) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs)

- **Criteria of assigning significance to potential impacts**

The evaluation of impacts is conducted in terms of the criteria detailed in Table 3. The various environmental impacts and benefits of this project are discussed in terms of impact status, extent, duration, probability, and intensity. Impact significance is regarded as the sum of the impact extent, duration, probability and intensity and a numerical rating system has been applied to evaluate impact significance; therefore an impact magnitude and significance rating is applied to rate each identified impact in terms of its overall magnitude and significance.

In order to adequately assess and evaluate the impacts and benefits associated with the project it was necessary to develop a methodology that would scientifically achieve this and to reduce the subjectivity involved in making such evaluations. To enable informed decision making it is necessary to assess all legal requirements and clearly defined criteria in order to accurately determine the significance of the predicted impact or benefit on the surrounding natural and social environment.

- **Impact Status**

The nature or status of the impact is determined by the conditions of the environment prior to construction and operation. A discussion on the nature of the impact will include a description of what causes the effect, what will be affected and how it will be affected. The nature of the impact can be described as negative, positive or neutral**.**

Table 2: Status of Impact

RATING	DESCRIPTION	QUANTITATIVE RATING
Positive	A benefit to the receiving environment.	P
Neutral	No cost or benefit to the receiving environment.	-
Negative	A cost to the receiving environment.	N

- **Impact Extent**

The extent of an impact is considered as to whet her impacts are either limited in extent of if it affects a wide area or group of people. Impact extent can be site specific (within the boundaries of the development area), local, regional or national and/or international.

Table 3: Extent of Impact

RATING	DESCRIPTION	QUANTITATIVE RATING
Low	Site Specific; Occurs within the site boundary.	1
Medium	Local; Extends beyond the site boundary; Affects the immediate surrounding environment (i.e. up to 5 km from the Project Site boundary).	2
High	Regional; Extends far beyond the site boundary; Widespread effect (i.e. 5 km and more from the Project Site boundary).	3
Very high	National and/or international; Extends far beyond the site boundary; Widespread effect.	4

- **Impact Duration**

The duration of the impact refers to the time scale of the impact or benefit.

Table 2: Duration of Impact

RATING	DESCRIPTION	QUANTITATIVE RATING
Low	Short term; Quickly reversible; Less than the project lifespan; 0 – 5 years.	1
Medium	Medium term; Reversible over time; Approximate lifespan of the project; 5 – 17 years.	2
High	Long term; Permanent; Extends beyond the decommissioning phase; >17 years.	3

- **Impact Probability**

The probability of the impact describes the likelihood of the impact actually occurring.

Table 5: Probability of Impact

RATING	DESCRIPTION	QUANTITATIVE RATING
Improbable	Possibility of the impact materialising is negligible; Chance of occurrence <10%.	1
Probable	Possibility that the impact will materialise is likely; Chance of occurrence 10 – 49.9%.	2
Highly Probable	It is expected that the impact will occur; Chance of occurrence 50 – 90%.	3
Definite	Impact will occur regardless of any prevention measures; Chance of occurrence >90%.	4
Definite And Cumulative	Impact will occur regardless of any prevent ion measures; Chance of occurrence >90% and is likely to result in in cumulative impacts	5

- **Impact Intensity**

The intensity of the impact is determined to quantify the magnitude of the impacts and benefits associated with the proposed project.

Table 6: Intensity of Impact

RATING	DESCRIPTION	QUANTITATIVE RATING
Maximum Benefit	Where natural, cultural and / or social functions or processes are positively affected resulting in the maximum possible and permanent benefit.	+5
Significant Benefit	Where natural, cultural and / or social functions or processes are altered to the extent that it will result in temporary but significant benefit.	+4
Beneficial	Where the affected environment is altered but natural, cultural and / or social functions or processes continue, albeit in a modified, beneficial way.	+3
Minor Benefit	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are only marginally benefited.	+2
Negligible Benefit	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are negligibly benefited.	+1
Neutral	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are not affected.	0
Negligible	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are negligibly affected	-1
Minor	Where the impact affects the environment in such a way that natural, cultural and / or social functions or processes are only marginally affected.	-2
Average	Where the affected environment is altered but natural, cultural and / or social functions or processes continue, albeit in a modified way.	-3
Severe	Where natural, cultural and / or social functions or processes are altered to the extent that it will temporarily cease.	-4
Very Severe	Where natural, cultural and / or social functions or processes are altered to the extent that it will permanently cease.	-5

- **Impact Significance**

  The impact magnitude and significance rating is utilised to rate each identified impact in terms of its overall magnitude and significance.

Table 7: Impact Magnitude and Significance Rating

IMPACT	RATING	DESCRIPTION	QUANTITATIVE RATING
Positive	High	Of the highest positive order possible within the bounds of impacts that could occur.	+ 12 – 16
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. Other means of achieving this benefit are approximately equal in time, cost and effort.	+ 6 – 11
	Low	Impacts is of a low order and therefore likely to have a limited effect. Alternative means of achieving this benefit are likely to be easier, cheaper, more effective and less time - consuming.	+ 1 – 5
No Impact	No Impact	Zero impact.	0
Negative	Low	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. Social, cultural, and economic activities of communities can continue unchanged.	- 1 – 5
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly possible. Social cultural and economic activities of communities are changed but can be continued (albeit in a different form). Modification of the project design or alternative act ion may be required.	- 6 – 11
	High	Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time consuming or a combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt.	- 12 - 16

iv) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

As discussed in the previous section, BSFT applied for mining permit on the farm Bushy Rise 702-MS within Makhado Local Municipality in Vhembe District - Limpopo Province.

The site is therefore regarded as the preferred site and alternative sites are not considered**.**

- **Potential impact on heritage resources**

Nothing have been identified on the project area.

- **Potential impacts on communities, individuals or competing land uses in close proximity**

The following impacts are regarded as community impacts:

- Potential water and soil pollution resulting from hydrocarbon spills and soil erosion;
- Noise due to the under taking of the site;
- Poor access control resulting in impacts on cattle movement, breeding and grazing practices;
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime; and
- Visual Impact

- **Influx of persons resulting in increased crime rates**

The potential impacts of an increase in crime rates associated with an influx of unemployed persons travelling to mine sites seeking employment may occur.

- **Visual impact**

The general characteristics of the site and that of the surrounding area are regarded to be that of “wilderness” and mining activities may resulting localised visual impacts.

- **Positive Impacts (Advantage)**

BSFT applied for mining permit on the area. Based on the outcomes of that study, the possibility to encounter further Sand material was identified. While no significant short term positive impacts are associated with the mining activities, in the event that a viable reserve is confirmed, and pending the outcome of a detailed social & environmental impact assessment process, positive socio -economic benefits must be investigated and optimized.

v) The possible mitigation measures that could be applied and the level of risk

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

The section below provides a summary of the key management measures associated with the impacts identified in the previous section. The detailed rating and management plan is presented in Section J.

- **Measures to manage the potential impacts on communities, individuals or competing land uses in close proximity**

  - **Pollution Prevention**
    - Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities, landowners and other stakeholders. These mitigation and management measures are discussed in the following section.
  - **Noise due to the undertaking of the site fly - overs and mining activities**
    - Directly affected, adjacent game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farms.
    - Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, with a view to prevent possible injury or damage as a result of animals being start led by the noise
    - Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.

  - **Poor access control resulting in impacts on cattle movement, breeding and grazing practices;**
    - Access control procedures must be agreed on with farm owners and all staff trained on these procedures.

  - **Visual Impact**

- Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed.
- A waste management system will be implemented and sufficient waste bins will be provided for on - site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

- **Measures to manage the potential impact on Water quality and availability**

  - **Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion will be mitigated and managed as follows;**
    - Existing tracks and roads must be used as far as is practicable to minimize the potential for soil erosion. In instances where access to mining sites are to be established, and if required, raised blade clearing will be undertaken with a view to maintain vegetation cover to limit soil erosion potential.
    - Soil disturbances are to be limited as far as is practicable to minimize the potential for soil erosion.
    - Where practicable topsoil will be stripped to a depth of 10cm.
    - Topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.
    - Oils and lubricant will be stored with in secondary containment structures.
    - Where practicable, vehicle maintenance will be undertaken off-site.
    - In the event that vehicle maintenance is undertaken on - site (i.e. such as break down maintenance), drip trays and / or UPVC sheets will be used to prevent spills and leaks onto the soil.
    - A waste management system will be implemented and sufficient waste bins will be provided for onsite. A fine system will be implemented to further prohibit littering and poor housekeeping practices.
    - Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).
    - Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.

vi) Motivation where no alternative sites were considered

BSFT proposes to mine Sand material on the farm Bushy Rise 702-MS within Makhado Local Municipality - Vhembe District in Limpopo Province.

The site is therefore regarded as the preferred site and alternative sites are not considered.

vii) Statement motivating the alternative development location within the overall site

(Provide a statement motivating the final site layout that is proposed)

The location and extent of the mining site will be determined.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity

(Including (i) a description of all environmental issues and risks that where identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

In order to identify the potential impacts associated with the proposed mining activities the following steps were undertaken:

ii) The stakeholder consultation process is currently undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input in to the project.

iii) A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

- South African National Biodiversity Institute (SANB) Biodiversity Geographic Database LUDS system;
- Geographic Information System base maps
- Municipal Integrated Development Plan;

- A site visit was undertaken on 10th March 2022. This site visit was utilized to ensure that the information gathered as part of the desktop investigation reflects the current status of the land.

The ratings are undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and actual views.

The identification of management measures are done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

An Environmental Management Plan was undertaken for a Mining Permit Application on the land of this project. The baseline studies and impact findings, with strong focus on the views of the stakeholders at that time were incorporated in to the assessment of impacts and the ranking of these, in addition to this, the management measures identified and accepted as part of that study have been assessed for the purposes of this project and incorporated where practically possible

j) Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

Table 8: Impact Assessment and Management Type

NAME OF ACTIVITY (E.g. For Mining site, site camp, access route etc.	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination,	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Operational Decommissioning, closure, post - closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.)	SIGNIFICANCE if mitigated
Phase1: Data Acquisition and Desk top Study						
Data collection and assessment (desktop only)	1. None identified.	N/A	Planning	N/A	No mitigation proposed	N/A
Data Assessment	2. None identified	N/A	Planning	N/A	No mitigation proposed	N/A
Phase 2: Mining 0peration						
Mining operation	3. Noise impacts resulting from site mining affecting cattle and game farm animals.	Noise generation	Planning	7	Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made	7

					available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farm. Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, which may result in injury or damage.	
	Nuisance noise impacts on communities and landowners and other persons.	Noise generation	Planning	7	No mitigation proposed.	7
Ground surveys	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of Cattle	Planning	10	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	8
No construction or site establishment activities will be undertaken	No anticipated impacts.	N/A	N/A	N/A	No mitigation proposed.	N/A
Sand Material	Destruction and / or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Operational Phase	6	Use existing track and roads in all instances as far as is practicable.	5

					As part of the mining programme, no tracks will be cleared for once - off access to mining sites. Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified mining site. Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.	
	Poor access control resulting in impacts on cattle movement, Breeding and grazing practices.	Noise generation	Operational Phase	10	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	8
	Vehicle traffic noise impact affecting cattle and / or wildlife.	Loss of cattle and/or nuisance creation	Operational Phase	6	Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.	4

					Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.	
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Noise generation	Operational Phase	10	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	8
	Vehicle traffic noise impact affecting cattle and / or wildlife.	Loss of cattle and/or nuisance creation	Operational Phase	6	Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.	4
	Poor housekeeping could result in littering and the associated impacts this will have on the aesthetics of the area, contamination of river systems in the rainy season and also the potential health hazard to cattle	Loss of aesthetic value, loss of water resources, loss of fauna and flora	Operational Phase	13	A waste management system will be implemented and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general	6

					waste, recyclables and hazardous waste). Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.	
	Activities within the Mining area could result in the disturbance to the natural geomorphology.	Loss of fauna and flora, altering the river bed	Operational Phase	12	No other activities (roads, etc.) may be undertaken.	4
	Activities within the mining area could result in safety hazards during rainy periods.	Loss and/or damage to life	Operational Phase	15	A first aid station and emergency plan must be available on site.	7
Sand Mining	Soil disturbance from Sand mining resulting in soil structure destruction, compact ion and erosion.	Loss soil resources	Operational Phase	6	Soil disturbances are to be limited as far as is practicable.	5
No decommissioning activities will be required	No anticipated impacts.	N/A	Decommissionin g Phase	NA	No mitigation proposed.	N/A

k) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT. (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	N/A		**N/A**

No specialist reports have been conducted nor attached to the EMP.

l) Environmental impact statement

- **Summary of the key findings of the environmental impact assessment**

    - The proposed mining site is classified as suitable physical space land with a moderate to low grazing capacity with cattle and game farming is the predominant land use in the surrounding area.

    - The conservation status of the area is least threatened and only about 1% of the vegetation type has already been transformed.

    - Graves are not present within the mining area. It appears that there are no graves as there are no close proximity to houses / residences within the mining area.

- **Final Site Map**

(Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers .Attach as Appendix B)

Please refer to Annexure B for the composite map.

- **Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives**

    - Increased ambient noise levels resulting from mining operation site and increased traffic movement during all mining activities.

    - Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.

    - Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.

    - Increased vehicle activity with in the area resulting in the possible destruction and disturbance of fauna and flora.

    - Poor access control to farms which may impact on cattle movement, breeding and grazing practices.

    - Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.

    - Potential visual impacts caused by mining activities.

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

(Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorization)

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the mining activities as to avoid unnecessary social and environmental impacts.

- Provide sufficient information and guidance to plan mining activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.

- Ensure an approach that will provide the necessary confidence in terms of environmental compliance.

- Provide a management plan that is effective and practical for implementation.

Through the implementation of the proposed mitigation measures, it is anticipated that the identified social & environmental Impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that:

- Noise impacts can be managed through consultation and trough the restriction of operating hours;

- The pollution of soil and water resources can be effectively managed through containment;

- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.

- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.

- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.

- Visual impact can be minimized through giving consideration to mining site infrastructure placement and materials used.

n) Aspects for inclusion as conditions of Authorisation.

(Any aspects which must be made conditions of the Environmental Authorisation)

The following conditions should be included into the Authorisation:

- A map detailing the mining locations should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities;

- No activities may be undertaken in the pans;

- Heritage Impact Assessment must be undertaken where roads will be cleared and where mining sites will be established, prior to the commencement of these activities; and

- No activities, with the exception of the mining, may take place outside the Sand mining area.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

There were not gabs or uncertainties for this project:

- The site visit by the EAP is undertaken,

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

1. Reasons why the activity should be authorized or not

   It is the opinion of the EAP that the activity may be authorized.

   BSFT is in the process of applying for a mining permit to mine Sand material. The mining area will have a maximum depth of 6 to 30 meters and an area of 5ha. Quantity of Sand in cubic metres will be determined by BSFT once permission is granted.

   The site is therefore regarded as the preferred site and alternative sites are not considered.

- If the proposed project does not occur, Sand that would have been mined at the proposed site will have to be bought from commercial suppliers. The material will have to be transported over greater distances to the construction site which will entail the following:
- More money will be spent to purchase and transport material over longer distances;

- Job opportunities and skills development (a positive socio-economic impact) at the proposed mining project will be lost as fewer individuals will have to be employed;
- More roads will have to carry extra loads as transportation vehicles will use them to transport material over greater distances; and
- The carbon footprint of this option will be greater as CO2 emissions will enter the atmosphere over a larger area.
- With the additional time needed for transport, it will take a longer time before the road is finished, with concomitant ripple effects on the area's socio-economic activities.

2. Conditions that must be included in the authorisation

The following conditions should be included into the authorisation:

- A map detailing the mining locations should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities;
- No activities, with the exception of the Sand mining, may take place outside the Selati River.

q) Period for which the Environmental Authorisation is required.

The Mining Permit has been applied for a period of two years. Brink Schlesinger Family Trust may wish to renew permit once the two years have elapsed. The Environmental Authorisation should therefore allow for the two years of mining and one year for decommissioning and rehabilitation as soon as all mining permit authorisations have been exhausted.

r) Undertaking

(Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report)

An undertaken by the EAP and the client is provided for in Section 2 of the EMP.

s) Financial Provision

(State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation)

The financial provision for the environmental rehabilitation and closure of any mine/prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites.

With the determination of the quantum for closure it must be assumed that the infrastructure has no salvage value (clean closure). The closure cost estimate (clean closure) was determined in accordance with the DMR guidelines and is based, where possible, on actual costs provided by a third party contractor.

i) Explain how the aforesaid amount was derived.

Most important to note is that the prescribed method for estimating a closure costs, as provided for by the DMR in the form of the Guide line Document for the Evaluation of Financial Provisions, only acts as a guideline, and therefore indicates the minimum requirements for assessing and reporting on a closure cost estimate.

- **Method of Assessment**

As mentioned before, Gudani Consulting made use of the Guideline Document for the Evaluation of Financial Provisions made by the Mining Industry. The following table presents the step -by- step details on how the financial provision has been derived. For the purposes of determining the quantum for closures, it is assumed that the infrastructure will have no salvage value.

Table 9: DMR Financial Provision Methodology

Step	Description	DMR Applicable Table	Outcomes
1	Determine primary mineral and saleable mineral by-product	Table B.12	Mineral: Sand

2	Determine Risk Class	Table B.12	**Primary Risk Class: C** (Small operation, no waste, no processing). Risk Class C is considered a low risk with a low probability of occurrence of the impact with a negligible consequence.
3	Determine the Area Sensitivity	Table B.4	**Medium to High Sensitivity**. The area is largely is disturbed through cattle farming, however the natural state is still present in good condition. The landowners are in close proximity to the proposed mining activities, al though the area is not densely inhabited and no well-established communities are present . The land in question is used for cattle farming and. The area can therefore be considered sensitive to further development past the mining permit application.
4.1	Determine the level of Information.	n/a	Limited information is available which is based on desktop investigations and

			consultation with stakeholders.
4.2	Determine the closure components	Table B.5	See table 9 of this report.
4.3	Determine the unit rates for closure components	Table B.6	See table 9 of this report.
4.4	Determine and apply the weighting factors	Table B.7 Table B.8	Weighting factor 1 (Nature of the terrain) : 1(generally flat terrain) Weighting factor 2 (Peri-Urban): 1.05 (Rural /Urban).
4.5	Identify areas of disturbance	n/a	No areas of disturbance are considered in this assessment. The area in which the mining activities are planned is considered to be undisturbed.
4.6	Identify closure costs from specialist studies	Table B.9	Due to the fact that the operation in question is only a borrow-pit Sand mining operation, no residual impacts should take place. During the Life of the mining area and ongoing rehabilitation, the self -succession results should be assessed and monitored. If self-succession does not take place satisfactorily the client may be subjected to additional specialist investigations (ecological and pedology) to determine seeding and re-vegetation

			requirements.
4.7	Calculate Closure Costs	Table B.10	See following section.

- **Quantity Estimation**

For the purposes of this assessment, Gudani Consulting can confirm that the method adopted to obtain and compile the schedule of quantities is sound, correct, and provides detail that is required by the DMR. The information will allow for continued monitoring and updating of quantities and provides the ideal plat form to manage and monitor the actual on - site rehabilitation measures and costs incurred.

- **Determination of Rates**

The method of determining the applicable rehabilitation rates is based on practical experience and information by third party contractors.

The following table summarises the unit rates for closure components as specified in the DMR Guideline Document and indicates which rates were used by Gudani Consulting in this assessment.

Table 10: Master Rate Calculation

Applicant: **BRINK SCHLESINGER FAMILY TRUST - LP30/5/1/3/1/2/11715 MP** **Ref No: LP30/5/1/3/1/2/11715 MP**
Evaluators: **GUDANI CONSULTING** **Date:** **May-22**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	**Dismantling of processing plant and related structures (including overland conveyors and powerlines)**	**m3**	0	19.1	1	1	R0.00
2 (A)	**Demolition of steel buildings and structures**	**m2**	0	256.18	1	1	R0.00
2(B)	Demolition of reinforced concrete buildings and structures	**m2**	0	377.52	1	1	R0.00
3	**Rehabilitation of access roads**	**m2**	150	46.06	1	1	R6,909.00
4 (A)	Demolition and rehabilitation of electrified railway lines	**m**	0	408.68	1	1	R0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	**m**	0	222.91	1	1	R0.00
5	Demolition of housing and/or administration facilities	**m2**	0	511.23	1	1	R0.00
6	**Opencast rehabilitation including final voids and ramps**	**ha**	0	268199.94	1	1	R0.00
7	Sealing of shafts adits and inclines	**m3**	0	126.32	1	1	R0.00
8 (A)	**Rehabilitation of overburden and spoils**	**ha**	0	178799.59	1	1	R0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	**ha**	0	204838.59	1	1	R0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	**ha**	0	222691.9	1	1	R0.00
9	Rehabilitation of subsided areas	**ha**	0	137714.94	1	1	R0.00
10	**General surface rehabilitation**	**ha**	0	141639.89	1	1	R0.00
11	River diversions	**ha**	0	0	1	1	R0.00
12	Fencing	**m**	50	169.79	1	1	R8,489.50
13	Water management	**ha**	0	53855.27	1	1	R0.00
14	**2 to 3 years of maintenance and aftercare**	**ha**	0.3	18849.51	1	1	R5,654.85
15 (A)	Specialist study	**Sum**	0	0	1	1	R0.00
15 (B)	Specialist study	**Sum**	0	0	1	1	R0.00
					Sub Total 1		**R21,053.35**

1	Preliminary and General	R2,526.40	**weighting factor 2** 1	**R2,526.40**
2	Contingencies	R2,105.34		**R2,105.34**
			Subtotal 2	**R25,685.09**
			VAT (15%)	**R3,595.91**
			Grand Total	**R29,281.00**

ii) Confirm that this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report as the case may be).

BSFT will make provision for the rehabilitation of land disturbed by mining associated with the proposed Sand mining. The amount to be provided by BSFT will be disclosed in the final BAR and EMPr.

t) Specific Information required by the competent Authority

1. **Compliance with the provisions of sections 24(4)(a) and (b) read with section24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of1998). the EIA report must include the:-**

a. Impact on the socio-economic conditions of any directly affected person.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix)

There are no people residing on the site. No individuals' socio-economic conditions will be negatively affected, but people from the local community will be employed during construction. Their socio-economic condition will thus improve as they will receive an income from the operation.

Employment opportunities within the local community will increase as the contractors will use people from the community as employment for the duration of the contract. This impact will be positive. Community health will not be impacted on by the proposed activity.

Potential impacts on communities, individuals or competing land-uses in close proximity:
The following impacts are regarded as community impacts:

- Potential water and soil pollution resulting from hydrocarbon spills and soil erosion;
- Noise due to the undertaking of the excavations and other mining activities;
- Poor access control resulting in impacts on cattle movement ,breeding and grazing practices ;
- Visual Impact

2. **Impact on any national estate referred to in section 3(2) of the National Heritage Resource Act.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

   No heritage impact studies were conducted.

u) Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(The EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Draft environmental management programme

a) Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

The requirement for the provision of the details and expertise of the EAP are included in PART A, section 1(a).

b) Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

The requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1) (h).

c) Composite Map

(Provide a map (Attached as an Appendix B) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

Please refer to Appendix B for the Composite Map.

d) Description of Impact management objectives including management statements

i) Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described)

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and are able to support a self-sustaining ecosystem similar to surrounding natural environment. To ensure that the rehabilitation plan is aligned with the closure objective, a high level risk assessment of the mining components has been undertaken to establish the potential risks associated therewith.

The closure objectives are to:

- Eliminate any safety risk associated with excavating and backfilling.
- Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;
- To establish rehabilitated area which is not subject to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources; and
- Restore disturbed area and re-vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable.

iii) Volumes and rate of water use required for the operation.

In terms of Government Notices Regulation 399, the applicant will be allowed to abstract 75m3 of groundwater and surface water per hectare per annum from groundwater/surface water. It is currently not anticipated that this quantity will be exceeded or used.

iv) Has a water use licence has been applied for?

Not required for this application.

v) Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity is presented in the following table.

iv) Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEARSURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Data collection and assessment (desktop only)	Planning	Entire property (5 ha)	No Mitigation proposed	Identification of the potential of invasive mining activities to occur within sensitive environments in this event the necessary consultation must be initiated with the DMR	n/a
Data Assessment	Planning	Entire property (5 ha)	No Mitigation proposed	Identification of the potential of invasive mining activities to occur within sensitive environments in this event the necessary consultation must be initiated with the DMR	n/a
Ground surveys	Planning	Entire property (5 ha)	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	Identification of the potential of invasive mining activities to	n/a

				occur within sensitive environments in this event the necessary consultation must be initiated with the DMR	
• Mining of Sand with machinery • Transportation of Sand with construction vehicles	Operational	Entire property (5 ha)	• Ensure that vehicles and machinery are well maintained to prevent petrochemical spills. • Spills will be cleaned immediately and managed correctly. • No major maintenance work will be done on vehicles at the quarry. • If minor repairs are done, drip trays will be used to prevent spillage of petrochemicals. • Use only designated roads when transporting material.	The applicant must comply with the conditions of the Environmental Authorisation at all times.	24 months
• Rehabilitation of access roads	Rehabilitation	Entire property (5 ha)	• Any gate or fence erected which is not required after the construction phase must be restored to the pre-construction situation. • Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the re-growth of vegetation. • If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the soil must be analysed and any deleterious effects on the soil arising from the development must be corrected and the area be seeded with a representative seed mix.	The applicant must comply with the conditions of the Environmental Authorisation at all times.	6-12 months

• Final Rehabilitation of site	Rehabilitation	Entire property (5 ha)	• All infrastructures, equipment and other items used during the operational period will be removed from the site. • Scrap metal will be sold to be recycled. • Waste material of any description, will be removed entirely from the site and disposed of at a recognised landfill facility in the area. • Waste will not be permitted to be buried or burned on the site. • Any concrete surface will be removed and compacted areas will be ripped. • The site will be profiled with acceptable contours and erosion control measures. • Topsoil will be returned to its original depth over the area. • Depending of the end-land use, to be decided upon by the land owner at the time, the area will be re-vegetated with natural occurring vegetation.	The applicant must comply with the conditions of the Environmental Authorisation at all times.	6-12 months
• Closure of Sand mining quarries.	Closure	Entire property (5 ha)	• The dumping of any waste in the mining area is prohibited • The area will be sloped in such a way to blend in with the surrounding environment. It will then be covered with topsoil and re-vegetated to be used for grazing of animals, • The areas surrounding the mining area that is not included in the layout plans as part of the Sand quarry, will not be disturbed in any way.	The applicant must comply with the conditions of the Environmental Authorisation at all times.	

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph);

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE (In which impact is anticipated)	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Phase1: Data Acquisition and Desktop Study					
Data collection and assessment (desktop only)	None identified.	N/A	Planning	Control potential deviations from the approved Mining Permit through the effective implementation of the data acquisition and desktop study.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Data Assessment	None identified.	N/A	Planning	Control potential deviations from the approved Mining Permit through the effective implementation of the data acquisition and desktop study.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
1. Phase 2: Operational					
Site Access	Destruction and / or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Operational Phase	Control through the clear delineation of the mining area.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Soil compaction resulting from repeated use of access roads to mining sites.	Loss of soil resources	Operational Phase	Control through the clear delineation of the mining area. Control through the implementation of a soil management programme	Remain within the ambits of the Mining Permit and Environmental Authorisation.

				in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Retain topsoil integrity for the reuse in rehabilitation.
	Vehicle traffic noise impact affecting cattle and / or wildlife.	Loss of fauna	Operational Phase	Control through the clear delineation of the mining area. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of fauna	Operational Phase	Control through the clear delineation of the mining area. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Potential destruction of heritage resources.	N/A	N/A	N/A	N/A
Exploration excavating, Stockpiling and storage including: • Excavation • Waste generation and management	Water and soil pollution resulting from disposal of excavator fluids.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well	Remain within the ambits of the Mining Permit and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

				as the implementation of a fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP. Control through the implementation of the NWA GN704 water management principles.	
	Continued soil erosion from topsoil stockpile and soil compaction from dumper.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the mining area. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Mining Permit and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	Dust emissions from excavating and general site activities (including vehicle entrained dust)	Increase in dust emissions	Operational Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for mining activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.

	Visual Impact affecting visual character and "sense of place"	Loss of fauna	Operational Phase	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational Phase	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Maintain a 100% crime free area within the control of the mining activities and applicant.
	Impact on the pans and associated ecosystems in the area.	Loss of sensitive environments, loss of fauna,	Operational Phase	Control through the clear delineation of the mining area.	Remain within the ambits of the Mining Permit and Environmental

		loss of flora		Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Authorisation.
Mining rehabilitation including: • Access road • Re-spreading of • stockpiled topsoil • Re-vegetation	Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for mining activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Decommissioning	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well	Remain within the ambits of the Mining Permit and Environmental Authorisation.

				as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	
	Potential water and soil pollution resulting from hydrocarbon spills.	Loss of water resources, loss of soil resources	Decommissioning	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Mining Permit and Environmental Authorisation.
	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Loss of soil resources	Decommissioning	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Mining Permit and Environmental Authorisation.

				Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

ACTIVITY (whether listed or not listed)	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Surface and Ground Water				
• Mining of Sand with machinery • Transportation of Sand with construction vehicles	• Contamination of ground water due to petrochemical spills. • Contamination of surface water due to mixing of clean and dirty storm water.	• Ensure that vehicles and machinery are well maintained to prevent petrochemical spills. • No major maintenance work will be done on vehicles at the quarry. • If minor repairs are done, drip trays will be used to prevent spillage of petrochemicals. • Spills will be cleaned immediately and managed correctly. • Storm water management systems will be implemented to ensure that storm water is diverted around the site.	Ongoing	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Geology and Soil				
• Mining of Sand with machinery • Transportation of Sand with construction vehicles	• Soil contamination as a result of petrochemical spills. • Soil compaction as a result of vehicles. • Loss of topsoil	• Ensure that vehicles and machinery are well maintained to prevent petrochemical spills. • Spills will be cleaned immediately and managed correctly. • No major maintenance work will be done on vehicles at the quarry. • If minor repairs are done, drip trays will be used to prevent spillage of petrochemicals. • Use only designated roads when transporting material.	Ongoing	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Air Quality				

• Mining of Sand by use of machinery. • Transportation of material with vehicles.	Pollution of the atmosphere.	• Speeds of 50km/h should not be exceeded on Sand roads. • Maintenance should be done on vehicles and machinery to minimise CO2 emissions. • Sand roads will be sprayed with water to suppress dust.	On going	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Visual Impacts				
Mining of Sand from quarry.	Negative aesthetic impact on neighbouring farms and passing motorists.	• The mining pits must be clean and tidy at all times • A complains register should be kept on site and should indicate measures that was implemented to address issues • No substances will be stored at the mining pit	On going	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Noise				
• Mining of Sand by use of machinery. • Transportation of material with vehicles.	Noise generated by the mining activity and transportation vehicles might have a negative impact on adjacent landowners.	• Vehicles should be serviced on a regular basis to minimise noise from them. • Mining activities will only occur during the daytime (e.g. between 6am-5pm).	On going	Remain within the ambits of the Mining Permit and Environmental Authorisation.
Fauna				
Mining of Sand from Mamatebele	Destruction of habitat of fauna on the site.	• No animals will be killed at the quarry zone or the surrounding environment by employees at the Sand pit. • Animals found on the site will be removed to a safe location.	On going	Remain within the ambits of the Mining Permit and Environmental Authorisation.

(i) Financial Provision

1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

As previously mentioned, each phase of the mining activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, an airborne / ground geophysics survey will be initiated.

The location and extent of mining site can therefore be determined at this stage.

Mapping of the mining activities could thus not be undertaken.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, stable, non-polluting and are able to support a self-sustaining ecosystem similar to surrounding natural environment. To ensure that the rehabilitation plan is aligned with the closure objective, a high level risk assessment of the mining components has been under taken to establish the potential risks associated therewith.

The closure objectives are to:

- Eliminate any safety risk associated with excavation.
- Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;
- To establish rehabilitated area which is not subject to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources; and
- Restore disturbed area and re - vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowners and interested and affected parties

This Basic Assessment Report and Environmental Management Plan will be made available to each registered stakeholder for review and comment. All comments

will be captured in the issues and response section and will be included into the final report.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

As previously mentioned, each phase of the mining activities is dependent on the success of the previous. Depending on the outcome of the
Phase 1 assessment

The location and extent of mining sites can therefore be determined at this stage.

Mapping of the mining activities could thus be undertaken.

Due to the nature of the activities, the impacts will be very limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The areas for mining purposes will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities.

The only rehabilitation that will specifically be required is the re-vegetation:

Re- vegetation
It is recommended that a standard commercial fertilizer high in the standard elements be added to the soil before re-vegetation, at a rate of 10 -20k g/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in a slow release granular form. A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding.

Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved (on access roads and buffering river banks). Re - seeding will be undertaken if this cover has not been achieved after six months.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

Due to the nature of the activities, the impacts will be very limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The areas for mining purposes will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities.

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The financial provision for the environmental rehabilitation and closure of any mine/prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where
contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by
the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites.

With the determination of the quantum for closure it must be assumed that the infrastructure has no salvage value (clean closure). The closure cost estimate (clean closure) was determined in accordance with the DMR guidelines and is based, where possible, on actual costs provided by a third party contractor. The closure costs are as follow:

(f) Confirm that the financial provision will be provided as determined.

Financing will be sourced from the capital expenditure as planned by BSFT; this capital will come from the treasury of the company.

The provision for closure, should be up dated into the Mining Permit prior the decision by the DMR should this decision be positive.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

g) Monitoring of Impact Management Actions;
h) Monitoring and reporting frequency
i) Responsible persons
j) Time period for implementing impact management actions
k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Phase1: Data Acquisition and Desktop Study	**None identified.**	**None**	**N/A**	
Phase II: Excavation	**Visual inspection of soil erosion and / or compaction**	**All exposed areas, access roads and soil stockpiles must be monitored for erosion on a regular basis and specifically after rain events.**	**Mining Manager Contractor**	**Weekly and after rain events Monthly monitoring reports to be signed-off by the Environmental Manager. Corrective action to be confirmed and signed-off by the Environmental Manager. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the**

				Department of Mineral Resources.
	Dust generated will be assessed through visual observation	If dust out fall is excessive and regarded to affect any sensitive receptors a monitoring programme must be initiated based on the input of a suitably qualified air quality specialist.	Mining Manager	On-going Monthly monitoring reports to be signed-off by the Environmental Manager. Corrective action to be confirmed and signed-off by the Environmental Manager. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.
	Visual inspection of Biodiversity impacts and the occurrence of invader species	Visual inspection of clearing activities and other possible secondary impact on biodiversity will be undertaken. The introduction of alien invasive vegetation species will be determined.	Mining Manager Contractor	Once-off during clearing activities Weekly inspection of secondary impacts Monthly monitoring reports to be signed-off by the Environmental Manager. Corrective action to be confirmed and signed-off by the Environmental Manager. Consolidated monthly monitoring reports (including the

				corrective action taken) to be submitted to the Department of Mineral Resources.
	Visual inspection of pollution incidents, the integrity of secondary containment structures and waste management	All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify potential leaks. All spill incidents will be identified and corrective action taken in accordance with an established spill response procedure. Waste management practices will be monitored to prevent contamination and littering.	Mining Manager Contractor	Daily Monthly monitoring reports to be signed-off by the Environmental Manager. Corrective action to be confirmed and signed-off by the Environmental Manager. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources. Incident reporting will be undertaken as required in terms of the relevant legislation including, but not limited to, the: a) Mineral and Petroleum Resources Development Act 28 of 2002; and b) Nat ional Water Act 36 of 1998.
Post Closure Monitoring	Follow up inspections and monitoring of rehabilitation	Inspection of all rehabilitated areas to	Mining Manager	Monthly for a period of 6 months after rehabilitation

		assess whether any soil erosion is occurring and implement corrective action where required. **Confirm that the set target of 45% cover for all re-vegetated areas have been achieved after a period of 6 months and re-seed where required** **Identify any areas of subsidence around excavating area and under take additional backfilling if required.**		**activities are concluded.** **Monthly monitoring reports to be signed-off by the Environmental Manager.** **Corrective action to be confirmed and signed-off by the Environmental Manager.** **Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.** **Final impact and risk assessment report for site closure to be submitted to the Department of Mineral Resources for approval.**

l) Indicate the frequency of the submission of the performance assessment/environmental audit report

Annual performance assessments must be undertaken on the EMP. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMR.

a) Environmental Awareness Plan

(1) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

An Environmental Awareness and Risk Assessment Schedule have been developed and is out line in Table 11. The purpose of this schedule is to ensure that employees are not only trained but that the principles are continuously re-enforced.

Table 11: Environmental Training and Awareness Schedule

Frequency	Time allocation	Objective
Induction (all staff and workers)	1 hour training on environmental awareness training as part of site induction	Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects. Establish a basic knowledge of the Environmental legal framework and consequences of non-compliance. Clarify the content and required actions for the implementation of the Environmental Management Plan. Confirm the spatial extent of areas regarded

		as sensitive and clarify restrictions. Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents.
Monthly Awareness Talks (all staff and workers)	30 minute awareness talks	Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.
Risk Assessments (supervisor and workers involved in task)	Daily task based risk assessment	Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily toolbox talks.

(2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

As prescribed in Table 11, Task / Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish understanding of the risks associated with a specific task and the required mitigation and management measures.

- **Environmental Awareness Training Content – Induction Training**

The following environmental awareness training will be provided to all staff and workers who will be involved in mining activities.

Description of the approved mining activities and content of the mining permit;

An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):

- General Environmental Legal Principles and Requirements
- Air Quality Management
- Water and Waste water Management
- Hazardous Substances
- Non-Mining-Related Waste Management
- The Appropriate Remediation Strategies & Deteriorated Water Resources
- Biodiversity
- Weeds and Invader Plants
- Rehabilitation
- Contractors and Tenants
- Energy & Conservation
- Heritage Resources
- General Health and Safety Matters
- Basic Conditions of Employment
- Compensation for Occupational Injuries and Diseases
- General Mine Health and Safety Matters
- Smoking in the Workplace
- Noise & Hearing Conservation
- Handling, Storage and use of Hazardous Substances
- Weapons and Fi rearms

Content and implementation of the approved Environmental Management Plan

Allocated responsibilities and functions

- Management and Mitigation Measures
- Identification of risks and requirements adaptation

Sensitive environments and features

- Description of environmentally sensitive areas and features
- Prohibitions as it relates to activities in or in proximity to such areas

Emergency Situations and Remediation

Methodology for the identify areas where accidents and emergency situations may occur, communities and individuals that maybe impacted

- ❖ An overview of the response procedures,
- ❖ Equipment and resources
- ❖ Designate of responsibilities
- ❖ Communication, including communication with potentially Affected Communities

- ❖ Training schedule to ensure effective response.

- **Development of procedures and checklists**

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

Environmental emergencies and remediation

Chemicals

a. No chemicals, including petrochemical products and paints, will be stored at the Sand quarry permanently to prevent any pollution or contamination to the soil or groundwater.

Vehicles and machinery will not be stored, serviced or repaired on site. Should emergency repairs be done on site, drip trays will be used to prevent any spillage of hazardous substances to the environment. The substance contained in the drip tray will be removed from the site after the reparation is completed.

c. Should any spill of potentially hazardous substance occur on site, the spill will be cleaned by using the spill cleaning kit that will be stationed on site for the duration of the project, and the polluted soil will be removed. Both will be disposed of at a licensed facility.

d. All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.

Fire

a. Open fires are prohibited at the Sand quarry or in the surrounding environment,

b. Food will not be cooked at the river site,

c. At least one fire extinguisher shall be provided on site for the duration of the project and staff shall be trained in the use thereof.

d. The contractor will have the number of the local fire department on site at all times. Should a fire occur on the site, employees will evacuate the site, trained staff will attempt to contain or kill the fire if possible, the fire department will be contacted and adjacent landowners should be notified.

Excessive rain and floods (storm-water emergencies)

a. Specific roads will be used inside the quarry to prevent compaction of the whole river quarry and improve water infiltration;

b. Vegetation will not be removed unnecessarily to prevent runoff and erosion;

c. Storm-water management measures will be implemented to divert clean storm-water around the site and to prevent it from entering surrounding dry areas.

Illegal dumping and waste disposal
Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in suitable containers and collected on a regular basis and disposed-off at an authorized waste disposal facility in the region. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.

Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.

Any condemned carcasses shall be managed in terms of the Meat Safety Act, 2000 (Act 40 of 2000), be disposed of safely and in such manner not to cause any odour or health risk.

Any spillage of effluent or blood will be cleaned immediately.

Temporary chemical toilet facilities shall be made available on site.

Sewage from these toilets shall be managed according to best practice and not be disposed of on site or the surrounding environment.

Monitoring and Performance Assessment

The mining site shall be inspected by the contractor and ECO on a regular basis to ensure compliance to the EMPr and other relevant regulations, requirements and best practices. Audits shall be done once in 3 months by an independent auditor and the audit report shall be available on site at all times.

Inspections and Monitoring

- The appointed contractor shall ensure compliance to the conditions set out in the EMPr.
- Points of compliance will be identified with regard to various impacts that the operation might have on the environment and monitoring requirements for each point will be followed as determined before operation.
- The site will be inspected by the ECO on a weekly basis. Visual inspections shall be carried out on a weekly basis.
- Standard procedures for dealing with non-compliance as indicated by monitoring results

Action Plan implementation and monitoring
An independent auditor will be appointed to monitor the implementation of action plans.

Compliance and performance reporting
An independent auditor shall be appointed by the engineer to audit the contractor on a quarterly basis to ensure compliance to the EMPr.

Layout plans will be updated on a regular basis in consultation with the Regional Manager and updated copies will be submitted to the Regional Manager on a six monthly basis.

Layout plans will be updated whenever changes take place.

Compile a legal register that will be submitted to the Regional Manager on a regular basis and as decided by the manager.

Any emergency or unforeseen impacts will be reported as soon as possible to the engineer on site.

- **Environmental and Social Audit Checklist**

An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non - conformances will be identified and corrective action taken where required.

n) Specific information required by the Competent Authority
(Among others, confirm that the financial provision will be reviewed annually).

No information was required by competent authority

2) UNDERTAKING

The EAP herewith confirms

a) The correctness of the information provided in the reports

b) The inclusion of comments and inputs from stakeholders and I&APs;

c) The inclusion of inputs and recommendations from the specialist reports where relevant; and

d) That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. Parties are correctly reflected herein

Signature of the Environmental Assessment Practitioner:

GUDANI CONSULTING cc

Name of company:

31/03/2022

Date:

APPENDIX A: LOCALITY MAP

APPENDIX B: SITE PHOTOS

APPENDIX C: CONSULTATION WITH LANDOWNERS

APPENDIX D: EAP CV

APPENDIX E: FINANCIALPROVISION

APPENDIX F: PROOF OF CONSULTATION