



**mineral resources**

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

## **SCOPING REPORT**

### **FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/ OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND PROSPECTING**

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS 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 AMMENDED)

**NAME OF APPLICANT: FIDULEX(PTY) LTD**

**FILE REFERENCE NUMBER SAMRAND: REF NW 30/5/1/2/2/2/10115MR**

## APPLICANT DETAILS

Project applicant:	Fidulex (Pty) Ltd
Registration no (if any):	1992/07010/07
Trading name (if any):	N/A
Responsible Person, (e.g. Director, CEO, etc).:	Representative
Contact person:	Mudau Maphari Christopher
Physical address:	Regus Building, No 2, Woodlands Drive, Woodmead Johannesburg.
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## **1. OBJECTIVE OF THE SCOPING REPORT PROCESS**

The objective of the scoping report is to, through a consultative process-

- a) Identify the relevant policies and legislation relevant to the activity
- b) Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location
- c) Identify and confirm preferred activity and technology alternative through an impact and risk assessment and ranking process;
- d) Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment
- e) Identify the key issues to be addressed in the assessment phase
- f) Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- g) Identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

## SCOPING REPORT

### 2. CONTACT PERSON AND CORRESPONDENCE ADDRESS.

#### a) Details of :

- i. The EAP who prepared the report

**Table 1:EAP details**

Name of the Practitioner	Lufuno Mutshathama(Mugovhani)
Postal address:	P O Box 4147, Honeydew,2040
Physical address	Westwood Office Park, Suite D5, Kudu Street, Allens Nek, Roodepoort
Telephone:	011 074 6866
E-mail:	Joanprojects@gmail.com
Cell:	0739120800
Fax:	0862355142

#### ii. Expertise of the EAP

The EAP holds a Bachelor of Environmental Science (graduated in May 2008) from the University of Venda (See Appendix 1). The EAP is registered with SACNASP and the registration number is Professional registration114437

A summary of the EAP's past experience and projects undertaken is attached as appendix 2.

#### b) Description of the location of the activity.

The project site is located within the Bojanala District Municipality (Moses Kotane Local Municipality), in the North-West Province. The site lies approximately 50km's North- North West of Rustenburg. And 16 Km Northwest of Sun City.

**Table 2: Project Locality**

21-digit Surveyor General code	T0JP00000000020800002 T0JP00000000020800003 T0JP00000000020800004 T0JP00000000020800005 T0JP00000000020800006
Farm Name:	Palmietfontein 208 JP
Application area (Ha)	3260.8416ha
Magisterial district:	Bojanala
	The site lies approximately 50km's North- North West of Rustenburg. And 16 Km Northwest of Sun City.
Locality map	<b>See appendix 3</b>
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	The application is being lodged to obtain a mining right for the mining for diamonds.  Mining activities, as well as the processing (screening, washing, scrubbing) of diamonds will be carried out.

**c) Locality map**

The locality map is attached as **Appendix 3**.

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

- i) **Listed and specified activities (Site plan is attached as Appendix 4)**



<b>NAME OF ACTIVITY</b> (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc	<b>Aerial extent of the Activity</b> <b>Ha or m<sup>2</sup></b>	<b>LISTED ACTIVITY</b> (Mark with an X where applicable or affected).	<b>APPLICABLE LISTING NOTICE</b> ( <b>GNR 544, GNR 545 or GNR 546</b> )	<b>WASTE MANAGEMENT AUTHORISATION</b> (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Administration mobile offices)	>50ha (The area extent of all activities will be greater than 50 hectares when the activity is fully operational)	x	These are specified activities that forms part of the Mining Right activity which is listed as item 17 under the listing notice R984	N/A
Mining area (pit/s)		X		N/A
Processing plant (with screens, scrubber and sorter)		x		N/A
Topsoil storage/stockpile		x		N/A
Waste rock Dump		X		X
Tailings Dump		X		X
Return water dam		X		N/A
Access road		X		N/A
Fence		X		N/A
Workshop		X		N/A
Salvage yard		X		N/A
Oil and grease storage		X		N/A
Storage yard		X		N/A
Sewage plant/septic tank	X	N/A		

Processing water dam(s)		X		N/A
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**Table 3: Activities to be undertaken.**



## **ii) Description of the activities to be undertaken**

The primary activities that will be carried out as part of the mining activities are detailed below in their respective phases. These phases include:

- The Construction Phase
- The Operational Phase
- The Decommissioning Phase

### **The Construction Phase**

#### **Site preparation:**

This phase will include the clearing of the site of any vegetation present where mining will be carried out, as well as additional areas that will be used for the listed associated facilities. Topsoil will be ripped, removed and stockpiled on a flat area. The stockpiled soil will be covered with a strong sack or vegetated to prevent erosion (the best or both preventative measure will be applied).

New mobile offices will be brought in to site. The existing structures on the farm portions neighbouring the site may also be rented to reduce footprint of the mining area. The diamond screening, scrubbing and sorting plant as well as all the required equipment will be placed on site. Existing lockable facilities for hazardous substances and bunded areas for small scale maintenance will be constructed

#### **Construction activities**

Following site preparation, the diamond plant and additional required mining infrastructure will be constructed on site. Construction activities include:

- The construction of a Processing Plant (with screening, a scrubber and sorter). The plant will be constructed together with their components (pipes etc.)

- The construction of a clean storm water dam and storm water drains that will channel the storm water to the dam, as well as a return water dam.
- The construction of a Septic Tank and associated infrastructures for containment/storage and transportation of sewage waste from the ablution facilities.
- The construction of a fence around the project site
- The construction of workshop where the maintenance of trucks and equipment will be done, as well as storage of used oil l.
- The construction of a small salvage yard for the sorting and temporal storage of different waste such as tyres, steel etc.

### **Operational Phase**

During the operational phase, all mining activities and processes will be fully operational. The primary activities will include the opencast mining and processing of the diamondiferous ore material from the mining area. The activities are detailed below:

#### **Excavation**

The diamondiferous ore material will be excavated using an excavator and front end loader and bulks of the material will be loaded on to a truck. The material will then be transported to and loaded into the processing plant for processing. if necessary, blasting will take place and will comply to the mine health and safety requirements.

#### **Crushing**

The processing phase is lengthy and begins with screening the material. Screening usually includes a barrel screen that scalps oversize material, standard screens that also further reduce unwanted oversize material and the Bivitec , which removes -5mm material. The

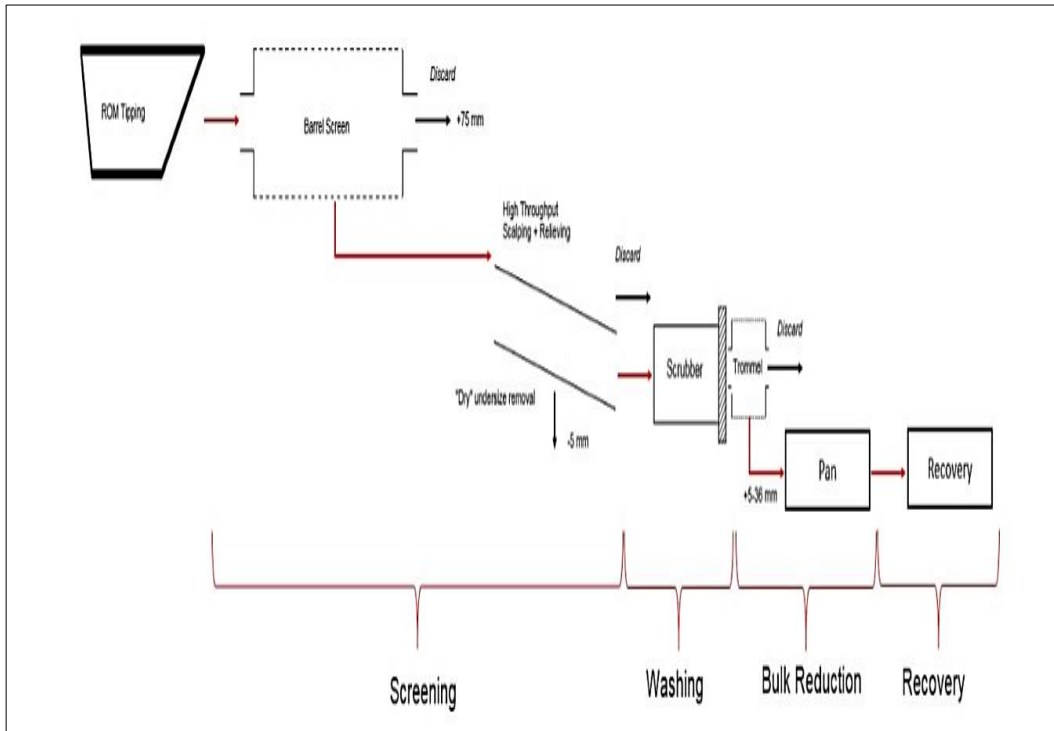
removed material is then stockpiled on the waste rock dump and the required sized material is moved into the scrubber.

### **Washing**

Once the required sized materials have been obtained through screening, washing is the next step for removing yet finer diamonds from the abundance of mined diamond ore, using a scrubber. Scrubbers process precious metals, base metal ores, minerals, aggregates, gravel and sand. They are designed to break up alluvial gravels, clay and sand. This is done through rotation and the force of particles hitting each other. As the scrubber rotates slowly, the fines are churned along with the oversize and water. As a result, the soil matrix is broken and the target material is liberated. Through this process, the diamonds are separated and abstracted from the remnant material.

### **Concentration/recovery**

A density based processing technology is usually used for alluvial processing. This is a particle density separation technique that relies on diamondiferous material being heavier than most of the gangue material. It typically reduces the incoming amount of material by 90%, concentrating heavy minerals. The required diamonds are recovered in this manner and the remaining material is discarded.



**Figure 1: Diamond Processing**

**Decommissioning Phase**

Concurrent rehabilitation will be carried out throughout the life of the mine. During the life of the mine, areas of the project area upon which the ore will be mined to completion will be rehabilitated whilst mining operations are carried out on other parts of the project site. The blasted and excavated pits will be backfilled with waste rock, discard dumps soils and the removed topsoil will be reapplied for revegetation. Where necessary, the surface will also be graded to establish a safe slope. Backfilled areas will then be revegetated.

Upon completion of all mining operations, the entire project site will be rehabilitated in full. All equipment and camp site/mobile facilities will be removed from site, and any concrete slabs/structures will be bulldozed. The old existing shaft will be filled with the bulldozed concrete material and capped.

### e) Policy And Legislative Context

Table 3: Applicable legislation

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
Constitution of the Republic of South Africa	The Bill of Rights, in the Constitution of South Africa (No. 108 of 1996), states that everyone has a right to a non-threatening environment and requires that reasonable measures are applied to protect the environment. This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development. These principles are embraced in NEMA and given further expression. The development will ensure that as little damage as possible will be left on the surrounding environment and local community.
National Environmental Management Act, 1998	National Environmental Management Act (Act No 107, 1998) requires that measures are taken to prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development

In addition, it makes provision:

- That the disturbance of the environment (biological and physical) is avoided, or where they cannot be altogether avoided, are minimized and remedied:
- That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

NEMA also requires that environmental authorisation is obtained for any development/ activity prior to its commencement. The Act also requires that all environmental impacts due as a result of the development and/or its activities are assessed and where possible, minimised or mitigated. The following are the references where the NEMA has been applied (as per section 24 of NEMA):

- Environmental Authorisation application
- Public participation
- Basic Assessment report and Environmental

	Management Programme report
National Environmental Management Act EIA Regulations 2014	Section 24 of NEMA provides for the activities that require specific environmental authorisation. Activity 21 from the Listing Notice 1 of the NEMA regulations was triggered by the proposed development, prompting the EIA
Mineral and Petroleum Resources Development Act, 2002 as amended	<p>The MPRDA regulates all mining related activities and requires that authorisation, permits and rights are obtained prior to the removal of any minerals or the commencement of any mining activities. The mining activities therefore prompts the application of a Mining Right prior to the commencement of mining activities. The following are the references where the MPRDA been applied:</p> <ul style="list-style-type: none"> <li>• Application for a mining right to carry out mining activities as per section 22 of the MPRDA as amended.</li> </ul>
Mineral Petroleum Resources Regulations	The MPRDA regulations provide guidance on the processes and procedures of obtaining the Mining right being applied. The mining right is therefore made in accordance with the MPRDA regulations.

<p>National Heritage Resources Act (Act 25 of 1999)</p>	<p>The National Heritage Resources Act seeks to</p> <ul style="list-style-type: none"> <li>-Introduce an integrated and interactive system for the management of the national heritage resources;</li> <li>-To promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;</li> <li>-To lay down general principles for governing heritage resources management throughout the Republic;</li> <li>-To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;</li> <li>-To establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level;</li> <li>-To set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance;</li> <li>-To control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;</li> <li>-To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources;</li> <li>-To provide for the protection and management of</li> </ul>
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	<p>conservation-worthy places and areas by local authorities; and</p> <p>-To provide for matters connected therewith</p> <p>The Heritage agency will be consulted in case any heritage resource is found during mining.</p>
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<p>National Environmental Management: Biodiversity Act</p>	<p>The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The Draft National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No 32689, 6 November 2009) has been gazetted for public comment. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the NSBA 2004. In terms of the EIA regulations, a basic assessment report is required for the transformation or removal of indigenous vegetation in a critically endangered or endangered ecosystem regardless of the extent of transformation that will occur.</p> <p>The Act also provides for listing of species as threatened or protected, under one of the following categories:</p> <ul style="list-style-type: none"> <li>• Critically Endangered: any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.</li> <li>• Endangered: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.</li> <li>• Vulnerable: any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically</li> </ul>
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	<p>endangered species or an endangered species.</p> <ul style="list-style-type: none"><li>• Protected species: any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).</li></ul>
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**Table 4: Policy and legislative context**

## **f) Need and desirability of the proposed activities**

Although mining's contribution to South Africa's GDP has declined over the past 10-20 years, it remains one of the country's critical economic cornerstones and contributes to its economic activity, job creation and foreign exchange earnings. The sector is therefore critical to the country's socio-economic status.

Diamond reserves were identified around the preferred location, this owing to the specific underlying geology of the area and the previous diamond diggings done. These reserves can be feasibly mined, and the associated mining activities will contribute to the above-mentioned benefits, providing the very much needed jobs (given the high level of unemployment), preferentially to members of the local community, contribute to the GDP and foreign exchange earnings through export.

The unemployment rate within the Moses Kotane Local Municipality is high at 37,9% compared to the national (25.2%) and provincial (26.2%) unemployment rate. The municipality has a youth unemployment rate of 47,4%. Furthermore, a small percentage of the population have higher education. Of those aged 20 years and older, 9,3% have no schooling, 17,1% have some primary school education, 35,3% have some secondary education, only 27,4% have completed matric, and only 5,3% have some form of higher education. This means that the majority of the population have a low-skill level and would either need job employment in low-skill sectors, or better education opportunities in order to improve the skills level of the area, and therefore income levels. This development will therefore positively contribute to reducing the unemployment rate in the region and potentially improve literacy levels.

**g) Period for which the environmental authorisation is required.**

The authorisation is required for a period of 20 years

**h) Description of the process followed to reach the preferred site**

The site was chosen based on the locality of the sought after underlying diamondiferous gravel, and therefore the geology of the area. Consequently, the particular excavation positions were chosen based on the same motive.

The use of mobile offices and ablution facilities was chosen to prevent the transformation of the land use from natural to built up area, and leave the area natural after concluding the mining activities.

**I. Details of alternatives considered**

Due to the fact that the site was selected based on the underlying geology and therefore location of reserves, no other alternative sites were considered.

**II. Details of public participation process followed**

The table below shows the process of consultation that has been undertaken by the applicant.

Table 4:Public Participation Process followed

<b>Interested and affected parties consulted</b>	<b>Manner of consultation</b>	<b>Status</b>	<b>Record appended?</b>
Land owners affected by proposed activities	Letter	Completed	yes
Municipality	Letter	Completed	yes

General public	Site notices and Newspaper advert	Pending (awaiting permission form community leaders/landowner)	yes
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**III. Summary Issues raised by interested and affected parties. (table 1)**

Interested and affected parties	Date comments were raised	Issues raised	Response to the issue
Land owners	None to date	None to date	None to date
Lawful occupiers	N/A	N/A	N/A
Landowners & lawful occupiers of adjacent land and interested parties	None to date	None to date	None to date
Municipality	None to date	None to date	None to date
Community and community leaders	Same as landowners	Same as landowners	Same as landowners
Relevant state departments	None to date	None to date	None to date

**Table 6: public participation details**

Record of consultation is attached as **Appendix**

#### IV. Environmental attributes associated with the sites

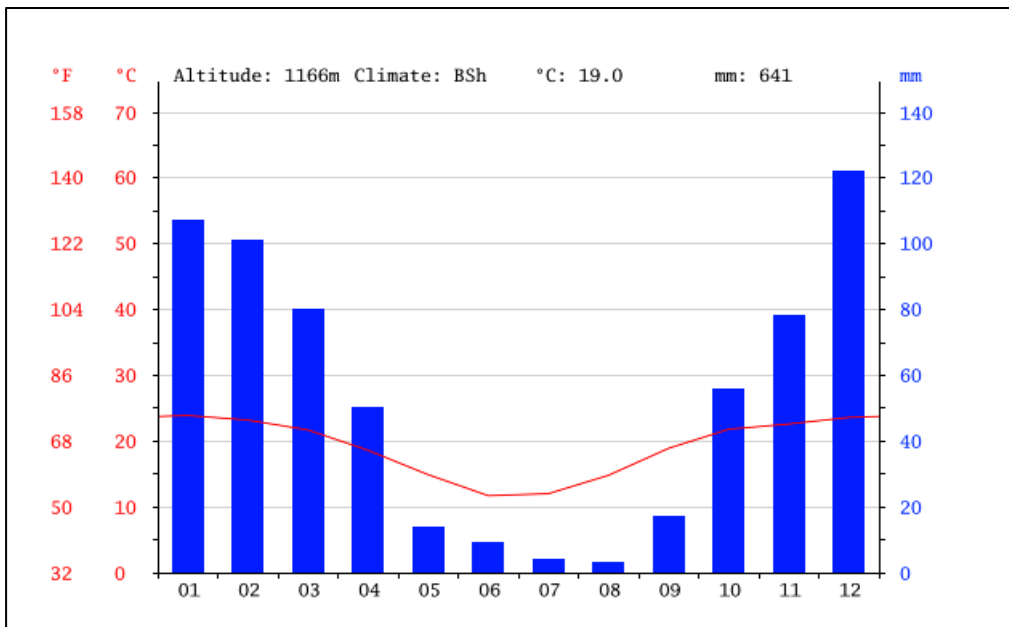
##### 1. Baseline Environment

##### a. Type of environment affected by the proposed activity

### Climate

No climate data was available for the for the study area. Climate data for Sun City (located approximately 15km East-South-East of the project site) was obtained.

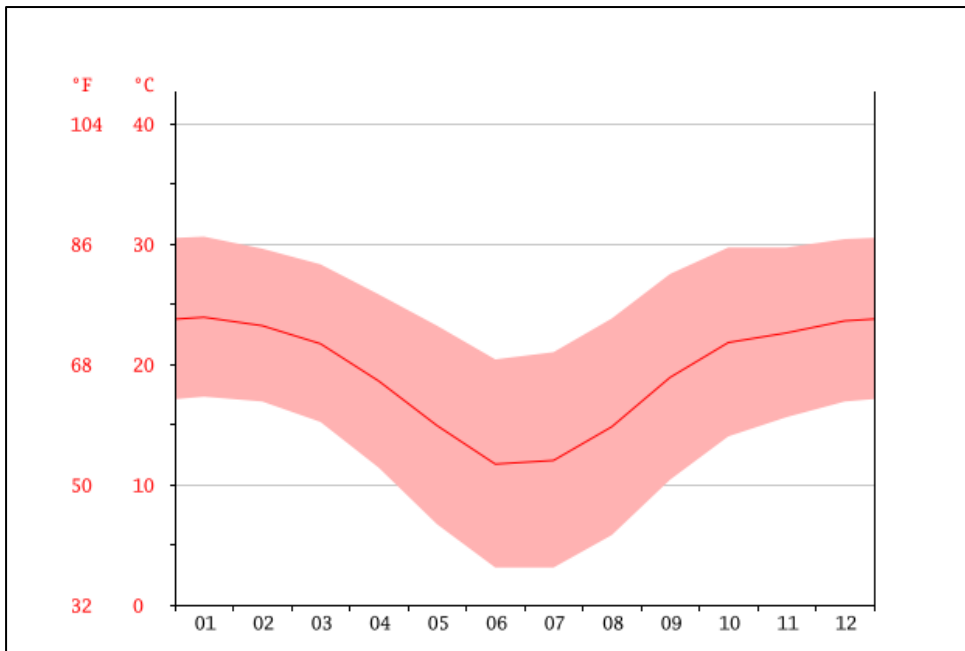
The site lies within the Summer Rainfall Climatic Zone and is classified as a steppe climate area (BSh). Precipitation in the area varies with about 119 mm between the driest month and the wettest month. The driest month is August during which there is an average 3 mm of precipitation. The most precipitation here falls in December, averaging 122 mm. The average annual precipitation is 641mm



**Figure 2: Sun City Average Precipitation**

Source: <http://www.worldweatheronline.com/ventersdorp-weather-averages/north-west/za.aspx>

Temperatures vary by 12.2 °C throughout the year, with an average of 23.9 °C. January is the warmest month with temperatures rising to about 32°C. June is the coldest month, with temperatures averaging at 11.7 °C. Figure 1 below presents the monthly variation of average minimum and maximum temperatures.



**Figure 3: Sun City average high and low temperatures**

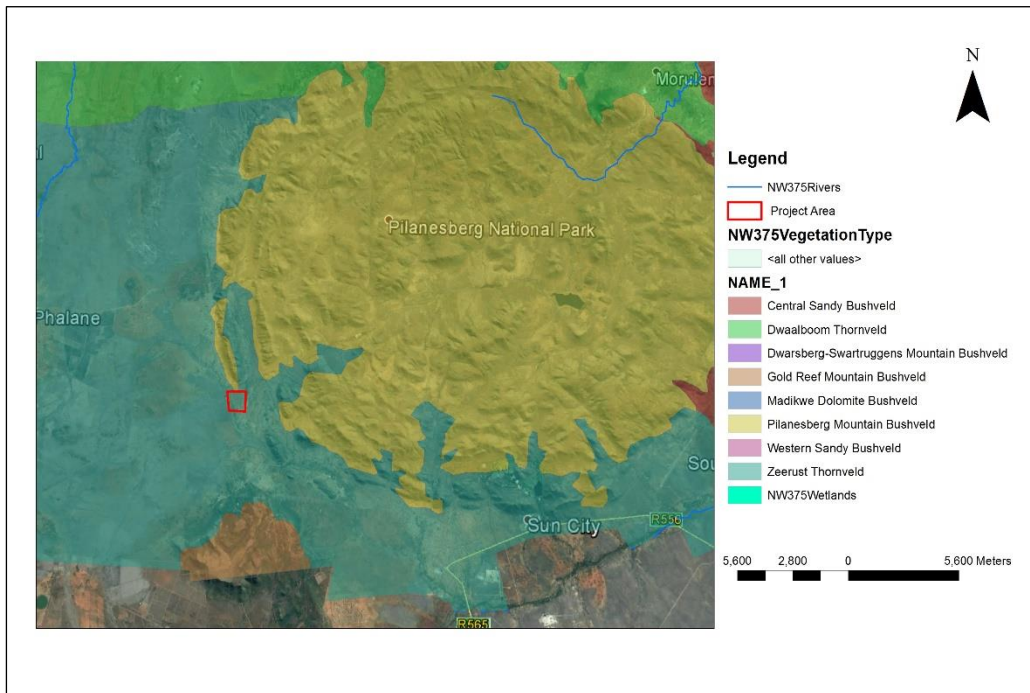
Source: <http://www.worldweatheronline.com/ventersdorp-weather-averages/north-west/za.aspx>

## **Biodiversity**

### Floristic Characterisation

Areas within the immediate vicinity of the study area were assessed using the Floral Assessment conducted in May 2013 by SAS. The proposed project area falls within the Zeerust Thornveld and Savanna Biome as shown in figure 4 below.





**Figure 4: Project floral cover in**

This vegetation occurs as deciduous, open to dense short thorny woodland, dominated by *Acacia* species with an herbaceous layer of mainly grasses. It occurs on deep, high base-status and some clay soils on plains and lowlands as well as between rocky ridges.

Key indicator species of this vegetation type include:

- **Tall trees:** *Acacia burkei* (d), *A. erioloba* (d),
- **Small trees:** *Acacia melifera* subsp. *detinens* (d), *A. nilotica* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea* (d), *Acacia fleckii*, *Peltophorum africanum*, *Terminalia sericea*;
- **Tall shrubs:** *Diospyros lycioides* subsp. *lycioides*, *Grewia flava*, *Mystroxyton aethiopicum* subsp. *burkeanum*;
- **Low shrubs:** *Rhus maricoana* (d), *Agathisanthemum bojeri*, *Chaetacanthus costatus*, *Clerodendrum ternatum*, *Indigofera filipes*, *Rhus grandidens*, *Sida chrysantha*, *Stylosanthes fruticos*;
- **Grass:** *Eragrostis lehmanniana* (d), *Panicum pospischilii*;
- **Herbs:** *Blepharis integrifolia*, *Chamaecrista absus*, *C. mimosoides*, *Cleome maculate*, *Dicoma anomala*,

*Kyphocarpa angustifolia*, *Limeum viscosum*, *Lophiocarpus tenuissimus*.

According to report by SAS (2013), Zeerust Thornveld is considered to be Least Threatened. The conservation target for the area is 19% and less than 4% is statutorily conserved, spreading between four reserves including the Pienaar and Marico Bushveld Nature Reserves. Some 16% of the vegetation type has been transformed, mainly by cultivation, with some urban or built up areas. A few areas are scattered with plants of the alien *Cereus jamacaru* and several other alien species are scattered elsewhere. Erosion of the area is mainly low to very low.

The proposed area portrays the characteristics of an Impacted Bushveld Habitat Unit. There is evidence of past mining activities around the site.

The Impacted Bushveld Habitat Unit covers the majority of the study area and in its present state consists of secondary bushveld, with a lower than expected floral species diversity.

Dominant plant species within the Impacted Bushveld Habitat Unit include the woody species *Acacia karroo*, *Dichrostachys cinerea*, *Acacia melifera* and *Acacia nilotica* as well as subclimax grasses such as *Aristida bipartita* and *Sorghum versicolor*. These species are often associated with disturbance. A decrease in floral diversity has occurred as a result of edge effects from mining activities and urbanisation. Therefore, the proposed project area is considered to have a low ecological sensitivity and low conservation value due to the change in floral species composition and vegetation structure as a result of the abovementioned impacts. This habitat unit is furthermore well represented within the region, and loss thereof as a result of mining expansion, will not significantly affect floral conservation in the region.

According to the NW Biodiversity Inventory and Database (2003) the region in which the study area is located has a floral diversity

ranking of high. A total of 109 plant species were recorded during the floristic survey of the study area, which is markedly higher than the 40-plant species presented in the PRECIS dataset by SANBI (SIBIS: SABIF, 2009, internet), and can be attributed to the variable topography of the study area, and the resulting environmental heterogeneity. Based primarily on position along the slope catena, physiognomy, moisture regime, rockiness, slope and soil properties, four vegetation communities were recognised, but there is variation within these communities as a result of current and historic anthropogenic disturbance. The communities are:

- Bottomland Acacia karroo-Acacia tortilis bushveld
- Foothlope mixed bushveld
- Upper- Midslope Acacia caffra-Combretum molle bushveld

## **Fauna**

### **Avifauna**

The NW Biodiversity Inventory and Database (2003) categorises the region in which the study area is located as having low-medium bird diversity. Data presented on SANBI's SIBIS database (SIBIS: SABIF, 2009, internet) indicates that a total of 127 bird species have been recorded in the 2526BB quarter degree grid square. During a site survey carried out by Golder Associates recorded a total of 35-bird species, which is lower than the recorded 127 species by SIBIS. This low diversity can be attributed to:

- The time of year at which the survey was undertaken – during the dry season many summer residents migrate north and only common residents would be observed;
- Mining activities, most notably blasting, would disturb many bird species in the immediate area; and

- Egg collecting by adjacent land users may reduce the abundance and diversity of resident bird species. No Red Data bird species were recorded.

## Mammals

The project area covers a relatively small area; therefore, a high diversity of mammal species is not expected. Furthermore, animal life in the area is limited to small animals, potentially as a result of anthropogenic disturbance and the low floral diversity. The mammal community consists primarily of pioneer species, such as rodents (e.g. the genus *Mastomys*) bats, squirrels, lizards and a few snake species, and other species that are widespread and common to most vegetation types. No Red Data mammal species were recorded.

## Surface water

The project area falls within the Crocodile and Marico West Water Management Area. No surface water resource traverses the proposed mining area. Two non-perennial tributaries of the Motlhabe River flow next to the project area (approximately 200m from the project site). The tributaries are generally dry and flow only after significant rainfall. They are not utilised as water sources by the local community or livestock.

## Groundwater

Groundwater Information available from previous groundwater investigations at Ruighoek (Golder, May 2007) and (Brink, D; Canahai, G; February 2012) can be summarised as follows:

- The main aquifers are secondary fractured aquifers and weathered rock aquifers;
- Groundwater levels ranged from 5.82 mbgl to 20.38 mbgl (1130 mamsl to 1133 mamsl) based on data collected in 2001;
- Yields in boreholes identified during a 2001 hydrocensus varied from dry to 10 l/s;

- Boreholes are used mostly for domestic use and stock watering; Groundwater quality generally did not meet the South African Water Quality Guidelines for domestic use due to high salinity, high Ca, high Mg and high nitrate;
- The main source of groundwater recharge was identified as high-lying ground in the Pilanesberg Mountains and low-lying areas of the Motlhabe River catchment;
- Annual groundwater abstraction was estimated at 105 m<sup>3</sup> /yr; and The fractured/weathered rock aquifers are described as “minor”.
- Two aquifers were identified:
  - Weathered zone aquifer which extends to a depth of 5 m to 30 m. The saturated zone in this aquifer can vary from 0 m to 20 m. Porosity is of the order of 1% to 25%. Transmissivity ranges from 30 m<sup>2</sup>/day to 150 m<sup>2</sup>/day. The aquifer is of limited extent and subject to dewatering under sustained pumping conditions; and
  - Fractured rock aquifers are associated with sub-vertical fractures

### **Air Quality**

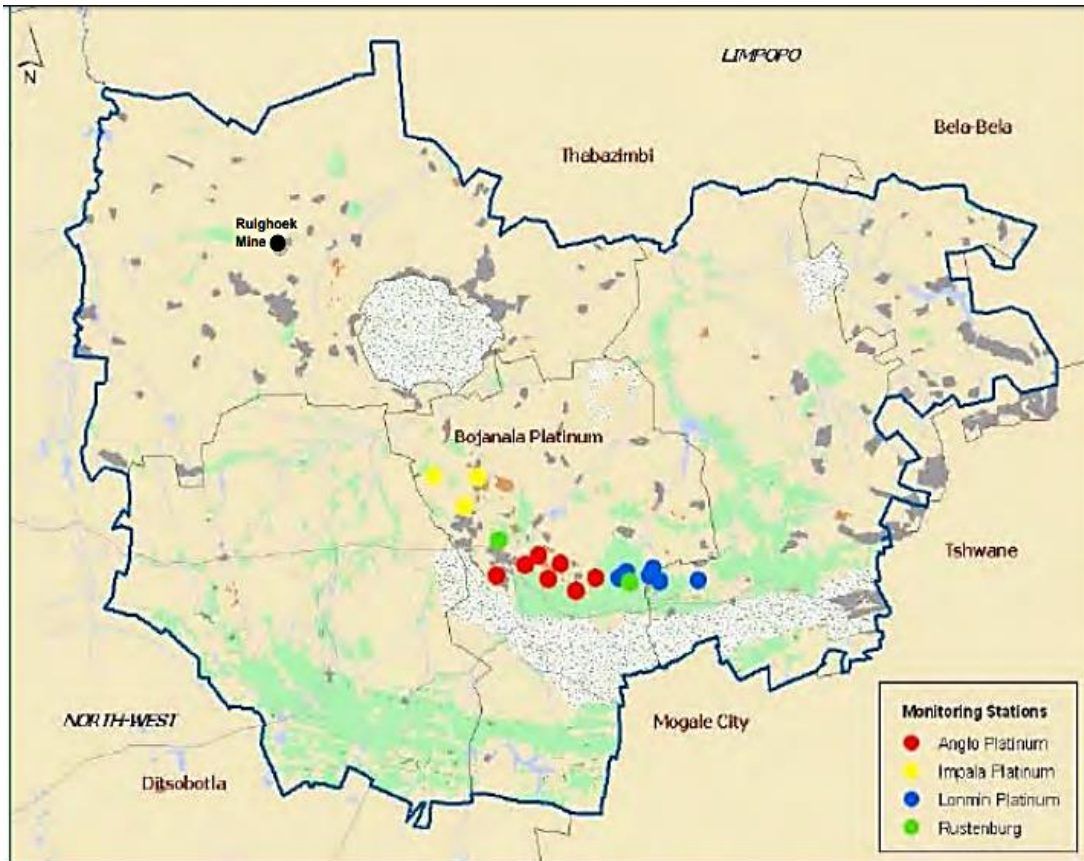
Currently there is no measured air quality data for the vicinity of the proposed mining operations. Most of the monitoring facilities are located in the urban areas (i.e. Rustenburg) and/or on the larger platinum mines such as Impala, Lonmin and Anglo Platinum (See Figure 3). Air quality information from these nearby mines was obtained from a report by Golder Associates (2012). Data recorded at the platinum mines show infrequent exceedances of the national standard of 48 ppb for the daily SO<sub>2</sub> concentration, several exceedances of the current national daily standard of 120 µg/m<sup>3</sup> for PM<sub>10</sub> and numerous exceedances of the 2015 national daily standard of 75 µg/m<sup>3</sup>. These mines are located approximately 40km to 70km south-east of the proposed mining operations and,

although airborne pollutants can travel long distances, their concentrations diminish with distance from the emission source.

Potential air quality pollution sources of local significance include:

- Fugitive emissions from mining operations such as clearing operations (scrapping, dozing and excavating), materials handling operations (tipping, off-loading, loading), vehicle entrainment of dust from haul roads, wind erosion from open areas, drilling and blasting. These results mainly in fugitive dust releases
- Vehicle tailpipe emissions. These include CO<sub>2</sub>, CO, SO<sub>2</sub>, NO<sub>x</sub> and hydrocarbon gases as well as particulate material and lead.
- Household fuel combustion (particularly coal and wood used by smaller communities/settlements).
- Biomass burning (veld fires in agricultural areas within the region).
- Various miscellaneous fugitive dust sources (agricultural activities, wind erosion of open areas, vehicle entrainment of dust along paved and unpaved roads).

The following were identified as sensitive receptors: Witrandjie village (about, less than 500 m west of the project site), Maologane village, approximately 2km North-North-West of the project area, Mahobieskraal (approximately 2.6km South-South East of project site). The Pilanesberg Nature Reserve, which is highly dependent on tourism, is located 1.2km to the east of the project area.



**Figure 5: Platinum mines near the project location**

### **Topography**

The project area lies in the wide, shallow Motlhabe River valley which is oriented north-south and falls gently towards the north. The terrain within the valley is relatively flat, but rises abruptly at the Pilanesberg mountains which bound the valley to the east. The project area is located at the foot of the Pilanesberg mountains. The average elevation in the valley ranges from approximately 1,050 to 1,550 m above mean sea level.

### **V. Methodology used in determining the significance, of environmental impacts.**

The generic criteria and systematic approach used to identify, describe and assess impacts as outlined in this report is stated

under this section. In order to determine the significance of an activity each activity was rated.

## **METHODOLOGY FOR THE ASSESSMENT OF IMPACTS**

The assessment of impacts adheres to the minimum requirements in the EIA Regulations, 2014 and takes into account the applicable official guidelines.

Below is a detailed methodology of how all direct, indirect and cumulative impacts associated with all the phases of the project where assessed. The Direct, indirect and cumulative impacts associated with the proposed operation and its alternatives on the environment and socio-economic conditions will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
  
- Impact Parameters

<b>Parameter</b>	<b>Description</b>
<b>Extent</b>	Refers to the geographical extent of the resultant impact, whether local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
<b>Duration</b>	Refers to the duration that the resulting impact will last, whether <ul style="list-style-type: none"> <li>➤ the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;</li> <li>➤ the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;</li> <li>➤ medium-term (5–15 years) – assigned a score of</li> </ul>



	3; ➤ long term (> 15 years) - assigned a score of 4; or permanent - assigned a score of 5
<b>Intensity</b>	Refers to the intensity of destruction or benign of the impact on the environment whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as: low, medium or high.
<b>Probability</b>	Refers to the probability/chances of the impact to happen. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- **Mitigation**

Impacts that result from the development can be minimised if mitigation measures are correctly put in place. Mitigation measures should ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

- **Mitigation Efficiency (ME):** The efficiency and effectiveness of mitigation measures, is measured through mitigation efficiency, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact. The lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

**Determination of Significance – Without Mitigation:**

Significance is determined through a synthesis of impact parameters as described in the above table, and provides an

indication of the importance of the impact. The significance of the impact “without mitigation” is the key determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”.

Significance is rated on the following scale:

- **No significance:** The impact is not substantial and does not require any mitigation action.
- **Low:** The impact is of little importance, but may require limited mitigation.
- **Medium:** The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
- **High:** The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

### **Identifying the Potential Impacts without Mitigation Measures (WOM):**

Following the assignment of the necessary weights to the respective parameters, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the

***Equation 1:***

***Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x Weighting Factor***

implementation of mitigation measures).

### **Determination of Significance – With Mitigation (Significance Following Mitigation (SFM):**

Determination of significance with mitigation refers to the anticipatable significance of the impact after the successful implementation of the necessary mitigation measures. The efficiency of the mitigation measure determines the significance of

the impact. The level of impact is therefore seen in its entirety with all considerations taken into account. Significance with mitigation is rated on the following scale:

- **No significance:** Following the implementation of mitigation measures, the impact becomes insignificant/ insubstantial.
- **Low:** The impact will be mitigated to the point where it is of limited importance.
- **Low to medium:** After mitigation, the impact is reduced to acceptable levels.
- **Medium:** Notwithstanding the successful implementation of the mitigation measures, the negative impact remains of significance, however, in relation to the overall context of the project, the persistent impact does not constitute a fatal flaw.
- **Medium to high:** The impact is of major importance but after the implementation of the correct mitigation measures, the negative impacts are reduced to acceptable levels.
- **High:** The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

### **Identifying the Potential Impacts With Mitigation Measures (WM):**

In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it is necessary to re-evaluate the impact.

**Equation 2:**

$$\text{Significance Rating (WM)} = \text{Significance Rating (WOM)} \times \text{Mitigation Efficiency}$$

Or

$$WM = WOM \times ME0$$

Below is a table of all ratings allocated to the aforementioned parameters that have been accounted for in rating all identified impacts from the development.

Extent	Duration	Intensity	Probability	Weighing Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0.2	Low 0-19
Site 2	Short to Medium 2		Possible 2	Low to Medium 2	Low to Medium 20-39	Medium to High 0.4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0.6	Medium 40-59
National 4	Long term 4		Highly likely 4	Medium to High 4	Medium to High 60-79	Low to Medium 0.8	Medium to High 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1.0	High 80-100

Based on the calculated rating, all impacts can therefore be rated to be of low, low to medium, medium, medium to high or high significance before and after mitigation.

**VI. 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.**

## Preferred Alternative (only alternative):

### **Positive impacts**

There are no alternatives, therefore the advantages and disadvantages of the initial site layout are indicated below:

- Job creation:

The proposed project will create a few general /unskilled and skilled jobs for unemployed persons, with the greatest preference given to members of the neighbouring communities. The project will also provide work and generate income for a few construction workers that will be carrying out the technical surface work. This will in turn improve the livelihoods / standards of living for members of the local communities who will be employed.

- Good environmental management.

The Environmental Authorisation together with the approved EIA/EMP report will guide the applicant in terms of managing the physical and socio-economic environment that is impacted by the mining activities. This will be possible through the implementation of the requirements and conditions of the Environmental Authorisation and the approved EIE/EMP report.

### **Negative impacts**

The following are the potential negative impacts identified for the proposed activities.

- Soil pollution

Potential leakage of oil and other industrial liquids from the trucks and machineries. This is a potential risk of soil contamination, which will change the soil chemistry and soil nutrients of the affected soil. This could also potentially affect the vegetation growth in the contaminated areas.

- Dust

The use of the access dusty roads and the blasting activities will result in the emission of dust into the surrounding atmosphere. This will impact on the plants surrounding the area as it (the dust) is deposited on the leaves. This interferes with the photosynthesis process of the plants. Furthermore, animals that feed on the plants will be impacted upon as this will affect their forage.

- Noise

The machinery operations, and the movement of trucks and vehicles, all causes noise. The trenching activities noise levels may go over the immediate site. The noise levels of the trucks and excavators depend on their size and this may cause the noise to be localised in the specific site.

- Soil erosion

Soil erosion on denuded areas and topsoil stockpile is a potential negative impact. Most of the areas to be worked on are flat, but do not rule out soil erosion by runoff or wind.

- Animal life disruption

The noise, dust, movement and operation of trucks and other vehicles, the potential loitering of the employees and the trenching itself will disrupt the life of the animals around. This disruption can further lead to injury or death in cases where animals fall into the trenches.

- Removal of vegetation

While all means will be applied to minimise disturbance, removal of vegetation cannot be avoided altogether. Vegetation will be removed in areas where trenching will be done. This removal of vegetation will leave the ground bare and prone to erosion.

- Habitat destruction

The grassland with its shrubs, small trees and burrows are habitat to and form part of an ecosystem that supports some of the small animals that inhabit the area. This habitat within the project site will be disturbed and destroyed by the movement and operations during the prospecting activities. This could possibly cause the relocation of some of the animals, and also result in habitat fragmentation.

- Increased Immigration of job seekers

The proposed project could potentially attract an influx of job seekers who might seek work on sight or with the hopes of capitalising on the potential job opportunities should the project indicate the feasibility of diamond mining and proceedings are made into the mining phase.

- Waste generation

Solid waste such as debris (slimes), waste rock and litter will be generated and deposited in and around the site. This could potentially attract nuisance and affect the natural scenery of the site. The slimes and waste rock will be used to backfill the trenches. This will be undertaken in a concurrent rehabilitation manner.

## VII. The possible mitigation measures that could be applied and the level of risk

Table 5 below lists the proposed mining activities, their associated impacts and the suggested mitigation measures:

**Table 5: Associated Impacts and Mitigation Measures**

ACTIVITIES	Associated Impacts	TYPICAL MITIGATION MEASURES
Site establishment: Site Clearing and Processing Plant Construction	<ul style="list-style-type: none"> <li>• Generation of noise.</li> <li>• Generation of dust.</li> <li>• Removal of vegetation.</li> <li>• Habitat disruption</li> </ul>	<ul style="list-style-type: none"> <li>- Work during the day time only. Sound is louder during the night than during the day. to minimise disruption of animal life and noise in the night</li> <li>- Service equipment, machineries, trucks and other vehicles regularly to minimise noise.</li> <li>- provide ear plugs to the employees and ensure they wear them for the protection of their ears.</li> <li>- Suppress dust by spraying water on dust roads and onsite were possible</li> <li>- Regulate speed to be 40 km/h on site to reduce dust emission.</li> <li>- Provide dust mask to employees working on site</li> <li>- Minimise removal of vegetation- where possible work on barren parts of the site.</li> <li>- Rehabilitate and vegetate denuded areas as soon as possible</li> </ul>



	<p>and destruction</p> <ul style="list-style-type: none"> <li>• Soil contamination by oil spills from vehicles</li> <li>• Temporary in-migration of workers and job seekers</li> <li>• Personal safety and hazard exposure (actual and perceived)</li> </ul>	<ul style="list-style-type: none"> <li>- Install mobile offices and ablution facilities to minimise ground disturbance</li> <li>- The site office and ablution facilities must be located in an area with minimal damage or disturbance to the environment.</li> <li>- Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction personnel, equipment/machinery or vehicles are permitted.</li> <li>- Construct a concrete slab to avoid soil contamination by hydrocarbon leakage</li> <li>- Provide drip trays for all parked vehicles</li> <li>- Ensure that an employment criterion, for the prospecting crew be made public in advance to deter unqualified job seekers from moving into the area.</li> <li>- Employ as far as possible, local labour at each phase of the project, especially during the prospecting phase</li> <li>- Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health and safety plan for the prospecting; and</li> <li>- Communities and other Interested &amp; Affected Parties should be informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Introduction and establishment of declared weeds</li> </ul>	<ul style="list-style-type: none"> <li>- Monitor the establishment of any foreign/alien invasive species on site and remove if any</li> </ul>
Excavating and Blasting	<ul style="list-style-type: none"> <li>• Generation of dust</li> <li>• Generation of noise</li> <li>• Removal of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>- Suppress dust by spraying water on dust roads and onsite were possible</li> <li>- Provide workers with earplugs</li> <li>- Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only</li> <li>- Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity.</li> <li>- Bring in and use the mobile equipment that will just need the positioning and not the construction. equipment such as the toilet and the guard house.</li> <li>- Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating</li> </ul>

	<ul style="list-style-type: none"> <li>• Animal Life disruption</li>   <li>• Actual health and fertility from factors such as factors such as noise, and dust pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Work during daytime to minimise the disruption of animal life.</li> <li>- Fence -off the trenches to prevent animals from falling into the pits</li> <li>- Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees.</li> <li>- Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.</li>   <li>- Provide workers with safety clothing</li> <li>- Comply with Health and Safety measures, standards and regulations</li> <li>- Carry out Health and Safety audits frequently to ensure all Health and Safety measures, standards and regulations and complied with</li> <li>- Any hazardous zones on site should be monitored</li> </ul>
Top soil stockpiles	<ul style="list-style-type: none"> <li>• Soil erosion from the storage stockpile</li>   <li>• Dust from the storage stockpile</li> </ul>	<ul style="list-style-type: none"> <li>- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion</li>   <li>- Suppress dust by spraying water on dust roads and on and around site</li> </ul>

Waste and storage	<ul style="list-style-type: none"> <li>• Nuisance and visual pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it.</li> <li>- Provide rubbish bins and ensure that all waste is properly disposed of in the bins</li> <li>- Empty and dispose of waste weekly at the nearest landfill site</li> </ul>
Oil storage	<ul style="list-style-type: none"> <li>• Soil Contamination</li> </ul>	<ul style="list-style-type: none"> <li>- Place oil dip trays beneath trucks and machinery in use of oil to contain any oil spills</li> </ul>

### **VIII. The Outcome of the site selection matrix. final site layout**

The general objectives of the site selection matrix are to ensure that the activity to be undertaken is environmentally and socially acceptable, and thus sustainable. Considerations in this process are the size (land area) and the strategic location of the main activities and associated infrastructures.

The site was selected based on the geographic location of diamondiferous gravel reserves. The mining area was determined based on studies that indicated the feasibility of mining diamonds in the area. The layout of the site was however selected based on considerations made for the surrounding environment where possible, as well as minimal disturbance to the community near the site. Furthermore, consideration of access to existing routes was made in determining the layout of the site.

The size/land area for run of activity of the activity was selected based on the size (according to the geology of the area), and position and of the mineral reserves to be exploited.

### **IX. Motivation where no alternative sites were considered.**

As indicated in section VIII above, no alternatives were considered as the activities depend on the geology and therefore position of the ore body. Only areas with significant diamond reserves such as the preferred site, that can be feasibly mined , can be mined.

### **X. statement indicating the preferred site**

The preferred site is as per the site plan. Based on the desktop study of the geology of the area under question, the site is potentially underlain by diamondiferous gravel (from weathering kimberlite pipes) reserves which can be mined. For this reason, all mining activities are to be carried out at the preferred site.

**(i) Plan of study for undertaking the Environmental Impact Assessment process to be undertaken**

- i. A description of the alternatives to be considered, including the option to of not proceeding with the activity**

**Preferred Alternative:**

The mining location was chosen solely based on the position of the underlying ore body. Prior investigations and studies suggested the presence of diamonds in specific parts of the area and therefore the mining activities applied for can only be carried out at the chosen locality.

**Campsite**

The location of the campsite was selected based on the location of the mining operations. The camp site has to be located near the mining operations, however it has to be ensured that the campsite is not placed at an area with potentially a large reserve of diamonds. Furthermore, the campsite was located at a position close to the existing access route (at the edge of the project site) to restrict movement of vehicles within the project area itself.

**No-Go Alternative:**

The No-go alternative entails not developing. This alternative will allow for the project site to remain in its current state (a natural habitat that is partially natural and disturbed by past mining activity). This alternative however, will not provide the socio-economic benefit of the few employment opportunities this project will generate for the local community members. The “no-go” alternative is therefore not considered the ‘best practical option’.

## **ii. Description of the aspects to be assessed as part of EIA process.**

The aspects that will be assessed as part of the EIA include:

- The Biodiversity of the site and immediate surroundings (Including flora and fauna). The site will be assessed for any sensitive species or biodiversity communities that may be impacted upon or threatened by the mining activities.
- The presence of any Heritage Resources on site. An assessment will be carried out to investigate the presence of any heritage resources as stipulated by the Heritage Resource Agency.
- The Social structure (Nearby communities) that may be affected by the development.

## **iii. Description of aspects to be assessed by specialist**

The following specialist studies will be carried out:

- Biodiversity Assessment
- Heritage Impact Assessment
- Social Impact Assessment
- Air Quality Impact Assessment

These studies will focus on assessing the biodiversity of the receiving environment, focusing on the vegetation and animal life, as well as the presence of any heritage resources within the project site and its direct surroundings. The social structure made up of the surrounding communities will also be assessed to investigate how the development may potentially change this structure. The Impacts that the project will have on these components will be assessed in detail. Furthermore, a detailed air quality assessment of the area

will be conducted to determine the status quo and establish how the proposed development will further impact upon the air quality within the area.

**iv. Description of the proposed method of assessing the environmental aspects including the proposed method of assessing alternatives.**

The environmental aspects will be assessed through:

- Carrying out a desktop study to obtain existing information (literature review) on the natural environment and socio - economic status of the site and its surroundings;
- Conducting a site assessment to verify information obtained during the desktop study and further assess the above-mentioned aspects; and
- Undertaking specialist studies to further assess the aspects in question, in greater detail.

**v. Description of the proposed method of assessing duration and significance of impacts.**

See section V part 1 of this report

**vi. Stages at which the competent authority will be consulted**

Initial communication with the competent authority has been made through the application for environmental authorisation for this proposed project.

Further consultation will be made when the draft scoping report is finalised so as to obtain comments. The competent authority will also be consulted upon finalisation of the draft Environmental Impact Report for commenting.



vii. **Particulars of the public participation process that will be conducted during the EIA process.**

**1) Steps to be taken to notify the interested and affected parties**

The following steps will be taken to notify the interested and affected parties during the EIA phase: -

- A meeting will be set with the landowner to provide information of the proposed development
- A newspaper advert will be published to inform Interested and Affected parties of the availability of draft reports for commenting
- Should the need arise, a public meeting will be hosted with the local community.
- Letters (registered/hand delivery) will also be sent to Organs of State on the progress of the application and Environmental Authorisation in cases where emails cannot be utilised to do so
- Draft reports will be mailed to all Organs of State and landowners
- Telephone calls& fax mails will be made if required

**2) Details of the engagement process to be followed.**

The following will be the engagement process.

- The land owners will be notified and invited to comment on the draft EIA/EMP documents.
- If found necessary, a public meeting will be held to detail the project and receive any further comments from individuals of the surrounding communities

- Upon request, draft reports will be emailed or posted to interested and affected parties. Interested and affected parties will be invited to comment on the draft reports.

### **3) Description of the information to be provided to interested and affected parties.**

Interested and Affected Parties will be provided with the following information:

- Details of the proposed project:
  - project description,
  - project location,
  - impacts from project activities,
  - closure objectives
- Contact details at which commentary can be made
- Availability of draft reports and commentary dates and duration
- Accessibility to draft reports for reviewing and commentary
- Record of decision for the application.

### **viii. A description of the tasks that will be undertaken during the EIA process**

The following tasks will be undertaken during EIA process:

- Site assessment

A visit to the proposed site will be undertaken in order to assess the receiving (physical) environment in detail and identify any further impacts that the proposed project may have on the environment.

- Report compilation and submission

Once the site assessment has been carried out, the identified impacts will be assessed (for significance) and rated accordingly. The findings will be collated in the Draft Environmental Impact Report.

A Draft Environmental Management Plan will also be compiled, within which a plan for mitigating and managing the identified impacts will be detailed. The plan will also detail the frequency for monitoring the impacts and management measures suggested.

- Public participation

Contact will be made with all Registered Interested and Affected Parties and organs of State, informing them of the availability of the Draft Environmental Impact Report and Environmental Management Plan for commenting.

Upon request, these draft reports will be provided to Registered Interested and Affected Parties through mail. The general public will also be notified of the availability of the Draft Environmental Impact Report and Environmental Management Plan for commenting

All Interested and Affected Parties and the general public will be allowed a period of 30days to comment on the draft reports, after which, all commentary raised by Interested and Affected Parties will be incorporated in the Final EIA report (together with all responses to the commentary).

The final Reports will be submitted to the competent authority and other states of organs, in anticipation for a record of decision on the authorisation application. The public will be notified of the record of decision by the competent authority.

**ix. Measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored**

See the Table below

The table below presents measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

ACTIVITIES	Associated Impacts	TYPICAL MITIGATION MEASURES
Site establishment: Site Clearing and Construction of: Processing Plant, Administration Block, Salvage yard, Workshop, Fence, Return water dam and Processing water dam(s).	<ul style="list-style-type: none"> <li>• Generation of noise.</li> <li>• Generation of dust.</li> <li>• Removal of vegetation.</li> <li>• Habitat disruption and destruction</li> </ul>	<ul style="list-style-type: none"> <li>- Work during the day time only. Sound is louder during the night than during the day. to minimise disruption of animal life and noise in the night</li> <li>- Service equipment, machineries, trucks and other vehicles regularly to minimise noise.</li> <li>- provide ear plugs to the employees and ensure they wear them for the protection of their ears.</li> <li>- Suppress dust by spraying water on dust roads and onsite were possible</li> <li>- Regulate speed to be 40 km/h on site to reduce dust emission.</li> <li>- Provide dust mask to employees working on site</li> <li>- Minimise removal of vegetation- where possible work on barren parts of the site.</li> <li>- Rehabilitate and vegetate denuded areas as soon as possible</li> <li>- Install mobile offices and ablution facilities to minimise ground disturbance</li> <li>- The site office and ablution facilities must be located in an area with minimal damage or disturbance to the environment.</li> <li>- Establish 'NO-GO' areas for any environmental sensitive or important habitat areas as per the biodiversity assessment- where no construction</li> </ul>

	<ul style="list-style-type: none"> <li>• Soil contamination by oil spills from vehicles</li> <li>• Temporary in-migration of workers and job seekers</li> <li>• Personal safety and hazard exposure (actual and perceived)</li> <li>• Introduction and establishment of</li> </ul>	<p>personnel, equipment/machinery or vehicles are permitted.</p> <ul style="list-style-type: none"> <li>- Construct a concrete slab to avoid soil contamination by hydrocarbon leakage</li> <li>- Provide drip trays for all parked vehicles</li> <li>- Ensure that an employment criterion, for the prospecting crew be made public in advance to deter unqualified job seekers from moving into the area.</li> <li>- Employ as far as possible, local labour at each phase of the project, especially during the prospecting phase</li> <li>- Ensure that all activities comply with all the requirements of the Occupational Health and safety Act as stipulated by its health and safety policy and the health and safety plan for the prospecting; and</li> <li>- Communities and other Interested &amp; Affected Parties should be informed (community awareness) of these policies and must be able to report any irregularities to the relevant competent authority.</li> <li>- Monitor the establishment of any foreign/alien invasive species on site and remove if any</li> </ul>
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	declared weeds	
Excavating and Blasting	<ul style="list-style-type: none"> <li>• Generation of dust</li> <li>• Generation of noise</li> <li>• Removal of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>- Suppress dust by spraying water on dust roads and onsite were possible</li> <li>- Provide workers with earplugs</li> <li>- Avoid removal of vegetation as far as practically possible. Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed mining footprint only</li> <li>- Place infrastructures in places that are already disturbed or degraded to avoid removal of vegetation and increasing the footprint of the activity.</li> <li>- Bring in and use the mobile equipment that will just need the positioning and not the construction. equipment such as the toilet and the guard house.</li> <li>- Where vegetation removal cannot be avoided, rehabilitate as soon as possible by revegetating</li> <li>- A vegetation specialist should be involved during the search and rescue operations of vulnerable or sensitive/important plant species occurring on site. All rescued plants should be bagged and kept on a designated on-site nursery, and should be returned to site once all construction is</li> </ul>

	<ul style="list-style-type: none"> <li>• Animal Life disruption</li>   <li>• Actual health and fertility from factors such as noise, and dust pollution</li> </ul>	<p>completed. Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment.</p> <ul style="list-style-type: none"> <li>- Work during daytime to minimise the disruption of animal life.</li> <li>- Fence -off the trenches to prevent animals from falling into the pits</li> <li>- Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees.</li> <li>- Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.</li>   <li>- Provide workers with safety clothing</li> <li>- Comply with Health and Safety Measures</li> <li>- Any hazardous zones on site should be monitored and the prescribed prevention measures be put in place</li> </ul>
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Top soil stockpiles	<ul style="list-style-type: none"> <li>• Soil erosion from the storage stockpile</li> <li>• Dust from the storage stockpile</li> </ul>	<ul style="list-style-type: none"> <li>- Avoid erosion by stockpiling topsoil properly and keep stockpile damp to reduce erosion</li> <li>- Suppress dust by spraying water on dust roads and onsite where possible</li> </ul>
Waste and storage	<ul style="list-style-type: none"> <li>• Nuisance and visual pollution</li> </ul>	<ul style="list-style-type: none"> <li>- Littering should be prohibited and all waste generated from the site should be cleared. A 'no waste dumping' sign should also be placed next to the stream to raise caution of littering around it.</li> <li>- Provide rubbish bins and ensure that all waste is properly disposed of in the bins</li> <li>- Empty and dispose of waste weekly at the nearest landfill site</li> </ul>
Oil storage	<ul style="list-style-type: none"> <li>• Soil Contamination</li> </ul>	<ul style="list-style-type: none"> <li>- Place oil dip trays beneath trucks and machinery in use of oil to contain any oil spills</li> </ul>

## **Other information required by the competent authority**

- i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the: -**

- 1) Impact on the socio-economic conditions of any directly affected person.**

The project will contribute to the socio- economic status of the neighbouring communities in that it will provide employment for a few locals, therefore improving their livelihoods. The project may also potentially attract more people (job seekers and a few developers) to move into these neighbouring communities. Further socio-economic impacts, if any, will be assessed during EIA.

- 2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.**

The impact on any national estate referred to in section 3(2) of the National Heritage Resources Act will be investigated during the EIA process.

- 3) other matters required in terms of section 24(4)(a) and (b) of the Act.**

N/A

## **J) UNDERTAKING REGARDING CORRECTNESS OF INFORMATION**

I LP Mutshathama herewith undertake that:

- The information provided in the foregoing report is according to my knowledge correct, and that the comments and inputs from stakeholders and interested and affected parties has been correctly recorded in the report.



**EAPSignature**.....

**Date:** .....11/11/2016.....

**K) UNDERTAKING REGARDING LEVEL OF AGREEMENT**

I LP Mutshathama herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and affected parties and stakeholders has been correctly recorded and reported herein.

**Signature:**



**Date :11/11/2016**

# **APPENDIX 1: EAP DEGREE CERTIFICATE**

# University of Venda



This is to Certify that the Degree of  
**Bachelor of  
Environmental Sciences**

was Awarded to

MUGOVHANI LUFUNO FRANCESCA

at a Ceremony held on the


08-MAY-2008

in Accordance with the Provisions of the  
Act and Statute

  
Vice Chancellor



  
University Registrar

  
Executive Dean

## **APPENDIX 2: EXPERIENCE AND PAST PROJECTS UNDERTAKEN**

## ***CURRICULUM VITAE OF LUFUNO PRECILLA MUTSHATHAMA***

Surname : Mutshathama  
First Name : Lufuno Precilla  
Identity Numbers : 8510020398080  
Date of Birth : 1985 October 02  
Gender : Female  
Marital Status : Married  
Home Language : Tshivenda  
Nationality : South African  
Physical Address : 45 Mayers Estate, Bassoon Avenue,  
Struben Valley, 1724  
Contact numbers : 073 912 0800/073 805 5481, 011 074 6866  
Fax No : 086 2355 142  
Email address : Joanprojects@gmail.com

### ***TERTIARY COMPETENCES***

Name of Institution : University of Venda

Qualification : BEnvSc (Bachelor of Environmental Sciences)

Duration of study : 2005 – 2007

Major courses : **Ecology and Resources Management**

- Environmental Impact Assessment & Modelling
- Hydrology & water resources
- Conservation biology
- Environmental Pollution and management
- Resources Evaluation and Information Systems

### **Geography**

- Geographic Information System (GIS)
- Remote sensing
- Population and demography
- Climatology
- Biogeography
- Tourism geography

## **CURRENT OCCUPATION**

**Name of Employer** : **Joan Construction and Projects**  
**Job Title** : Director-Mineral licensing and Environmental  
 Consultant  
**Company** : Joan Construction and Projects (Pty) Ltd  
**Duration** : June 2013 to date  
**Duties** :

- Conduct Environmental Impact Assessment
- Compile scoping reports
- Compile Environmental Management Plans
- Compile Basic Assessment report
- Conduct public participation (stakeholder engagements)
- Compile Environmental Performance Assessment Reports
- Amend Environmental Management Plans and programmes
- Compile mine closure plans
- Compile Integrated Water use Licence application
- Compile financial provision report and calculate financial provision quantum
- Select and appoint appropriate specialists to undertake specialist studies and draw up sound Terms of Reference for the specialists that address the particular needs of that project or piece of work.

## **PREVIOUS WORK EXPERIENCE**

**Name of Employer** : **Village Main Reef Limited**  
**Job Title** : Group Environmental Officer  
**Duration** : January 2012 to July 2013  
**Duties:**

### **Environmental Management:**

- Enforce Compliance of MPRDA 2002(Act no 28 of 2002), NWA1998 (Act no 36 of 1998) and NEMA 1998 (Act no 107 of 1998) through conducting environmental monitoring & auditing in four (4) mines and one exploration site.
- Compilation of EMPs
- Assessment of EM Programmes before they are submitted to the DMR
- Compilation of rehabilitation plans
- Liaison with the regulators (DMR, DWA, DEA)
- Compilation of performance assessments for all operations
- Calculation and updating rehabilitation financial liability



- Compilation of closure applications for Prospecting Rights
- Conduct public participation

### **Mineral and Prospecting Right Legal Tenure**

- Apply and follow up on section 11s (cessions)
- Apply and follow up on section 102s(amendments/variations)
- Follow ups on conversion applications
- Apply and follow up on Mining Permits

Name of the employer : Department of Minerals Resources  
 Directorate : Mineral Regulation  
 Job title : Environmental Officer  
 Duration : September 2008 to December 2011  
 Duties :

### **Environmental Management:**

- Evaluation & assessment of EMPs, EIAs Scoping Reports, Performance Assessment Report, Closure Plans, rehabilitation plans Environmental Liability and other Environmental Technical Reports.
- Management of mining related impacts on the components of the natural environment.
- Compliance and enforcement of MPRDA 2002(Act no 28 of 2002), NWA1998 (Act no 36 of 1998) and NEMA 1998 (Act no 107 of 1998) through conducting Inspections, environmental monitoring & auditing
- Consult with relevant state departments that administer matters relating to the environment.
- Identifying area that are sensitive and protected before mining can resume.

### **Mineral and Prospecting Right Legal Tenure**

- Assist clients with lodging applications on SAMRAD system.
- Capture mining spatial areas (polygons/ farms) applied for on the work - based GIS(ArcIMS) software for mining right, prospecting right and mining permit
- Digitising/geo-coding mining polygons
- Advice the regional manager on settlement and environmentally sensitive areas under the mining Application
- Give monthly statistic of all mining application in Limpopo

<b>Name of the employer</b>	<b>: Department of Minerals Resources</b>
Directorate	Mineral Regulation
Job title	: Intern (Environmental & GIS officer)
Duration	: April 2008 to September 2008
Duties	:

- Capture mining spatial areas (polygons/ farms) applied for on the work - based GIS(ArcIMS) software for mining right, prospecting right and mining permit
- Digitising/geo-coding mining polygons
- Advice the regional manager on settlement and environmentally sensitive areas under the mining Application
- Give monthly statistic of all mining application in Limpopo

## REFERENCES

1. Name and Surname : Mr. Dalubuhle Ncube  
Company name : Village Main Reef limited  
  
Title : Managing Director  
  
Contact details :072 3341965|011 2744600|  
DNcube@villagemainreef.co.za
  
2. Name and Surname : Mr. Aaron Kharivhe  
Name of institution : Department of Mineral Resources  
  
Title : Regional Manager: Limpopo Region  
  
Contact details :0152874700/082 467 0912/  
Aaron.Kharivhe@dmr.gov.za

## **APPENDIX 3: LOCALITY MAP 1**



### Legend

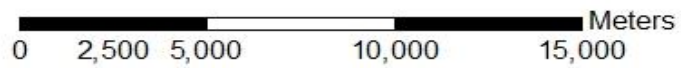
 Project Area

### Project Area Coordinates

	Latitude	Longitude
A	-25.3014	26.95116
B	-25.3014	26.960211
C	-25.3102	26.960207
D	26.95116	-25.310078
E	26.95116	-25.301376

Projection: WGS '98

Date: 09/16/2016



## **APPENDIX 4: SITE PLAN**



## **APPENDIX 5: Public Consultation**

**5.1) Advert**

**5.2) Proof of delivery of scoping report to State Owned Departments**

**5.3) Proof of consultation of Municipality**

## **5.1) Advert**





## **5.2) Proof of delivery of scoping report to State Owned Departments**

**Certificate of Posting of an Insured Parcel**  
**Inlieweringsbewys van 'n Versekerde Pakket**

REGISTERED LETTER  
 RD 974 724 676 ZA  
 CUSTOMER COPY 81028

No. \_\_\_\_\_

Insured value / Versekerde waarde R \_\_\_\_\_ c

Insurance fee / Versekeringsgeld \_\_\_\_\_

Received by / Ontvang deur \_\_\_\_\_

Address/Geadreseerde  
 Dept of Rural Environmental  
 Agricultural Development  
 P Bag X 239  
 Mmabatho  
 2735

Post Office Stamp: 2735 21077

**Certificate of Posting of an Insured Parcel**  
**Inlieweringsbewys van 'n Versekerde Pakket**

REGISTERED LETTER  
 RD 974 726 687 ZA  
 CUSTOMER COPY 81028

No. \_\_\_\_\_

Insured value / Versekerde waarde R \_\_\_\_\_ c

Insurance fee / Versekeringsgeld \_\_\_\_\_

Received by / Ontvang deur \_\_\_\_\_

Address/Geadreseerde  
 Dept of Water Affairs  
 P 16 Bag X 357  
 Mmabatho  
 2735

Post Office Stamp: 2735 21077

**Certificate of Posting of an Insured Parcel**  
**Inlieweringsbewys van 'n Versekerde Pakket**

REGISTERED LETTER  
 RD 974 726 672 ZA  
 CUSTOMER COPY 81028

No. \_\_\_\_\_

Insured value / Versekerde waarde R \_\_\_\_\_ c

Insurance fee / Versekeringsgeld \_\_\_\_\_

Received by / Ontvang deur \_\_\_\_\_

Address/Geadreseerde  
 North West provincial Heritage  
 1st floor Coekamma Building 760  
 P Bag 190  
 Mmabatho 2735

Post Office Stamp: 2735 891077

**Certificate of Posting of an Insured Parcel**  
**Inlieweringsbewys van 'n Versekerde Pakket**

REGISTERED LETTER  
 RD 974 726 668 ZA  
 CUSTOMER COPY 81028

No. \_\_\_\_\_

Insured value / Versekerde waarde R \_\_\_\_\_ c

Insurance fee / Versekeringsgeld \_\_\_\_\_

Received by / Ontvang deur \_\_\_\_\_

Address/Geadreseerde  
 Dept of Rural Development and  
 22 Reitz str  
 Mmabatho  
 2735

Post Office Stamp: 2735 791077

### **5.3) Proof of consultation of Municipality**

