

**BASIC ASSESSMENT REPORT AND ENVIRONMENTAL  
MANAGEMENT PROGRAMM REPORT FOR THE APPLICATION  
OF A PROSPECTING RIGHT SITUATED ON THE FARM  
KALKFONTEIN 53, IN THE MAGISTERIAL DISTRICT OF  
PRIESKA, NORTHERN CAPE**

**FOR**

**SACO MINING (PTY) LTD**

**DMR REF. NO. NC 12510 PR**



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**mineral resources**

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

## **BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL 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).

**NAME OF APPLICANT:** SACO MINING (PTY) LTD

**PROJECT NAME:** KALKFONTEIN 53

**DATE:** 28 MAY 2020

**CELL NO:** 076 453 7871

**FAX NO:** 086 675 6889

**POSTAL ADDRESS:** PO Box 8936, Edenglen

**PHYSICAL ADDRESS:** PO Box 8936, Edenglen

**FILE REFERENCE NUMBER SAMRAD:** NC 30/5/1/1/2/ 12510 PR

**ABBREVIATIONS USED IN THIS REPORT**

<b>DMR</b>	:	Department of Mineral Resources
<b>DRPW</b>	:	Department of Roads and Public Works
<b>DWS</b>	:	Department of Water and Sanitation
<b>ECO</b>	:	Environmental Control Official
<b>EIA</b>	:	Environmental Impact Assessment
<b>EMP</b>	:	Environmental Management Programme
<b>NC</b>	:	Northern Cape
<b>IAPs</b>	:	Interested and Affected Parties
<b>LOM</b>	:	Life of Mine
<b>MPRDA</b>	:	Minerals and Petroleum Resources Development Act
<b>NEMA</b>	:	National Environmental Management Act
<b>SAHRA</b>	:	South African Heritage Resources Agency
<b>SAPS</b>	:	South African Police Services

## 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 other the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorization can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Program report in term so 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 authorization for listed activities triggered by an application for a right or a permit submitted in the exact format of, and provide all 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 Authorization 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 represents 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 the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within the sites and the risk of impact of the proposed activity and technology alternatives on 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 –
    - a. Can be reversed
    - b. May cause irreplaceable loss of resources; and
    - c. 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 mitigate identified impacts; and
  - iii. Identify residual risks that need to be managed and monitored.

## PART A

### SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

#### 3. Contact details of

##### a. Details of

##### i. Details of the EAP

Name of the Practitioner: Tshimangadzo Mulaudzi

Tel No.:079 362 6046

Fax No.:086 556 2568

Email address:[mulaudzit@engedime.com](mailto:mulaudzit@engedime.com)

##### ii. Expertise of the EAP

##### 1) The qualifications of the EAP (with evidence)

Tshimangadzo hold an Honours Degree in Mining and Environmental Geology from the University of Venda. He has since been working as an environmental geologist and environmental practitioner. He has 5 years' experience in Environmental Science, 3 years' experience in Geology, and 5 years' experience in public participation.

##### 2) Summary of the EAP's past experience (in carrying out the Environmental Impact Assessment Procedure)

Tshimangadzo has been carrying out Environmental Impact Assessment Procedure since 2012, managing a construction company called Tshedza Concrete Art in Limpopo Province, Makhado town.

In 2014, he joined a large mining consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Mining Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the mining consulting business by assisting the large to small scale mining companies to obtain prospecting right, mining rights, prospecting rights, technical co-operate permits, reconnaissance permits, exploration rights, production rights, integrated water use license, and environmental authorisation among other licenses. Tshimangadzo has five years working experience in environmental management, geology and public participation process.

**b. Location of the overall Activity.**

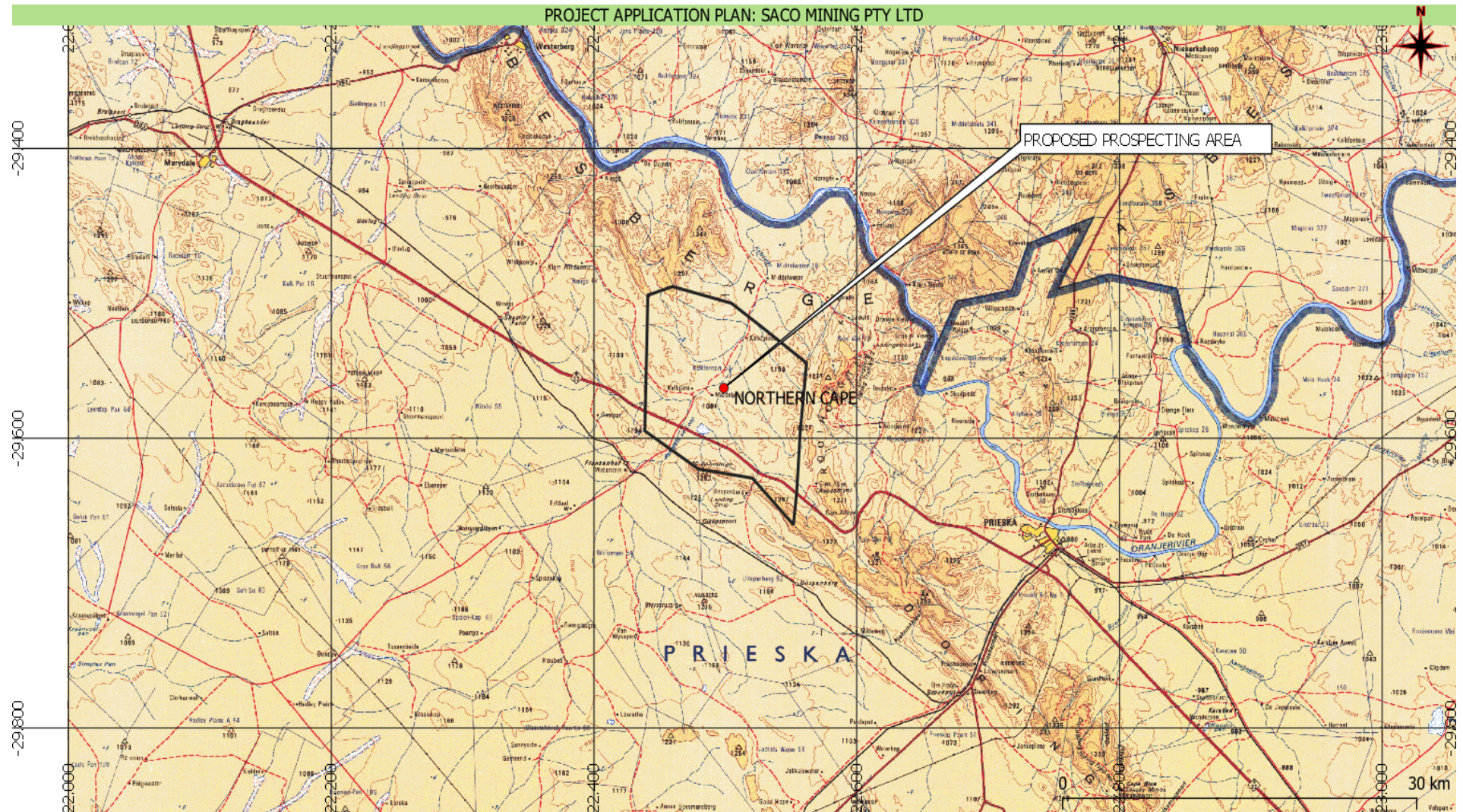
**Table 1: The Location of the Proposed Activity.**

<b>Farm name:</b>	Kalkfontein 53
<b>Application area (Ha):</b>	14 354.8 Ha
<b>Magisterial district:</b>	Prieska
<b>Distance and direction from nearest town:</b>	Application area located at about 50 to 80 kilometers, west of Prieska.
<b>21 digit Surveyor General Code for each farm portion:</b>	See Table 2 below

**Table 2: Details of the Proposed Site.**

<b>FARM NAME</b>	<b>FARM PORTION</b>	<b>21 SG CODE</b>
Kalkfontein 53	Remaining extent	C06000000000005300000
	Portion 1	C06000000000005300001
	Portion 2	C06000000000005300002
	Portion 3	C06000000000005300003
	Portion 4	C06000000000005300004
	Portion 5	C06000000000005300005
	Portion 6	C06000000000005300006
	Portion 7	C06000000000005300007
	Portion 8	C06000000000005300008
	Portion 9	C06000000000005300009

**Locality map** (show nearest town, scale not smaller than 1:250 000)



**Figure 1: The locality Map.**

### c. 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 infrastructure to be placed on site)

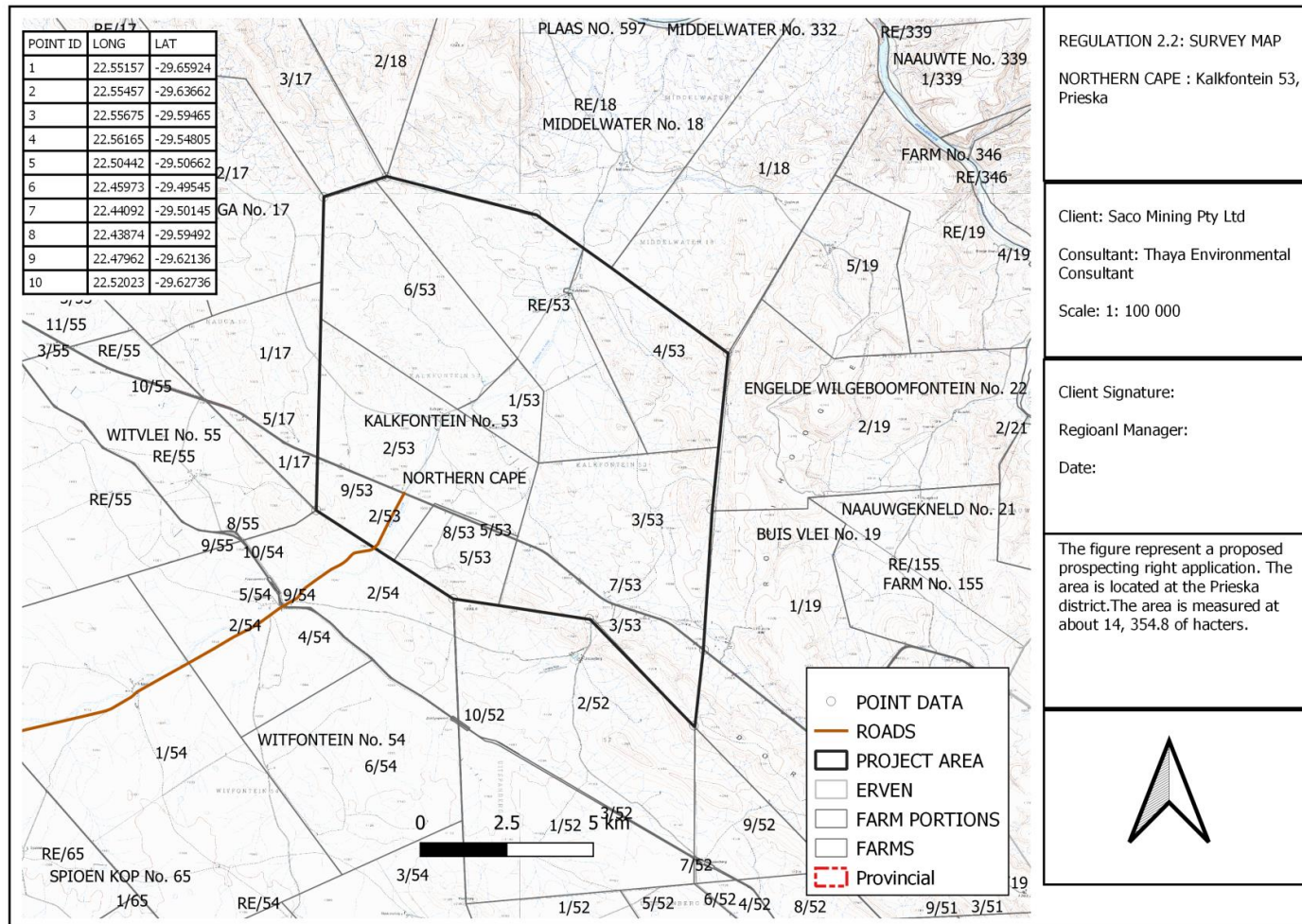


Figure 2: The area where the listed activated will take place.

**i. Listed and specified activities**

**Table 3: Listed and specified activities**

<b>NAME OF ACTIVITY</b>  (E.g. For prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route <b>etc...etc...etc</b>  E.g. for mining – excavation, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, <b>etc...etc...etc</b> )	<b>AERIAL EXTENT OF THE ACTIVITY</b>  (Ha or m2)	<b>LISTED ACTIVITY</b>  (Mark with an X where applicable or affected)	<b>APPLICABLE LISTING NOTICE (GNR 544, GNR 545 OR GNR 546)</b>
Establishment of prospecting site camps comprising of the drill site with sumps and parking for the drill rig, parking, equipment storage, geologist logging area, water storage, waste bins and portable toilets.	9000 m <sup>2</sup>	X	GNR 324 (previously GNR 984 & 544) – Listing Notice 1  Activity No. 20

- ii. **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)

### **This application is for a Prospecting Right**

#### *Summary:*

Prospecting activities will be conducted in phases as discussed below. The level of work to be completed during each phase will depend on the results of the preceding phase. The prospecting operation will commence with review of all available literature from which a mapping programme will be designed. During mapping, test pits will be excavated to confirm the occurrence of lithologies associated with the mineralized reefs. Mapping and pitting will be followed by discovery drilling of a few diamond core boreholes aimed at establishing the occurrence and depth of the mineralized ore body. Thereafter, a preliminary economic assessment will be conducted.

Should the assessment positive, further drilling will be conducted to define the resource. The final stage will be a pre-feasibility study to determine whether it will be economic to mine the resource.

### **Phase 1**

#### Literature review

Initial Phase 1 work will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, ortho-photos, aeromagnetic data, topo-cadastral maps, geological maps, results of historic exploration programmes, and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning geological mapping and sighting of drill holes.

#### Mapping

Mapping will involve ground thruthing the occurrence of the ore body within the proposed prospecting area; as shown in published geological maps. The Main Zone will be the target zone as it overlies the Critical Zone in which the ore body occurs. Mapping is completed that meaningful

structural and geological data may be derived from it and to confirm that the desktop study is accurate.

### Test pitting

Test pitting will be conducted simultaneously with mapping to confirm the presence of Main Zone lithologies. The depth of test pits are likely to vary as all pits will be dug until natural outcrops are exposed. About five test pits each four square meter (4 m<sup>2</sup>) in size will be excavated.

## **Phase 2**

### Discovery drilling and sampling

The results of the Phase 1 will be used to assist in the ideal location of ten diamond drill holes at maximum depth of 1000 m. Initially, only four of the ten planned boreholes will be drilled. The objective of the initial drilling will be to confirm the occurrence of the Critical Zone within the proposed prospecting area. As a result of the known structural complexity of the area in which the proposed prospecting areas is located, initial boreholes will be widely spaced in order to increase the understanding of the overall geology. The expected depth of the Critical Zone will be guide by initial geological interpretation preexisting data, mapping and test pitting.

### Sample analysis

The drill core will be sampled where a mineralized section is intersected. The core will be split into two halves, with one half of the core taken for assay purposes and the other half being retained. Each sample will be measured and weighed and the sample lengths will be recorded before dispatch for assays at a South African National Accreditation System (SANAS) accredited laboratory. Samples will be analyzed.

## **Phase 3**

### Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a mineral resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

## **Phase 4**

### Resource drilling and sampling

Subsequent to Phase 2 drilling, the results will be used to design a systematic drilling programme aimed at delineating a Mineral Resource on the Proposed Prospecting Area. The number of boreholes will depend greatly of the results of Phase 2 drilling; a minimum of five is planned thus far. This programme will be more focused more on parts on which the ore body were intersected.

## **Phase 5**

### Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and an ore body model demonstrating its shape, tones, and grade is available. A resource cannot be converted to a reserve unless it backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resources, or a portion thereof, becomes a mineral reserve.

The activities associated with the Prospecting Work Programme (PwP) will be scheduled over a period of 5 years.

#### d. Policy and Legislative Context

**Table 4: Legislation Applicable to the Application.**

<b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b>  (a description of the policy and legislative context within which 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)	<b>REFERENCE WHERE APPLIED</b>	<b>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT</b>  (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
National Environmental Management Act (NEMA), No. 107 of 198, as amended	Section 24	In terms of the National Environmental Management Act, an application for an Environmental Authorisation has been applied for.
Regulation 982. National Environmental Management Act (Act No. 107 of 1998): Environmental Impact Assessment Regulations, 2014	Regulation 19	In terms of the NEMA EIA Regulations a Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) were prepared to submit to the competent authority.
Regulation 983. National Environmental Management Act	Regulation 20	In terms of NEMA EIA Regulations R.983, Listing notice 1, the activity

(Act No. 107 of 1998): Listing notice 1: List of activities and competent authorities identified in terms of sections 24(2) and 24D		triggers regulation 21 which refers to a prospecting right application and therefore needs an Environmental Authorizations to proceed as well as follow procedures as prescribed in regulation 19 of R.982 (EIA Regulations, 2014).
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Section 16	In terms of the MPRDA, any person who wishes to apply for a prospecting right must lodge the application in the prescribed manner.
Mineral and Petroleum Resources Development Amendment Act (Act No. 49 of 2008)	Section 12	In terms of the MPRDA, any person who wishes to apply for a prospecting right must simultaneously apply for an environmental authorisation and must lodge the application to requirements contemplated by competent authority.

**e. 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)

The aim of the prospecting activities is to locate and evaluate copper, nickel and cobalt deposits found in ores in the Earth's crust. An ore is a naturally occurring solid material from which a metal or valuable mineral can be extracted profitably. Ore bodies are formed by a variety of geological processes generally referred to as ore genesis.

Copper is economically important to the electrical power industry, as well as electronic product manufacturing and the production of industrial machinery. Equally, cobalt is primarily used as a radioactive trace element for the production of high-energy gamma rays. The element is, however, more usually produced as a by-product of copper and nickel mining. Furthermore, nickel is one of the most important components to the stainless steel industry and as the steel industry continues to grow so too will the need for nickel. To meet this increasing need, it is critical that mines are identified and utilized efficiently.

The study area is found within the known cretaceous diamondiferous kimberlites and alluvial diamond field. However, due to the close proximity of the Prieska Copper Mines, it is worth exploring the availability of copper, nickel, and cobalt deposits. The area is approximately 50 to 80 km west of Prieska town, whereas the Prieska Copper Mines are located 60 km south-west of Prieska.

Prospecting activities are therefore needed to:

1. Confirm and obtain additional information concerning potential targets through non-invasive activities (e.g. desktop studies and ground geophysical surveys) and invasive (e.g. drilling) activities.

2. Assess if the resource can be extracted through future prospecting in an environmentally socially and economically viable manner.

Should prospecting activities prove that there are feasible minerals to allow for prospecting, a new mine may be developed which would generate extensive employment opportunities in an area where employment is needed.

**f. Motivation for the overall preferred site, activities and technology alternative.**

The study area has been transformed to some degree due to current zinc prospecting activities. Alternative land uses for the site would include grazing, farming activities. However, the study area is mineralised by cobalt, nickel, and copper which will be utilised to improve social and economic environments. Through implementing good practice environmental management measures and mitigation measures, it will ensure that both human and environment benefit from the development.

No location alternatives are applicable to this project since the cobalt, nickel, and copper and other minerals as stated above is contained in the proposed prospecting area. Locating the development to another area will result in the minerals possibly not being found and the economy and society not benefitting from future proposed prospecting activities.

**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 interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

**i. Details of the development footprint alternatives considered.**

With reference to the site plan provided below 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

No alternatives are applicable to this project since the cobalt, nickel, and copperas stated above are contained in the proposed prospecting area. Locating the development to another area will result in the ore possibly not being found and the economy and society not benefitting from future proposed prospecting activities.

- 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 attend 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 them or on the use of their land).

***Definitions:***

**‘consultation’** means a two way communication process between the applicant and the community or interested and affected party wherein the former is seeking, listening to, and considering the latter’s response, which allows openness in the decision making process.

**‘community’** means a group of historically disadvantaged persons with interest or rights in a particular area of land on which the members have or exercise communal rights in terms of an agreement, custom or law: Provided that, where as a consequence of the provisions of the Act negotiations or consultations with the community are required, the community shall include the members or part of the community, directly affected by prospecting or mining, on land occupied by such members or part of the community.

**‘Interested and affected’ parties** include, but are not limited to; –

- Host Communities
- Landowners (Traditional and Title Deed owners)

- Traditional Authority
- Land Claimants
- Lawful land occupier
- The Department of Land Affairs,
- Any other person ( including on adjacent and non-adjacent properties) whose socio-economic conditions may be directly affected by the proposed prospecting or mining operation
- The Local Municipality,
- The relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.

The following I&APs were contacted:

- Land owner
- Northern Cape Department of Economic Development, Tourism, Environmental Affairs, and Small Business;
- Chief Director: Department of Rural Development and Land Reform (Northern Cape);
- Siyathemba Local Municipality– Municipal Office;
- Pixley Ka Seme District Municipality– Municipal Office;
- Department of Water and Sanitation; and
- Other relevant parties or departments.

The identified I&APs were provided with information regarding the applied proposed prospecting. The final location of the planned excavations will be decided in consultation with the landowners during mining. All comments from the identified I&APs will be noted and taken into consideration.

After the directly affected land owner has been identified, these parties were consulted telephonically, per email or personally (whichever method is most convenient for the party concerned).

The public participation process mainly comprises engagement with Interested and Affected Parties (I&APs) and is of utmost importance in any environmental assessment process. The public participation process, *inter alia*, involves the following:

- Inform, raise awareness, educate and increase understanding of a broad range of environmental issues that might be arise with the proposed extension in the size of mining operation.
- Establish lines of communication between stakeholders, I&APs and the project team.
- Provide opportunity to all parties for the exchange of information and expression of views and concerns.
- Obtain contributions of stakeholders and I&APs and ensure that all views, issues, concerns and queries raised are fully documented.
- Identify all the significant issues associated with the proposed extension of project.

**Engedi Minerals and Energy** was appointed by **Saco Mining (Pty) Ltd** as the independent consultant to conduct the public participation process as part of the Basic Assessment Report and Environmental Management Programme Report. As stipulated in Section 16 (5) (b) of the MPRDA (Act 28 of 2002) as amended by the MPRDA (Act 49 of 2008) and Regulations, Interested and Affected Parties (I&APs) need to be notified and consulted with, as part of a prospecting right application and extension thereof.

The public participation process aims to provide I&APs with objective information in order to assist them to:

- Raise issues of concern and make suggestions for enhanced benefits;
- Contribute local knowledge and experience;
- Verify that their issues have been captured;

- Verify that their issues have been considered; and
- Comment on the findings of the EMP.

An e-mail explaining the project and the background information will be sent to all other I&APs introducing the project. Specifically, the Northern Cape Department of Economic Development, Tourism, Environmental Affairs, and Small Business responded that **Engedi Minerals and Energy Pty (Ltd)** does not need to send them any information as the BAR and EMPr will be provided to them from the DMR once the BAR and EMPr is submitted.

The draft BAR and EMPr was made available for all the registered I&APs. The draft BAR and EMPr was made available to inform the I&APs of the activities, background information of the area, the possible impacts and mitigation measures and other relevant information, and to request input and comment on it.

Public Participation activities for the Application Process are summarized below together with the relevant reference for proof.

**Table 5: Public Participation Activities.**

ACTIVITY	DETAILS	REFERENCE IN REPORT
Placing of newspaper advertisement	An advert was placed in the Siyathemba Rekord – English (29 May2020). A meeting with the I&APs could not take place under the strict Covid-19 Regulations, therefore, Engedi's e-mail address was made available on the newspaper advert, as well as on the notices placed in and around the proposed site. The community	<b>Appendix D<sub>2</sub></b>  Proof of Advertisement

	could request a consultation form.  However, to date, we have not received any e-mails.	
Putting up of site notices	English site notices were placed at the Project site and visible public venues on 8 May 2020.	<b>Appendix D<sub>3</sub></b>  Proof of Site Notices
Stakeholder consultations	The information documentation detailed above was distributed to identified stakeholders of e-mail.	<b>Appendix D<sub>4</sub></b>  Consultations with Authorities

- i. **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).

### The environment on site relative to the environment in the surrounding area

The magisterial district of Prieska is situated in the Northern Cape Province. The Northern Cape is the largest province in South Africa and it shares its border with Namibia and Botswana. The proposed site for prospecting is situated within the Pixley ka Seme District Municipality and within the Siyathemba Local Municipality. The proposed site within the district covers approximately 14 354.8 hectares.

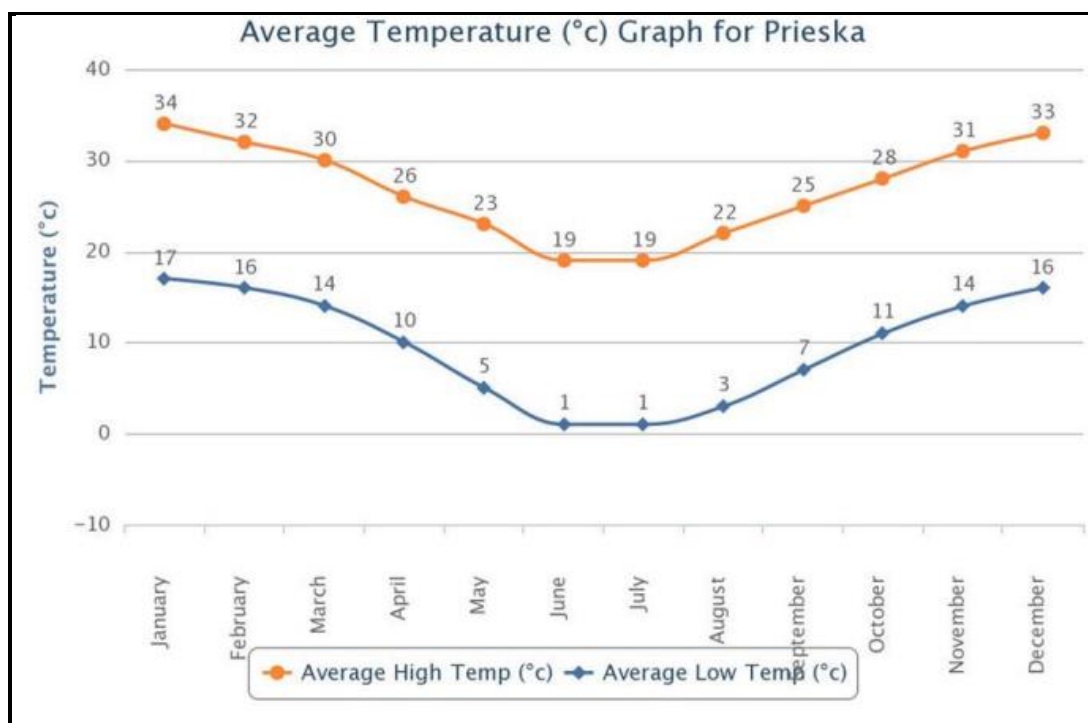


**Figure 3: The location of Prieska within the Pixley ka Seme District Municipality and within the Siyathemba Local Municipality.**

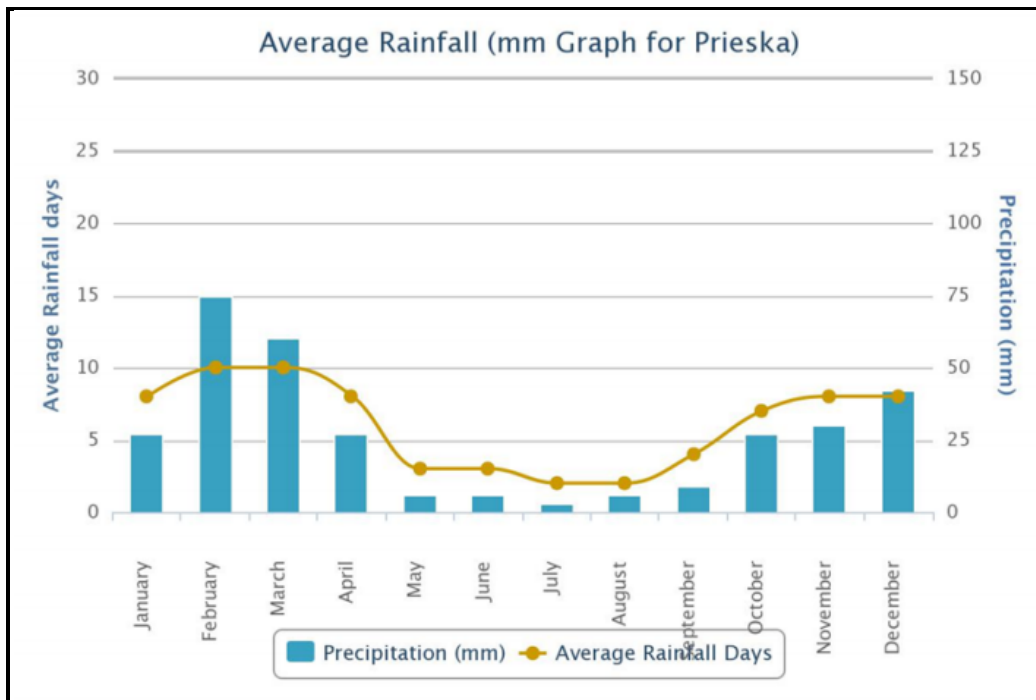
## 1.1 Climate

Prieska is situated in a semi-arid region, which implies low annual rainfall and extreme variations of temperatures. In the peak summer months (January / February) the average daytime temperature is 41°C, but highs of 46°C have been recorded. During these months the high temperatures are further aggravated by the many rocks where temperatures can reach up to 70°C during the day. Summer nights are usually more pleasant but temperatures will remain high at around 25°C.

During winter months the average daytime temperature often hovers around 20°C but lower temperatures are a possibility. Winter nights average around 0°C although the temperature drops to -5° occasionally. Autumn and spring are characterized by pleasant, moderate temperatures. The average annual rainfall is 124 mm, with most rains occurring between November and April. Summer rain usually falls in short, heavy bursts, accompanied by spectacular thunderstorms and strong winds. Winter rains are gentle and last 1-3 days resulting in a flower paradise.



**Figure 4: Graph indicating the average Temperatures for the Prieska region.**



**Figure 5: Graph indicating the average Rainfall for the Prieska region.**

## 1.2 Topography and Elevation

Siyathemba local municipality is situated in the midst of a landscape characterized by contrast between semi-desert with plains and wavy hills along the Orange River. Prieska has a minimum elevation of 911 m and a maximum elevation of 1,110 m.

## 1.3 Geology and Soils

The general topography of the area is flat with gentle slopes. Isolated 'koppies' are scattered throughout the project region, but are not considered many. Soils within this region are typically of the Ag land form: "red-yellow apedal, freely drained soils (Red, high base status soils, and < 300 mm deep). These shallow (< 300 mm), red, freely-drained, apedal soils occur in arid to semi-arid areas associated with low rainfall (< 500 mm per annum) and are underlain by hard to weathered rock.

A wide range of textures may occur (usually loamy sand to sandy loam). Stones or rocks are often present on the soil surface. The prospecting area is located 10 km south of the mined-out Copperton deposit, a very large (ca. 47 Mt pre-mining resource) VMS deposit hosted by the subvertically dipping Copperton Formation, which is part of the intensely deformed and highly metamorphosed Areachap Group and Namaqua Metamorphic Complex. The latter represents a

1.3-1.24Ga continental volcanic island arc that was accreted onto the western margin of the Kaapvaal Craton during the initial stages of the 1.2-1.0Ga Namaquan Orogeny. In the prospecting area the Areachap Group is overlain by up to 100 m of Dwyka tillites of the Karoo Supergroup.

## **1.4 Biological Environment**

### **1.4.1. Vegetation**

The study area falls within the Nama-Karoo Biome, a large, landlocked region within South Africa. The Nama-Karoo is the third largest biome in South Africa, extending across 248 247 km<sup>2</sup> in the western region of the country, stretching into south-eastern Namibia. The flora of the Nama Karoo biome is not rich in relation to other biomes within South Africa. This biome does not contain areas of high occurrence of endemics, or centres of endemism, and rather has a very low local endemism (Mucina and Rutherford, 2006). This biome contains three dominant families (Asteraceae, Fabaceae and Poaceae), common with flora of other arid or semi-arid areas. The Nama Karoo biome is characterised by dwarf shrubs which are generally less than 1 metre in height, intermixed with grasses, succulents, geophytes and annual forbs occurring on extensive plains.

Small trees are found to occur only along drainage lines or rocky outcrops (Mucina and Rutherford, 2006). There are three bioregions found within the Nama-Karoo biome, namely the Bushmanland Bioregion, the Upper Karoo Bioregion and the Lower Karoo Bioregion. The Bushmanland Bioregion has the highest annual temperature and low mean annual rainfall. The region is dominated by arid shrublands and grasslands. The Upper Karoo Bioregion has a higher mean annual rainfall, lower mean annual temperatures and is the largest of the three bioregions. This bioregion comprises of montane shrublands in areas of higher elevation and dwarf shrubland, grassy dwarf shrubland and dispersed succulent dwarf shrubland in areas of vast plains.

The Lower Karoo Bioregion is located south of the Great Escarpment and is the smallest of the three bioregions. This bioregion comprises grassy shrubs, arid shrubland and riparian woodland (Mucina and Rutherford, 2006). Vegetation within the region is mostly karoo shrubland, with sparse areas of grass and low trees. Land use practices within the region, particularly grazing for livestock, have degraded large areas of many properties to exposed sand patches, where grass previously occurred.

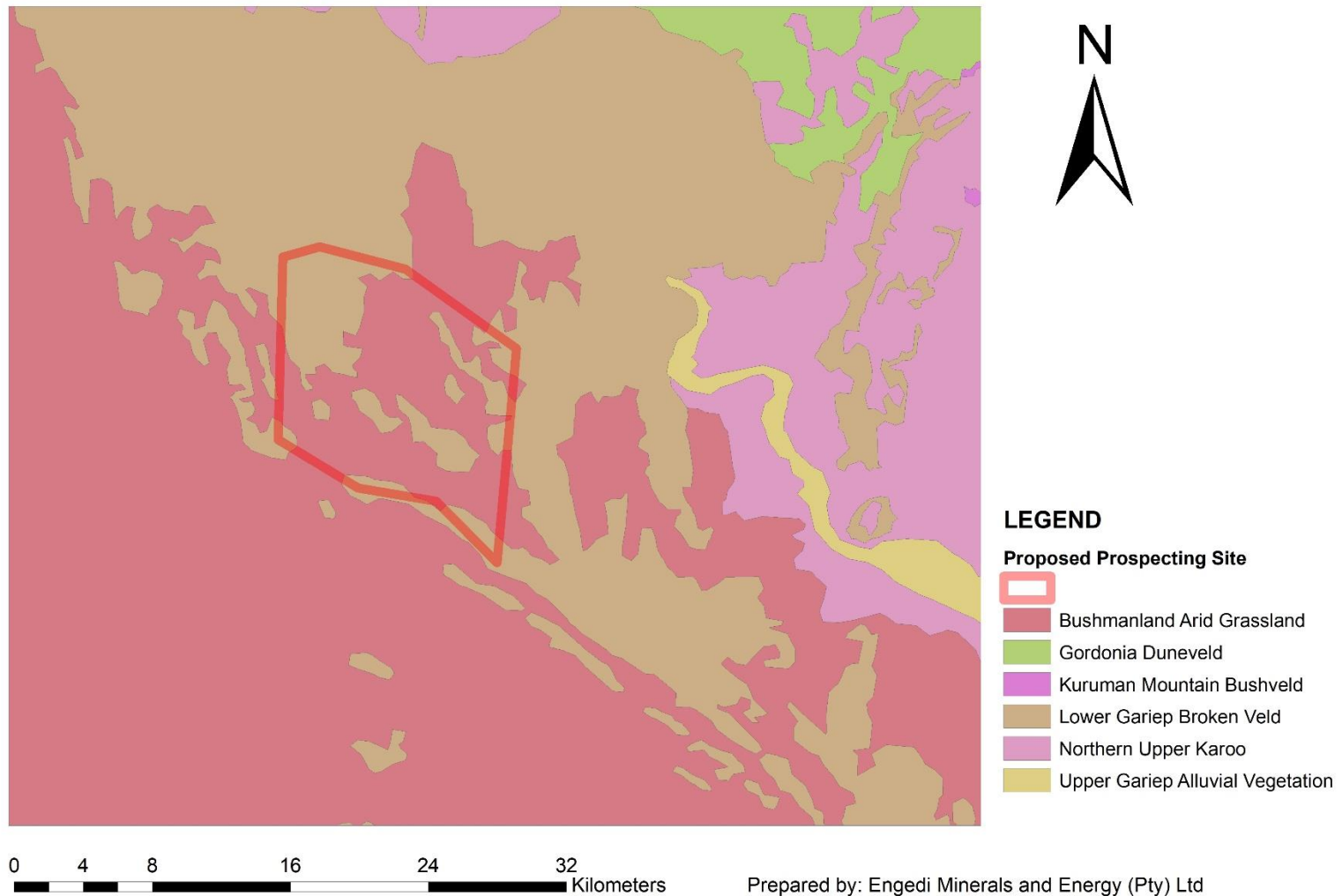
### Bushmanland Arid Grassland

The Bushmanland Arid Grassland occurs in the Northern Cape Province. The vegetation type supports grassland dominated by white grasses (*Stipagrostis* species) and dispersed low shrubs (*Salsola* species). Plant species that are endemic to this vegetation type include *Dinteranthus pole-evansii*, *Larryleachia dinteri*, *L. marlothii*, *Ruschia kenhardtensis*, *Lotononis oligocephala* and *Nemesia maxi*. This vegetation type is classified as Least Threatened with a conservation target of 21%. Only a small percentage is statutorily conserved in the Augrabies Falls National Park and the Goegab Nature Reserve. A small percentage of the area has been transformed (Mucina & Rutherford, 2006).

### Northern Upper Karoo

The Northern Upper Karoo occurs within the Northern Cape and Free State Provinces, at altitudes from 1000 to 1500m. These vegetation types are characterised by shrubland dominated by karoo shrubs, grasses and *Acacia mellifera* subsp. *detinens* as well as by low trees. Plant species that are endemic to this vegetation type include *Lithops hookeri*, *Stomatium pluridens*, *Atriplex spongiosa*, *Galenia exigua* and *Manulea deserticola*. *Medicago laciniata* is an alien plant common within this vegetation type, posing a potential threat. This vegetation type is classified as Least Threatened with a conservation target of 21%. The vegetation type is statutorily conserved in Mountain Zebra and Karoo National Parks as well as in Aommando Drift, Rolfontein and Gariep Dam Nature Reserves, whilst about 2% has been transformed largely for the construction of dams (Mucina & Rutherford, 2006). This vegetation type occurs throughout the majority of the study area.

Vegetation Map for Portions of the Farm Kalkfontein 53, Prieska



### 1.4.2. Fauna

Amphibians and reptiles are well represented in sub-Saharan Africa. Distribution patterns are, however, uneven in southern Africa both in terms of species distribution and in terms of population numbers (du Preez & Carruthers, 2009). Three key determinants of species distribution are climate, centers of origin and range restrictions. The eastern coast of South Africa has the highest amphibian diversity and endemism, while reptile diversity is generally highest in the north eastern extremes of South Africa and declines to the south and west (Alexander and Marais, 2010). A review of the historical records of the Animal Demography Unit and the IUCN database indicate that there are thirteen amphibian species and thirteen reptile species of conservation concern that may occur in the region.

The amphibian species of conservation concern likely to occur in the area include the common rain frog or Bushveld rain frog (*Breviceps adspersus*), the Northern Pygmy Toad (*Bufo fenoulheti*), the Eastern olive toad (*Bufo garmani*), the Hallowell's toad, also known as the flat-backed toad or the striped toad (*Bufo maculatus*), the Marbled snout-burrower (*Hemisus marmoratus*), the Angola river frog or common river frog (*Afrana angolensis*), the Müller's platanna (*Xenopus muelleri*), the Grey foam tree frog or Southern foam tree frog (*Chiromantis xerampelina*), the Segal Running Frog (*Kassina segalensis*), the Banded rubber frog (*Phrynomantis bifasciatus*), the Anchieta's ridged frog or plain grass frog (*Ptychadena anchietae*), the Common sand frog (*Tomopterna ryptotis*) and the Marbled sand frog (*Tomopterna marmorata*). These amphibian species are all listed as Least Concern. The reptile species of conservation concern expected to occur in the region are all listed as Least Concern. These include the Peters' Ground Agama (*Agama armata*), the Rhombic Egg-eater (*Dasypeltis scabra*), the Zimbabwe Flat Lizard (*Platysaurus intermedius*), the Black Mamba (*Dendroaspis polylepis*), the Zimbabwe Flat Gecko (*Afroedura transvaalica*), the Tiger Gecko (*Pachydactylus tigrinus*), the Common Barking Gecko (*Ptenopus garrulous*), the Yellow-throated Plated Lizard (*Gerrhosaurus flavigularis*) the Bushveld Lizard (*Heliobolus lugubris*), the Sundevall's Writhing Skink (*Mochlus sundevallii*), the Limpopo Dwarf Burrowing Skink (*Scelotes limpopoensis*), the Rainbow Skink (*Trachylepis margaritifer*) and the Variable Skink (*Trachylepis varia*).

Large game makes up less than 15% of the mammal species in South Africa and a much smaller percentage in numbers and biomass. In developed and farming areas, this percentage is greatly reduced, with the vast majority of mammals present being small or medium-sized. The Animal

Demography Unit historical records indicate that there are no mammal species of conservation concern likely to occur within the QDS in which the project area falls in, however according to the IUCN Red Data Book of the Mammals of South Africa there are two (2) mammal species likely to occur within the region, namely, the Black Rhinoceros (*Diceros bicornis*) and the River Rabbit (*Bunolagus monticularis*), both listed as Critically Endangered. The Black Rhinoceros occurs in arid and semi-arid regions of the Northern and Western Cape and therefore is relatively likely to occur within the general area. As far as we are aware it does not occur within the project site boundary. The River Rabbit enjoys desert habitats within temperate climates and are found within the Nama Karoo. Even though these are likely to occur within the greater region, it is unlikely to occur within the boundaries of the project area.

Historical records indicate that there are likely to be 97 bird species of conservation concern that could occur in the region. Of these species, only the Martial Eagle (*Polemaetus bellicosus*) and the Bateleur (*Terathopius ecaudatus*) are listed as Near Threatened. The remaining species are listed as Least Concern. A full list of bird species likely to occur in the study area is provided in Appendix 4. The Important Bird Areas of Southern Africa (IBA) directory was compiled in 1998 and identified that within South Africa there are 122 IBAs containing 59 threatened and 64 near-threatened bird species. All these IBAs were objectively determined using established and globally accepted criteria. An IBA is selected on the presence of the following bird species in a geographic area: bird species of global or regional conservation concern; assemblages of restricted-range bird species; assemblages of biome-restricted bird species; concentrations of numbers of congregatory bird species. The objective of the IBA Programme is to conserve species of conservation concern through conservation of habitats which the species occupy and use. The site does not fall within the boundaries of any IBA.

### 1.4.3. Conservation areas

According to the National Environmental Management: Protected Areas (Act No 57 of 2003) the declaration of protected areas is:

- To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected area;
- To preserve the ecological integrity of these areas;
- To conserve biodiversity in these areas;
- To protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
- To protect South Africa's threatened or rare species;
- To protect an area which is vulnerable or ecologically sensitive;
- To assist in ensuring the sustained supply of environmental goods and services;
- To provide for the sustainable use of natural or biological resources;
- To create or augment destinations for nature based tourism;
- To manage the inter-relationship between natural environment biodiversity, human settlement and economic development;
- Generally to contribute to human, social, cultural, spiritual and economic development; and
- To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

The study area is approximately 180 km from the Mokala National Park and approximately 200 km from the Karoo National Park.

## 1.5 Surface water

The South African National Biodiversity Institute (SANBI) compiled a National Wetland Inventory, which aims to map and classify (i.e. type) the major wetlands and water bodies in the country at a coarse spatial scale. A wetland classification system is required for application to the National Wetland Inventory, so that different types of wetlands can be distinguished for management and conservation purposes. This classification system is intended to be used throughout the country for a number of different applications, largely with a view to facilitating common usage of terminology amongst wetland scientists and managers. However, at the same time, it is envisaged

that further refinements to the classification system may be necessary in the future, to address problems that may be encountered in its application by a wide range of different users for a number of different purposes. As such, the classification system presented in this report should not be seen as the final word but, rather, as a “living” work in progress that will be continuously improved. This system also identifies and classifies various rivers and their tributaries.

A desktop analysis indicates that a number of wetlands occur on site. These are identified as Valley Floor Depressions, Channelled and Unchannelled Valley-Bottom wetlands, Bench Depressions and Slope Depressions. However, no Wetlands were observed within the project area during the site visit. It is possible that the wetlands identified by the desktop analysis are seasonal, and thus it is recommended that these are identified on site during prospecting and mitigation measures for the protection of these resources are included in the EMP<sub>r</sub> (that forms part of this report). The Orange River runs parallel to the northern boundary of the site at a distance of approximately 60 km away. A small number of tributary traverse the site on the southern boundary. It is anticipated that the drilling activities will not impact on the river, its tributaries or the ecological functioning thereof.

#### **1.5.1 Catchment**

Upper catchment area of the Orange River.

#### **1.5.2 Water Management Area**

The Lower Orange Water Management Area (WMA).

#### **1.5.3 Rivers**

Orange River.

## 1.6 Socio-economic setting

### 1.6.1 Population

**Table 6: The Population of Prieska.**

<b>Population</b>	65 869
<b>Age Structure</b>	
Population under 15	24.40%
Population 15 to 64	70.50%
Population over 65	5.10%
<b>Dependency Ratio</b>	
Per 100 (15-64)	41.90
<b>Sex Ratio</b>	
Males per 100 females	108.50
<b>Population Growth</b>	
Per annum	1.16%

### 1.6.2 Race

**Table 7: The racial make-up of Prieska.**

<b>Racial Makeup (2011)</b>	
Black African	23.6%
Coloured	67.4%
Indian/Asian	0.5%
White	8.0%
Other	0.4%

### 1.6.3 Gender composition

**Table 8: The sex ratio.**

<b>Sex Ratio</b>	
Males per 100 females	108.50

### 1.6.4 Age groups

**Table 9: The age structure.**

<b>Age Structure</b>	
Population under 15	24.40%
Population 15 to 64	70.50%
Population over 65	5.10%

### 1.6.5 Education

**Table 10: The education achieved by the community.**

<b>Education (aged 20 +)</b>	
No schooling	9.00%
Higher education	3.90%
Matric	15.50%

### 1.6.6 Poverty and inequality

**Table 11: The labour market.**

<b>Labour Market</b>	
Unemployment rate (official)	10.00%
Youth unemployment rate (official) 15-34	10.00%

### 1.6.7 Employment

**Table 12: The employment statistics.**

	2013/14	2014/15	
<b>Employment</b>			
Employment Costs (R'000)	75 1684	57 0754	49 4584
Remuneration of councillors (R'000)	4 704	6 293	4 752
Total Employee Positions	539	470	422
Total Vacant Employee Positions	77	139	0
Total Vacancy Percentage	14.29%	29.57%	

### 1.6.8 Cultural/Heritage Environment

The proposed project area is geographically sparse, and largely consists of farms on sandy plains. Agriculture is the largest economic sector of the municipality. It is assumed the majority of the farmers in the project affected area have held their farms for many generations, and would therefore presumably have a strong cultural attachment and sense of place, especially since such farms are normally inherited and/or subdivided as part of such inheritance. Interaction with the I&APs indicated various holdings are held primarily through small families.

The Prieska region as a whole has known historical value, through the gemstone trade, British fort, and rock art paintings. The region has also been host to historic conflicts during the South African War ('Anglo-boer War', as known previously), contributing to its historical value. It should be noted that none of the above mentioned sites are present within the project area and thus it is highly unlikely that these sites will be impacted upon by the proposed prospecting. In addition to this, due to the fact that approximately 90% of the site has been transformed from its natural state to agricultural land (livestock and game farming), it is unlikely that any artifacts of heritage value will be found on site. In the event that any heritage artifacts including graves and human remains are uncovered during prospecting, this will immediately be reported to SAHRA as per National Legislation.

**Description of the current land uses**

The study area has been transformed to some degree due to current zinc prospecting activities. Alternative land uses for the site would include grazing, farming activities.

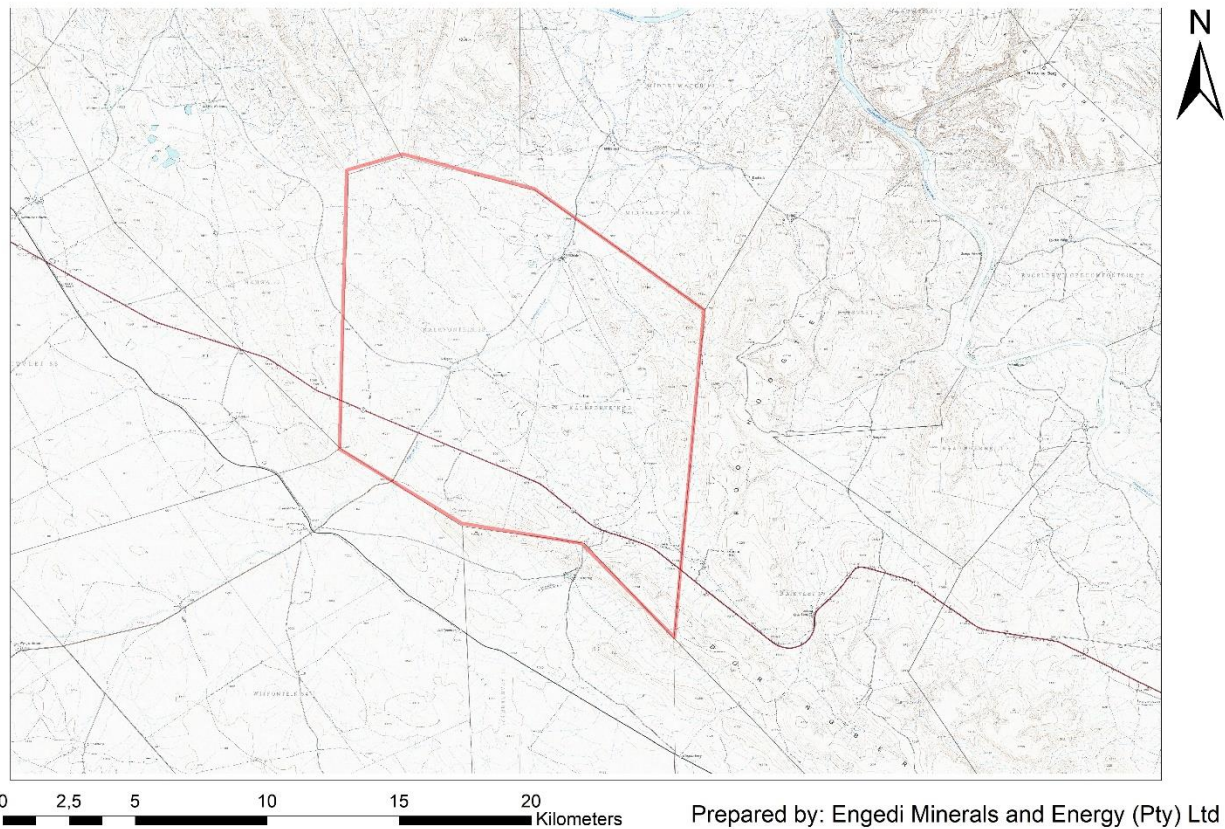
**Description of specific environmental features and infrastructure on the site**

The prospecting activities are not expected to affect any existing infrastructure, beyond requiring the use of existing farm access roads. As the invasive activities of this application include drilling of the resources that may occur in open land, these areas will not be disturbed. A safe 100 m buffer will be placed around existing infrastructure and no drilling activities will take place within this buffer area.

**Environmental and current land use map.** (Show all environmental and current land use features)

It should be noted that while the whole of the prospecting right application area of 14 354.8 hectares are depicted on the maps, way less than that amount of space will be disturbed as a result of invasive prospecting activities.

## Land-use Map for the Farm Kalkfontein 53, Prieska, Northern Cape



## REFERENCE

International Boundary and Beacon.....	
Provincial Boundary.....	
Protected Area.....	
Perennial River.....	
Perennial Water.....	
Non-perennial River.....	
Non-Perennial Water.....	
Dry Water Course.....	
Dry Pan.....	
Marsh and Vlei.....	
Pipeline (above ground).....	
Water Tower; Reservoir; Water Point..	
Coastal Rocks.....	
Prominent Rock Outcrop.....	
Erosion; Sand.....	
Woodland.....	
Cultivated Land.....	
Orchard or Vineyard.....	
Recreation Ground.....	
Row of Trees.....	

## REFERENCE

National Freeway; National Route.....	
Arterial Route.....	
Main Road.....	
Secondary Road; Bench Mark.....	
Other Road; Bridge.....	
Track and Hiking Trail.....	
Railway; Station or Siding.....	
Other Railway; Tunnel.....	
Embankment; Cutting.....	
Power Line.....	
Built-up Area (High, Low Density).....	
Buildings; Ruin.....	
Post Office; Police Station; Store.....	
Place of Worship; School; Hotel.....	
Fence; Wall.....	
Windpump; Monument.....	
Communication Tower.....	
Mine Dump; Excavation.....	
Trigonometrical Station; Marine Beacon.....	
Lighthouse and Marine Light.....	
Cemetery; Grave.....	

- iii. **Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of impacts, including the degree to which these impacts** (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 impact of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of these 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).

**Potential impact of each main activity in each phase, and corresponding significance assessment**

*Table 13*

NO	ACTIVITY	IMPACT	DURATION	INTENSITY	PROBABILITY	SIGNIFICANCE RATING	
1	Site Preparation	Loss of vegetation	3	5	10	80	High
		Habitat Destruction	3	5	10	80	High
		Visual scarring	3	4	8	56	Medium
		Soil erosion	3	4	6	42	Low
2	Excavations	Dust emissions	2	5	8	56	Medium
		Surface disturbances	4	4	10	80	high
		Drainage interruption	4	4	10	80	high

		Slope instability	4	3	3	42	low
		Noise	2.5	5	10	75	high
		Visual Scarring	3	4	8	56	medium
		Soil erosion	3	4	6	42	low
3	Blasting (if done)	Fly rock	2.5	5	10	75	high
		Noise and vibrations	2.5	5	10	75	high
		Dust	2.5	5	10	75	high
4	Stockpiles	Dust	2	5	8	56	medium
		Surface disturbances	3	5	10	80	high
		Drainage disruption	2.5	5	10	75	high
5	Loading, Hauling and transportation	Dust	2	5	10	70	medium
		Increased risk of accidents	2	4	4	16	low
		Noise	2.5	5	10	75	high
		Soil contamination from oil/fuel leaks	3	3	6	36	low

**Potential cumulative impacts**

Since there is another mining company prospecting for zinc, the expected cumulative impact will be noise and dust.

**Potential impact on heritage resources**

No heritage sites may be present on the site, which may be disturbed and/or damaged during mining.

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

(If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case.)

Expectations could be created that numerous job and business opportunities will become available during prospecting. All Interested and Affected Parties (I&APs) need to be informed throughout the prospecting process.

**Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties**

The draft BAR and EMPr was made available to the interested and affected parties for comment and input. The list of potential impacts was included in the draft BAR and EMPr.

**Confirmation of specialist report appended (Refer to guideline)**

No specialist studies were conducted for this BAR and EMPr. The baseline information contained herein is based on a desktop study and one site visit.

- iv. **Methodology used in determining and ranking 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 they initial site layout needs revision).

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

The significance of the impacts was determined through the consideration of the following criteria:

**Table 14: Criteria of assigning significance to potential impacts.**

Probability:	Provides a description of the likelihood/probability of the impact occurring
Extent:	Describes the spatial scale over which the impact will be experienced
Duration:	The period over which the impact will be experienced
Intensity:	The degree/order of magnitude/severity to which the impact affects the health and welfare of humans and the environment
Significance:	Overall significance of the impact on components of the affected environment and whether it is a negative or positive impact

The impacts were individually described and assessed using the criteria drawn from the Environmental Impact Assessment (EIA) Regulations, published by the DEA in terms of the NEMA (Act 107 of 1998).

The significance of each impact is assessed using the following formula (before and after mitigation):

**Significance Point (SP) = (Probability + Extent + Duration) x Intensity**

The maximum value is 150 SP. The impact significance will then be rated as follows:

*Table 15*

SP > 75	Indicates <b>high</b> environmental significance	An impact that could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates <b>moderate</b> environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP < 30	Indicates <b>low</b> environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/effects.
<b>Probability (P)</b>		
None (N)	1	The possibility of the impact occurring in none, due either to the circumstances, design or experience (0%).
Possible (P)	2	The possibility of the impact occurring is very low, due either to the circumstances, design or experience (25%).

Likely (L)	3	There is a possibility that the impact will occur to the extent that provisions must therefore be made (50%).
Highly likely (H)	4	It is most likely that the impacts will occur at some stage of the development and plans must be drawn up before carrying out the activity (75%).
Definite (D)	5	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on (100%).
<b>Extent (E)</b>		
Footprint (F)	1	The impact area extends only as far as the activity which occurs within the total site area.
Site (S)	2	The impact could affect the whole site or a significant portion of the site.
Regional (R)	3	The impact could affect the area including the neighboring farms, the transport route and/or the adjoining towns.
National (N)	4	The impact could have an effect that expands throughout the country.
International (I)	5	Where the impact has international ramifications that extend beyond the boundaries of the country.
<b>Duration (D)</b>		
<i>The period over which the impact will be experienced</i>		
Temporary (T)	1	0 – 3 years (or confined to the construction period).

Short term (S)	2	3 – 10 years (or confined to the construction and part of the operational period).
Medium term (M)	3	10 – 15 years (or confined to the construction and whole operational period).
Long term (L)	4	For the whole life of mine (including closure and rehabilitation period).
Permanent (P)	5	Beyond the anticipated lifetime of the project.
<b>Intensity (I)</b>		
Insignificant (I)	2	Will have a no or very little impact on the health and welfare of humans and environment
Low (L)	4	Will have a slight impact on the health and welfare of humans and environment
Moderate (M)	6	Will have a moderate impact on the health and welfare of humans and environment
High (H)	8	Will have a significant impact on the health and welfare of humans and the environment
Very high/ don't know (V)	10	Will have a severe impact on the health and welfare of humans and the environment

v. **Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;**

The preferred location is the only location plan currently under investigation. Due to the location and presence of the potential mineral resources, the initial site layout is the only alternative considered; however, as prospecting progresses through the aforementioned phases, the preliminary site layout may be slightly adjusted. The final locations of the drill holes can only be established once the geophysical survey has been completed in the noninvasive; Phase 1, of the activity and once agreements has been discussed and signed with the relevant landowners, and this can only be done once the PR right has been approved.

Until such time the preliminary layout remains the preferred layout. The identified potential impacts range from air pollution such as dust, noise pollution, soil pollution, waste pollution, water pollution, Fauna and Flora impacts, Visual impacts and socio-economic impacts. All these will be properly managed. None of these impacts will be significant since the proposed prospecting activities will be of small scale, short term, mitigation measures will be adhered to and concurrent rehabilitation will take place. Please refer to table 3 and table 4 which reviews the significance of impacts by taking the proposed mitigation measures into consideration.

vi. **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).

**MANAGING SOIL IMPACTS**

These measures are targeted at managing soil erosion, soil contamination, compaction of soil and removal of topsoil

- The area that is stripped of vegetation should be kept to an absolute minimum
- Contractor shall at all times carefully consider what machinery is appropriate to the task while minimizing the extent of environmental damage and unnecessary movements should be prohibited

- The topsoil, including the existing grass cover is to be shallowly ripped (only the depth of the topsoil) before removal. This is to ensure that organic plant material, and the natural seed base is included in the stripping process. The soil is to be stored and the soil stockpiles shall not be higher than 2 m or stored for a period longer than one year. The slopes of soil stockpiles shall not be steeper than 1 vertical to 2.5 horizontal.
- Topsoil shall be stored separately from subsoil and other overburden material.
- No vehicles shall be allowed access onto the stockpiles after they have been placed.
- Stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation.
- The contractor shall apply soil conservation measures to the stockpiles to prevent erosion.
- Ensure regular maintenance of equipment to prevent diesel and hydraulic spillages.
- Where possible ensure low work surface gradients so that run-off flows at a controlled rate so as to minimize channeling and soil erosion during high rainfall.
- At the end of operations, all disturbed areas shall be re-vegetated.

#### **LOSS OF VEGETATION**

- No protected species must be removed without a permit. A final walkthrough must be done by an ecologist to ensure that the areas where vegetation is to be cleared do not have protected species.
- Clearance of vegetation should be restricted to the absolute minimum required to facilitate access and undertake proposed prospecting activities. Disturbance of topsoil and vegetation rootstock must be minimized as far as possible.
- Any declared category 1 invasive species identified should be cleared.

- Rehabilitation strategies following operational activities must ensure that appropriate indigenous plant species are used and should be done as per rehabilitation plan

### **DUST AND VEHICLE FUMES**

- Avoid unnecessary excessive vehicle movement.
- Limit vehicle speeds on unsurfaced roads.
- Rehabilitate disturbed areas with vegetation as soon as operation is completed.
- Maintain equipment and vehicles in good working order to avoid excessive .emissions
- Proposed prospecting working floors should be sprayed with water from time to time to reduce dust emission during operations
- Use rubber curtains/other material to limit dust during screening should be considered.
- Spray roads, material stockpiles and screening areas with water if dust becomes problematic.
- No fires should be allowed on the proposed prospecting site.

### **BLASTING (if done)**

- All blasting and handling of blasting materials should be done in accordance with the Explosives Act and the Mine Health and Safety Act.
- A risk assessment has to be that takes into account the safety of the people, infrastructure and the surrounding environment. A pre and post blasting survey should be done.

- A blasting time schedule shall be distributed to all surrounding villages indicating the time and date for blasting activities. It is recommended that blasting takes place during daylight hours.
- At all times blasting shall be carried out that ground vibration, air blast and scatter are kept within such limits as to avoid damage to adjacent structures/machinery etc already placed at the works.
- Any fly rock should be cleared after blasting.

### **WASTE DISPOSAL**

- All personnel must be instructed to dispose of waste in a proper manner in the correct designated areas.
- Suitable receptacles shall be available at all times and conveniently placed for the disposal of waste.
- No waste shall under any circumstance be disposed of in the veld. No burning of waste is permitted on site and the proposed prospecting area should be protected from illegal dumping of waste.
- All used oils, grease or hydraulic fluids shall be placed in appropriate impervious containers and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility or sent for recycling/reuse with a registered facility.
- Spills should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing of them at a recognized facility. In areas where the spills are some, an absorbent agent can be used and the area treated
- Contaminated materials and residues from machinery maintenance and other sources contaminated with hazardous waste should be stored in proper containers that avoid seepage to ground.

- The “reduce, reuse, recycle” waste management philosophy will be used where possible.
- Only authorized registered waste disposal contractors should be hired for collection of waste for all waste streams

### **SOCIAL IMPACTS**

- Effective two-way public disclosure and public consultation should be implemented to allay community perceptions. There should be an opportunity provided for the resolution of grievances or complaints received and recorded from individuals in the community.
- Community should be adequately informed of activities being done at the proposed prospecting that are likely to affect them.
- Labour recruitment should occur in a manner that is objective, transparent, and wherever possible, provide opportunities for people from the local area.
- The activities of contractors, consultants, and company employees should be routinely reviewed to ensure good community relations are being maintained. The project proponent should use its influence as employer to encourage responsible behavior among employees

### **STABILITY OF EXCAVATIONS**

- Excavations shall take place only within the approved demarcated proposed prospecting area and appropriate barriers should be put as necessary.
- The proposed prospecting operator shall ensure that a place of work, whether temporary or permanent in or near the excavation has a structure and solidity appropriate to its use is operated, supervised and maintained, so as to withstand the environmental forces anticipated and be safe.
- The proposed prospecting operator shall ensure that material is not placed, stacked or used at the proposed prospecting near the edge of any excavation,

where it is likely to endanger people at work and equipment or where it is likely to cause collapse of the side of the excavation.

- Excavations should be routinely inspected. If cracks occur in any structure they need to be investigated to ascertain if there is a risk to safety
- Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the mineral or gravel has been excavated.
- An appropriate drainage provisions must be constructed as necessary to accommodate the surface water movement. If the water table is reached during excavations appropriate pumping facilities should be provided.
- Excavated areas should be kept in a safe and stable manner. No unstable block should be present. Reshaping of the proposed prospecting may need to be done to ensure that this objective is reached. The profiling should be done to match the surrounding landscape
- The proposed prospecting should be finished in such a manner that it is self draining
- Top soil should be put back on the surfaces and the areas revegetated.

## **VISUAL IMPACTS**

- The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.
- Once excavation parts that can be filled have been refilled with overburden, rocks and coarse natural materials, the borrow pit shall be profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area. The profiling shall be done to match the surrounding landscape as far as is reasonable possible.

- The area shall be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, there may be need for the soil to be analyzed and any deleterious effects on the soil arising from the borrow pit, be corrected and the area be seeded with an indigenous vegetation seed mix that matches the surrounding flora.

#### **EQUIPMENT USED ON SITE**

- Only well-maintained vehicles and equipment should be operated onsite and all machinery should be serviced regularly during the proposed prospecting operation.
- The maintenance of vehicles and some equipment used for any purpose during the proposed prospecting operation will take place only in the maintenance workshops which are not located on the borrow pit. No vehicle may be extensively repaired in any place other than in the maintenance yard
- A maintenance schedule should be prepared in order to ensure that equipment is in its best form so as to not cause unnecessary pollution such as noise, emissions and makes effective use of energy.
- Equipment used in the proposed prospecting process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the proposed prospecting area must not constitute a pollution hazard. No equipment leaking oil should be used. Drip tray should be used to prevent pollution.

#### **NOISE**

- Construction activities required outside normal working hours must be approved by the Project Manager, and where necessary, advance warning provided to adjacent residents.
- Noise levels exceeding 85dB shall only be permitted where approved and with appropriate advanced warning to adjacent residents (minimum of 2 days) being provided.
- Noise that could cause a major disturbance should only be carried out during daylight hours and with advance warning provided as above.
- Adequate ear protection should be provided to employees in noisy areas
- No amplified music shall be allowed at the site.
- Construction vehicles and plant to be in good working order.

vii. **Motivation where no alternative sites were considered**

No location alternatives are applicable to this project since the cobalt, nickel, and copper is contained in the proposed prospecting area. Locating the development to another area will result in the ore possibly not being found and the economy and society not benefitting from future proposed prospecting and possible prospecting activities. The proposed site for the proposed prospecting is located within an area which is already severely disturbed as a result of zinc prospecting activities.

viii. **Statement motivating the alternative development location within the overall site.** (Provide a statement motivating the final site layout that is proposed.)

Each phase is dependent on the preceding phase and results thereof. The preferred location is thus the only location assessed. It should be noted that prospecting is a “locality bound” industry (it has to take place where the resources are) thus no alternative locations for prospecting can be assessed. However, alternative locations for infrastructural components of the project that are not locality bound can be considered. In this case however, the only infrastructural component of the proposed project is the location of the site camp. This location for this will be dependent upon landowner negotiations and thus as a result cannot

be determined prior to the prospecting right being granted. Until such time the preliminary layout remains the preferred layout. The preliminary locations have however allowed for safe buffers around sensitive identified features.

- i. Full description of the process undertaken to identify, assess and rank the impacts and risks of the activity will impose on the preferred site (In respect to the final site layout plan) through the life of the activity.** (Including (i) a description of all the environmental issues and risks that were 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.)

An activity mapping exercise was conducted for the proposed activity, then potential environmental impacts were identified. The Department of Environmental Affairs (DEA) impact assessment matrix was used. The impact with medium to high significance requires mitigation/control measures, the following are the possible impacts the project will have on the environment:

- Dust generated during excavation, loading, transportation and offloading of gravel and dust generated by movement of vehicles from prospecting site to construction site causing air pollution.
- Noise generated by machinery during gravel prospecting and vehicles while transporting gravel from prospecting site to construction site
- Vegetation destruction due to clearing of the site for prospecting purposes.
- Ecosystem disturbance due to vegetation clearing.
- Erosion caused by removal of vegetation and stripping of top soil to extract the gravel
- Visual impact due to prospecting activities, pits will be enlarged and machinery around the site will disturb the natural visual landscape.
- Exposure of children to open pit filled with water resulting in drowning and death
- Open pits a danger to animals falling in and breaking limbs
- Improper disposal of waste resulting in land pollution
- Fuel and oil leakages causing ground and surface water pollution

All impacts were identified by a combination of the following:

- Desktop analysis

- Consultation process with landowners and I&APs
- A site visit

- 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 and affected parties).

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<p><b>(E.g. For prospecting –</b> drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route <b>etc...etc...etc</b></p> <p><b>E.g. For mining –</b> excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, <b>etc...etc...etc</b>)</p>	<p>(Including the potential impacts for cumulative impacts)</p> <p>(E.g. dusts, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc...etc...)</p>		<p>(In which impact is anticipated)</p> <p>(e.g. Construction, commissioning, operational, decommissioning, closure, post-closure)</p>	(If not mitigated)	(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...etc...etc)	(If mitigated)
Site Establishment activities (fencing, signage, access formation, etc)	Loss of vegetation	Visual character, Land use	Pre-mining	Medium	Remedy through rehabilitation, Limit footprint	Low

	Habitat Destruction	Visual character	Pre-mining	Medium	Remedy through rehabilitation, Limit footprint	Low
	Visual scarring	Visual character	Pre-mining	Medium	Remedy through rehabilitation	Low
	Soil erosion	Visual character, Land use	Pre-mining	Medium	Remedy through rehabilitation, Limit footprint, Control through storm water control	Low
Clearance of area for mining	Visual scarring	Visual Character	Operational Phase	Medium	Remedy through rehabilitation	Low
	Destruction of flora and habitat	Visual Character, Land use	Operational Phase	Medium	Remedy through rehabilitation, Limit footprint and removal of vegetation	Low
	Loss of agricultural potential	Land use management	Operational Phase	Low	Control through soil conservation techniques  Limit footprint of the proposed prospecting as far possible to limit	Low

					loss of agricultural land	
	Soil erosion	Land use	Operational Phase	Medium	Control through soil conservation techniques, Stop through appropriate storage of topsoil	Low
Excavation	Dust emissions	Air quality	Operational Phase	Medium	Control through dust control measures	Low
	Drainage disruption	Drainage	Operational Phase	Medium	Control through storm water controls	Low
	Slope instability	Topography	Operational Phase	Low	Control through slope management controls Low	Low
	Noise	Noise	Operational Phase	Low	Control through noise control measures	Low

	Visual Scarring	Visual Character	Operational Phase	Medium	Remedy through rehabilitation of already worked areas	Low
	Soil erosion	Land use	Operational Phase	Low	Remedy through the rehabilitation of already worked areas, Control through slope control, Stop through appropriate storage of topsoil	Low
	Destruction of heritage resource	Heritage issues	Operational Phase	Low	Avoidance	Low
Drilling & blasting (if done)	Noise and vibrations	Noise	Operational Phase	Medium	Control through blast control measures	Low
	Dust	Air quality	Operational Phase	Low	Control through dust control measures	Low

	Fly rock	Safety	Operational Phase	Low	Control through blast control measures	Low
Waste Disposal and Material storage	Soil contamination	Land degradation	Operational Phase	Low	Avoidance	Low
	Water pollution	Water	Operational Phase	Low	Avoidance	Low
	Increased risk of fire	Safety	Operational Phase	Low	Avoidance	Low
Material handling, hauling and transportation	Dust	Air quality	Operational Phase	Low	Control through dust control measures	Low
	Increased risk of accidents	Safety	Operational Phase	Low	Stop through site management protocols	Low
	Noise	Noise	Operational Phase	Low	Control through noise control measures	Low

	Soil contamination from oil/fuel leaks	Land degradation	Operational Phase	Low	Stop through operational control measures e.g. drip trays and use of well serviced machinery	Low
Removal of infrastructure & equipment and re- shaping of proposed prospecting	Noise	Noise	Decommissioning and closure	Low	Control through noise control measures	Low
	Dust	Air quality	Decommissioning and closure	Low	Control through dust Control measures	Low
	Soil contamination from oil/fuel	Land degradation	Decommissioning and closure	Low	Stop through operational Control measures, e.g. drip trays and use of well serviced machinery	Low
	Disruption of surface drainage	Water movement	Decommissioning and closure	Low	Control through storm water controls, remedy through rehabilitation	Low

Community and labour relations management	Community conflicts and tensions	Community relations	Operational	Low	Control through Site Management protocols	Low
	Increase risk of fire	Fire risk	Operational	Low	Control through Site Management protocols	Low
	Reduced security on area	Safety Issues	Operational	Low	Control through Site Management protocols	
	Improved employment Improved skills	Community relations Community relations	Operational	Low	Control through Site Management protocols	Low

**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
None			

\*Attach copies of Specialist Reports as appendices.

Based on the small area of impact, information gathered from the desktop analysis and the site visit, no specialist reports was deemed necessary at this stage of the application process. It is anticipated that the proposed prospecting activities will not result in significant negative impacts. Should the proposed prospecting activities give an indication that the area has potential for mining activities in the future, it will be economically viable to mine the minerals applied for over the land in question, a mining right application will be submitted that will include a number of detailed specialist assessments such as Ecology and Heritage/Archaeology. Should any Heritage artifact be discovered during prospecting, then a Heritage/Archaeological specialist will be consulted and the site reported to SAHRA as per National Legislation.

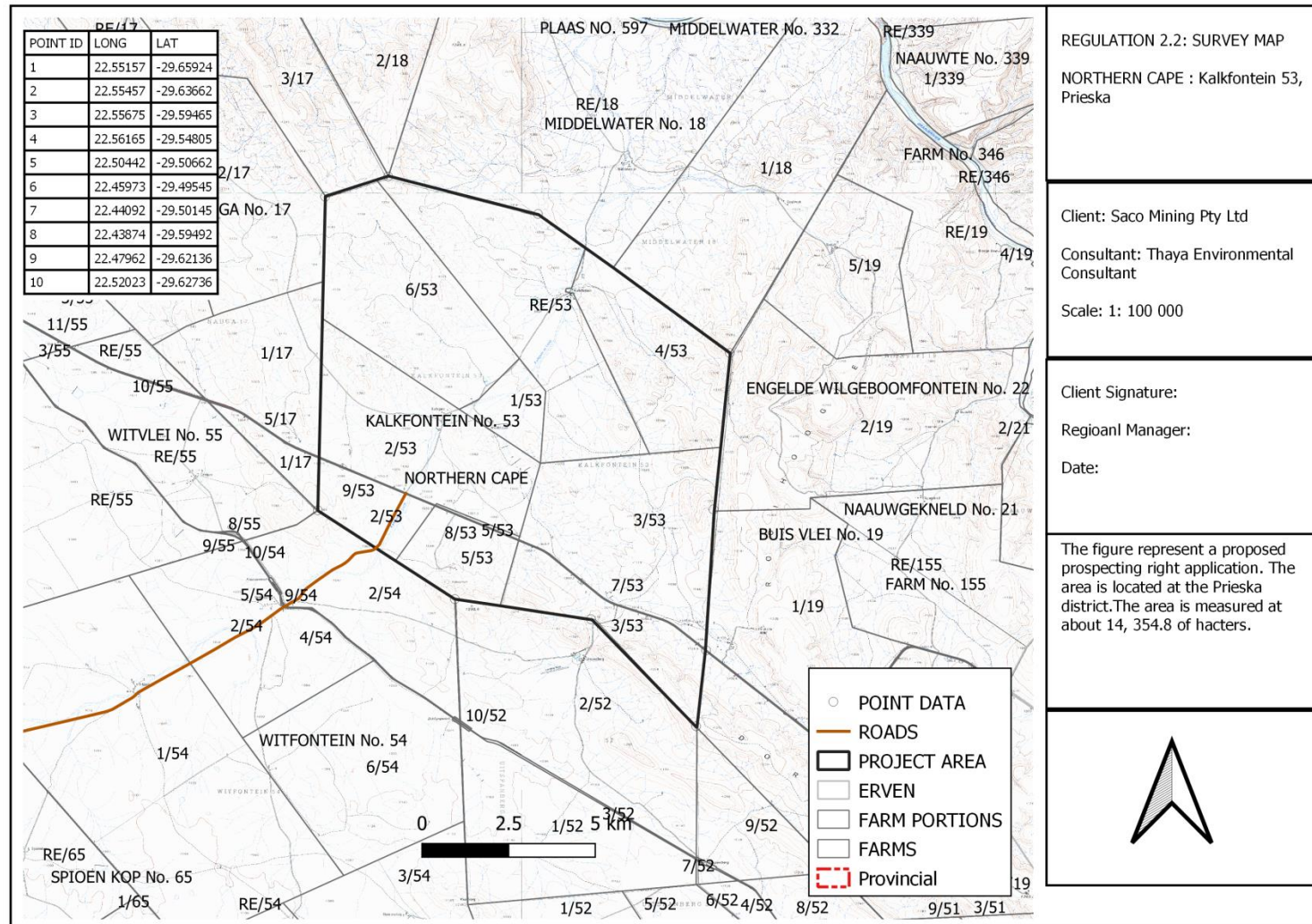
**l. Environmental impact statement**

**i. Summary of the key findings of the environmental impact assessment;**

If suggested mitigation measures are implemented and due to the small scale short term nature of the prospecting activities and the fact that the area will be rehabilitated back to its original state (i.e. agricultural land/grazing areas), it is unlikely that the proposed development will create any long-term negative impacts of high significance. On the contrary, the development will allow for business for local service companies and job creation in the short term. The majority of the negative impacts identified can be mitigated to low significance.

- ii. **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 C**



**iii. Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;**

The identified potential impacts for the preferred alternative range from air pollution such as dust, noise pollution, soil pollution, waste pollution, water pollution, Fauna and Flora impacts, Visual impacts and socio-economic impacts. All these will be properly managed. None of these impacts will be significant since the proposed prospecting activities will be of small scale, short term, mitigation measures will be adhered to and concurrent rehabilitation will be practiced.

**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 authorisation**

Air pollution

- Dust abatement by wetting down exposed areas at drill and camp sites where required.
- Vehicles will stay on the approved or available tracks as far as practically possible.
- Low speed limits will be set to avoid the creation of dust (40km/hr).
- All the equipment and vehicles will be equipped with the manufactures stock standard exhaust systems which will minimize the amount of emissions and noise from their engines.
- No burning of waste will be allowed on site.
- Fire extinguishers and other fire safety equipment will be available.
- Drilling locations as set out by the final layout plan will be adhered to.
- Excavations and other clearing activities will only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighboring areas.
- Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.

Noise pollution

- The activities will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislations regarding noise control.

- Employees will be supplied with ear plugs. All prospecting vehicles will be maintained in a road worthy condition.
- All work will be limited to daylight hours i.e. between 6am and 6pm.

#### Waste pollution

- Scavenger proof bins will be made available to avoid windblown litter.
- Bins will be emptied on a regular basis.
- No burying and/or burning of waste is allowed.
- All waste bins and domestic waste will be removed from site on a regular basis.

#### Water pollution

- Prospecting activities will not be conducted within 32m of a watercourse or drainage line or within 500 m of a wetland. Should this become a requirement, the relevant permits will have to be obtained from DWS prior to drilling taking place. All preliminary drillhole locations are placed to NOT occur within these buffer zones.
- Limited amounts of water (approximately 5000 liters / day) will be used during drilling. Water will be trucked to site.
- Enviro-loo ablution facilities will not be placed within 32 m of any water body.
- No construction footprint will be placed inside or within 32 m of any water body or within 500 m of a wetland.

#### Hazardous materials

- Use and /or storage of materials, fuels and chemicals which could potentially leak into the ground will be controlled in a manner that prevents such occurrences.
- All storage tanks containing hazardous materials will be placed in bunded containment areas with sealed surfaces.
- The bund wall will be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential high runoff storm water events.
- Any hazardous substances will be stored at least 100m from any of the water bodies on site.
- Contaminated wastewater will be managed by the Contractor to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the

camp will be collected and removed from the site for appropriate disposal at a licensed commercial facility.

#### Soil pollution

- Dust abatement by wetting down exposed drill site and camp areas where required.
- Stockpiles will be below the 1.5m height restriction.
- The use of oil drip trays under drilling equipment to ensure no spillage of oils and fuels onto the ground.
- Where possible, no major vehicle repairs will be done on site.
- Oils and fuel will be stored on bunded areas to avoid spillages.
- Any spillages which may occur will be investigated and immediate action will be taken. In the event of significant spills (in excess of 35 litres) of any hazardous substance, this will be recorded and reported to the environmental personnel, Department of Water and Sanitation (DWS), DMR and any other relevant authorities. In such cases the contaminated soil will be excavated and disposed at a suitably licensed and registered landfill.
- An emergency plan for spillages will be available on site.
- Storm water runoff in and around drill holes will be controlled.
- Wind screening and storm water control will be undertaken to prevent soil loss from the site.
- All erosion control mechanisms will be regularly maintained.
- Re-vegetation of disturbed surfaces will occur immediately after the construction and prospecting activities are completed.
- Rehabilitation will be undertaken progressively.

#### Fauna and flora

- Only demarcated areas for drilling will be cleared to the minimum level required for access and adjacent and/or other areas will not be disturbed. No trees will be removed.
- Place temporary facilities on already disturbed land as far as possible to limit impacts on vegetation.
- No firewood harvesting will be allowed.
- No fires will be made on site. Cooking will only be allowed on gas-stoves at designated areas.
- No hunting will be allowed.
- All equipment will be removed from site.

- No cigarette butts may be disposed of on the relevant properties.
- Rehabilitation will be done in such a manner that the site is in the original state prior to prospecting.

#### Rehabilitation

- Prior to rehabilitation of the site, all remnants of foreign debris shall be removed from the site.
- All holes will be covered first with subsoil and then with topsoil (minimum of 10cm deep). Topsoil will be spread to the original depth (30cm where possible).
- As topsoil will contain all cleared vegetation, no additional treatment will be required.
- The soil must cover all the roots and be well firmed down to a level equal to that of the surrounding in situ material.
- Control weeds by means of extraction, cutting or other approved methods.
- Monitoring will be undertaken once a month or until rehabilitation has been deemed successful.
- Follow up inspections will be conducted every two months to remove upcoming seedlings of alien vegetation.
- Continued monitoring throughout the life of the project will be required as the risk of alien plant species invasion is never eliminated.
- A single permanent marker will be required to mark the location of the drill hole for future reference. The siting of such a marker shall be cleared with the landowner.
- All rehabilitation referred to in this environmental management programme will be done concurrent to prospecting operations as set out in the MPRDA. Best practice methods will be used.
- Continuous monitoring of possible soil erosion will be required.

#### Cultural/Heritage

- The applicant will before commencing any prospecting activity, ascertain whether the designated site does not include a heritage site.
- Any heritage sites/artifacts found will be reported to SAHRA.
- National heritage sites will not be destroyed, damaged, excavated, altered, or defaced without a permit.

- Demolishing of buildings older than 60 years is subjected to approval - National Heritage Resources Act, 1999 (Act No 25 of 1999).
- Invasive activities will not be allowed within 100m from farm houses.
- Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artifacts are uncovered in the affected area and mitigation measures recommended by SAHRA should be followed.
- The contractor will ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken.
- Any discovered artifacts will not be removed under any circumstances. Any destruction of a site will only be allowed once a permit is obtained and the site has been mapped and noted.
- All health and safety aspects will be adhered to.

#### Hunting and livestock areas

- Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities.
- Site activities will be restricted to daylight hours between 6am and 6pm.
- Vehicles will remain on the existing tracks.
- Prospecting activities will be fenced off and will not be conducted within 100 m of pens or stalls.

#### Socio-economic

- Local labour and service companies will be used where possible.
- Prospecting Rights do not supersede property rights hence the applicant will comply with all reasonable requirements to minimize the impact of prospecting on landowners and agricultural activities
- All relevant mitigation measures as set out in Table 16 above.

#### Environmental Training

All site personnel will have a basic level of environmental awareness training. Topics covered should include;

- What is meant by “Environment”

- Why the environment needs to be protected and conserved
- How construction and prospecting activities can impact on the environment
- What can be done to mitigate against such impacts
- Awareness of emergency and spills response provisions
- Social responsibility during construction and prospecting e.g. being considerate to local residents

The need for a “clean site” policy also needs to be explained to the workers.

- n. Aspects for inclusion as conditions of Authorization.** Any aspects which must be made conditions of the Environmental Authorization.

EMPr must be on site

- The contractor and key personnel must get an understanding of the EMPr
- An Environmental Control Officer must be appointed to ensure that environmental controls are being implemented, and quarterly reports must be forwarded to the Competent Authority (DMR among others).
- The proponent and contractor must be made aware that they are responsible for rehabilitating the environment they damage to the pre-state of which they found it to be.
- Upon getting done with the prospecting activity, closure report must be submitted to the competent authority

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

(Which relate to the assessment and mitigation measures proposed)

No specialist were engaged hence some impacts could have been missed.

**p. Reasoned opinion as to whether the proposed activity should or should not be authorized**

**i. Reasons why the activity should be authorized or not.**

Based on the analysis and findings as discussed throughout the report, there is no reason why the project should not be authorised. There are no environmental fatal flaws and all impacts can be effectively mitigated. The spatial extent of disturbance related to this activity

is minimal and short term. The implementation of effective rehabilitation will ensure that the site is returned back to its original state and that the impacts are reversed. In addition to this the activity should be authorised in order for a better understanding of the mineral potential in the area to be obtained. Once a deposit is defined, a better understanding of its economic value will be achieved and this will then provide a better platform for making an informed decision about the potential for mining operations in this area.

ii. **Conditions that must be included in the authorization**

EMPr must be on site;

- The contractor and key personnel must get an understanding of the EMPr
- An Environmental Control Officer must be appointed to ensure that environmental controls are being implemented, and quarterly reports must be forwarded to the Competent Authority.
- The proponent and contractor must be made aware that they are responsible for rehabilitating the environment they damage to the pre-state of which they found it to be.
- Upon getting done with the mining activity, closure report must be submitted to the competent authority.

q. **Period for which the Environmental Authorisation is required**

The authorisation is required for the duration of the prospecting right which is an initial 5 years plus a potential to extend the right by an addition to this at 3 years. In addition to this the period should allow for a further 2 years for the application period. Thus a total of 10 years.

**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.

<p>Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises BAR and EMPr compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Basic Assessment Report and Environmental Management Programme as proposed.</p>	
<p><b>Full Names and Surname</b></p>	<p><b>TSHIMANGADZO MULAUDZI</b></p>
<p><b>Identity Number</b></p>	<p><b>8803265731082</b></p>

- s. Financial provision** State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

This financial provision assessment focused on the existing and proposed mining activities and was calculated by means of the Department of Mineral Resources' (DMR) standard method for assessment of mine closure. The cost for rehabilitation and closure of the proposed site according to the DMR Guideline is R 59, 489.19 for the full LoM.

**i. Explain how the aforesaid amount was derived.**

The closure cost assessment is done in accordance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended and associated regulations. These Regulations provide that the holder of a Prospecting right must make full financial provision for rehabilitation of negative environmental impacts. The methodology used was based on the Department of Mineral Resources (DMR) "Guideline Document for the Evaluation of the Quantum of Closure- related Financial Provision provided by a Mine" (DME, 2005), as per the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA).

The financial provision must guarantee the availability of sufficient funds to undertake the following:

- Rehabilitation of the adverse environmental impacts of the listed or specified activities;
- Rehabilitation of the impacts of the prospecting or mining activities;
- Decommissioning and closure of the operations;
- Remediation of latent or residual environmental impacts which become known in the future;
- Removal of building structures and other objects; and
- Remediation of any other negative environmental impacts.

The closure cost assessment has been developed in line with these requirements. The DMR Guideline format makes use of a set template for which defined rates and multiplication factors are used. The multiplication and weighting factors which ultimately define the rate to be used are determined by amongst others the topography, the classification of the mine according to mineral prospected, the risk class of the mine and its proximity to build up or urban areas.

The DMR Guideline Document for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine (DME, 2005), classifies a mine according to a number of factors which allows one to determine the appropriate weighting factors to be used during the quantum calculation.

The following factors are considered:

- The mineral prospected;
- Environmental sensitivity of the prospecting area;
- Type of prospecting operation; and
- Geographic location.

The financial provision for the Life of Mine of Rietpoort Mine is calculated to be R 59, 489.19 based on the DMR method of calculation. The total cost includes contingencies, Preliminary and General (P&Gs) and is inclusive of VAT at 15%.

Table 17 presents the detailed forecast of the expected increase in financial provision as Ritluka Resources (Pty) Ltd continues to progress through the construction phase into the operational phase in Year 2020. Ritluka Resources (Pty) Ltd annually conducts a reassessment of their financial provision based on actual disturbances and it is recommended that this forecast be updated as the progress against the planned construction schedule can be verified.

Table 16: The calculated quantum.

CALCULATION OF THE QUANTUM							
Applicant: Evaluators:		SACO MINING (Pty) Ltd (NC 12510 PR) Engedi Minerals and Energy (Pty) Ltd			Location: Date:		PRIESKA May-20
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	16	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	228	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	336	1	1	0
3	Rehabilitation of access roads	m2	0	41	1	1	6.15
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	216	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	455	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0.1	238697	1	1	23869.7
7	Sealing of shafts adits and inclines	m3	0	122	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0.015	159131	1	1	2386.965
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198195	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575653	1	1	0
9	Rehabilitation of subsided areas	ha	0.05	133249	1	1	6662.45
10	General surface rehabilitation	ha	0.06	126059	1	1	7563.54
11	River diversions	ha	0	126059	1	1	0
12	Fencing	m	10	144	1	1	1440
13	Water management	ha	0	47931	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0.05	16776	1	1	838.8
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
Sub Total 1							42767.605
1	Preliminary and General	5132.1126			weighting factor 2		5132.1126
					1		
2	Contingencies				4276.7605		4276.7605
Subtotal 2							52176.48
VAT (15%)							7304.71
Grand Total							R 59 481.19

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 Financial and Technical Competence Report (Ftat) or Prospecting Work Programme as the case may be).

Financial provision has been made available through the company's cash reserves. The reserves provide for sufficient funds for premature and planned closure of the prospecting operation. The quantum for financial provision for rehabilitation will be re-assessed on an annual basis and arrangement to fund shortfalls will be made.

t. **Specific 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.** (Provide 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** .

Safety of people even animals if the open pits are not fenced off and guarded. If water accumulates after rain, there is a risk of drowning and death. The open pits are also a risk to animals falling in and breaking limbs. The high vehicle movement to and from the drilling and pitting site a risk to accidents. Socio-economic impact will be due the job creation and revenue generation for the Siyathemba Local Economic Development.

2. **Impact on any national estate referred to in section 3(2) of the National Heritage Resources 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 historical or cultural sites were identified by previous miners. In case any human remains are excavated during operation, work should be stopped and a report made to the police and SAHRA for removal of the human remains.

- 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 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. The EAP must attach such motivation as **Appendix B**).

The proposed drilling activities requested as part of this authorisation is the only current viable manner in which a mineral deposit can be identified and used to generate a South African Mineral Reporting Codes (SAMREC) compliant resource which is a minimum requirement to determine whether it is viable to invest in a future mine.

## **PART A: APPENDIXES**

## APPENDIX A:

### THE CURRICULUM VITAE OF THE EAP/ECO

#### CURRICULUM VITAE

#### OF

Tshimangadzo Mulaudzi

P.O Box 29567

Danhof

93120

Contacts: 0793626046 / 072 901 0990

E-mail: mulaudzit@engedime.com

Date of Birth: 26 March 1988

Nationality : South African

Languages : Speak and write (English and  
Tshivenda).

ID : 8803265731082  
ender : Male

Driver's license: Code 10 (C1)

Health status : Excellent

#### EDUCACTIONAL QUALIFICATION

Institution : Litshovhu High School

Qualification : Grade 12 (Senior Certificate)

Major subject passed : Mathematics, Physical Science, Biology, Agric,  
English and Tshivenda all in Higher Grade.

Year : 2006

Institution : University of Venda

Qualification : BSc (Honours). Mining and Environmental Geology

Subject passed : See attached Academic Record

Year : 2011

#### SUMMARY

I am a Candidate in a possession of a BSc (Hons) in Mining and Geology with vast variety of experience in Geological, Geochemical, Geophysical Exploration, and Managing of a Manufacturing team. Currently I am working as a Consultant Geologist at Breeze Court Investments 47 (Pty) Ltd and i have

gained experience in Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Prospecting right on DMR Samradonline portal), Petroleum applications (Compilation of EMP, EIA, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (knowledge of MPRDA, 2002, NWA, 1998, NEMA, 1998, NHRA, 1999, MHSA, 1996, Mining Charter, 2010 and Freedom Charter, 1955.).

I have also worked with the small scale miners in the region of Northern Cape, Free State and Northern Cape helping them with the application for Prospecting right, prospecting right and also attend the site inspection with the officials from Department Mineral Resources to help the small scale miners to comply with the legislation of the department.

I served at the Makhado Municipality for two (2) years under Local Economic Development as an Intern **(In Mining, Environmental and Geology Sectors)** and was attending seminars on Local Economic Development issues, interacting with the stake holders and helping the Small Micro Medium Enterprises (SMME's) to get funds from the sponsors.

#### EMPLOYMENT HISTORY

Job title	:	<b>Trainee Mine Geologist</b>
Name of organization	:	Agnes gold mine
Period	:	June 2010 – June 2011 (1 year)
Experiences and skills	:	Face mapping, stope observing, continuous sampling, Geological data capturing, Report writing and Geological mapping.
Job title	:	<b>Chief production, quality, and safety officer</b>
Name of Organization	:	Tshedza concrete art
Period	:	January 2012 – January 2013 (1 year, 1 month)
Experiences and skills	:	Managing high quality production and enforcing safe working Environment for workers
Job title	:	<b>LED Intern (in Mining, Environmental and Geology)</b>
Name of Organization	:	Makhado Local Municipality (Northern Cape)
Period	:	February 2013 – December 2014 (11 Months)
Experiences and skills	:	To formulate and implement measures and procedures to

Facilitate for the development of SMME's. Implement Measures, processes, and procedures to attract the Investors, Facilitate and implement job creation projects and initiatives. Formulate, review and update LED plans in alignment with the Province and District Municipality. Facilitate and create Partnership with regard to service provider, trade exhibitions, Corporate and SMME's.

Job title : **Consultant Environmental Geologist and GIS specialist**

Name of organization : Breeze court investment (Pty) Ltd Geol& Min Consultants

Period : January 2014 – January 2015

Experiences and skills : Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Prospecting right on DMR Samradonline portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small scale miners in the region of Northern Cape, Northern Cape, and Free State with application for Prospecting right and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

Job title : **Consultant Environmental Geologist and GIS specialist**

Name of organization : Engedi Minerals and Energy (Pty) Ltd

Period : February 2015 – Present

Experiences and skills : Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Prospecting right on DMR Samradonline portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small

scale miners in the region of Northern Cape, Northern Cape, and Free State with application for Prospecting right and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

### Knowledge of Legislations and Acts

Constitution of the Republic of South Africa No.108 of 1996  
 Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)  
 Mineral and Petroleum Resources Development Act Amendments bill 15 of 2013  
 Mineral and Petroleum Resources Development Act Regulations  
 National Water Act, 1998 (Act 36 of 1998)  
 Mine Health and Safety Act, 1996 (Act 29 of 1996)  
 National Heritage Resources Act, 1999 (Act 25 of 1999)  
 National and Environmental Management Act, 1998 (Act 107 of 1998)  
 Public Finance Management Act, 1999 (Act 1 of 1999) and Act 29 of 1999 as Amended  
 2014 Environmental Impact Assessment Regulations  
 Mining Charter, 2010  
 Freedom Charter, 1955  
 Municipal System Act, 2000 (Act 32 of 2000)  
 Municipal Structure Act, 1998 (Act 117 of 1998) and as amended in Act 20 of 2002.

### COMPETENCIES

Ability to relate with people,  
 Ability to work independently and as a team,  
 Determination to succeed,  
 Strong leadership skills,  
 Proactive, resourceful, well organized and able to meet deadlines, and  
 Ability to communicate effectively

## EXTRAMURAL ACTIVITIES AND INTERESTS

I love reading newspapers, business literatures, watching discovery channels, News, writing and Public speaking, these help me share my ideas and opinion and to get my message across, and I love learning new things every day and I am eager to learn

## REFERENCES

Name : Mr P. Makoela  
 Name of organization : Agnes gold mine (Pty) Ltd  
 Position : Head of department of geology section  
 Contacts : 087 351 8304 (W), 076 311 7791 (C)

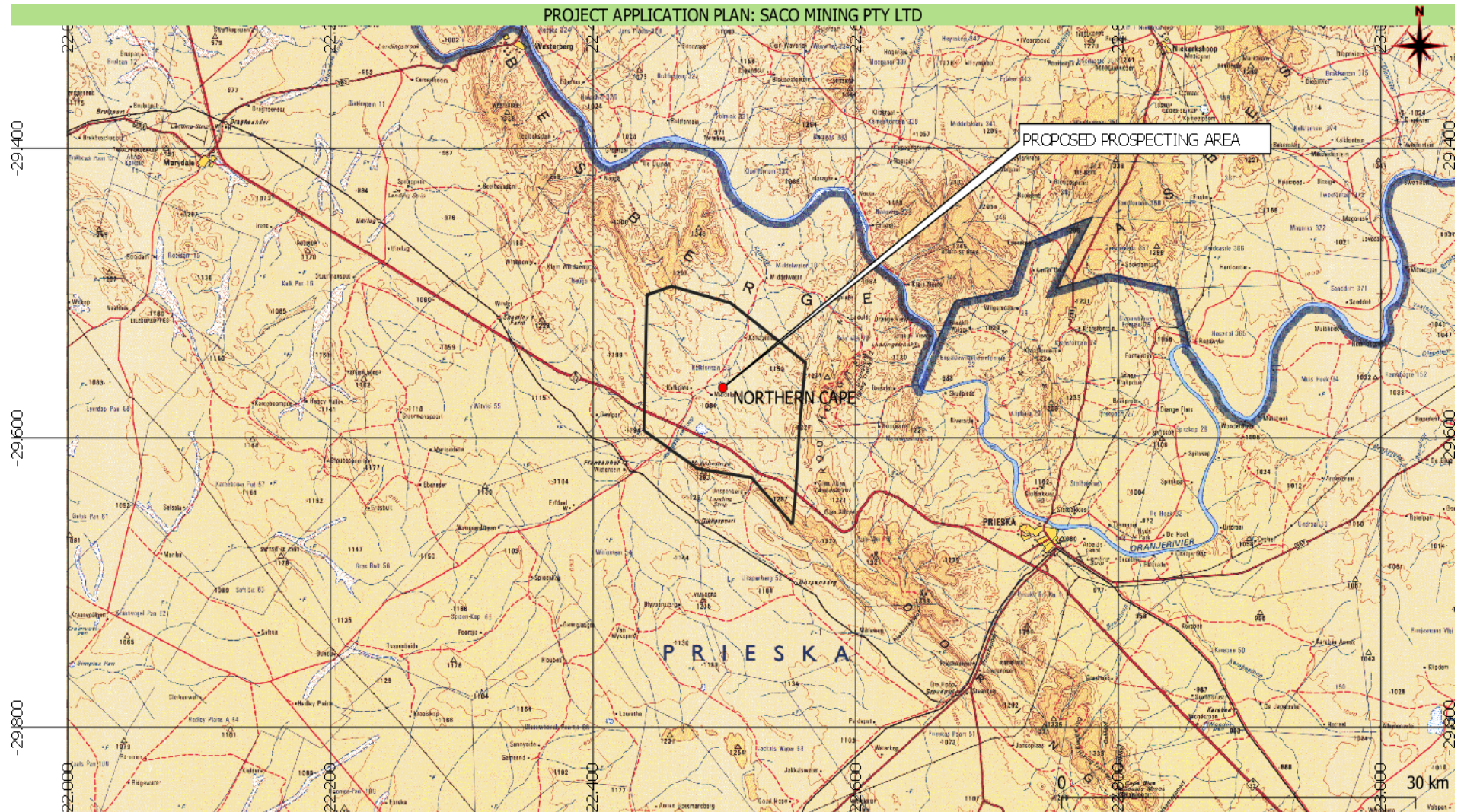
Name : Mr R.P. Mamphaga  
 Name of organization : Tshedza concrete art (Pty) Ltd  
 Position : Managing director  
 Contacts : 011 024 1167 (W), 082 857 3204 (C)

Name : Mr P. Netshivhuyu  
 Name of organization : Makhado Local Municipality  
 Position : Supervisor  
 Contacts : 072 718 3220(C)

Name : Mr A.J. Davids  
 Name of organization : Breeze Court Investments (Pty) Ltd  
 Position : Consultant Environmental Geologist  
 Contacts : 082 707 3239 (C)

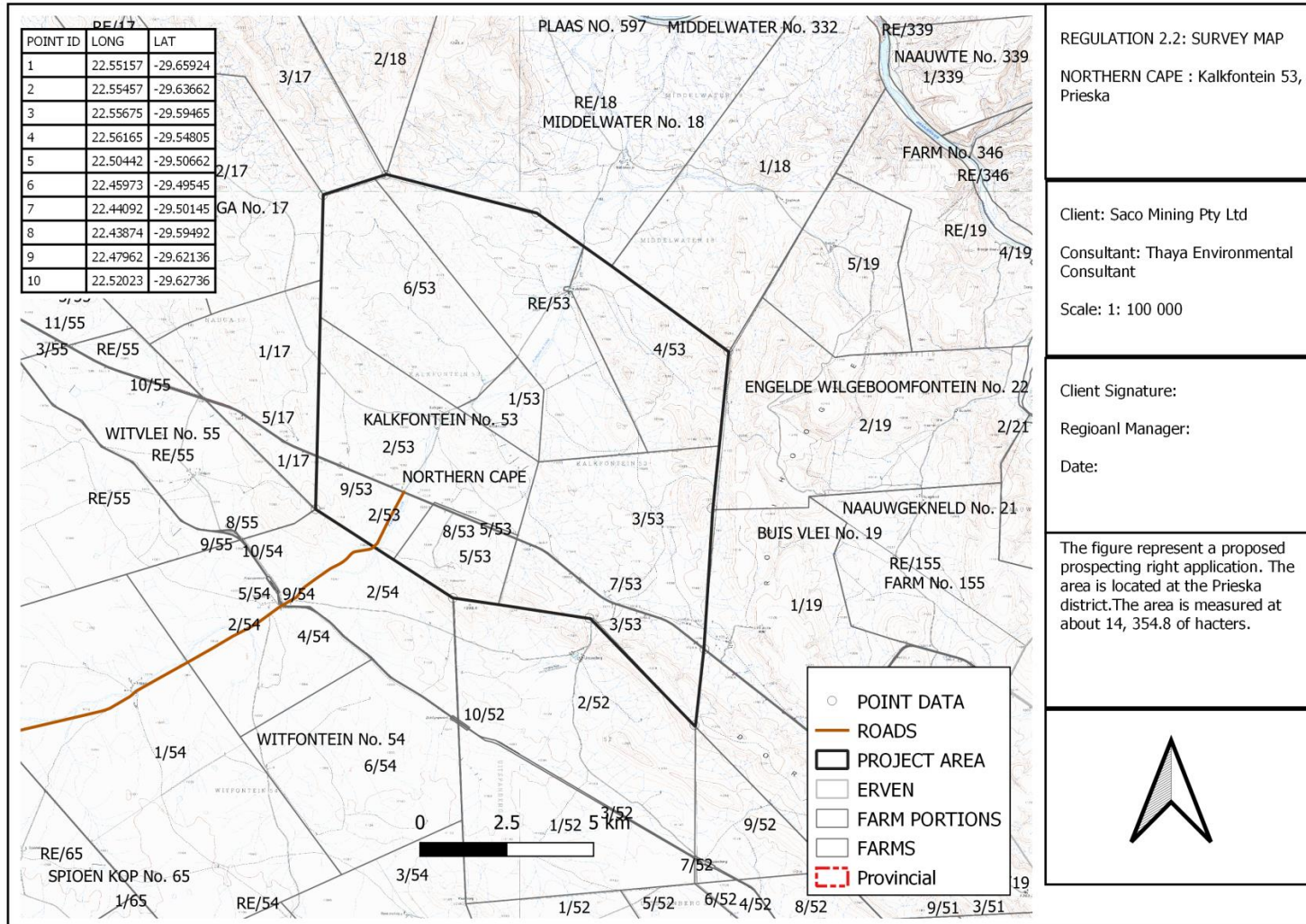
## APPENDIX B:

### LOCALITY MAP



## APPENDIX C:

### THE SITE PLAN



APPENDIX D<sub>1</sub>:

## PROOF OF ADVERTISEMENT

072 757 0514
COMMUNITY | GEMEENSAP
REKORD | 07

**Coronavirus disease (COVID-19) update**

## Churches may resume services but limited to 50 people

**From Page 6**  
National Day of Prayer. Ramaphosa says this will take place on the 31<sup>st</sup> of May. "I therefore urge all South Africans to heed the call of the leaders of our various faith communities for a National Day of Prayer on Sunday, the 31<sup>st</sup> of May, when we will once again come together to pray for the healing of our land and the protection of our people." Since the lockdowns began churches have had to be shut down and annual Easter gatherings cancelled. However, with the government's decision to ease the regulations under Level 3, allowing schools to reopen and certain products like alcohol to be sold for home consumption, criticism was piling on the government to reopen churches too. Various churches are yet to respond and give indication on how they are going to go ahead with holding services with the eased regulations. President Ramaphosa addressed the media where he led a call for a National Day of Prayer.

**CORONAVIRUS**  
#COVID-19  
**Hotline: 0800 029 999**

**Precautions:**  
1 Wash your hands with soap for 20 seconds  
2 Cough or sneeze into a tissue or your elbow  
3 Avoid close contact with people who are sick

28 MAY 2020

**NOTICE – DMR REF. NO. NC 12510 PR**

**APPLICATION FOR PROSPECTING RIGHT WITHOUT BULK SAMPLING TO PROSPECT FOR COBALT, COPPER, AND NICKEL SITUATED ON THE FARM KALPOORTER NO. 53 IN THE ADMINISTRATIVE DISTRICT OF FREDERIKSBURG, NORTHERN CAPE.**

Notice of public participation process is hereby given of the intent of **Engedi Mining (Pty) Ltd** to prospect for cobalt, copper, and nickel on the above mentioned property. An application for a prospecting right with bulk sampling Environmental Authorisation was simultaneously lodged in terms of Section 16 of the Mineral Petroleum Resources Development Act, 2002 (Act No 28 of 2002) read together with Chapter 4 of the 2014 Environmental Impact Assessment Regulation, and it has been accepted and acknowledged by the Department of Mineral Resources, Northern Cape Province.

In terms of the 2014 Environmental Impact Assessment Regulation, Listing notice 2, activity no. 10 promulgated in terms of Section 20(5) and 44 of the national Environmental Management Act (Act No 107 of 1998 as amended), read together with Chapter 6 of Environmental Impact Assessment regulation, 2014. The landowner or lawful occupier of the land, as well as any interested and affected parties must be notified and consulted regarding the proposed operation. The Basic Assessment Report (BAR) must be submitted to the Department of Mineral Resources and the copies of the BAR is available at the Local Library for reviewing and comments. You're hereby invited to address any comment in support / objection to the proposed operation to **ENGEDI MINERALS AND ENERGY (PTY) LTD** on / or before the **29 JUNE 2020**. Please feel free to contact the undersigned on the following contact details:

**Physical address:** 78 Barrow Street, Langebaan building, Bloemfontein, 9301  
**Email:** info@engedimines.com  
**Phone:** 051 433 1708  
**Fax:** 051 559 2568

If no correspondence is received from you within the stated period, it will be accepted that you have no objections against the proposed mining activities.

Many Blessings,  
  
**T. Molekote (Consultant)**



**BRAAM BOTHA**  
IMAGINE A DIGI-BALANCED LIFESTYLE



## TE VEEL DIGITALE BLOOTSTELLING BY KINDERS LEI TOT VERSLAWING

Soos wat ons almal weet, speel die wonder-wêreld van rekenaars, selfone, Ipads ensovoorts 'n bykans onontbeerlike rol in ons almal se lewens. Maar gebruik en bestuur ons dit op 'n verantwoordelike en Digi-Smarz manier - of beheer dit ons? *Imagine 122* is 'n nie-winsgewende maatskappy wat die publiek, maar veral ouers en kinders, met kennis wil bemagtig om selfone, tablette, Ipads, skootrekenaars en soortgelyke toestelle op 'n verantwoordelike en Digi-Smarz manier te gebruik. In hierdie reeks artikels wil ons graag die leerspubliek bewus maak van sekere felle maar terseldertyd ook praktiese wenke gee hoe om 'n Digi-Smarz leefstyl aan te leer. Navorsing bewys dat baie min Suid-Afrikaners van die volgende wetenskaplike felle bewus is: Die oormatige gebruik van selfone, tablette, Ipads, skootrekenaars ensovoorts gee volgens wetenskaplike navorsing aanleiding tot of vererger toestande soos ADHD, "Electronic Screen Syndrome", "Digital Dementia", "Internet Addiction Disorder", "Facebook Depression", "FOMO Syndrome" ("fear of missing out"), "Nomophobia" ("separation anxiety") en talie ander toestande en sindrome.

Die voorkoms van hierdie toestande het die afgelope 15 jaar eksponensieel met 3 400% toegeneem en kinders se fisiese, kognitiewe en gedragsontwikkeling word baie nadelig deur hierdie toestande beïnvloed. In Korea en China alleen is daar meer as 500 digitale verslawingsentrums ("cyber detox centres") wat etlike duisende verslaafdes probeer rehabiliteer - en dit groei daaglik. In Frankryk is die gebruik van selfone vanaf 1 Julie 2018 in kleuter- en laerskole verbied. Streng wetgewing word al hoe meer deur die Westerse lande ingestel om verbuikers, en veral kinders, te beskerm.

Die oormatige blootstelling aan elektromagnetiese bestraling van selfone, tablette ensovoorts en selfoontoerusting kan of gee volgens wetenskaplike navorsing en regspraak aanleiding tot verskeie siektetoestande soos kanker, lae bloedsuiker, versteurde slaap ("Insomnia") en vele ander versteurings. Mediaverklaring deur Braam Botha, 'n plaaslike prokureur en stigter van *Imagine122* wat tans besig is met sy doktorsale studies aan die NWU. Kontak hom by 082-8295-190 of per epos [122imagine@gmail.com](mailto:122imagine@gmail.com) of [smar@jabattorneys.co.za](mailto:smar@jabattorneys.co.za)

28 MAY 2020

## **NOTICE – DMR REF. NO. NC 12510 PR**

### **APPLICATION FOR PROSPECTING RIGHT WITHOUT BULK SAMPLING TO PROSPECT FOR COBALT, COPPER, AND NICKEL SITUATED ON THE FARM KALKFONTEIN NO. 53 IN THE ADMINISTRATIVE DISTRICT OF PRIESKA, NORTHERN CAPE.**

Notice of public participation process is hereby given of the intent of **Saco Mining (Pty) Ltd** to prospect for cobalt, copper, and nickel on the above mentioned property. An application for a prospecting right with bulk sampling and Environmental Authorisation was simultaneously lodged in terms of Section 16 of the Mineral Petroleum Resources Development Act, 2002 (Act No 28 of 2002) read together with Chapter 4 of the 2014 Environmental Impact Assessment Regulation, and it has been accepted and acknowledged by the Department of Mineral Resources, Northern Cape Province.

In terms of the 2014 Environmental Impact Assessment Regulation, Listing notice 1, activity no. 20 promulgated in term of Section 20(5) and 44 of the national Environmental Management Act (Act No 107 of 1998 as amended), read together with Chapter 6 of Environmental Impact Assessment regulation, 2014. The landowner or lawful occupier of the land, as well as any interested and affected parties must be notified and consulted regarding the proposed operation. The Basic Assessment Report (BAR) must be submitted to the Department of Mineral Resources and the copies of the BAR is available at the Local Library for reviewing and comments. You're hereby invited to address any comment to support / objection to the proposed operation to **ENGEDI MINERALS AND ENERGY (PTY) LTD** on / or before the **29 JUNE 2020**. Please feel free to contact the undersigned on the following contact details:

**Physical address: 15 Barnes Street, Langebaan building, Bloemfontein, 9301**

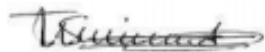
**Email: [info@engedime.com](mailto:info@engedime.com)**

**Phone: 051 430 1748**

**Fax: 086 556 2568**

If no correspondence is received from you within the stated period, it will be accepted that you have no objections against the proposed mining activities.

Many blessings,



T. Mulaudzi (Consultant)



APPENDIX D<sub>2</sub>:

## PROOF OF SITE NOTICES



Figure 6: Notice at the site of prospecting activities.

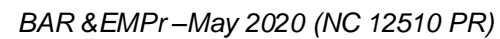




Figure 8: The notice placed at a local area in town.

## 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).

Tshimangadzo has been carrying out Environmental Impact Assessment Procedure since 2012, managing a construction company called Tshedza Concrete Art in Limpopo Province, Makhado town, Madabani village.

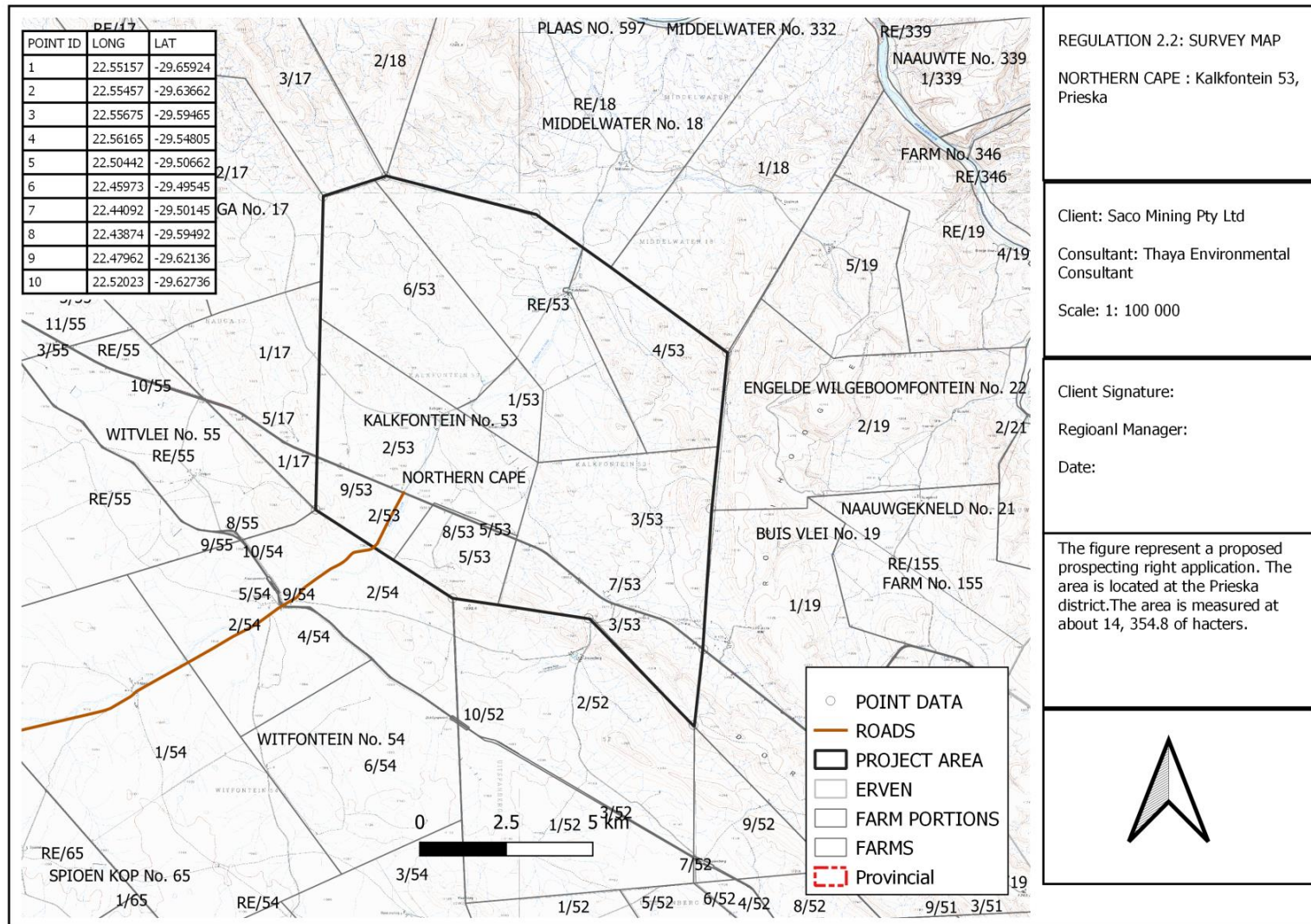
In 2014, he joined a large mining consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Mining Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the mining consulting business by assisting the large to small scale mining companies to obtain prospecting right, mining rights, prospecting rights, technical co-operate permits, reconnaissance permits, exploration rights, production rights, integrated water use license, environmental authorisation among other licenses.

Tshimangadzo has five years working experience in environmental, geology and public participation.

- 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).

I, Tshimangadzo Mulaudzi, hereby confirm that the requirements to describe the aspects of the activity that are covered by the draft environmental management programme are already included in PART A, section 1(h) herein.

- c. **Composite Map** (Provide a map (**Attached as an Appendix**) 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)



**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 closure objectives provided below are to ensure that the closure of the site is compliant with the legislature and that the environment will be left in a state which is sustainable and not harmful.

Closure objectives include but are not limited to:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002.
- To ensure that the prospecting footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment.
- To ensure that the goals which were specified in the rehabilitation section of this report have been met and that the land may have a sustainable use.
- To implement management strategies that will ensure that the negative impacts (risks) associated with proposed prospecting are eliminated or minimized to acceptable standards.
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the neighboring communities.

The objective of closure and rehabilitation for this area will be to leave the area in a functional state and returned to its pre-prospecting condition i.e. agricultural land (hunting and livestock grazing).

**ii. Volumes and rate of water use required for the application.**

Approximately 5000 litres of water will be required per day. Water will not be abstracted and will be trucked to site.

**iii. Has a water use license been applied for?**

A water use license has not been applied for. This is based on the limited amount of water required and the fact that no abstraction will be done. In addition, no drilling will take place within 32 m of any watercourse or within 500 m of a wetland.

#### 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 MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p><b>(E.g. For prospecting –</b> drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route <b>etc...etc...etc</b></p> <p><b>E.g. For mining –</b> excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, <b>etc...etc...etc</b>)</p>	<p>(Of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction, Construction, Operational, Rehabilitation, Closure, Post closure)</p>	<p>(volumes, tonnages and hectares or m<sup>2</sup>)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>	<p>Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard Rehabilitation, therefore state either –</p> <ul style="list-style-type: none"> <li>• Upon cessation of the individual activity</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>• Upon cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</li> </ul>

Site Establishment activities (fencing, signage, access formation, etc.)	Start-up	± 0.1ha	See appendix	<p>Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting. The work methods used the monitoring and measures done and the review processes will be aimed at ensuring that legal thresholds as set out in the environmental standards are complied with.</p> <p>This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations.</p> <p>COLTO 1998 Refers to - Standard Specification for Road and Bridge Works for State Road Authorities by the South African Committee of Land Transport Officials.</p>	During start up, operational phase
Clearance of area for mining	Start up & Operational Phase	5ha	See appendix	<p>The work methods used, the monitoring and measurements done and the review processes will be aimed at ensuring that legal thresholds as set out in the environmental standards are complied with.</p> <p>This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources</p>	During start up, operational phase as necessary

				Development Act regulations, Mine Health and Safety Act regulations, and Conservation of Agricultural Resources Act	
Excavation of material	Operational	5ha	See appendix	Management of legal compliance will be incorporated into normal business activities. This means that particular responsibilities need to be clearly defined for the identification of relevant issues and delivery of compliance. This will help to ensure that adequate resources are available to support these activities. Environmental standards as set out in COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and Water Act regulations.	Operational Phase
Drilling & blasting (if done)	Operational	As needed	See appendix	This will be achieved by clearly outlining the environmental standards to be achieved and the Thresholds which are not to be exceeded in the management system used at the site. This will include compliance with standards as per COLTO 1998, Explosive Act regulations, Mine Health and Safety Act Regulations and the Hazardous Substances Act	Operational Phase (when necessary)

Waste Disposal and Material storage	Operational	Undetermined	See appendix	The waste management hierarchy and the proximity principle will be used in ensuring that the environmental standards as set out in COLTO 1998 and the National Environmental Management Waste Act regulation and National Water Act regulation, are complied with.	Operational Phase
Material handling, hauling and transportation	Operational	Undetermined	See appendix	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations, Mine Health and Safety Act regulations.	Operational phase
Removal of infrastructure & equipment	Decommissioning and closure	Affected areas	See appendix	The recommendations will incorporate factors that include the elimination or the minimization of negative impacts in the work methodologies used during decommissioning so as to comply with the standards as per COLTO 1998, Mining and Petroleum	At decommissioning

				Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.	
Re-shaping of proposed mining	Decommissioning and closure	5h	See appendix	Considerations with the elimination or at least the minimization of any future impacts from the proposed prospecting and the long term stability of the facility and any concerns in relation to the long term liability for the proposed prospecting and its aesthetics will be incorporated in order to ensure compliance with standards as set out in COLTO 1998, Mine Health and Safety Act regulations, National Environmental Management Act and National Water Act regulations.	Closure period
Community and labour relations management	Operational	N/A	See appendix	Will comply with standards as per COLTO 1998, Basic Conditions of Employment Act regulations, Employment equity Act, Labour Relations Act and Skills Development Act	During Operational Phase
Revegetation of disturbed areas	Closure	5ha	See appendix	The future impacts from the proposed prospecting and the long term stability of the area, any concerns in relation to the long term liability for the facility and its aesthetics will be taken into account to ensure compliance with the environmental	During Operational Phase in sections where mining has been completed and during closure

				standards as set out in COLTO 1998, the National Environmental Management Act, Conservation of Agricultural resources Act, National Environmental Management Biodiversity Act regulations.	
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- e. **Impact Management Outcomes** (A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph)

<b>ACTIVITY</b> (whether listed or not listed)  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc)	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc...etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b>  In which impact is anticipated  (e.g. Construction, commissioning, operational, decommissioning, closure, post-closure)	<b>MITIGATION TYPE</b>  (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...etc...etc...)	<b>STANDARD TO BE ACHIEVED</b>  (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc...etc...etc...)
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation	Visual character, land use	Start-up	Remedy through rehabilitation  Limit footprint	Impact managed effectively, Rehabilitate to a self-sustaining environment
	Habitat Destruction	Visual character, land use	Start up	Remedy through rehabilitation  Limit footprint	Impact reduced

	Visual scarring	Visual character	Start up and operational	Remedy through rehabilitation	Impact managed effectively
	Soil erosion	Visual character, land use	Start up and operational	Remedy through rehabilitation,  Storm water control. Limit footprint, Control through storm water control	Impact avoided
Clearance of area for mining	Visual scarring	Visual Character	Operational Phase	Remedy through rehabilitation  Limit footprint and removal of vegetation.	Impact managed to acceptable levels, residual impact reduced
	Destruction of flora and habitat	Visual Character, land use	Operational Phase	Remedy through rehabilitation	Impact reduced to a satisfactory level, Rehabilitate to an end land use similar to that prior to the activity  (depending on the end land use objectives)
	Loss of agricultural potential	Land use management	Operational Phase	Use soil conservation techniques  Limit Foot print	Impact managed to ensure suitable soil fertility levels, Rehabilitate to an end land use similar to that prior to the activity.

	Soil erosion	Visual character, land use	Start up and operational	Remedy through rehabilitation, Storm water control	Impact avoided
Excavation	Dust emissions	Air quality	Operational Phase	Control with dust control measures	Particulates reduced to acceptable levels
	Drainage disruption	Drainage	Operational Phase	Control with Storm water controls	Good surface water run-off established
	Slope instability	Topography	Operational Phase	Control with slope management controls	Stable surfaces established
	Noise	Noise	Operational Phase	Control with Noise control measures	Noise reduced to acceptable levels
	Visual Scarring	Visual Character	Operational Phase	Rehabilitation	Impact managed effectively, residual impact reduced
	Soil erosion Land	Land use	Operational Phase	Rehabilitation, use slope management control	Impact levels avoided
	Destruction of heritage	Heritage issues	Operational Phase	Avoidance	Impact Avoided
Drilling & blasting (if done)	Noise and vibrations	Noise	Operational Phase	Control with blast control measures	Noise levels reduced to acceptable levels
	Dust	Air quality	Operational Phase	Control with dust control measures	Particulates reduced to acceptable levels

				Control with blast control	
	Fly rock	Safety, Land degradation	Operational Phase	Control with blast control measures	Fly rock minimized
Waste Disposal and Material storage	Soil contamination	Land degradation	Operational Phase	Avoidance, Operational control measures	Impact Avoided
	Water pollution	Water	Operational Phase	Avoidance, Operational control measures	Impact Avoided
	Increased risk of fire	Safety	Operational Phase	Avoidance, Operational control measures	Impact avoided or managed to low levels
	Dust	Air quality	Operational Phase	Dust Control measures	Particulates reduced to acceptable levels
	Increased risk of accidents	Safety	Operational Phase	Site management protocols	Accidents avoided or reduced to low levels
	Noise	Noise	Operational Phase	Noise control measures	Noise reduced to acceptable levels
	Soil contamination from oil/fuel leaks	Land degradation	Operational Phase	Operational control measures	Impact managed to suitable soil fertility levels
Removal of infrastructure &	Noise	Noise	Decommissioning and closure	Control with noise control measures	Noise levels reduced to acceptable levels

equipment and re-shaping of proposed prospecting	Dust	Air quality	Decommissioning and closure	Control with dust control measures	Particulates reduced to acceptable levels
	Soil contamination from oil/fuel	Land degradation, water pollution	Decommissioning and closure	Control with operational control measures	Impact managed to suitable soil fertility levels, pollution of water avoided
	Disruption of surface drainage	Water movement	Decommissioning and closure	Control with storm water controls	Free drainage achieved
	Community conflicts and tensions	Community relations	Operational	Control using site management protocols	Reduction in complaints and incidences of conflict
	Increased risk of fire	Fire risk	Operational	Control using site management protocols	Fires avoided and risk reduced
	Reduced security on area	Safety Issues	Operational	Control using site management protocols	Improvement in security and elimination of theft incidences
	Improved employment	Community relations	Operational	Control using site management protocols	Increase in number of people employed
	Improved skills	Community relations	Operational	Control using site management protocols	Improvement in skills level

**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
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc...etc...)	(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...etc...etc...)	Describe the time period when the measures in the environmental management programme must be implemented when required.  With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard Rehabilitation, therefore state either –  • Upon cessation of the individual activity  Or  Upon cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities).

Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation	Remedy through rehabilitation	Start-up	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting. The work methods used the monitoring and measures done and the review processes will be aimed at ensuring that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act
	Habitat Destruction	Limit footprint	Start-up	
	Visual scarring	Remedy through rehabilitation	Start up and operational	
	Soil erosion	Limit footprint	Start up and operational	
Clearance of area for mining Excavation	Visual scarring	Remedy through rehabilitation	Operational Phase	The work methods used, the monitoring and measurements done and the review processes will be aimed at ensuring that legal thresholds as set out in the
	Destruction of flora and habitat	Remedy through rehabilitation	Operational Phase	

	Loss of agricultural potential	Soil conservation techniques, Limit footprint of the proposed prospecting	Operational Phase	environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, and Conservation of Agricultural Resources Act.
	Soil erosion	Remedy through rehabilitation, Storm water control	Operational Phase	
	Dust emissions	Control with dust control measures	Operational Phase	
Drilling & blasting (if done)	Drainage disruption	Control with Storm water controls	Operational Phase	Management of legal compliance will be incorporated into normal business activities. This means that particular responsibilities need to be clearly defined for the identification of relevant issues and delivery of compliance. This will help to ensure that adequate resources are available to support these activities. Environmental standards as set out in COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act
	Slope instability	Control with slope management controls	Operational Phase	
	Noise	Control with Noise control measures	Operational Phase	
	Visual Scarring	Rehabilitation	Operational Phase	
	Soil erosion	Rehabilitation, use slope management control	Operational Phase	
	Destruction of heritage resource	Avoidance	Operational Phase	

	Noise and vibrations	Control with blast control measures	Operational Phase	
Waste Disposal and Material storage	Dust	Control with dust control measures Control with blast control measures	Operational Phase	This will be achieved by clearly outlining the environmental standards to be achieved and the thresholds which are not to be exceeded in the management system used at the site. This will include compliance with standards as per COLTO 1998, Explosive Act regulations, Mine Health and Safety Act Regulations and the Hazardous Substances Act
	Fly rock	Control with blast control measures	Operational Phase	
	Soil contamination	Avoidance, Operational control measures	Operational Phase	
Material handling, hauling and transportation	Water pollution	Avoidance, Operational control measures	Operational Phase	The waste management hierarchy and the proximity principle will be used in ensuring that the environmental standards as set out in COLTO 1998 and the National Environmental Management Waste Act regulation and National Water Act regulation, are complied with.
	Increased risk of fire	Avoidance, Operational control measures	Operational Phase	
	Dust	Control with dust Control measures	Operational Phase	
Removal of infrastructure & equipment and re-shaping of proposed prospecting	Increased risk of accidents	Site management protocols	Operational Phase	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per
	Noise	Control with noise control measures	Operational Phase	
	Soil contamination from oil/fuel leaks	Control with operational control measures	Operational Phase	

	Noise	Control with noise control measures	Decommissioning and closure	Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National Water Act regulations, Mine Health and Safety Act regulations
Community and labour relations management	Dust	Control with dust control measures	Decommissioning and closure	The recommendations will incorporate factors that include the elimination or the minimization of negative impacts in the work methodologies used during decommissioning so as to comply with the standards as per COLTO 1998, Mining and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.
	Soil contamination from oil/fuel	Control with operational control measures	Decommissioning and closure	
	Disruption of surface drainage	Control with storm water controls	Decommissioning and closure	
	Community conflicts and tensions	Control using site management protocols	Operational	
Site Establishment activities (fencing, signage, access formation, etc.)	Increased risk of fire	Control using site management protocols	Operational	The future impacts from the proposed prospecting and the long term stability of the area, any concerns in relation to the long term liability for the facility and its aesthetics will be taken into account to ensure compliance with the environmental standards as set out in COLTO 1998, the National Environmental Management Act, Conservation of Agricultural resources Act and National Environmental Management Biodiversity Act regulations
	Reduced security on area	Control site management protocols	Operational	
	Improved employment	Control site management protocols	Operational	
	Improved skills	Controls site management protocols	Operational	

	Loss of vegetation	Remedy through rehabilitation	Start-up	
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## **g. 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**

The closure objectives provided below are to ensure that the closure of the site is compliant with the legislature and that the environment will be left in a state which is sustainable and not harmful.

Closure objectives include but are not limited to:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002.
- To ensure that the prospecting footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment.
- To ensure that the goals which were specified in the rehabilitation section in this report have been met and that the land may have a sustainable use.
- To implement management strategies that will ensure that the negative impacts (risks) associated with proposed prospecting are eliminated or minimized to acceptable standards.
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the neighboring communities.

The objective of closure and rehabilitation for this area will be to leave the area in a functional state and returned to its pre-prospecting condition i.e. agricultural land. The extent of the proposed site is approximately 14,354.8 hectares. Based on the anticipated amount of drill holes (i.e. 25 phased over a 5 year period), storage area, the total disturbed extent equates to approximately

- b. Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.**

Yes it is confirmed.

- 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.**

***Rehabilitation plan***

The exact location and extent of the prospecting activities, including the need for construction of new access tracks, will be determined once all available information has been evaluated. It is therefore not possible to include a rehabilitation plan showing the areas and aerial extent of the main mining activities, including the anticipated prospected area at the time of closure. The extent of the proposed mining area is however shown in.

The following environmental controls will be implemented during mining to aid or reduce rehabilitation:

- The environment will be returned to its original state, as far as possible. No physical infrastructure will be left on the site.
- Vegetation cleared from each excavations development will be stored within / adjacent to the excavations site for final rehabilitation.
- Topsoil will be stripped within the excavations site, to a depth of 300mm, and placed separately within the excavations site. All topsoil removed will be appropriately protected from erosion for use during rehabilitation.
- Where vegetation has been removed, they shall be re-established systematically where they used to be.
- The area will be level and even, and in a natural state containing no foreign debris or other materials and to ensure ecological, hydrological and topographical integrity.

- All excavations created will be capped and sealed. Where necessary, excavations will be labelled for future use and for reference purposes.
- Mining activities will be restricted to the designated prospecting sites and agreed upon access tracks. No further disturbances will be permitted.
- Following rehabilitation the site will blend suitably with the surrounding environment.

***Rehabilitation of excavations.***

- Progressive rehabilitation will be undertaken during prospecting (Concurrent rehabilitation). Each excavations and associated disturbed areas will be rehabilitated when excavations is completed at each excavations site.
- Once the excavations has been refilled with rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil will be replaced across the disturbed area and shaped to allow a free draining surface. No ponding on the disturbed area will be allowed.
- Cleared vegetation will be used as brush-cut packing on the disturbed areas after rehabilitation to prevent erosion while natural vegetation re-establishes. NO alien plant material will be used for this purpose.
- In cases where native vegetation has been removed or damaged and where re-vegetation is required, species endemic to the area will be re-established.
- An inspection will be held after rehabilitation to determine alien and invasive species growth and the necessary corrective action will be implemented.

***Closure objectives and their extent of alignment to the pre-prospecting environment***

The following closure objectives will be applicable for rehabilitation:

- Disturbed land will be rehabilitated to a stable and permanent form suitable for subsequent land use.
- There will be no adverse environmental effect outside the disturbed area and the affected area will be shaped to ensure effective drainage and prevent ponding on site.

- The disturbed area will not require any more maintenance than that in or on surrounding land after mining is completed.

If the commitments in this BAR are adhered to and rehabilitation is undertaken as described above, it is not anticipated that there will be any long-term management or maintenance required for areas disturbed during prospecting

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

Rehabilitation measures have been designed to meet closure objectives as stipulated in various sections of the report.

The objectives of rehabilitation and closure are:

- To ensure that vegetation clearing is done in an appropriate manner.
- To leave the site in a safe state for humans and animals, as it was originally.
- To remove all equipment, excess topsoil and any waste generated.
- To backfill drill holes adequately.
- Ensure that the water resource and underground water is not affected by prospecting or rehabilitation activities.

**Prospecting area establishment, access footpaths, roads and tracks**

- Ensure that the prospecting area is placed in an already disturbed area to limit vegetation disturbance. Ensure all equipment; fuel and waste have been removed from site.
- Place a natural barrier at the junction to the footpath/track/road being rehabilitated e.g. rocks to prevent further access.
- Loosen compacted soil on tracks when tracks are not needed again.
- Seeding to be done where required with appropriate seed.
- Daily site access will occur by the required vehicles.
- As far as possible, existing roads will be used. Consultation with the relevant landowner will be done where this is not possible.

- No new access roads will be constructed however should there be a need to establish access roads, these will be constructed in such a way that vegetation clearance is limited, and existing structures such as fence lines are followed as far as possible.
- No fences will be cut and all access gates will be left in their original state.

### **Drilling sites**

- Prior to drilling a photographic record of the site will be established.
- Drill sites will be selected based on geological information. These locations will be discussed with the relevant landowner.
- Drill sites will be marked with pegs that will be removed once the activity is complete. All drill sites will be screened for species of conservation concern.
- Vegetation removed must include the 1st upper 30cm, where possible, of soil and stockpiled (topsoil).
- Topsoil and subsoil will be separated. Topsoil will be used in the rehabilitation phase.
- Since the plant material removed from the site are to be mixed into the topsoil to supplement the organic nutrient content of the soil, no further soil conditioning in terms of fertilising is deemed necessary.
- All cleared invasive alien vegetation will be removed from site.
- If drilling is required in grazing areas, consultations will be held with the relevant landowners to discuss consent and compensation.
- Backfilling will be done via raking of the suitable material over the disturbed areas.
- Drill holes will be plugged, capped and marked.
- All litter will be removed from site and the surrounds.
- Severely compacted soil will be loosened / scarified to allow water and seed penetration.
- Enviro-loo ablution facilities will be used and will be removed and the contents disposed of at an approved facility.
- Fires are prohibited on site.
- Where possible, no major servicing of vehicles will be allowed on site.
- Photographs of the site; file information with dates and notes when first monitoring is due as imperative.

## **Waste Disposal**

- Scavenger proof waste bins will be available for waste disposal.
- All generated waste and litter will be removed from site on a weekly basis.
- Enviro-loo ablution facilities will be outsourced, maintained and serviced on a regular basis by a licensed service provider.
- All spills / leaks will be contained in an appropriate manner and removed from site to a licensed facility.

## **Rehabilitation**

- Prior to rehabilitation of the site, all remnants of foreign debris shall be removed from the site.
- All holes will be covered first with subsoil and then with topsoil (minimum of 10cm deep). Topsoil will be spread to the original depth (30cm where possible).
- As topsoil will contain all cleared vegetation, no additional treatment will be required.
- The soil must cover all the roots and be well firmed down to a level equal to that of the surrounding in situ material.
- Control weeds by means of extraction, cutting or other approved methods.
- Monitoring will be undertaken once a month or until rehabilitation has been deemed successful.
- Follow up inspections will be conducted every two months to remove upcoming seedlings of alien vegetation.
- A single permanent marker will be required to mark the location of the drill hole for future reference. The siting of such a marker shall be cleared with the landowner.
- All rehabilitation referred to in this environmental management programme will be done concurrent to prospecting operations as set out in the MPRDA. Best practice methods will be used.
- Continuous monitoring of possible soil erosion will be required.

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

## CALCULATION OF THE QUANTUM

Applicant:  
Evaluators:

SACO MINING (Pty) Ltd (NC 12510 PR)  
Engedi Minerals and Energy (Pty) Ltd

Location:  
Date:

PRIESKA  
May-20

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	16	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	228	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	336	1	1	0
3	Rehabilitation of access roads	m2	0	41	1	1	6.15
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	216	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	455	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0.1	238697	1	1	23869.7
7	Sealing of shafts adits and inclines	m3	0	122	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0.015	159131	1	1	2386.965
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198195	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575653	1	1	0
9	Rehabilitation of subsided areas	ha	0.05	133249	1	1	6662.45
10	General surface rehabilitation	ha	0.06	126059	1	1	7563.54
11	River diversions	ha	0	126059	1	1	0
12	Fencing	m	10	144	1	1	1440
13	Water management	ha	0	47931	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0.05	16776	1	1	838.8
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
Sub Total 1							42767.605
1	Preliminary and General		5132.1126		weighting factor 2 1		5132.1126
2	Contingencies			4276.7605			4276.7605
Subtotal 2							52176.48
VAT (15%)							7304.71
Grand Total							R 59 481.19

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

Yes, it is confirmed.

**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
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation, Habitat destruction, Visual scarring, Soil erosion	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Clearance of area for mining	Visual scarring, Destruction of flora and habitat, Loss of	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.

	agricultural potential, soil erosion			
Excavation	Dust emissions, Drainage disruption, Slope instability, Visual Scarring, Soil erosion, Destruction of heritage resource	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Drilling & blasting (if done)	Noise and vibrations, Dust, Fly rock	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Waste Disposal and Material storage	Soil contamination, Water pollution, Increased risk of fire	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Material handling, hauling and transportation	Dust, Increased risk of accidents, Noise, Soil contamination	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.
Removal of infrastructure & equipment and re-shaping of proposed prospecting	Noise, Dust, Soil contamination, Disruption of surface drainage	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.

Community and labour relations management	Community conflicts and tensions, Increase risk of fire, Reduced security on area, Improved employment rates, Improved skills	Visual checks, monitoring incidences of non-compliance, recording of key parameters	Appointed Contractor	At start and as and when required. Record incidences of non-compliance monthly.

**h) Indicate the frequency of the submission of the performance assessment/environmental audit report.**

The BAR and EMPr will be audited by an independent party on an annual basis to determine the level of compliance. The results of this audit will be used to improve environmental management procedures, where required. The audit report will also be submitted to the Department of Mineral Resources (DMR) upon completion.

**i) 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.**

Induction (including environmental awareness) training will be conducted on all people involved in the prospecting programme, including truck drivers, mine managers crew and relevant technical services, prior to the commencement of any work; according to the relevant legislation, **Engedi Minerals and Energy Pty (Ltd)** Standard Operational Procedures (SOPs) and this EMP. **Engedi Minerals and Energy Pty (Ltd)** will do in-house training, should it be necessary to its personnel on site. The mining contractor will be responsible for training its mining crew and supervisor.

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

**Description of solutions to risks**

*(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment)*

It is essential that people involved in the mining programme know how to respond in the event of an environmental emergency situation in order to avoid significant environmental degradation or injury to human health. Ideally such incidents should not occur. If people involved in the mining programme implement all management measures outlined in this EMPr, the likelihood of such incidents occurring is greatly reduced. However, despite the best intentions and the best environmental management practices, it is impossible to ensure that no incidents will ever occur during prospecting activities. Therefore, it is vital to ensure that all personnel are aware of the management measures to be undertaken in the event of an accident.

Two emergency incidents have been identified:

- Hydrocarbon spills.
- The outbreak of fire.

Emergency incident procedures are outlined below. An Environmental Officer will be appointed to the project to manage all environmental related aspects of the prospecting programme.

### ***Emergency planning***

- The site and all people involved in the mining programme are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993).
- Potentially hazardous areas are to be cordoned off and clearly marked at all times.
- No unauthorized firearms are permitted on site.
- Adequate emergency facilities (e.g. first aid kit) must be provided for the treatment of an emergency on site.
- Emergency contact numbers are to be displayed conspicuously.
- Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all personnel working on site (e.g. hard hats, safety boots, ear plugs, masks, etc.).
- All vehicles and equipment used on site must be operated by appropriately trained and/or licensed individuals in compliance with all safety measures.

### ***Management of fire risks***

- Each mining site will be cleared of vegetation.
- “No Smoking” signs must be prominently displayed.
- Fires will only be allowed within a facility especially constructed for the purpose of keeping warm and for cooking.
- No burning of refuse or vegetation is permitted.
- Fire equipment must be easily accessible.
- Fire equipment must be serviced, full and in good working order.

***Management of spills***

- Ensure that a proper spill-kit is available on site. The kit must include absorptive material that can handle all forms of hydrocarbon.
- Ensure that any hydrocarbon spills are cleaned up as soon as possible.
- At least one person on site must receive formal training in the use of the spill control kit.
- Equipment is to be required immediately upon developing leaks.
- A drip tray, a thin concrete slab or a PVC lining shall be used to prevent soil and water contamination.
- All spills on site must be reported to the Environmental Officer.
- Spread absorbent sand on areas where oil spills have occurred. Oil-contaminated soils are to be removed to a contained storage area and disposed of appropriately.
- Non-degradable waste must be collected and disposed of at a registered waste site.

***Incident reporting***

- The supervisor on site must take corrective action to mitigate an incident appropriate to the nature and scale of the incident, immediately after the occurrence of the incident.
- Residual environmental damage that remains after having taken corrective action must be rehabilitated.
- Change operating procedures where necessary to prevent recurrence of similar incident.
- All incidents must be recorded in an Environmental Incident Report, within 24 hours of the incident occurring. Additional documents, including photos must be appended to the incident report to provide a comprehensive record of the incident and the corrective and preventative action taken.
- All incidents will be investigated in collaboration with the Environmental Officer. The focus of these investigations shall not be to apportion blame to specific employees, but to ascertain the root cause of the incident and to prevent a recurrence of similar incidents.

## 1.7 Environmental awareness training

*(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).*

A number of key elements must be addressed during an environmental awareness training session, since it is recognised that the majority of employees are generally not informed about the environment. The following key elements must be addressed:

- An explanation of the basic key concepts;
- The importance of the environment, including the management thereof;
- Examples of environmental degradation;
- The role that the employees have in protecting the environment;
- Examples of pollution;
- Simple, easy-to-follow rules to protect the environment; and
- South African laws which protect the environment.

All people involved in the mining programme must receive environmental awareness training, to ensure that they are aware of their responsibilities and are competent to carry out their work in an environmentally acceptable manner. The training must also contain all relevant sections of the EMPr and must be presented in a clear, understandable manner. Relevant sections of the EMPr include:

- Access, including use of roads, tracks, gates, etc.;
- Control measures required to manage excluded and exempted areas;
- The handling, storage and disposal of waste;
- Emergency response procedures;
- Control of alien and invasive plant species;
- Fire prevention;
- Sediment and erosion control;
- Control measures to be implemented with regards to the management of water, noise and dust; and
- Rehabilitation of excavations sites and access tracks.

This training may take the form of a PowerPoint presentation, information posters or pamphlets, and other easily accessible methods of information communication.

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

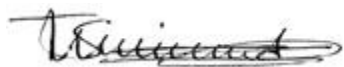
The BAR and EMPr will be audited by an independent party on an annual basis to determine the level of compliance. The results of this audit will be used to improve environmental management procedures, where required. The audit report will also be submitted to the Department of Mineral Resources (DMR) upon completion.

**SACO MINING (PTY) LTD** will undertake rehabilitation to minimise negative impacts on the environment.

## **2) UNDERTAKING**

The EAP herewith confirms:

- |          |
|----------|
| <b>X</b> |
| <b>X</b> |
|          |
| <b>X</b> |
- 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 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:**

Engedi Minerals and Energy

**Name of company:**

28 May 2020

**Date:**

**-END-**