# BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PLAN

IN RESPECT OF THE ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12

15832-HU SITUATED IN THE MAGESTRIAL DISTRICT OF NONGOMA IN THE

KWAZULU NATAL PROVINCE

DMREE REF: KZN 30/5/1/1/2/11125 PR

Prepared for: Contrarians Capital Pty Ltd

Competent Authority: Department of Minerals and Resource



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# BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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# **IMPORTANT NOTICE**

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

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

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

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

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

# **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 sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
- e) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
- f) the degree to which these impacts—
- can be reversed;
- may cause irreplaceable loss of resources; and
- can be managed, avoided or mitigated;
  - g) 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
- identify and motivate a preferred site, activity and technology alternative;
- identify suitable measures to manage, avoid or mitigate identified impacts; and
- identify residual risks that need to be managed and monitored.

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#### PART A

# SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

- 1. Contact person and correspondence address
- a) Details of the EAP

# MR FHUMULANI STANLEY RAKHADANI

**Profession** Mining & Environmental Geologist

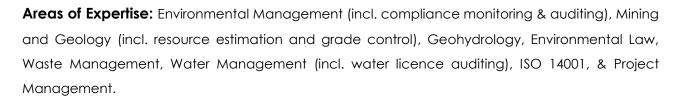
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Qualification: Bachelor of Earth Science in Mining and Environmental Geology

(University of Venda, Acquired in 2015)



b) The qualifications of the EAP (with evidence)

Please refer to Annexure B for the Curriculum Vitae of EAP.



#### 1. INTRODUCTION

**The GeoAspex Pty Ltd** has been appointed to do Basic Assessment Report and Environmental Management Programme Report by **Contrarians Capital Pty Ltd** for a Prospecting Right in terms of section 27 of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002). The proposed Prospecting Right application within on portion 09 and 13 of the farm Reserve no.12 15832-HU situated in the Magisterial District of Nongoma in the Kwazulu Natal province and the applied area covers the extent of 1489.682749 Ha.

Project area falls under the 2.9–3.0 Ga Pongola Supergroup in Eastern South Africa and south-western Swaziland and crops out over a 270-km by 100-km area (Weilers, 1990;Fig. 1). The extent of the Pongola Supergroup is consistent with a minimum depositional area of 32,500 km2 (Button et al.,1981), and the sequence as a whole consists of two strati-graphic units; the Nsuze Group and the overlying Mozaan Group. As such, exploration work will commence from a very advanced level. The Prospecting Work Programme (PWP) was designed in phases, each phase conditional on the success of the previous phase. These phases include:

# 1.1.1 Phase 1: Data acquisition and a desktop study

A desktop study of all available data for the area was undertaken to accumulate as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information. Many sources have been used to consolidate this report.

#### 1.1.2 Phase 2: Drilling

Targets that have been prioritised through detailed desktop studies will be tested by initial diamond or percussion drilling. Should the initial evaluation of the deposit indicate a sufficient size and grade, bulk sampling may be required. In this event, the PWP has already covered this activity and current Environmental Authorisation Process does not include bulk sampling. Due to the steepness of the applied area the proposed boreholes will be less as expected. Should bulk sample required then an amendment of the EA Authorisation will be applied. The activities associated with the PWP will be scheduled over a period of five years, as detailed in the following table.

Table 1: Prospecting timeframes and activities

Phase	Activity	Skills	Timeframe	Outcome	Outcome timeframe
1	Acquire historical geological/ exploration data over area applied for and surrounds	Geologist	6 months	Compile data     Refine exploration strategy	6 months
2	Drilling (10 boreholes)	Geologist	6 months	Drilling to test for Chrome, Manganese, Glass Sand, Platinum Group Metals and Iron	6 months
3	Drilling (10 boreholes based on phase 1 drilling results)	Geologist	30 months	<ul><li>Assess what further work is warranted.</li><li>Amend PWP</li></ul>	24 months
4	Analytic stage EIA and Mining Right Application (MRA)	Geologist, Environmentalist	30 months	<ul><li>Feasibility studies</li><li>Resource statements</li></ul>	24 months

As is clear from the information provided above, each of the phases is dependent on the results of the preceding phase. The location and extent of drill sites and possible diamond drilling cannot be determined at this stage and, as such, mapping of the prospecting activities could not be undertaken. In the subsequent sections (Part B) more details are provided in terms of each of the prospecting activities.

The applicant must submit a plan indicating the location of drilling activities, once these areas have been finalised, to at least all landowners, as well as the DMREE and the Department of Water and Sanitation (DWS).

# 2. Location of the overall activity

Farm name	Portion 9 & 13 of RESERVE NO 12 15832 HU	
Application area (ha)	1489.682749 Ha	
Magisterial district	Nongoma Municipality	
	The project area is approximately 7.81 km North East of	
Distance and direction from nearest town	Nongoma, approximately 52 km North East of Ulundi and	
	approximately 47.93 km South of Pongola.	
21-digit Surveyor General code for each farm		
portion		

# 2.1 General description of the project location

The project area is situated within the jurisdiction of Nongoma local municipality which is administered by Zululand District municipality. Nongoma Local Municipality is a local municipality in the northeastern part of Zululand in the KwaZulu-Natal province of South Africa. It is Zululand's second largest municipality in terms of population and the second largest in terms of area. It shares its name with the town of Nongoma, which serves as the seat of the municipality. The Zululand District Municipality is a Category C municipality situated in the north-eastern part of KwaZulu-Natal. The area is primarily a rural district. Almost all of the area falls under the jurisdiction of traditional authorities.

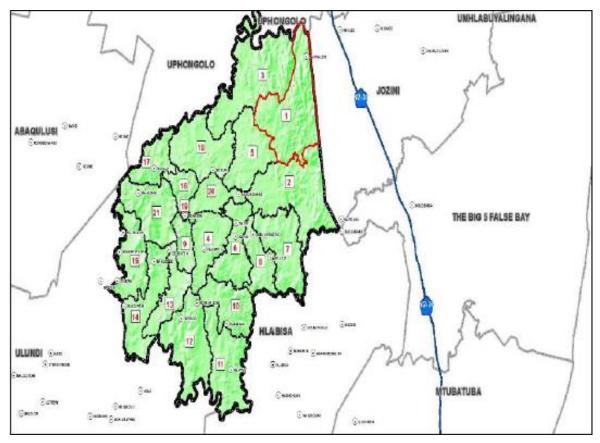


Figure 1: Nongoma Local Municipality Map (Source: Nongoma Local Municipality IDP)

The project area is approximately 7.81 km North East of Nongoma, approximately 52 km North East of Ulundi and approximately 47.93 km South of Pongola. The project covers the three communities which are KwaNememe, Mayeni and KwaMAduna, where R66 runs from Pongola to R618 at Nhlophenkulu on the Western side of the project.

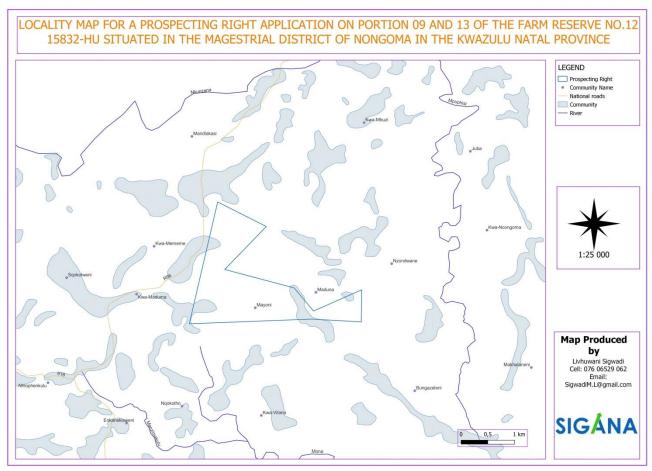


Figure 2: Map showing the exact location of project area

The proposed project covers both flat and steep area, where it transversed by rivers. The area is an open space where there is no fence around it but with some houses within the project. A community around the proposed area use to fetch fire wood and grazing by livestock within the proposed land.

# 2.2 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 (ha)) of the aforesaid main and listed activities, and infrastructure to be placed on site.

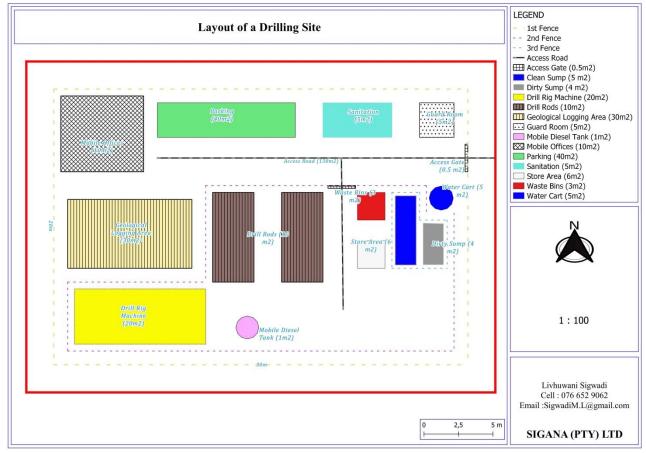


Figure 3: The drill site layout plan showing areas where specific activities will take place in the project area

# 3. 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.

The area's detailed geology and mineral resources potential is well-known. As such, exploration work will commence from a very advanced level. The Prospecting Work Programme (PWP) was designed in phases, each phase conditional on the success of the previous phase. These phases include:

# 3.1 Prospecting work to be performed

The prospecting work will be done in phases, each phase conditional on the success of the previous phase. The phased exploration program is described below, and summarized in Table 1 It is the preliminary assessment of the potential resource area or rather the applied farm and its surrounding areas. It provides baseline information which includes but not limited to; exact location of the farm, accessibility, general topography, and the geological setting of the area. This important information will be sourced from municipal publications, internet, geological maps, topographic & orthophoto maps, and geological journals.

# 3.2 Geological Mapping

Geologic mapping involves plotting the location and attitude of the various rock units, faults, and folds on a base map. Geologic maps are used to investigate geologic hazards, mineral resources, groundwater aquifers, and just plain science. This method includes ground mapping of geological features including rock outcrops, lithological contact zones, any geological structural features, surface depressions and vegetation types. All acquired information will be utilised in planning exploration drilling for further characterization.

# 3.3 Geochemical survey and sampling

Geologic mapping involves plotting the location and attitude of the various rock units, faults, and folds on a base map. Geologic maps are used to investigate geologic hazards, mineral resources, groundwater aquifers, and just plain science. This method includes ground mapping of geological features including rock outcrops, lithological contact zones, any geological structural features, surface depressions and vegetation types. All acquired information will be utilised in planning exploration drilling for further characterization. Geochemical survey will be conducted to measure chemical properties of rocks on the surface and underground. This will be conducted in two stages:

# - Primary anomaly investigation.

This survey will be concerned with deep seated anomalies. Samples of rocks likely to indicate positive anomaly will be taken for detailed chemical characterization in the lab.

#### - Secondary anomaly investigation.

The area of focus of this investigation will be based on visible residual rock particles in the field. These rocks will be sampled for potential minerals investigations. Surface samples of ideal residual rocks will be taken.

# 3.4 Geotechnical survey

The area of focus of this investigation will be based on visible residual rock particles in the field. These rocks will be sampled for potential minerals investigations. Surface samples of ideal residual rocks will be taken. Geotechnical surveys will focus on the soil and geological conditions of the area. These will include review of available literature, conducting on-site exploration, mapping/logging and sampling and laboratory testing of samples obtained in the field.

#### 3.4.1 Diamond drilling

Diamond drilling operations will be carried out for the purpose of retrieving core samples and laboratory analyses will be performed on the core samples to establish the quality of chrome and platinum, and associated rocks properties. Ten (10) exploration boreholes will be drilled, each up to a depth of approximately 500 m are planned for the five years period; however, a 20% additional or retention of boreholes may be necessary depending on the new geological information gathered during the initial stages of the drilling programme. On average, a borehole takes approximately three days to complete.

# 3.4.2 Percussion drilling

Percussion (open-hole) boreholes may be drilled and geophysical surveyed to gather additional geological information between other boreholes. For this purpose, down-hole geophysical instruments and methods may be used to gather thickness and quality information and overlying strata. This may take up to three days per percussion borehole.

# 3.5 Competent Geological Report

A detailed geological report will be compiled that clearly defines general geometry of the potential ore bodies, estimate their grade, the depth to the ores, lateral extent of the ore, and distribution of mineralization in relation to stratigraphy. This report will be based on modelling and laboratory report. This report form part of the Competent Person Report as defined by the SAMREC codes, and other relevant codes.

A detailed geological report will be compiled that clearly defines general geometry of the potential ore bodies, estimate their grade, the depth to the ores, lateral extent of the ore, and distribution of mineralization in relation to stratigraphy. This report will be based on modelling and laboratory report. This report form part of the Competent Person Report as defined by the SAMREC codes, and other relevant codes.

# 3.6 Bulk Sampling

Should it be necessary to conduct any bulk sampling operations, an application for Ministerial approval in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002, which includes an amended Environmental Management Plan (EM Plan), will be submitted once the necessary studies have been conducted.

# 3.7 Data processing validation and modelling

Data obtained during the drilling project needs to be processed and validated versus stratigraphic, structural and analytical data received and correlated with surrounding boreholes in the reserve area.

As is clear from the information provided in Table 1, each of the phases is dependent on the results of the preceding phase. In the subsequent sections (Part B) more details are provided in terms of each of the prospecting activities. Ten (10) boreholes are planned to be drilled in the proposed farms and depth of 30 m of each planed boreholes.

# Listed and specified activities

Section 16 of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) requires, upon request by the Minister, that an Environmental Management Plan (EMP) be submitted and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the National Environmental Management Act (NEMA) requires that activities, which may impact the environment, be authorised by a relevant authority before commencing with the activities. Such activities are listed under Regulations Listing Notice 1 Government Notice (GN) 983, Listing Notice 2 GN 984 and Listing Notice GN 985 (dated 4 December 2014) of the NEMA. The proposed prospecting activity triggers the following:

# NEMA Government Notice 983: Listing Notice 1

Activity 20: "Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource..." Please refer to Table 2 for the details in terms of the listed activities.

Table 2: Prospecting timeframes and activities

NAME OF ACTIVITY  (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etcetc E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, plant, storm water control, berms, roads, pipelines, power lines, conveyors, etcetc)	Aerial extent of the Activity Ha or m <sup>2</sup>	LISTED ACTIVITY  (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985)
Prospecting Area	6000 m <sup>2</sup>	X	GNR 327 Listing Notices 1, Activity 20.
Establishment of eight (10) drilling sites. The drilling	0.6 ha		, , ,
method to be coring & reverse circulation.			
The demarcated working area per site is 600 m2			
(600 m2 per drilling site based on a 20m x 30m			
grid). The total area to be disturbed per site is 600			
$m^2$ (600 $m^2$ X 10 boreholes = 6000 $m^2$ or 0.6 Ha for			
all 10 sites). Therefore 0.6 ha of 1489.682749 ha			
will be affected in the process of drilling			
Vegetation clearing	0.6 ha		Not Listed
Site camp	600 m <sup>2</sup>		Not Listed
Drilling	0.12 ha		Not Listed
Equipment storage	50 m <sup>2</sup>		Not Listed
Site offices	40 m <sup>2</sup>		Not Listed
Ablution facilities	30 m <sup>2</sup>		Not Listed
Sample storage	40 m <sup>2</sup>		Not Listed

# 4. 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.

The following section presents a detailed description of all the activities associated with the proposed Prospecting Application. Due to the nature of the PWP and the fact that the specific prospecting activities depend on the preceding phase, assumptions are presented where required. These assumptions are based on similar projects undertaken by the applicant and therefore be regarded as indicative of what will be undertaken.

#### 4.1 Access roads

There is an existing main gravel road adjacent to the R66 road from KwaNememe village to the project area. While on site, there are multiple gravel roads which traverse through the entire area giving all project personnel easy access to the project area. As such, no new access roads will be constructed for this proposed project.



Figure 4: Illustration of one of district road within the project area

# 4.2 Water supply

Drilling mechanisms to be employed utilises air instead of water hence water will only be required for drinking purposes by personnel on site. A temporary storage water tank on site will be provided to provide potable water for drinking and general use. This water will be purchased from water retailers in water containers. Best practice guidelines will be enforced throughout the duration of the prospection activities to ensure that any potential pollution on water bodies is prevented.

# 4.3 Ablution facilities

Portable toilets will be installed on site for ablution purposes, thus reducing potential pollution associated with erecting sewage pipes underground. Portable toilets are dynamic; they are moved from drill site to drill. Once prospecting activities ceases, portable toilets are easily removed off the site.

# 4.4 Temporary office area

A temporary shaded site office will not be erected at the sites. No electricity will be generated onsite. Meals will be provided to the staff and workers as no heating and/or cold storage facilities will be available. A shaded eating area will be provided.



Figure 5: An example of a temporal office

#### 4.5 Accommodation

Accommodation for staff and workers will not be provided on site, but in nearby town (Nongoma) or nearby community. Night security staff will be employed once equipment has been established on site.

# 4.6 Blasting

Blasting is the process of using explosives to break or disintegrate rocks so that they can be excavated. Blasting is out of the scope of this prospecting project as the Prospecting Works Programme (PWP) does not allow for bulk sampling, no blasting will take place. Instead, the project will entail geological mapping, exploration drilling (i.e. percussion, core, and directional), sampling, resource modelling and resource reporting.

# 4.7 Storage of dangerous goods

During drilling activities, limited quantities of diesel fuel, oil and lubricants will be stored on site. The only dangerous goods that will be stored in any significant quantity is diesel fuel. Less than 30m<sup>3</sup> will be stored in above-ground diesel storage tanks.

# 5. Policy and legislative context

Table 3: Applicable legislation to this application

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
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.		E.g. In terms of the National Water Act a Water Use License has/ has not been applied for.
Legislation		
NEMA, Act 107 of 1998 (as amended) Listing Activity 20 of Listing Notice 1 in terms of Regulation 983 of 2014 (as amended, April 2017)	Prospecting activities	In terms of the NEMA, Act 107 of 1998 (as amended), an application for Environmental Authorization was submitted to the DMRE and the application was acknowledged by the DMRE ref: KZN 30/5/1/12/11125 PR. The DMRE, as the administrator, requests the submission of the Basic Assessment Report and EMP within 90 days of the acknowledgement letter. Contrarians Capital Pty Ltd appointed Geoaspex as an independent EAP to undertake the Basic Assessment Process associated with the Prospecting Right Application. All potential impacts of the proposed prospecting activities have been assessed. The EMPr includes mitigation measure implementation, which will apply throughout prospecting.
As per the Constitution of South Africa, specifically, everyone has a right to:  • an environment that is not harmful to their health or wellbeing; and  • have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:  prevent pollution and ecological degradation  promote conservation  secure ecologically sustainable	Prospecting activities	An EMPr for proposed prospecting activities has been drafted to ensure that prospecting activities are conducted in such a manner that significant environmental impacts are avoided. Where significant impacts cannot be avoided, they will be minimized and mitigated to protect the environmental right of South Africans.
development and use of natural resources while promoting justifiable economic and social development		
MPRDA, Act 28 of 2002 Section 16 (as amended)	Prospecting activities	The applicant submitted a Prospecting Right Application to the DMRE, which the DMRE accepted (KZN 30/5/1/1/2/11125 PR). The conditions and requirements attached to the granting of the prospecting right will apply to the prospecting activities.
NEMA Biodiversity Act, 2004	Management	The EMPr will regulate the applicant's

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
	of CBA on site	implementation of biodiversity management measures. This is particularly relevant to all species family and the Critical Biodiversity Area (CBA) in which the project area falls.
National Water Act (NWA), Act 36 of 1998	Management of water resources	No water use license is required for this application. Drilling mechanisms to be utilized in this project use air to cool and flush the drill bit instead of water. Water needs will only relate to portable water for personnel on site. Drinking water will be bought and brought to site with water containers.
National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA) (as amended)	Management measures environmental awareness plan	Waste generation will be minimized by ensuring employees of the drilling contractor are subjected to the appropriate environmental awareness campaign before drilling commences. All waste generated during the drilling activities will be disposed of in a responsible legal manner. Proof of legal disposal will be maintained on site.
National Heritage Resources Act (NHRA), 25 of 1999	Management measures	Should archaeological artefacts or skeletal material be discovered in the area during development activities, activities will be halted, and the Kwazulu Natal Heritage Department will be notified for an investigation and evaluation of the find(s).
		01 1110 11110 (v)1
	Municipality by	\
Section 36: Pollution of sources of water supply.	Municipality by  Management measures environmental awareness plan	\
	Management measures environmental	No person may pollute or contaminate any catchment area, river, canal, well, reservoir, filter bed, water purification or pumping works, tank, cistern or other source of water supply or storage in a way that creates a public health nuisance or a public health hazard.  One of the municipality aims is to pursue economic growth opportunities that will present before our communities' descent work. It also highlights the need to preserve the natural environment in the area by conducting mineral exploration that is minimally invasive to the environment.  The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a
supply.  Final IDP 2017/18-2021/22	Management measures environmental awareness plan  Needs, Desirability, Socio- economic	No person may pollute or contaminate any catchment area, river, canal, well, reservoir, filter bed, water purification or pumping works, tank, cistern or other source of water supply or storage in a way that creates a public health nuisance or a public health hazard.  One of the municipality aims is to pursue economic growth opportunities that will present before our communities' descent work. It also highlights the need to preserve the natural environment in the area by conducting mineral exploration that is minimally invasive to the environment.  The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism
Final IDP 2017/18-2021/22  Standards, guidance and spatial tools	Management measures environmental awareness plan  Needs, Desirability, Socio- economic benefits	No person may pollute or contaminate any catchment area, river, canal, well, reservoir, filter bed, water purification or pumping works, tank, cistern or other source of water supply or storage in a way that creates a public health nuisance or a public health hazard.  One of the municipality aims is to pursue economic growth opportunities that will present before our communities' descent work. It also highlights the need to preserve the natural environment in the area by conducting mineral exploration that is minimally invasive to the environment.  The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a climate for economic development in line with the municipal development frameworks.
supply.  Final IDP 2017/18-2021/22	Management measures environmental awareness plan  Needs, Desirability, Socio- economic	No person may pollute or contaminate any catchment area, river, canal, well, reservoir, filter bed, water purification or pumping works, tank, cistern or other source of water supply or storage in a way that creates a public health nuisance or a public health hazard.  One of the municipality aims is to pursue economic growth opportunities that will present before our communities' descent work. It also highlights the need to preserve the natural environment in the area by conducting mineral exploration that is minimally invasive to the environment.  The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a climate for economic development in line with

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the policy and legislative context
Environmental Systems Research Institute	description and mapping	prospecting rights area.

# 6. Need for and desirability of the proposed activities

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

Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite has historically been an excellent hedge against inflation, because its price tends to rise when the cost of living increases. Over the past 50 years investors have seen minerals price soar and the stock market plunge during high-inflation years. This is because when fiat currency loses its purchasing power to inflation; Coal tends to be priced in those currency units and thus tends to arise along with everything else. Moreover, Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite is seen as a good store of value so people may be encouraged to buy proposed minerals when they believe that their local currency is losing value.

It is therefore essential to produce steel, which in turn is essential to maintain a strong industrial base. Almost all (98%) iron ore is used in steelmaking. Iron ore is mined in about 50 countries.

The proposed Iron ore prospecting project falls under the Nongoma Local Municipality. The municipality is faced with high unemployment levels and poverty, thus making development one of the municipality's priorities. Prospecting activities are needed to confirm and obtain additional information concerning potential targets through non-invasive (e.g. desktop studies) and minimally invasive (e.g. drilling) activities and to assess if the resource can be extracted in an environmentally, socially and economically viable manner. Should prospecting activities prove that there are feasible minerals to allow for mining, a new mine may be developed, which would generate extensive employment opportunities in an area where employment is needed.

# 6.1 Process followed to reach the proposed preferred alternatives within the site

This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having considered the issues raised by I&APs, as well as alternatives to the initially proposed site layout.

The preferred site in this prospecting project is portion 09 and 13 of the farm Reserve no.12 15832-HU. There is no localized critical biodiversity area that might be disturbed by proposed activities. Therefore, Due to the method that will be used during survey no critical biodiversity will be affected by prospecting activities. Drilling method will be used and only ten boreholes must be drilled as the way of confirmation the applied menerals. All boreholes must be at the buffer of 100m away from the river and wetlands. Therefore drilling should be conducted within highly modified areas within the overall site.

#### 6.1.1 Development footprint alternatives considered

With reference to the site plan and the location of the individual activities on site, provide details of the alternatives considered.

Prospecting work is a two staged process; it entails invasive activities and non-invasive activities. Non-invasive activities they do not have footprints because they do not include land disturbance while invasive activities cause land disturbance hence, they have footprints. In prospecting activities, footprints are caused by drilling. To mitigate the footprints of drilling activities on alternative sites identified, buffers have been developed to ensure protection of water resources, infrastructures, and ecosystems on site. The following buffers must be applied, and all buffered out areas are **no-go** areas (i.e., prospecting activities must not be conducted in those areas):

- No drill site must be positioned within 500m of a wetland
- No prospecting activities must be conducted within critical biodiversity areas
- Drilling activities must be conducted out of 1:100 yr./flood line of a stream
- Drilling activities must be done at least 100m away from infrastructures (including Eskom power lines)
- Existing access road must be utilised to access the identified alternative sites to conduct exploration activities rather than developing new gravel roads on site.

# 6.1.2 Type of activity to be undertaken

Main activity to be conducted, to determine if iron ore resources are present in an economic feasible, quantity and quality by drilling method. The first holes will be drilled using Percussion method so that geologist can get an understanding of the actual subsurface setting of lithologies. Once the arrangement of lithologies is well established, core drilling will be then utilised in remaining boreholes because of its high accuracy and it is detailed. These drilling techniques were chosen based on their recorded long-term success in prospecting activities. As outlined in the PWP, all activities will be done in a phase approach whereby the execution of a new phase will depend on the results of the preceding phase.

# 6.1.2.1 Activity design/layout

The preferred site layout ensures that break areas and ablution facilities are located away from the activities to minimise noise impact. Site establishment will be done with closure in mind, ensuring that only the required size is disturbed. Due to the location of the proposed area no camp site will be required. The contractor can use existing accommodation in the area.

# 6.1.2.2 Activity technology

Due to the nature of the proposed prospecting activities, future land use alternatives will not be compromised. Once a viable reserve has been confirmed, a comprehensive social and environmental impact assessment (EIA) will be required (in accordance with legislation), which will determine alternative land to mining. The technologies proposed have been chosen based on

the long-term success of the company's prospecting history. The prospecting activities proposed in the PWP depends on the preceding phase, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques. The location of intrusive drilling activities will be determined during Phase 1 of the PWP. All infrastructures will be temporary and/or mobile. Diamond drilling operations will be carried out for retrieving core samples and laboratory analyses will be performed on the core samples to establish the iron ore quality and rock properties. These methods have been selected based on their minimal invasiveness, which will have a minimal impact on the environment.

# 6.1.2.3 Operational aspects of the activity

Due to the nature of the prospecting activities, no permanent water supply, electricity, or sewerage facilities are required. The activities will commence with a desktop study, which will comprise a literature search. This approach will ensure that the client clearly delineates areas suitable for further investigation and prevent unnecessary surface disturbance.

Based on the outcomes of the desktop study, drilling and Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite sampling will be undertaken for target areas only. Drilling and sampling is a low-impact exploration method in terms of environmental disturbance. After the preliminary exploration work, the anomalies identified will be ranked for exploratory drilling. Site activities as they relate to exploratory drilling, will comprise the establishment of the drill pad (drill pad clearing and compaction), drilling operations (drill maintenance, refuelling, core extraction and core storage) and rehabilitation activities (drill pad ripping and re-vegetation). No feasible alternative to the proposed exploratory drill methods currently exists. Impacts associated with the drilling operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

#### 6.1.2.4 Option of not implementing the activity

The option of not approving the activity will result in a significant loss of valuable information regarding the mineral status present on these properties. In addition, should economical reserves be present, and the applicant does not have the opportunity to prospect, utilising these reserves for future phases will not be possible.

In addition, Ramotshere Moiloa Local municipality states that various strategies and associated policies must be adopted to ensure effective spatial development. The municipality must provide alternative means of support for the rural population to decrease dependence on the environment and subsistence agriculture. As such, the following policies have been adopted:

- > Maximise economic benefit from mining industrial, business, agricultural and tourism development within the area
- > Promote a climate for economic development. Improve public and investor confidence in the region through crime reduction and infrastructure development.

# 6.1.3 Details of the public participation process followed

Describe the process undertaken to consult I&APs, including public meetings and one-on-one consultation. Affected parties must be consulted, regardless of whether they attended public meetings. Information provided to affected parties must include sufficient detail of the intended operation to enable them to assess its impact on them or on the use of their land.

The Basic Assessment Report is submitted for review to the Competent Authority, commenting authorities, non-governmental organizations (NGOs), landowners, surrounding property owners and other identified stakeholders (see Table 4). Comments received were recorded and are reflected in this Final Basic Assessment Report. Please refer to for the detailed public participation process and the Consultation Report.

The following public participation activities were conducted for the proposed project to date:

Identification of stakeholders, including property occupiers, owners, and occupiers of land
adjacent to the site, municipal officials and relevant state departments. All respondents have
been added to the project database, which was used throughout the process to inform the
stakeholders of the project.

Canvassing issues and concerns of the public and ensuring that all I&Aps can comment on the application. The proposed project was announced as follows:

- Site notices (size A2) advertising the proposed development and displaying the contact details of the EAP was displayed on site and at other public places. The site notices inform potential I&Aps of the project and affords them the opportunity to comment.
- The notification letter was distributed with a registration and comment sheet, as well as the locality map, to state departments and other potential stakeholders through emails.
- An advert was placed in Vryheid Herald News to notify the public of the Basic Assessment process, invite members of the public to register as I&Aps on the project's database.
- > A copy of the Draft Basic Assessment Report was made available for public review for a 30-day period.
- All comments received during the review period were captured
- ➤ Once the DMRE has decided on Environmental Authorisation, all registered I&Aps will be notified of the outcome.

The following have been identified as I&Aps:

Table 4: Identified key stakeholders

Names of I&Aps	Organization	Position
S THEMBALAKHE	DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES	SUB DIRECTORATE: FORESTRY REGULATIONS & SUPPORT
STRINI GOVENDER	DEPARTMENT OF WATER AND SANITATION	ACTING DEPUTY DIRECTOR: WATER QUALITY MANAGEMENT
L BOUCHER	LAND REFORM AND RURAL DEVELOPMENT	SENIOR ADMIN OFFICER: INFORMATION MANAGEMENT
LINDIWE MSOMI	AMAFA	
s mkhwanazi	ECONOMIC DEVELOPMENT, TOURISM AND ENVIRONMENTAL AFFAIRS	
Eskom General Email: 'wayleavesmou@eskom.co.za'	ESKOM	Enquiry database
RONNIE BENEKE	ESKOM	

# 1.2 Summary of issues raised by I&APs

Complete the table summarising comments and issues raised, and reaction to those responses.

Table 5: Summary of issues raised during the public comment period

List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference In this report where issues and/or responses were incorporated
Landowner/s and lawful occ	upie	ers			
	X				
Government departments					
Department and Rural Development and Land Reform  Mrs Lynn Boucher Senior Admin Officer: Information Management & Lodgement 139 Langalibalele Street   Pietermaritzburg   3201 Private Bag X9120   Pietermaritzburg   3200 +27 33 341 2600 Iynn.boucher@drdlr.gov.za	x	14/12/ 2021	An email was sent to enquiry about possible land restitutions on the Farms directly affected by the application.	The email bounced back due to an error on email address, a supplementary email was sent again, and it went through. The corresponded has not been received	

List the names of persons consulted in this column. Mark wi an X where those who must be consulted were in fact consulted		Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference In this report where issues and/or responses were incorporated
Economic Development, Tourism, Environmental Affairs Pumla.Ncapayi@kznedtea. gov.za siza.sibande@kznedtea.gov .za'	X	14/12/ 2021	Notification & Consultation letters were sent to the two officials	No corresponded has been received	
AMAFA Lindiwe Msomi T: 033 394 6543 E: lindim@amafapmb.co.za	X	14/12/ 2021	AMAFA was contacted, they outlined they sent a form to be filled and sent back with R 800.00.		
Sub Directorate: Forestry Regulations & Support Department of Agriculture, Forestry and Fisheries Tel: 033 392 7700 Fax: 033 342 8783 Web: www.daff.gov.za E-mail: pMBResourceCentre@daff.gov.za  agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA	X	14/12/ 2021			
Eskom General Email: wayleavesmou@eskom.co. za	x	14/12/ 2021	An email was sent to Eskom general enquiry database		
Renelle Karen Pillay  Department of Water &	X	14/12/ 2021	Please be advised that your email has been forwarded to the Acting Deputy Director of Water Quality Management:		

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.	Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference In this report where issues and/or responses were incorporated
Sanitation PO Box 1018, Durban, 4000 Tel no. (031) 336 2742 Cell no. 082 908 3748		Mr Strini Govender for further action.  Mr Govender can be contacted on 031 336 2759 or 082 885 9665 or via email at govenders2@dws.gov.za for further enquiries.		
Adjacent Operations				

Please note a full issues and responses report is available in Appendix D

#### 6.2 The environmental attributes associated with the alternatives

The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects.

#### 6.2.1 Baseline environment

Describe the environment's current geographical, physical, biological, socio- economic and cultural character.

# 6.2.1.1 Topography

The topography of the project area is moderately undulating to highly undulating landscape. The proposed project covers both flat and steep area, where it transversed by rivers. From the topographical map below of the project area it can be observed that the altitude is generally high (i.e., hills/mountainous area). The terrain of the area is dominated by deeply incised river valleys, ridges and steep lands. Nongoma provides an aesthetic quality with its contrasting mountainous terrain and grasslands. The mean elevation (m above sea level) ranges from 257m to 1 135m above sea level. A slope analysis of the municipality undertaken as part of the SDF (2015) indicates the slope analysis depicts the gradients of the land. The slopes range from 1:10 (10% incline) and 1:6 (17% incline) and 1:3 (33% incline). The greater the gradient (:6 – 1:3), the more difficult, and more expensive construction become.

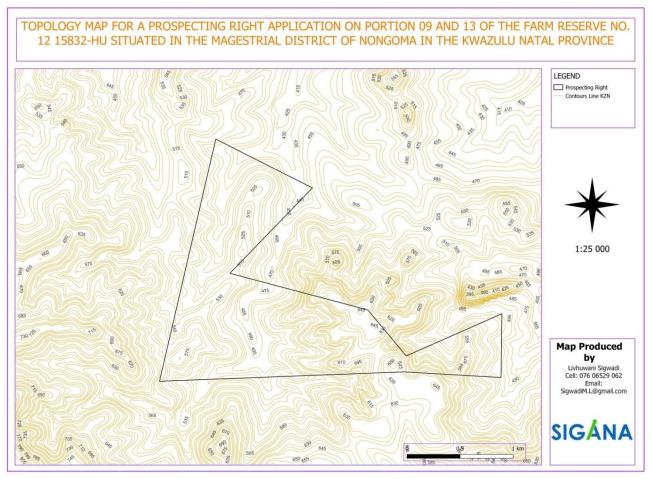


Figure 6: Topographical map of the project area (applied area is delineated by black polygon)

# 6.2.1.2 Soil types

A map in Figure 7 was produced from a desktop study. From the map, it can be deduced that the project area is covered with Lithosols (Shallow soils on hard and weathering rock), associated class 7 and 14 of undifferentiated texture contrast sol.

The area consists of Lithosols (Shallow soils on hard and weathering rock), soil that is confirmed on a soil map by GIS specialist. This type of soil is characterized by sand, red soil that is less productive due to the dominance of sand soils that has severe limitations which minimize crop selection or require special management practices: soils and diverse areas have limitations that restrict commercial plant production and restrict their use to recreational, wildlife or esthetic purposes. Some of the depicted structureless soils are, red apedal soil, yellow brown apedal soils as well as plinthic soils.

Primary topsoil is the uppermost layer of soil used in site rehabilitation. It is salvaged from the surface horizons of areas to be disturbed, is relatively stable, contains seeds and microorganisms and is relatively fertile. Secondary topsoil (if used) is placed directly in contact with waste rock and may be obtained from subsurface soil horizons, including weathered rock.

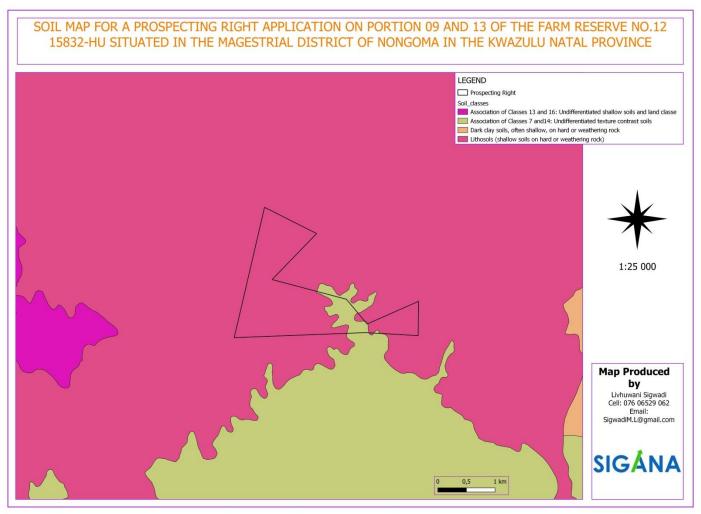


Figure 7: Soil class map of the project area.

# 6.2.1.3 Geology

# Pongola Supergroup

The 2.9–3.0 Ga Pongola Supergroup is in east-ern South Africa and southwestern Swaziland and crops out over a 270-km by 100-km area (Weilers, 1990;Fig. 1). The extent of the Pongola Supergroup is consistent with a minimum depositional area of 32,500 km²(Button et al.,1981), and the sequence as a whole consists of two strati-graphic units; the Nsuze Group and the overlying Mozaan Group.

Sedimentary structures within Nsuze silic clastic beds such as lenticular/flaser bedding and herring bonecross-lamination (von Brunn and Hobday, 1976) and stro-matolite bearing Nsuze carbonates (Mason and von Brunn,1977; Beukes and Lowe, 1989) indicate a near-shore shallow water depositional environment (see alsoMatthews,1967; von Brunn and Mason, 1977; Tankard et al., 1982).

The Singeni Formation is the most laterally extensive formation within the Mozaan Group (Nhleko, 2003) and is dominated by quartz arenite and shale with minor conglomerate and banded iron formation (Matthews, 1967; Beukes and Cairncross, 1991). Specifically, the iron formation is hosted within the Ijzermijn Member, an approximately 15-m-thick unit which has shale at the base overlying with a gradational contact coarse sandstone of the older Dipka Member.

The Ijzermijn shale grades upward into 3- to 5-m-thick iron formation inter-calated with shale, followed again by shale which is capped with a sharp erosional contact formed by super mature orthoquartzite (Nhleko, 2003).

Sedimentary structures found within the Mozaan Group are similar to those described in the Nsuze Group, and Beukes and Cairn cross(1991) recognized only two major depositional environments for the Mozaan: fluvial braid plain and shallow marine shelf systems.

Studies of the Mozaan Group (Watchorn, 1980; Weilers, 1990) describe the IFs as being deposited within a distal shelf environment, conclusions that are consistent with the detailed analysis of Beukes and Cairn cross (1991), who characterized the Mozaan IFs as forming on a shallow starved outer continental shelf during the peak of a marine transgression.

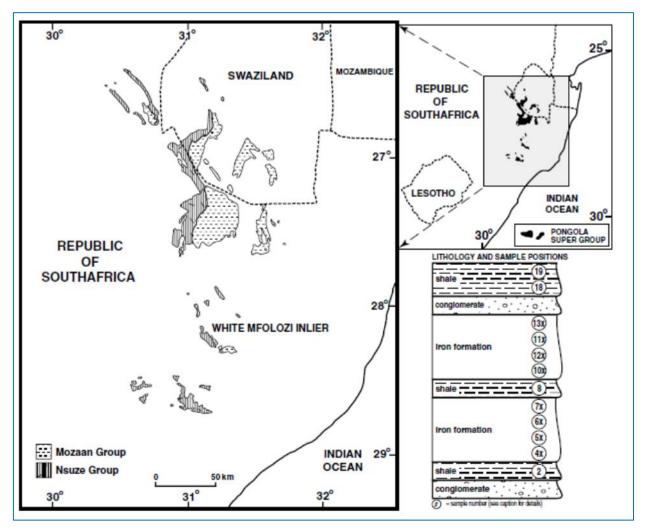


Figure 8: Map showing extent of Pongola Supergroup.

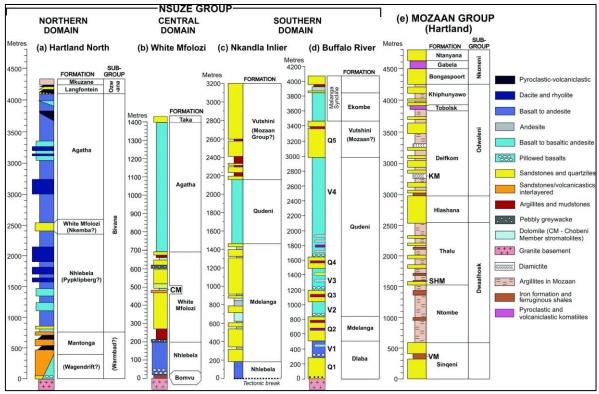


Figure 9: Stratigraphic column of Pongola Supergroup

#### **Local Geology**

About two thirds of South Africa is covered by sedimentary and volcanic rocks of the Karoo Supergroup which is made up of Volcanics (basalt and rhyolite); Sediments (sandstone, shale, siltstone); and dolerite. According to Figure 10 the geology underlaying the proposed prospecting project within on portion 09 and 13 of the farm reserve no.12 15832-HU, consists of the Dwyka Group, Karoo Dolerite, Pietermaritzburg Formation, Volksrust Formation and Vryheid Formation. The latter three Formations form a part of the Ecca Group with Volksrust consisting of shale, Vryheid of sandstone and Pietermaritsburg of shale. Karoo Dolerite is apparent in the form of dykes and sills intruding into the surrounding rock. The Dwyka Group forms the base of the sequence and consists of diamictite. Sandstone and shales are common sedimentary rocks. Sandstones are generally medium-grained clastic rocks composed of rounded or angular fragments of quartz in a cementing matix. Shales consist of clay minerals and tiny fragments of quartz and/or other rock forming minerals. Dwyka tillite is compacted boulder clay of glacial origin.

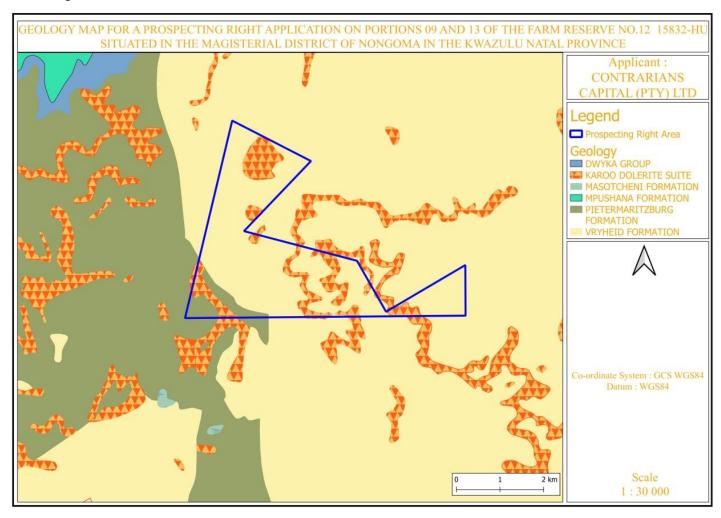


Figure 10: Geology description of the proposed area

### 6.2.1.4 Climate

Varying climatic conditions prevail across the District. Except for some precipitation in the south from cold fronts in winter (in the Zululand Lowveld and Mistbelt areas), the region is subject to summer rainfall with dry winters, with rain predominantly falling in early summer, apart from Ithala Quartzite Sourveld (peak rains in midsummer). Mean Annual Precipitation (MAP) ranges from 493mm to 1682mm in the District (predominantly below 900mm in the District), with large scale variations over relatively short distances in certain areas (on account of topographical influences).

Rainfall in form of thunderstorms is the prevalent form of precipitation. Mist is generally an uncommon feature and hail is almost absent across the majority of the in the District. Summers are generally warm to hot, and winters are cool. Mean Annual Temperature ranges generally from approximately 4 °C to 20°C, temperatures generally become cooler moving towards the west. Mean annual evaporation varies considerably in the District depending on the relationship of rainfall and temperature.

### 6.2.1.5 Water Resources

Catchment area is an extent is an extent or area or land where water from rain drains downhill into a body of water such as a river, lake or a dam. The drain basin include both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels, and is separated from adjacent basins by a catchment divide. Important river systems in Nongoma include the Ivuna River and Black Mfolozi River as well as the Mona River. These rivers are important features within Nongoma as they contribute scenic beauty and provide resources for the survival for most of the communities. These rivers are utilised for a multitude of purposes (such as washing clothes, animal feed, human consumption) which often leads to water pollution.

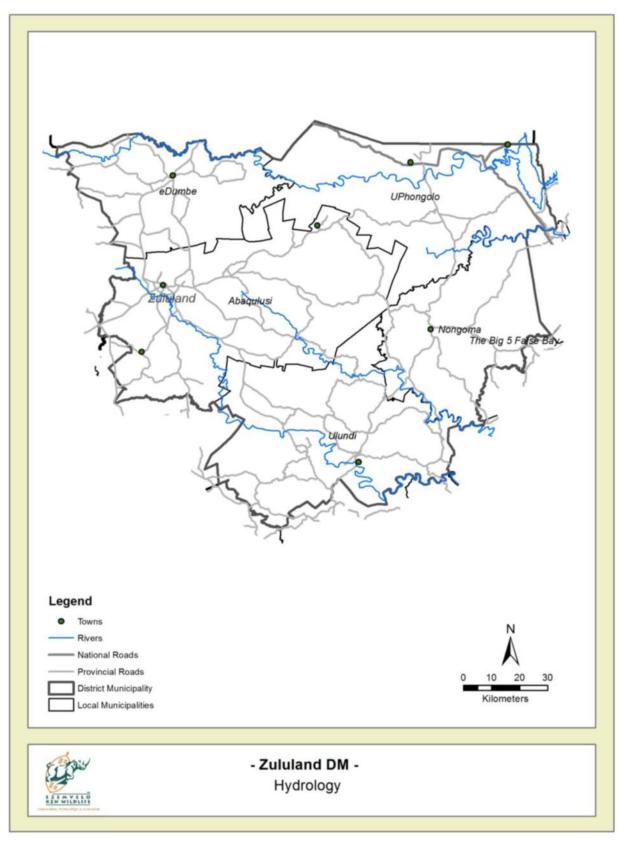


Figure 11: Surface water map of the Zululand District (source: Zululand District Municipality: Biodiversity Sector Plan).

The proposed project area falls within W22G catchment, as shown in Figure below. Manzimakulu River flows on the south western border to the eastern part of the project area.

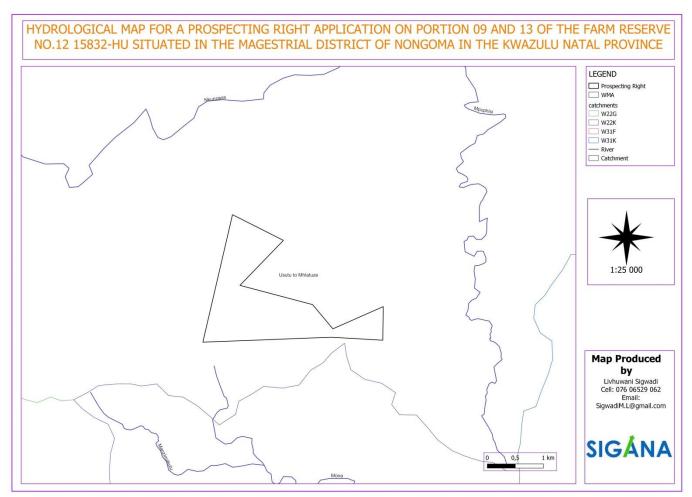


Figure 12: Surface water map of the project area.

### 6.2.1.5.1 Groundwater resources

The Geohydrological attributes in the project area are a function of the geological formation distribution. The hydrogeology of the project area can be described in terms of relationship of aquifers and rock masses.

# Fractured Karoo rock aquifers

The host geology of the area consists of consolidated sediments of the Karoo Supergroup. Most of the groundwater flow will be along the fracture zones that occur in the relatively competent host rock. The geology map does not indicate any major fractures zones in this area, but from experience it can be assumed that numerous major and minor fractures do exist in the host rock. These conductive zones effectively interconnect the strata of the Karoo sediments, both vertically and horizontally into a single, but highly heterogeneous and anisotropic unit.

# > Aquifers associated with dolerite intrusive

Dolerite intrusions in the form of dykes and sills are common in the Karoo Supergroup, and are often encountered in this area. These intrusions can serve both as aquifers and aquifuges. Thick, unbroken dykes inhibit the flow of water, while the baked and cracked contact zones can be

highly conductive. These conductive zones effectively interconnect the strata of the Ecca sediments both vertically and horizontally into a single, but highly heterogeneous and anisotropic unit on the scale of the MRD expansion. These structures thus tend to dominate the flow of groundwater. Unfortunately, their location and properties are rather unpredictable. Their influence on the flow of groundwater is incorporated by using higher than usual flow parameters for the sedimentary rocks of the aquifer.

# 6.2.1.6 Biodiversity of the area

### 6.2.1.6.1 Flora

In the northern KwaZulu-Natal Interior Basin the vegetation is dominated by Natal Central Bushveld with Natal Lowve1d Bushveld in east offthese interior basins (Low and Rebelo, 1996). The Tugela Valley has Valley Thicket, while Short Mistbe1t Grassland covers the southern zones. The vegetation over the greater part offthe zones where tillite is exposed is described by Low and Rebelo (1996) as Coast Hinterland Bushveld. Natal Central Bushveld is present in the northern KwaZulu-Natal Interior, while Short Mistbelt Grassland occurs in the Mistbelt.

The natural vegetation of the positioning has been mostly preserved in its state during a range of areas as natural parcel. The dense, wooded vegetation on the escarpment slope is understood as jap vale Bushveld (SVs6).

The veldt may be a parcel with varied forbs in amongst the grasses with plait and shrubs occurring in scattered bush clumps. Vale bush on the other hand may be a tangled mass of a particular choice of trees, scramblers shrubs and forbs. It is usually related to undulated piece of ground in deep valleys wherever it gets hot.

The diversity of grass species is quite limited although the diversity of forbs is still good. It would appear that there was some historic disturbance on the land causing sheet erosion across the entire plateau since the area is very steep, where natural erosion occurred in high percentage during rainy season. At the rocky area seen during site assessment the diversity of the vegetation is significantly more diverse. The grasses observed during site assessment still appeared green and in a good state as far as diversity of grasses and forbs are concerned. Scattered alien plants create microhabitats promoting further alien invaders to become established see Figure 14 below.

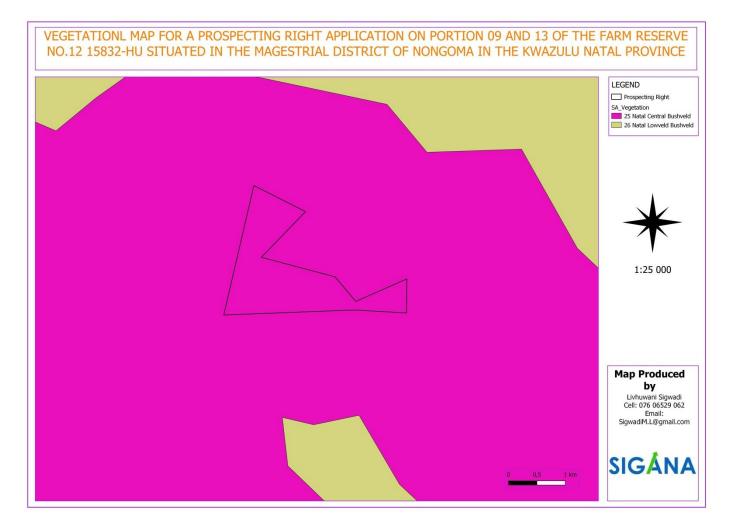


Figure 13: Vegetation map for the project area

A screening report done during application of this project confirmed that the proposed land is falls under ecological support area. The area is regarded as more useful to the local biodiversity. Therefore species fall under Ecological Support Area should be conserved and maximise connectivity of natural areas. This also support the landscape level ecological functioning as well as the ability of ecosystem and species to climate change.

The vegetation type especial grass species are Aristida junciformis, Digitaria eriantha, Eragrostis capensis, Eragrostis curvula, Eragrostis plana, Hyparrhenia and filipendula. The vegetation type especial tree species are Acacia sieberiana, Barleria obtuse, Bulbostylis hispidula, Ceratoptheca triloba, Chamaecrista mimosoides, Clerodendrum glabrum, Clutia hirsute, Commelina Africana, Desmodium saligna, Diospyros lycioides, Drimiopsis maculate and Euphorbia tirucallii. The natural grasses and trees infested with alien plants along its perimeter and patchily throughout.



Figure 14: Actual Vegetation type as observed from the field assessment conducted

All activities must be conducted with full cognizance of the critical biodiversity areas on site. No vegetation (i.e. protected, significant and vulnerable) must be removed during exploration work. Instead, drilling and all activities must be conducted in parts of the site where the land is highly transformed and has no critical habitats and water bodies.

### 6.2.1.6.2 Fauna

The faunal communities in the project area were investigated in detail along with the sensitivity of their habitats. Major habitats of these faunal communities are described in the preceding flora section. A wide range of biotic and abiotic factors play a role when an animal selects a habitat. These include plant species present, vegetation structure, topography, pedology, climate, distance to water, presence of rocky outcrops, trees, predators, and enough food. The level of human disturbance also influences habitat selection.

# > Habitat types on site

In the study area, the main habitat types available are various grass species, bushes, rocks, and rivers. The species most likely to occur are grassland specialists, species linked to wet habitats and those with wide habitat tolerances. Specific veld types relating to Bio-resource groups (BRGs) have been identified in the municipality. The BRG's are identified through a number of characteristics such as climate and soil type which then have an effect on both the natural vegetation that is or would have been found on site and the potential for agricultural production. These are determined at a provincial scale and therefore do not take landscape micro-climate into account. They do, however, give a broad over view of the conditions, limits and opportunities in the study area.

### > Terrestrial fauna diversity in the site

The District is vital to several Red Data faunal species. The area includes species of national importance, inter alia African Wild Dog, Black Rhino, several vulture species, and a number of less charismatic yet equally important smaller fauna. Threatened Cape Vulture (Gyps coprotheres), as well as other raptors including Verreaux's Eagles (Aquila verreauxii), forage throughout the District. White-backed, Lappet-faced, and White-headed Vultures breed in the Pongola Nature Reserve.

Many of the animal species require a large area for foraging of an individual animal, which emphasizes the importance of maintaining large, connected areas of natural habitat for ensuring their viability. The protection and appropriate management of the remaining intact habitat within the municipality is critical to ensuring the viability of conservation important faunal species listed above.

The District is further an avifaunal hotspot, comprising in excess of 400 birds. The area is home to at least 2 Critically Endangered species, 4 Endangered species, 35 Vulnerable species, and 50 Near Threatened species. The African Skimmer (Rynchops flavirostris) is classified as Regionally Extinct. Five important fish species, 19 mammals, 3 reptiles, and 6 invertebrates have been identified as important.

Grasslands are known in general to support high invertebrate diversity across a wide range on invertebrate taxa, but little is known about overall invertebrate distribution within the Zululand District Municipality. It is assumed that invertebrate diversity is related to diversity of vegetation types and plant species. Conserving these should therefore ensure conservation of invertebrate species. Similarly, it is assumed that protection of water resources would ensure the persistence of fish species. Only one conservation-important amphibian species has been identified, namely Strongylopus wageri (Plain stream frog).

### Wetlands

Wetland is a name given to a diversity of ecosystems ranging from rivers, springs, seeps and mires in upper catchments, to midland marshes, pans and floodplains, coastal lakes, mangrove swamps and estuaries at the bottom of a catchment. These ecosystems all share the mutual primary driver of water and its prolonged presence is a fundamental determinant of soil characteristics, vegetation and animal life (DWAF, 2005).

The National Water Act (No. 36 of 1998) defines wetlands as:

Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Thus wetlands must have one or more of the following characteristics:

- ✓ Hydromorphic soils: characteristic soils of prolonged saturation.
- ✓ Hydrophytes, at least occasionally: highly saturated plants.
- ✓ High water table: A high water table that results in saturation at or near the surface, leading to anaerobic conditions developing in the top 50cm of the soil.

### The importance of wetlands

South Africa is a Contracting Party to the Ramsar Convention on Wetlands and has committed itself to the intergovernmental treaty, which provides the framework for the national protection of wetlands and the resources they could provide. The Ramsar Convention is the only global Environmental treaty that deals with a particular ecosystem. The treaty was adopted in the Iranian city of Ramsar in 1971 and the Convention's member countries cover all geographic regions of the planet. Wetland conservation in South Africa is now driven by the South African National Biodiversity Institute (SANBI) under the requirements of the National Environmental Management Biodiversity Act (NEMA, 10, 2004).

In natural capital terms wetlands may be seen as a significant economic investment due to their associated ecosystems services. This monetary value is rooted to the fact that the primary tasks of a wetland are to process water and regulate runoff. This is important as the South African economy is heavily dependent on water and yet the climatic variability of the country has meant that for the most part rainfall occurs as intermittent, high intensity storms. The inherent value of wetlands is that they protect and regulate this water source by acting like sponges, soaking up water during flood events and releasing it during dry periods (DWAF, 2005). By regulating water flows during floods, wetlands may reduce flood damage and help prevent soil erosion. As natural filters wetlands help to purify water by trapping pollutants, heavy metals and disease causing organisms.

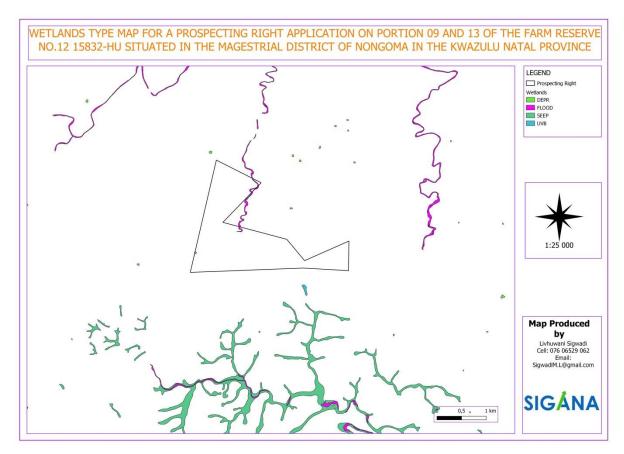


Figure 15: Wetland types within and around the proposed project

### Wetland Buffer Zone

Buffer zones are undeveloped, typically vegetated strips of land that separate development or adjacent land uses from aquatic ecosystems (in many cases composed of riparian habitat or terrestrial plant communities) (rivers and wetlands). It is critical that buffer zones be adequately defined for the protection of aquatic resources in the study area. It is critical to define the primary purpose for establishing buffer zones, as this will guide the development of an appropriate approach. The primary goals of this research are to:

- ➤ Reduce the effects of adjacent land uses on the quality of water resources. At a high level, this would be used to identify potential development constraints in order to inform regional planning initiatives. The primary application will most likely be to inform site-specific planning of new developments or land use changes. It can also be used to inform land management as "best-practice" guidelines (e.g. certification schemes).
- Maintaining or improving water resources' ability to provide goods and services to society. This recognizes the importance of aquatic resources and the need for adequate protection of these resources to ensure that current and future generations' levels of benefits are not jeopardized.
- > Providing aquatic and semi-aquatic species with protection and habitat.

Buffer width is frequently cited as one of the most important attributes influencing the functioning of aquatic buffers, regardless of the site properties or the buffer's intended protection

characteristics. To assess and apply the width of any buffer zone, it is necessary to first understand the role that buffer zones play in protecting aquatic resources and associated biota, as well as mitigating the effects of anthropogenic activities.

Wetland Present Ecological State (PES) assessments have been undertaken for each HGM unit identified that may potentially to be affected by the proposed activities. Floodplain wetlands were found to be largely natural (B) and Seep wetland were found to be moderately modified (C). It is recommended that all the wetlands and streams will be buffered as —no goll area preferably a 100m buffer will apply.

The core logs of boreholes with mineral of interest should be cleared from the ground immediately after logging by the geologists to prevent washing and leaching to the water resources during rainfall. Absorbent Spill kits will be made available near the drill rigs during drilling activities.

### Heritage: Culture, History and Archaeology

Heritage resources such as Stone Age sites, rock paintings and engravings; stone tools; small, inconspicuous stone walled sites from the Late Iron Age farming communities; formal and informal graveyards, etc may occur in the study area.

Nongoma local municipality which is administered by Zululand District municipality. Nongoma Local Municipality is a local municipality in the north-eastern part of Zululand in the KwaZulu-Natal province of South Africa. It is Zululand's second largest municipality in terms of population and the second largest in terms of area.

A desktop assessment of potential historical and cultural sites in the general area has been conducted based on a number of considerations, which are listed below.

### Cultural heritage sites are categorised as:

- ✓ Sites within the last 60 years.
- ✓ Settlements that are currently inhabited and may or may not have human graves.
- $\checkmark$  Settlements that are recently abandoned and may or may not have human graves.
- ✓ Older human settlements (between 10 and 60 years) that are abandoned and probably all have human graves.

### **Historical**

- ✓ Human settlements with graves (older than 60 years).
- ✓ Colonial farm buildings and their rubbish middens.
- ✓ Colonial farm walling and cattle byres.
- ✓ Battle Fields relating to the Anglo-Boer wars or Anglo-Zulu War.

- ✓ Towns and their buildings.
- ✓ Features related to the Groot Trek, in this area.
- ✓ Farm boundaries.
- ✓ Cemeteries: farm and battlefields

Cultural landscape: How people have modified the landscape and/or have special meaning to specific places on the landscape. This will include historical farm walls that occur in the study area, gardens of old houses. Oral History: Sites that have significance to local people but have not been recorded. These are normally associated with historical events. Living Heritage sites are those areas that have (historical) meaning and reference to an individual and/or group of people. These can be tangible and non-tangible areas. Few grave and old building were seen during site assessment that located outside the boundaries of the project but close to the boundaries.



Figure 16: Graves identified next to the project's boundaries and the old building

It is essential to note that it is possible that the Phase 1 HIA may have missed heritage resources in the project area, as some heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

Should, however, any heritage resources of significance be exposed during prospecting, the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities should be stopped, and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the required mitigation measures.

# **Project Socio-Economic Potential**

Mining has helped to shape South Africa to a greater extent than any other industry. It turned a largely pastoral economy into an industrial one. It led to the establishment of Kimberley and Johannesburg and other towns. Mining industries attract vast quantities of foreign capital. It necessitated the establishment of stock markets, universities, and other modern institutions. It required the development of very high levels of skill to exploit thin seams of Coal up to four kilometres (nearly two and a half miles) below the surface of the earth. It helped to shape the country's labour markets. It drew huge numbers of South Africans from subsistence economies into paid employment. It attracted hundreds of thousands of workers from neighboring states into employment in South Africa. But it also left a legacy which includes disease, environmental damage, and political hostility.

Mining is indeed a unique industry. Unlike others – banking or retail or construction or health care – where industry goes to where people are, the location of mines is dictated by where the minerals are. Mining companies in South Africa had to set up shop on the veld. They had not only to establish mining operations, but also to build townships and hospitals and all the other amenities required by their employees. Roads and railways and other infrastructure had also to be built, sometimes in neighboring countries. South African mining companies established the world's first workmen's compensation fund. They also put up most of the money to establish the South African Institute for Medical Research. Mining in short inspired the development not only of technical sciences but also of human sciences.

Although the mining sector no longer dominates the South African economy as it once did, mining accounts for a major proportion of the country's earnings of foreign exchange. The economies of four of the nine provinces and of several large towns are dominated by mining. Coal is the source of nine tenths of South Africa's electricity, with the result that every other sector of the economy is heavily dependent on coal mining. So are the more than 15 million households connected to the national electricity grid owned by Eskom. Purchases by the mining industry of

everything from boots to heavy machinery to rail services account for almost as much as the industry itself generates in output.

Mine wages, once among the lowest in the country, are now among the highest. Wages account for some 40% of expenditure by the industry. In addition, over and above what they pay in royalties and tax, mining companies contribute to local communities, either voluntarily or in terms of statutory requirements. Although black mine labour is no longer subject to racial restrictions, the migratory labour system continues to operate for large numbers of miners in that they leave their families behind them in rural areas in South Africa or in neighboring states. Remittances to these areas by absent miners are an important source of their income. Most of the shares of mining companies in South Africa belong to large institutional investors, including pension funds.

The impact of mining on living standards is not easy to measure. Rising real mine wages have not necessarily translated into higher standards of accommodation, as many miners may have chosen to remain in shacks and spend their higher earnings on things other than better housing, such as satellite television. Data on living standards broken down by economic sector or type of employment is not available. This paper therefore includes general data showing trends in living standards, on the assumption that this generalised data reflects trends among miners as well as wider trends. Given that mine wages are now among the highest in the country, mining families are almost certain to be among those whose "living standards measures" (LSMs) are higher now than was the case 10 years ago. Mining households are among those who have been able to buy movable assets such as motor vehicles. They are also certain to be among those who have purchased cellular telephones. They are also sure to be among those who have seen HIV-prevalence rates start to decline. Various other indicators cited in this paper are designed to give some idea of the wider socio-economic trends that have affected miners and their families in one way or another.

Since the mining industry contributes to national revenues via royalties and corporate taxes, along with personal taxes and various types of indirect tax, the paper includes data on public expenditure from which mining families will have benefited, including the provision of child support grants. Social grants have helped to push up household incomes in both rural and urban areas.

This paper starts by showing the direct impact of mining on the economy. It then demonstrates the effect of mining on those working in that industry. Thereafter, it shows the indirect effects of mining on living standards in general. Finally, it looks at some of the possible future developments in the mining sector.

# Economic impact (Basic statistics)

Although once dominant, mining and quarrying now account for only 8% of South African gross domestic product (GDP). Since the middle of the last century the relative contributions of agriculture and manufacturing have also shrunk, while those of other sectors have grown. Finance at 20% is now the biggest sector, followed by government at 17%.

Mining accounts for 11% of gross fixed capital formation, but also for 16% of all foreign direct investment in South Africa. The industry accounts for only 0.3% of corporate taxpayers, but they were responsible for 6% of tax assessed in 2014. Although mining employs almost half a million people, this is only 5% of the country's workforce. As we shall see later in this paper, however, some of these relatively low figures understate the sector's contribution to the economy. For example, mining currently accounts for a third of all merchandise exports.

The industry also spends almost as much on the purchase of goods and services from other sectors of the economy as it generates in its own output. The transportation of coal accounts for more than half of the business of Transnet Freight Rail. The fortunes of a number of larger towns are heavily dependent on those of platinum and coal mines. Rustenburg in North West province thus depends heavily on the platinum mines in the vicinity, while coal mines in Mpumalanga export through the huge bulk terminal at Richards Bay in the province of KwaZulu-Natal (KZN). Most of South Africa's power stations are also dependent on coal, the source of 91% of the electricity generated by Eskom. This means that most businesses in the country and around 90% of all households are in turn dependent on coal. Without the oil produced by Sasol from coal mined in both Mpumalanga and the Free State, the country's fuel import bill would be higher.

According to the government, there are 35 large-scale gold mines operating in South Africa, while the country accounts for 11% of the world's gold reserves. South Africa also accounts for 96% of known global reserves of platinum group metals, and is the second largest palladium producer. South Africa is further the biggest producer of chromium and vanadium ores, and a leading supplier of their alloys. It is, in addition, a significant producer of iron and manganese ores. Ferrous metals are produced from 32 mines and 23 ferroalloy smelters.

### **Environmental Management**

The project will be developed in with 'Sustainable Development' Guidelines which aims to 'Use and Preserve' the natural environment. 'Sustainable Development' Principles will be at the Core of our Environmental Management Plans. Environmental Management Plans will be developed in Consultation with Landowners and Relevant Authorities. Environmental Management Plans are subject to approval under NEMA by the Department of Environmental Affairs.

Moreover, environmental guarantees will be paid to the relevant department and/or "Trust Account" for purposes of environmental rehabilitation. The amount(s) to be paid will be calculated through Environmental Management Process. The amount(s) must be enough to

restore and reverse any undesired impacts. 'Green mining' and techniques will be utilized to preserve and Protect the Environment; 'Green Mining' does not utilize chemicals such cyanide, mercury etc. for Processing of Ore. Water and density separators are utilized for processing, this is a proven 'Eco' friendly and green process to liberate and recover Ore

# 6.2.2 Description of the current land uses

The proposed prospecting area covers an area of at least 1489.682749 ha in extent. Portions of the project area are being utilised for residential purposes, several homestead were observed during site assessment and local livestock feedings. The site is also being utilised for agricultural purposes (i.e., grazing and cultivating).



Figure 17: Description of the current land uses in the area

# 6.2.3 Description of specific environmental features and infrastructure on the site

The project area is characterized by surface water bodies and Critical Biodiversity Area-Infrastructures on site is basically power lines transmitting electricity throughout the area, there are homestead. Mountains with outcrop rocks and green veld as site assessment were done during summer.

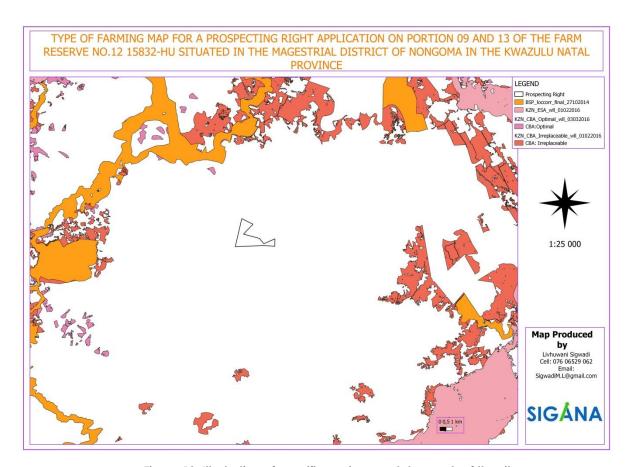


Figure 18: Illustration of specific environmental aspects of the site

### 6.2.4 Environmental and current land use map

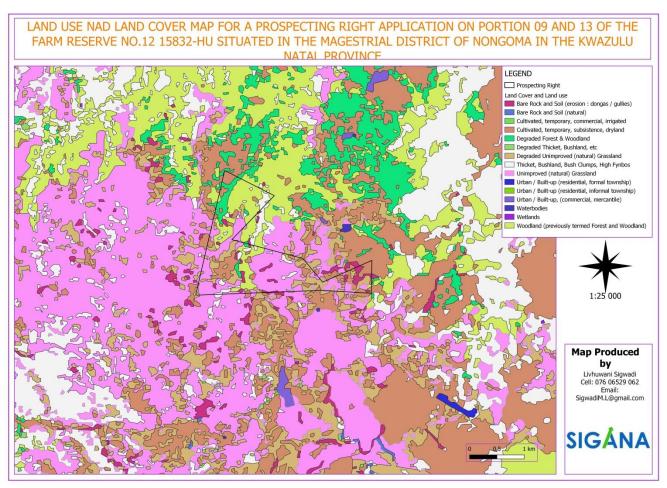


Figure 19: Land use map

# 6.2.4.1 Impacts and risks identified, including the nature, significance, consequence, extent, duration and probability of the 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 impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.

The following are potential impacts associated with the prospecting activity:

Potential impacts	Phase	Reversible	Irreplaceable damage	Can impact be avoided
Disturbance to heritage/cultural features on site	Construction/set- up; operational	No	Yes	Yes
Noise caused by the drilling rig travelling to and being established on each site, the diesel engine driving the drill, vehicles going to and from the drilling site and the voices of the drilling crew.	Construction/set- up; operational	Yes	No	No
Visual disturbance caused by the drilling rig and other equipment, soil stockpiles,	Construction/set- up; operational	Yes	No	No

signage and demarcations around site, etc.				
Traffic disturbances caused by increase of vehicle movement around the drilling site.	Construction/set- up; operational	Yes	No	Yes
Dust generated by the drilling operation and vehicles travelling over unpaved areas	Construction/set- up; operational	Yes	No	No
Disturbance soil and vegetation in the project area	Construction/set- up; operational	Yes	No	No
Disturbance to animal life in the vicinity	Construction/set- up; operational	Yes	No	Yes
Friction between residents/ landowners and prospecting personnel	Construction/set- up; operational	Yes	No	Yes

It is not anticipated that the prospecting activities will have any lasting material effects on existing land uses in the prospecting areas or any other areas in their vicinity.

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

Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process were determined to decide the extent to which the initial site layout needs revision.

This section provides the detailed methodology used for the assessment of the significance of potential environmental impacts in the EIA. This methodology allows for the identified potential impacts to be analysed in a systematic manner, with significance rating (from insignificant to very high) assigned to each potential impact. The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The criteria used to determine impact consequence include extent; intensity and duration of the impact (see Table 6).

Table 6: Criteria used to determine the consequence of the impact

Rating	Definition of rating	Score				
	Extent – The area in which the impact will be experienced					
Local	Confined to project or study area or part thereof (e.g. site)	1				
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2				
(Inter)national	Nationally or beyond	3				
	Intensity – The magnitude/size of impact					
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1				
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2				
High	Site-specific and wider natural and/or social functions or processes are severely altered	3				
	Duration – The time frame for which the impact will be experienced					

Short-term	For the duration of project activities / up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a consequence rating, as set out in Table 7. (Note that the lowest possible consequence score is 3.)

Table 7: Method used to determine the consequence score

Combined score (A+B+C)	3 – 4	5	6	7	8-9
Consequence rating	Very low	Low	Medium	High	Very high

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications presented in Table 8.

Table 8: Probability classification

Probability of impact – The likelihood of the impact occurring					
Improbable < 40% chance of occurring					
Possible	40%-70% chance of occurring				
Probable	> 70%-90% chance of occurring				
Definite	> 90% chance of occurring				

The overall significance of impacts is determined by considering consequence and probability using the rating system prescribed in Table 9. Finally, the impacts are considered in terms of their status (positive or negative) and the confidence in the ascribed impact significance rating is noted. The classification for considering the status of impacts and the confidence in assessment is laid out in Table 9.

Table 9: Impact status and confidence classification

Status of impact						
Indication whather the impact is adverse Inegative).	+ ve (positive – a 'benefit')					
	– ve (negative – a 'cost')					
	Neutral					
Confidence	of assessment					
The degree of confidence in predictions based on	Low					
available information, the environmental	Medium					
consultant's judgment and/or specialist knowledge.	High					

Different types of impacts were considered in the impact ratings (see Table 10).

Table 10: Types of impact

Direct	Impacts that result from the direct interaction between a project activity and the receiving environment (e.g. dust generation which affects air quality).
Indirect	Impacts that result from other (non-project) activities but which are facilitated as a result of the project or impacts that occur as a result of subsequent interaction of direct project impacts within the environment (e.g. reduced water supply that affects crop production and subsequently impacts on subsistence-based livelihoods).
Cumulative	Impacts that act together with current/future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors (e.g. combined effects of waste water discharges from more than one project into the same water resource, which may be acceptable individually, but cumulatively result in water quality reduction).

There is no statutory definition of significance and its determination is therefore partially subjective. Criteria for assessing impact significance arise from compliance status with relevant local legislation, policies and plans; relevant or industry policies; environmental standards or guidelines and internationally accepted best practice.

• The consequence of the change to the biophysical or socio-economic environment (e.g. loss of habitats, decrease in water quality) was expressed, wherever practicable, in quantitative terms. For socio-economic impacts, the consequence must be viewed from the perspective of those affected, by considering the likely perceived importance of the impact and the ability of people to manage and adapt to the change.

The nature of the impact receptor (physical, biological, or human). Where the receptor is physical (e.g. a water resource) its quality, sensitivity to change and importance must be considered. Where the receptor is biological, its importance (e.g. its local, regional, national or international importance) and sensitivity to the impact must be considered. For a human receptor, the sensitivity of the household, community or wider society must be considered along with their ability to adapt to and manage impact effects.

The probability that the identified impact will occur is estimated based on experience and/or evidence that such an outcome has previously occurred.

The impact significance rating reflects the need for mitigation. While low significance impacts may not require specific mitigation measures, high significance negative impacts demand that adequate measures be put in place, to reduce the residual significance (impact significance rating, after mitigation), as described in Table 11.

Table 11: Definitions of impact significance

Insignificant	The potential impact is negligible, and no mitigation measures or environmental management is required.
Very low and low	No specific mitigation measures required beyond normal environmental good practices.
Medium	Specific mitigation measures must be devised to reduce the impact significance to an acceptable level. If mitigation is not possible, compensation measures must be considered.
Very high	Specific mitigation measures must be identified and implemented to reduce the impact significance to an acceptable level. If such mitigation is not possible, very high significance negative impacts must be considered in the project's authorization process.

The impact significance will be rated in the prescribed way, with and without the effective implementation of the recommended mitigation measures.

# 6.2.6 The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community

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

Currently, there is no alternative layout. The applicant will implement site changes to prevent negative effects. The invasive activities that entail the drilling of at least hundred exploration holes will have a minimal environmental and social impact as the drill site will be confined to an area of approximately 0.6 ha of the 1489.682749 ha property. This must be viewed in the context of the entire prospecting license area under application and it must be kept in mind that some of the identified impacts will occur for a limited time and will have localised impacts. The identified impacts can be suitably mitigated with the residual impact ratings being of low significance. After drilling activities have been completed and the drill pads rehabilitated to predrilling status, the impacts will cease to exist. These impacts are listed in Table 11 and Appendix G.

# 6.3 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 I&APs.

Table 12: Impact assessment

Name of activity	Potential impact	Aspects affected	Phase	Significance	Mitigation type	Significance	
E.g. for prospecting: Drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining: Excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	Including the potential impacts for cumulative impacts. E.g. dust, noise, drainage surface disturbance, fly rock, surface and groundwater contamination, air pollution, etc.		In which impact is anticipated, e.g. construction, commissioning, operational, decommissioning , closure and post-closure.	If not mitigated	tigated  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. E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation		
<ul> <li>Site establishment activities</li> <li>Vegetation clearance</li> <li>Topsoil stripping and stockpiling</li> <li>Drill pad compaction</li> <li>Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage</li> <li>Vehicle movements</li> </ul>	Cultural and Heritage (-ve)	Destruction/loss of cultural and heritage resources: No cultural/heritage artefacts have been identified on site	Construction/ set-up	1 1 1 3 (VL)	<ul> <li>If concentrations of archaeological heritage material and human remains are uncovered during construction, work must cease immediately.</li> <li>Finds must be reported to a heritage specialist so that systematic and professional investigation/excavation can be undertaken.</li> </ul>	Negligible	
Waste management	Noise (-ve)	Noise generation	Construction/ set-up	1 3 1 5 (L)	Construction/set-up, operational and decommissioning activities will be limited to daylight hours,	3(VL)	

Name of activity	Potential impact	Aspects affected	Phase	S	igni	ific	anc	е		Mitigation type Significance
										<ul> <li>Mondays-Saturdays, and no activities on Sundays and public holidays.</li> <li>Separation of at least 500m, (preferably 1 000m) to be maintained between drill sites and dwellings.</li> <li>Noise abatement equipment, like mufflers on diesel engines, will be kept in good condition.</li> <li>If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.</li> </ul>
	Visual (–ve)	Visual intrusion	Construction/ set-up	1	3	3	1		5 (L)	<ul> <li>The drilling rig and other visually prominent items on site will be in consultation with the landowner.</li> <li>Use existing vegetation as far as possible to screen prospecting operations from view.</li> <li>If necessary, operations can be screened from view by erecting a shade cloth barrier.</li> </ul>
	Traffic (-ve)	Increase in traffic volumes near the drilling	Construction/ set up	1	2	2	1		4 (VL)	Traffic signs to be put around the site to notify motorists of the activities.  3(VL)

Name of activity	Potential impact	Aspects affected	Phase	Sig	gnifi	can	ce		Mitigation type Significan
		site							<ul> <li>Construction vehicles to make trips on/off site only when necessary.</li> <li>Construction vehicles to adhere to local speed limits as far as possible when driving in around site.</li> </ul>
	Dust fall (-ve)	Dust fall and nuisance from activities	Construction/ set-up	2	3	1		6 (M)	<ul> <li>Wet suppression should be applied to ensure that no visible dust is raised by the prospecting operations.</li> <li>Separation of at least 500m (preferably 1 000m) to be maintained between drill sites and dwellings.</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>
	Soil and Vegetation (- ve)	The potential impact of the proposed prospecting on the vegetation would occur at proposed drilling sites and the access routes used to get to these sites.	Construction/ set up	1	3	2		6 (M)	<ul> <li>Soil disturbance and clearance of vegetation at drill pads will kept to the absolute minimum.</li> <li>No clear scraping (dozing) will be carried out unless necessary to establish a level drill pad.</li> <li>Rather that surface vegetation is cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow.</li> <li>Disturbed areas will be revegetated with indigenous species as soon as possible.</li> </ul>
	Animal life (-ve)	Animal life will be affected in	Construction/ set up	1	3	2		6 (M)	Environmental awareness     training sessions must be part of   5 (L)

Name of activity	Potential impact	Aspects affected	Phase	Sig	nific	anc	e		Mitigation type	Significance
		the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep animals away from the site during prospecting.							the workers' induction and site workshops.  If any animals are encountered they must not be killed or injured but removed/chased away from the site with the assistance of an animal specialist.	
	Social (-ve)	Friction between residents/land owners and construction personnel	Construction/ set-up	1	2	2		5 (L)	<ul> <li>All operations will be carried out under the guidance of a strong, experienced manager with public consultation and conflict resolution skills.</li> <li>All prospecting personnel will be made aware of local conditions and sensitivities in the prospecting area and the fact that some residents may not welcome the prospecting activities.</li> <li>There will be a strict requirement to always treat residents with respect and courtesy.</li> </ul>	4 (VL)
	Job creation (+ve)	Employment will be created for the clearing of the land and establishing the drilling site.	Construction/ set-up	2	1	1		4 (VL)	No mitigation measures required.	4 (VL)
Exploration drilling	Noise (-ve)	Noise	Operations	1	2	1		4	Construction/set-up,	3(VL)

Name of activity	Potential impact	Aspects affected	Phase	Signif	ficanc	е		Mitigation type	Significance
<ul> <li>Drill maintenance and refueling</li> <li>Core sample collection and storage</li> <li>Vehicle movements</li> <li>Waste generation and management</li> </ul>		generation					(VL)	operational and decommissioning activities will be limited to daylight hours, Mondays-Saturdays, and no activities on Sundays and public holidays.  • Separation of at least 500m (preferably 1 000m) to be kept between drill sites and dwellings.  • Noise abatement equipment, like mufflers on diesel engines, will be maintained in good condition.  • If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.	
	Visual (-ve)	Visual intrusion	Operations	1 2	2 1	Definite	4 (VL )	<ul> <li>The drilling rig and other visually prominent items on the site will be placed in consultation with the landowner.</li> <li>Use existing vegetation where possible to screen prospecting operations from view.</li> <li>If necessary, operations can be screened from view by erecting a shade cloth barrier.</li> </ul>	3(VL)

Name of activity	Potential impact	Aspects affected  Dust fall and nuisance from activities	Phase	Significance					Mitigation type	Significance
	Dust fall (-ve)		Operations	1	2	1	Definite	4 (VL )	<ul> <li>Wet suppression will be applied to ensure that no visible dust is raised by any of the prospecting operations;</li> <li>Separation of at least 500m (preferably 1 000m) to be kept between drill sites and dwellings.</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>	3(VL)
	Soil and Vegetation (- ve)	Soil and vegetation disturbance from drill pad preparation	Operations		2	2	Definite	5 (L)	<ul> <li>The soil disturbance and clearance of vegetation at drill pad areas will be limited to the minimum required.</li> <li>No clear scraping (dozing) to be carried out unless necessary to establish a level drill pad. Surface vegetation should rather be cleared to make way for the drilling rig leaving the roots intact so that vegetation can regrow.</li> <li>Disturbed areas will be revegetated with indigenous species as soon as possible.</li> </ul>	3(VL)

Name of activity	Potential impact	Aspects affected	Phase	Si	gnifi	canc	:е		Mitigation type	Significance 4(VL)
	Animal life (-ve)	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site during prospecting.	Operations	1	2	2	Definite	5 (L)	Measures implemented during site establishment should apply in this phase too.	
	Social (-ve)	Friction between residents/land owners and construction personnel	Operations	1	2	2	Definite	5 (L)	<ul> <li>All operations will be carried out under the guidance of a strong, experienced manager with public consultation and conflict resolution skills.</li> <li>All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some residents may not welcome the prospecting activities.</li> <li>There will always be a strict requirement to treat residents with respect and courtesy.</li> </ul>	5 (L)
	Job creation (+ve)	Employment will be created for the clearing of the land and establishing the drilling site.	Operations	2	2	1	Definite	5 (L)	No mitigation measures required.	5 (L)

# 6.4 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 (mark with an X where applicable)	Reference to applicable section of report where specialist recommendations have been included
Attach copies of specialist repo	orts as appendices.		
No specialist studies were unde	ertaken in this project.		

### 7. Environmental impact statement

## 7.1 Key findings of the EIA

Most of the prospecting activities are non-invasive and will have very low to negligible environmental or social impact. The invasive activities that entail the drilling of approximately hundred exploration holes will have a minimal environmental and social impact as each drill site will be confined to an area of 0.6 ha. This must be viewed in the context of the entire prospecting license area under application, which covers just 1489.682749 ha. Table 13 summarises the assessed impact ratings after mitigation measure implementation.

Table 13: Summary of identified impacts

Potential impacts (Positive: +Ive; Negative: -Ve)	Impact significance pre- mitigation	Impact significance post- mitigation
	Site establishment activities	
Cultural and Heritage (-ve)	Very Low	Negligible
Noise (-ve)	Low	Very Low
Visual (-ve)	Low	Very Low
Traffic (-ve)	Very Low	Very Low
Dust fall (-ve)	Very Low	Very Low
Soil and vegetation (-ve)	Medium	Low
Animal life (-ve)	Medium	Low
Social (-ve)	Low	Very Low
Job creation (+ve)	Very Low	Very Low
	Exploration drilling	
Noise (-ve)	Very Low	Very Low
Visual (-ve)	Very Low	Very Low
Traffic (-ve)	Low	Very Low
Dust fall (-ve)	Very Low	Very Low
Soil and Vegetation (-ve)	Low	Very Low
Animal life (-ve)	Low	Very Low
Social (-ve)	Low	Low
Job creation (+ve)	Low	Low

All identified impacts will occur for a limited time and the extent of the impacts will be localised. All identified impacts can be suitably mitigated with the residual impact ratings being of low significance. After drilling activities have been completed and the drill pads rehabilitated to predrilling status, the impacts will cease to exist.

# 7.2 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.

Please refer to Appendix C for the Environmental Sensitivities Map including site layout map.

# 7.3 Positive and negative impacts, and risks of the proposed activity and alternatives

- Destruction/loss of cultural and heritage resources during the construction/set-up phase (unlikely, as no features of cultural/heritage significance have been identified on site).
- Noise generation from construction/set-up and operational activities of drilling.
- Visual intrusion caused by the drilling activities in the largely rural setting.
- Increased traffic near the drilling site during site establishment and prospecting.
- Dust fall and nuisance from construction/set-up and drilling activities.
- Soil and vegetation disturbance from drill pad preparation during construction/set-up and operations, as contractors rehabilitate one site and move to the next.
- Animal life will be affected in the immediate vicinity of the drilling rig. It is expected that
  the noise and general activity will keep them away from the prospecting site.
- Friction between residents/landowners and construction personnel during.
- Employment will be created for land clearing and drilling site establishment.

# 7.4 Proposed impact management objectives and outcomes for inclusion in the EMPr

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

The objectives of the EMPr will be to:

- Provide enough information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts.
- Provide enough information and guidance to plan prospecting activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Develop an approach that ensures environmental compliance.
- Provide a management programme that is effective and practical for implementation.

Through the implementation of the proposed mitigation measures it is anticipated that the identified social and environmental impacts can be managed and mitigated effectively. Heritage/cultural resources can be managed by avoidance of known resources and though consultation with landowners/stakeholders. Contractor personnel will also be briefed of these sensitivities and consequences of any damage/removal of such features. Through the implementation of the mitigation and management measures, it is expected that:

- Noise generation can be managed through consultation, restriction of operating hours,
   by maintaining equipment and applying noise abatement equipment if necessary.
- Visual intrusion can be managed through consultation with landowners/ stakeholders
  and by suitable siting of drill pads and use of screens (natural vegetation or shade cloth,
  etc.).
- Traffic is managed to minimise congestion in and around the drilling site.
- Dust fall can be managed by application of wet suppression on exposed surfaces and use of water during drilling.
- Soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required and disturbed areas will be re-vegetated with indigenous species as soon as possible.
- Animal life is always protected and preserved, and the prospecting activities have limited impact on the surrounding habitat.
- Social friction with landowners can be managed by employing strong, experienced
  personnel with public consultation and conflict resolution skills during stakeholder
  consultation. All prospecting personnel will be made aware of local conditions and
  sensitivities and trained to treat residents with respect and courtesy.
- Employment is created during the prospecting, contributing to the local economic even if it is only on a temporary basis.

### 7.5 Aspects for inclusion as conditions of authorisation

Any aspects which must be made conditions of the Environmental Authorisation.

- Maintain a buffer of at least 500m (preferably 1 000m) from any infrastructure/ dwelling and water bodies.
- Landowners and land occupiers should be engaged (re-consulted) at least 1 month prior to any site activities being undertaken once drill sites are known.
- A map detailing the drilling locations should be provided to the landowners, as well as the DMRE prior to commencement of prospecting activities.

### 7.6 Description of any assumptions, uncertainties and gaps in knowledge

Which relate to the assessment and mitigation measures proposed?

• It is assumed that the proposed project description provided by the applicant is enough in providing the authorities with the right information regarding the project.

 It is assumed that the public consultation process to be undertaken as part of the EIA will suffice and that the application will be soldiered objectively based on stakeholders' response to the proposed activities.

# 7.7 Reasoned opinion as to whether the proposed activity should be authorised

# 7.7.1 Reasons why the activity should be authorised

The EAP recommends that the proposed prospecting activities be authorised:

- The environmental impacts associated with the limited drilling activities are minimal, provided that the proposed mitigation is implemented.
- The spatial extent of the physical impact is less than 1 ha per drill site over a prospecting
  right license area of over 1489.682749 ha; seven drill sites will be established during the
  drilling phase.
- With appropriate care and consideration, the impacts resulting from drilling can be suitably avoided, minimised or mitigated.
- By implementing the appropriate rehabilitation activities, the impacts associated with drilling can be reversed.
- Without implementation of prospecting activities, the knowledge concerning the potential mineral resource within the prospecting right area will not be confirmed.

### 7.7.2 Conditions that must be included in the authorisation

- Maintain a minimum 500m (preferably 1 000m) buffer from any infrastructure/ dwelling, and water bodies.
- Landowners and occupiers should be consulted again at least 1 month prior to any site
  activities being undertaken once drill sites are known.
- A map detailing the drilling locations must be provided to the landowners and the DMREE prior to commencement of prospecting activities.
- Record must be kept of the implementation of the EMP measures and monitoring of the
  efficiency of the implemented measures.
- A closure plan must be submitted to show measures to avoid, manage and mitigate environmental impacts associated with decommissioning of proposed activities.

### 7.8 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 potential to extend the right by 2 years. A total period of 7 years is required.

# 7.9 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 the Basic Assessment Report and the Environmental Management Programme report.

An undertaking is provided at the end of this report.

# 7.10 Financial provision

State the amount required to manage and rehabilitate the environment.

A financial provision of approximately R 316 225.00, which includes rehabilitation activities, should be made by the applicant. A breakdown of these costs is presented in 7.10.1. The applicant undertakes to provide financial provision through funding from the personal account.

### 7.10.1 Calculation of the quantum

	CALCULATION OF THE QUANTUM									
Applicant: Evaluator:	Contrarians Capital F	Pty Lt	d		Ref No.: Date:	: KZN 30/	/5/1/1/2/11125 PR Jan-22			
No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)			
1	Dismantling of processing plant and related structures	m3	0	18	1	1	0			
	(including overland conveyors and powerlines)		_		·		Ť			
2 (A)	Demolition of steel buildings and structures	m2	0	256	1	1	0			
2(B)	Demolition of reinforced concrete buildings and struct		0	377	1	1	0			
3	Rehabilitation of access roads	m2	0	46	1	1	0			
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	444	1	1	0			
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	242	1	1	0			
5	Demolition of housing and/or administration facilities	m2	0	512	1	1	0			
6	Opencast rehabilitation including final voids and ramps	ha	0	260391	1	1	0			
7	Sealing of shafts adits and inclines	m3	0	137	1	1	0			
8 (A)	Rehabilitation of overburden and spoils	ha	0	178800	1	1	0			
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	222692	1	1	0			
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	646804	1	1	0			
9	Rehabilitation of subsided areas	ha	0	149718	1	1	0			
10	General surface rehabilitation	ha	0,6	141639	1	1	84983,4			
11	River diversions	ha	0	141639	1	1	0			
12	Fencing	m	0	162	1	1	0			
13	Water management	ha	0	53856	1	1	0			
14	2 to 3 years of maintenance and aftercare	ha	0	18849	1	1	0			
15 (A)	Specialist study	Sum	0	0	1	1	0			
15 (B)	Specialist study	Sum	0	0	1	1	0			
					Sub Tot	al 1	84983,4			
1	Preliminary and General	weighting factor 2		10198,008						
2	Contingencies			84	198,34		8498,34			
SIGN	Sigwadi L		•		Subtota	al 2	103679,75			
DATE	2022/01/13				VAT (15	5%)	212545,57			
					Grand T	otal	316225			

# 7.10.2 Explain how the aforesaid amount was derived

Confirm that this amount can be provided for from operating expenditure. Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or PWP.

The drilling contractor will be responsible for rehabilitating the drill pad once the drilling activities have been completed at each drill hole. The responsible exploration geologist will confirm the quality of rehabilitation conducted by drilling contractor and sign it off. The financial guarantee was calculated using the DMREE official financial quantum calculator. This information has been provided in the PWP that was submitted to the DMRE. Please refer to Appendix E for more details on the financial provision for the proposed activity.

An amount of R 316 225.00 is required to finance the PWP over the 3-year period. The extended 2 years will be based on the results of the first 3-year drilling programme. Work will be approved on a phase-by-phase basis, dependent on the results obtained i.e. although prospecting work may be provided for financially in the budget for a specific year, it will only take place if justified. Table 14 shows a breakdown of the expected costs throughout the exploration process. The amount is also reflected in the PWP submitted to the DMREE.

Table 14: Expenditure per activity

Activity	Year 1	Year 2	Year 3
	Expenditure	Expenditure	Expenditure
Phase 1 (12 months)	·		
Diamond drilling (incl rehab costs)	R 100 000		
Analytical cost	R 8 000		
Annual prospecting fees + application fee	R 1 500		
Other cost, Geohydrology, geophysical etc.			
Owner compensation	R 15 000		
Salary – Geology **			
Phase 2 (12 months)	<u>.</u>		
Diamond drilling (incl rehab costs)		R 100 000	
Analytical cost		R 8 000	
Annual prospecting fees		R 1 100	
Other cost, Geohydrology, geophysical etc.			
Owner compensation			
Salary – Geology **			
Phase 3 (12 months)	<u>.</u>		
Diamond drilling (incl rehab costs)			R 100 000
Analytical cost			R 8 000
Annual prospecting fees			R 1 200
Owner compensation			
Salary – Geology **			R 40 000
EIA and EMP for mining right application			R 0
Pre-feasibility studies, investment decision			R O
Annual Total	R 111 000	R 109 100	R 149 200
Total Budget	R 369 300.00		

Specific Information required by the competent Authority.

# 7.11 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:

#### 7.11.1 Impact on the socio-economic conditions of any directly affected person

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

A full consultation process was implemented during the environmental authorisation process. The purpose of the consultation is to provide affected persons the opportunity to raise potential concerns. Concerns raised have been captured and addressed in the public participation section of this report. As the final positioning of the drill sites cannot be confirmed without completion of phase 1 of the prospecting programme, a recommendation has been made to ensure that the directly affected landowners are reconsulted a minimum of one month prior to implementing invasive activities (drilling). The purpose of the re-consultation is to ensure that socio-economic impacts on directly affected persons can be raised and, where possible, addressed.

## 7.11.2 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.

Mitigation measures proposed in this report include that no drill site will be located within 100m of any identified heritage site (which may occur during the prospecting programme) based on desktop work. Comment from the South African Heritage Agency (on a national level) and from Local Heritage Resources offices will be sought to confirm the need for a Heritage Impact Assessment.

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

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

The proposed site was selected based on extensive research and following information from previous prospecting activities in the area. There are known Iron ore deposits in the area. In terms of the technologies proposed, the proposed prospecting has been chosen based on the long-term success of the company in terms of their prospecting history. The prospecting activities proposed in the PWP is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

#### **PART B**

#### **ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

#### 8. Environmental management programme

#### 8.1 Details of the EAP

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

The requirements for the provision of the details and expertise of the EAP are included in PART B, section (1) (h).

#### 8.2 Description of the aspects of the activity

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

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

#### 8.3 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) Please refer to Appendix C for the Composite Map.

# 8.4 Description of impact management objectives including management statements

#### 8.4.1 Determination of closure objectives

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

After prospecting is complete at each drill site, will be rehabilitated to be safe, stable, revegetated, non-polluting, and non-eroded and in a state that is suitable for agreed post-closure land use.

#### 8.4.2 Volumes and rate of water use required for the operation.

Water in prospecting activities is required to; reduce the friction between the rock mass and the drill bit hence increasing cutting efficiency of the drill bit, water is also used to cool down the drill bit. Due to the advancement in technology, alternative cutting and cooling mechanisms have been developed whereby air is utilised instead of water. In this project, drill bit which uses air will be used instead of those that use water. Therefore, water needs only

relates to portable drinking water of personnel on site. Portable water will be bought from water retailers in containers (25 L) and stored on site.

### 8.4.3 Has a water use license has been applied for?

Section 21 of the National Water Act (Act 36 of 1998) list activities that triggers water use license, after careful assessment of the project area, activities to be undertaken were not found to trigger water use application. Instead appropriate water management measures and buffers have been developed in this EMP for protection of water resources. Best Practice Guidelines will be utilised throughout the prospecting duration of the prospecting activities.

### 8.5 Impacts to be mitigated in their respective phases

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

Table 15: Impact mitigation and rehabilitation

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
E.g. for prospecting: Drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining: Excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	In which impact is anticipated, e.g. construction, commissioning, operational, decommissioning, closure and post-closure.	Volumes, tonnages and ha/m <sup>2</sup>	Describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants.	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.	Describe the period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. Rehabilitation must take place at the earliest opportunity. With regard to rehabilitation, state whether it will take place upon cessation of the individual activity or cessation of mining, bulk sampling or alluvial diamond prospecting.
<ul> <li>Site establishment activities</li> <li>Vegetation clearance</li> <li>Topsoil stripping and stockpiling</li> <li>Drill pad compaction</li> <li>Placement of temporary portable toilets and resting place</li> </ul>	Construction/set-up and operational phase	20m² diamond drill holes	Any buried artifacts that may be uncovered during site activities will require such activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	Heritage Act	Before and during drilling activities
<ul><li>Vehicle movements</li><li>Waste management</li></ul>	Construction/set-up and operational phase	20m <sup>2</sup> diamond drill holes	Control noise generation by maintaining equipment. Limited to daylight hours on Mondays-Saturdays and no activities on Sundays and public holidays. Maintain a buffer of 500m between drill	SANS 10103 guideline	Before and during drilling activities

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
			sites and dwellings. The resting place will be located outside the 82dB Zone of the drill site.		
<ul> <li>Exploration drilling: Drilling</li> <li>Drill maintenance and refuelling</li> <li>Core sample collection and storage</li> <li>Vehicle movements</li> <li>Waste generation and management</li> </ul>	Construction/set-up and operational phase	20m² diamond drill holes	The drilling rig and other visually prominent items on the site will be in consultation with the landowner. Use existing vegetation as far as possible to screen the prospecting operations from view. If necessary, operations can be screened from view by erecting a shade cloth barrier.	N/A	Before and during drilling activities
	Construction/set-up and operational phase	20m² diamond drill holes	Control dust emission by ensuring drill rig employs dust suppression system. Low vehicle speeds will be enforced on unpaved surfaces. Maintain a buffer of 500m between drill sites and dwellings.	GN R. 827 (NEMAQA)	Before and during drilling activities
	Construction/set-up and operational phase	20m² diamond drill holes	Soil disturbance and vegetation clearance at drill pads will be limited to the absolute minimum required and will not be dozed/ scraped with vegetation roots left intact for later re-growth. Disturbed areas will be re-vegetated with indigenous species as soon as possible.	N/A	Before and during drilling activities

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
	Construction/set-up and operational phase	1.35 ha per drill site	All operations will be carried out under the guidance of a strong, experienced manager with public consultation and conflict resolution skills, and environmental coordination where applicable. All prospecting personnel will be made aware of local conditions and sensitivities in the prospecting area and the fact that some residents may not welcome the prospecting activities.	NEMA	Before and during drilling activities

### 8.5.1 Impact Management Outcomes

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

Table 16: Impact management

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
E.g. for prospecting: Drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining: Excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	Including the potential impacts for cumulative impacts. E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.		In which impact is anticipated, e.g. construction, commissioning, operational, decommissioning, closure and post-closure.		
<ul> <li>Site establishment activities (-ve)</li> <li>Vegetation clearance</li> <li>Topsoil stripping and stockpiling</li> <li>Drill pad compaction</li> <li>Erection of office, toilets, fuel storage (if not by road</li> </ul>	Cultural and heritage	Destruction or loss of Cultural and Heritage Resources: No cultural/ heritage artefacts have been identified on site.	Construction/ set-up	If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately. The find must be reported to a heritage specialist so that systematic and professional investigation/ excavation can be undertaken.	Heritage Act
tanker), water tanker, core storage  Vehicle movements  Waste management	Noise	Noise generation	Construction/ set-up	<ul> <li>Construction/setup, operational and decommissioning activities will be limited to daylight hours on Mondays to Saturdays and no activities on Sundays and public holidays.</li> <li>Separation of distance of minimum 500m, but preferably 1 000m to be</li> </ul>	SANS 10103

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>maintained between drill sites and dwellings.</li> <li>Noise abatement equipment, like mufflers on diesel engines, will be maintained in good condition.</li> <li>If intrusive noise levels are experienced by any person at any point, the source will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.</li> </ul>	
	Visual	Visual intrusion	Construction/ set-up	<ul> <li>The drilling rig and other visually prominent items on site will be in consultation with the landowner.</li> <li>Make use of existing vegetation as far as possible to screen the prospecting operations from view.</li> <li>If necessary, the operations can be screened from view by erecting a shade cloth barrier.</li> </ul>	N/A
	Traffic	Increase in traffic volumes in drilling site vicinity	Construction/ set-up	<ul> <li>Traffic signs to be erected around the site to notify motorists of activities.</li> <li>Construction vehicles to make trips on/off site only when necessary.</li> <li>Construction vehicles to adhere to local speed limits as far as possible when driving in around site.</li> </ul>	National Traffic Act Regulations
	Dust fall	Dust fall and nuisance from activities	Construction/ set-up	Wet suppression should be applied to ensure that no visible dust is raised by any of the prospecting	GN R. 827 (NEMAQA)

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>operations.</li> <li>Distance of at least 500m (preferably 1 000m) to be maintained between drill sites and dwelling.</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>	
	Soil and vegetation	The potential impact of the proposed prospecting on the vegetation would occur at proposed drilling sites and the access routes used to get to these sites.	Construction/ set-up	<ul> <li>The soil disturbance and vegetation clearance at drill pads will be limited to the absolute minimum required. No clear scraping (dozing) to be carried out unless necessary to establish a level drill pad.</li> <li>Clear surface vegetation to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow.</li> <li>Disturbed areas will be revegetated with indigenous species as soon as possible.</li> </ul>	NEMBA
	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.	Construction/ set-up	<ul> <li>Environmental awareness training sessions must be part of the workers induction and site workshops.</li> <li>If any animals are encountered, they must not be killed or injured, but removed or chased away from the site with the assistance of an animal specialist.</li> </ul>	NEMBA
	Social	Friction between residents/landowners and construction personnel.	Construction/ set-up	All operations will be carried out under the guidance of a strong, experienced manager with public	NEMA

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				consultation and conflict resolution skills.  • All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some residents may not welcome the prospecting activities.  • There will always be a strict requirement to treat residents with respect and courtesy.	
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Construction/ set-up	No mitigation measures required.	NEMA
<ul> <li>Exploration drilling (ve)</li> <li>Drilling</li> <li>Drill maintenance and refueling</li> <li>Core sample collection and storage</li> <li>Vehicle movements</li> <li>Waste generation and management</li> </ul>	Noise	Noise generation	Operations	<ul> <li>Activities will be limited to daylight hours, Mondays-Saturdays and no activities on Sundays and public holidays.</li> <li>A distance of at least 500m (preferably 1 000m) to be maintained between drill sites and dwellings.</li> <li>Noise abatement equipment, like mufflers on diesel engines, will be maintained in good condition.</li> <li>If intrusive noise levels are experienced by any person at any point, the source will be moved if practical, or placed in an acoustic enclosure, or an acoustic barrier will be erected between the source</li> </ul>	Heritage Act

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				and the recipient.	
	Visual	Visual intrusion	Operations	<ul> <li>The drilling rig and other visually prominent items on site will be in consultation with the landowner.</li> <li>Use existing vegetation as far as possible to screen prospecting operations from view.</li> <li>If necessary, operations can be screened from view by erecting a shade cloth barrier.</li> </ul>	SANS 10103
	Traffic	Increase in traffic volumes in the drilling site vicinity	Operations	<ul> <li>Traffic signs to be erected on site to notify motorists of the activities.</li> <li>Construction vehicles to make trips on/off site only when necessary.</li> <li>Construction vehicles to adhere to local speed limits as far as possible when driving in around site.</li> </ul>	N/A
	Dust fall	Dust fall and nuisance from activities	Operations	<ul> <li>Wet suppression will be applied to ensure that no visible dust is raised by the prospecting operations.</li> <li>A distance of at least 500m (preferably 1 000m) to be maintained between drill sites and dwellings.</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>	National Traffic Act regulations
	Soil and vegetation	Soil and vegetation disturbance from drill pad preparation	Operations	<ul> <li>The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required.</li> <li>No clear scraping (dozing) will be carried out unless necessary to</li> </ul>	GN R. 827 (NEMAQA)

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				establish a level drill pad. Surface vegetation to be cleared to make way for the drilling rig, leaving the roots intact so that vegetation can coppice and regrow.  • Disturbed areas will be revegetated with indigenous species as soon as possible.	
	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.	Operations	Measures implemented during site establishment must apply in this phase as well.	NEMBA
	Social	Friction between residents/landowners and construction personnel	Operations	<ul> <li>All operations will be carried out under the guidance of a strong, experienced manager with public consultation aAnd conflict resolution skills.</li> <li>All prospecting personnel will be made aware of local conditions and sensitivities in the prospecting area and the fact that some residents may not welcome the prospecting activities.</li> <li>There will always be a strict requirement to treat residents with respect and courtesy.</li> </ul>	NEMBA
	Job creation	Employment will be created for the clearing	Operations	No mitigation measures required.	NEMA

Activities	Pot	otential impact	Aspects affected	Phase	Mitigation type	Standard to
						be achieved
			of the land and			
			establishing the drilling			
			site.			

### 8.6 Impact Management Actions

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

Table 17: Impact management actions

Activities	Potential impact	Mitigation type	Implementation period	Compliance with standards
Whether listed or not. E.g. excavations, blasting, stockpiles, discard dumps/dams, loading, hauling and transport, water supply dams/boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, ground water contamination, air pollution, 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. E.g., modify through alternative method, control through noise control, control through management and monitoring, and remedy through rehabilitation.	State when the environmental management programme measures must be implemented. Measures must be implemented when required. This must take place as soon as possible. Regarding rehabilitation, state upon cessation of the individual activity or mining, bulk sampling or alluvial diamond prospecting.	A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities.
<ul> <li>Site establishment activities</li> <li>Vegetation clearance</li> <li>Topsoil stripping and stockpiling</li> <li>Drill pad compaction</li> <li>Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage</li> <li>Vehicle movements</li> <li>Waste management</li> </ul>	Cultural and heritage	Undertake heritage survey prior to site activities to identify cultural/heritage features and cordon these off with Chevron tape. Avoid cultural/heritage impacts by maintaining 50m buffer from any identified heritage feature. Any buried artifacts that may be uncovered during site activities will require such activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	Before and after drilling activities.	Heritage Act
<ul> <li>Exploration drilling</li> <li>Drilling</li> <li>Drill maintenance and refueling</li> <li>Core sample collection and storage</li> <li>Vehicle movements</li> </ul>	Noise	Control noise generation by maintaining equipment and limiting operation hours to daylight hours from Mondays to Saturdays (no activities on Sundays and public holidays). Maintain a buffer of 500m-1 000m between drill sites and dwellings. If intrusive noise levels are experienced by any person at any point, the source will be moved if practical, or placed in an acoustic enclosure, or an acoustic barrier will be	Before and after drilling activities.	SANS 10103

Activities	Potential impact	Mitigation type	Implementation period	Compliance with standard
Waste generation and management		erected between the source and the recipient.		
	Visual	The drilling rig and other visually prominent items on site will be placed in consultation with the landowner. Existing vegetation will be used as far as possible to screen the prospecting operations from view. Operations can be hidden from view by erecting a shade cloth barrier.	Before and after drilling activities.	N/A
	Dust fall	Control dust emission by ensuring drill rig employs dust suppression system. Low vehicle speeds will be enforced on unpaved surfaces.	Before and after drilling activities.	GN R. 827 (NEMAQA)
	Soil and vegetation	Soil disturbance and vegetation clearance at drill pads will be kept to the minimum required and not be dozed/scraped; vegetation roots will be left intact for regrowth. Disturbed areas will be re-vegetated with indigenous species as soon as possible.		N/A
	Social	Operations will be carried out under the guidance of an experienced manager with public consultation and conflict resolution skills. All prospecting personnel will be made aware of conditions and sensitivities in the prospecting area and of the fact that some residents may not welcome the prospecting activities. Residents will always be treated with respect and courtesy.	Before and after drilling activities.	NEMA

#### 9. Determination of the amount of financial provision.

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

The closure objectives are to record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders, and to receive an effective closure certificate (should the prospect indicate that the resource(s) would not support a sustainable mining operation.

# 9.1 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties

Minimise the area to be disturbed and to ensure that the areas disturbed during the prospecting activities are rehabilitated and stable, as per the commitments made in the EMP. Sustain the pre-prospecting land use and return the site to its near natural state as far as possible.

# 9.2 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

After drilling has been completed in one area, the drilling team will ensure the site is reverted to its original state by implementing the measures listed in Table 18.

Table 18: Rehabilitation measures

Aspect/Impact	Rehabilitation measure	Monitoring frequency and responsibility
Removal of construction structures	<ul> <li>Clear and completely remove from site all construction plant equipment, storage containers, signage, temporary fencing, temporary services, fixtures and any other temporary works.</li> <li>Ensure that all access roads utilized during construction (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to construction.</li> </ul>	Once-off, Applicant
Vegetation clearing/ Replanting	<ul> <li>Remove any emerging alien and invasive vegetation to prevent further establishment.</li> <li>All planting work is to be undertaken by suitably qualified personnel making use of the appropriate equipment.</li> <li>Transplant during the winter (between April and September).</li> <li>Plant indigenous plants to minimize the spread of alien and invasive vegetation.</li> </ul>	When re-vegetation is done and in bloom
Topsoil replacement	<ul> <li>Replace and redistribute stockpiled topsoil and herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the prospecting site, including temporary access routes and roads. Replace topsoil to the original depth (i.e. as much as was removed prior to construction).</li> <li>Prohibiting the use of topsoil suspected to be contaminated with the seed of alien vegetation. Alternatively, the soil is to be sprayed with specified herbicides.</li> <li>Backfill planting holes with excavated material / approved topsoil, thoroughly mixed with weed free manure or compost (per volume about one quarter of the plant hole), one cup of 2:3:2 fertilizer and an approved ant and termite poison.</li> </ul>	Once-off, Applicant

Aspect/Impact	Rehabilitation measure	Monitoring frequency and responsibility
	<ul> <li>Where local soil has poor drainage, broken rock (Approx. 75 mm in diameter) must be placed to a depth of 150mm at the bottom of the planting hole prior to planting and backfilling with approved plant medium mixture.</li> </ul>	
Waste and rubble removal	<ul> <li>Clear the site of all inert waste and rubble, including surplus rock, foundations and batching plant aggregates.</li> <li>Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.</li> </ul>	Once-off, Applicant
Solid and hazardous waste	<ul> <li>Store hazardous waste as indicated on the approved Environmental Management Programme (EMPR).</li> <li>Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site.</li> <li>Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner.</li> <li>Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment.</li> <li>Dispose of all visible remains of excess cement and concrete after the completion of tasks. Dispose of in the approved manner (solid waste concrete may be treated as inert construction rubble, but wet cement and liquid slurry, as well as cement powder must be treated as hazardous waste).</li> </ul>	Once-off, Applicant
Erosion protection	<ul> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction site.</li> <li>Retain shrubbery and grass species wherever possible. Perform regular monitoring and maintenance of erosion control measures.</li> </ul>	After rainfall events

#### 9.2.1 Explain why the rehabilitation plan is compatible with the closure objectives

The Company is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the Company fails to rehabilitate or manage any negative impact on the environment, the DMRE may, upon written notice to the Company, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question. The Company will specify that the drilling contractor is required to comply with all the environmental measures specified in the EMP. This will include avoiding unnecessary disturbance of natural vegetation and the rehabilitation of each drill site, immediately after drilling has been completed. All tracks to the drill sites must be rehabilitated at the end of the prospecting programme. The financial provision provides for the final checking of all sites before site clearance.

# 9.3 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline

The quantum of the financial provision required is R 316 225.00. The Company must annually update and review the quantum of the financial provision (as per Regulation 54 (2) of the MPRDA). See 7.10.1 for the financial Quantum Calculation.

#### 9.4 Confirm that the financial provision will be provided as determined

Please refer to Appendix E for more details on the financial provision for the proposed activity.

### 9.5 Compliance monitoring against the Environmental Management Programme

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

Monitoring of Impact Management Actions ii) Monitoring and reporting frequency iii) Responsible persons iv) Time period for implementing impact management actions v) Mechanism for monitoring compliance.

Table 19: Monitoring mechanisms

Source activity	Impacts requiring monitoring programmes	Functional monitoring requirements	Roles and responsibilities for monitoring programme execution	Monitoring and reporting frequency and periods for impact management actions implementation
All prospecting activities	N/A	Ensure that the prospecting programme is being implemented in line with the approved PWP.	Applicant Geologist	Submit an annual prospecting progress report to DMRE
	All commitments contained in the BA Report and accompanying EMPr	Ensure commitments made within the approved BAR and EMPr are being adhered to.	Internal environmental control officer and independent EAP.	Undertake and submit an environmental performance audit every two years to DMRE.
Drilling activities	Noise	Weekly inspections will cover the	Appointed drilling contractor.	Weekly inspection and reporting.
	Dust fall	following:		
	Visual	<ul> <li>Implementation of effective waste management</li> <li>Establish and implement a stakeholder compliant register on site and ensure that all complaints are responded to promptly.</li> <li>Ensure that an oil spill kit is readily available.</li> <li>Ensure that all chemicals and hydrocarbons are stored within bund walls. Ensure that the fire brake is maintained.</li> <li>Rehabilitation of drill pads.</li> </ul>		
	Soil and vegetation			
	Social			
	Housekeeping and maintenance			
	Waste management			
	Rehabilitation			

Source activity	Impacts requiring monitoring programmes	Functional monitoring requirements	Roles and responsibilities for monitoring programme execution	Monitoring and reporting frequency and periods for impact management actions implementation
		<ul> <li>Records of water intersections on borehole logs.</li> <li>Control and minimize the development of new access tracks.</li> <li>Appropriate storage and handling of topsoil.</li> </ul>		
Post-drilling	Groundwater	Monitor the external boreholes within 500m from drill post drilling (if any). The drill site must be monitored 6 months until closure certificate is obtained.	Environmental Coordinator	Monitoring Report
	Re-vegetation			
	Stability			
	Soil erosion			
	Alien invasive species			

# 9.6 Indicate performance assessment/environmental audit report submission frequency

Environmental management procedures and mitigation measures will be monitored regularly by the Company to ensure adherence to EMP provisions. Formal EMP monitoring and performance assessment will be undertaken annually. See Appendix 3 for a framework on EAP monitoring and performance assessment. Photographs taken before drilling commences and after site rehabilitation must be included in the reports.

#### 9.7 Environmental Awareness Plan

#### 9.7.1 Informing employees of environmental risk that may result from their work

Environmental awareness training courses will be provided to all personnel on site. The environmental training courses will include, amongst others:

- Awareness training for contractors and employees
- Training for staff whose tasks might have significant environmental impact
- Comprehensive training on emergency response, spill management, etc.
- Specialised skill
- Training verification and record keeping
- Environmental issues on site
- Roles and responsibilities
- The construction environmental management measures
- Cultural awareness
- Heritage discovery procedures

All attendees must complete the entire course and, on completion, sign an attendance register. A copy of the register shall be kept on record by Applicant

#### 9.7.2 Manner in which risks will be dealt with to avoid pollution/environmental degradation

All employees must undergo environmental awareness training, in conjunction with EMP implementation, to inform them of environmental risks that may result from their work and how the risks must be dealt with to avoid pollution/environmental degradation.

#### 9.7.3 Specific information required by the Competent Authority

Among others, confirm that the financial provision will be reviewed annually.

Not applicable at this stage.

10. Undertaking

The EAP herewith confirms:

• The correctness of the information provided in the reports

• The inclusion of comments and inputs from stakeholders and I&APs

• The inclusion of inputs and recommendations from the specialist reports where

relevant

• 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 (Geoaspex (Pty) Ltd)

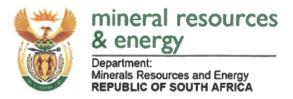
Geoaspex (Pty) Ltd

Name of company

Date: 13/01/2022

-END-

#### Appendix A: Authority correspondence



Private Bag X 54307, Durban, 4000, 333 Anton Lembede Street, 3rd Floor Durban Bay House, Durban, Tel (031) 335 9600, Fax (031) 305 5801 Reference: KZN30/5/1/1/2/11125PR Enquiries: Mrs. Nontobeko Ncama Email address: Nontobeko. Ncama@dmre.gov.za.

REGISTERED MAIL

THE MANAGER
CONTRARIANS CAPITAL (PTY) LTD
P.O BOX 50262
JOHANNESBURG
1683

nkosi@contrarians.co.za

Dear Sir/Madam

ACCEPTANCE OF AN APPLICATION FOR PROSPECTING RIGHT IN TERMS OF SECTION 16(4) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) AS AMENDED BY SECTION 12 (d) OF ACT 49 OF 2008

- 1. Please be informed that your application for Prospecting of Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite/Oilshale on Portion 9 and 13 of the Farm Reserve No.12 15832 HU (Portion 9 and 13 of the Farm Reserve No.2 15832-HU) is hereby accepted on the above- mentioned properties, in terms of section 16 (2) of the Act
- 2. Take note that in light of the minimum requirements as stipulated on regulation 16 (1) and 16 (2) of the EIA Regulations, your application for an Environmental Authorisation was deemed incomplete as it was not accompanied by this acceptance letter as per Regulation 16 (1) (ix) and considering that it is now completed by this acceptance letter, you are hereby required to submit the documents as stipulated on Regulation 19 (1) to 19 (8) of the EIA Regulation (only in cases where Basic Assessment Report is applicable or Regulation 21 (Scoping Report and Regulation 23 (Environmental Impact Report) (only in cases where

applicable). All submission timeframes are effective from the dates of this acceptance letter.

- Please take further note that in terms of section 16 (4) of the Act, you are required to: -
- 3.1 Upload unto the SAMRAD system one copy and submit three (03) hard copies of the requisite environmental reports as required by section 16 of the MPRDA within ninety (90) days from the date of this letter (23<sup>rd</sup> February 2022).
- 3.2to consult in the prescribed manner with the landowner, lawful occupier and any interested and affected party including the Land Restitution Commission and include the result of such consultation in the relevant environmental reports to be submitted and uploaded on the SAMRAD system on or before 24<sup>th</sup> November 2021 (within 30 days from the date of this letter)

Please note that the consultation process referred to in paragraph 2.2 above does not imply issuing letters and requesting the affected parties to indicate whether they support your proposed project or not.

It includes among others an extensive process of giving and discussing the specific details of the proposed project, giving the I & A Parties an opportunity to table their comments, objection and support, it also involves **your written responses and specific commitments made** in dealing with the issues raised during the consultation.

Note that it is important to ensure that your consultation process is comprehensive so that your Environmental Impact Assessment and Environmental Management Plan can be informed by all potential impacts that your project may have.

4. Should the land be owned by the communities or a Trust on behalf of the community, a proper and thorough consultation process must be engaged upon and a legitimate Tribal Resolution or consent must be obtained from the Traditional Authority / Council or Trust and be submitted with the results of consultation. Should you need any assistance or guidance relating to the required consultation process & procedure in traditional institutions, please contact the District office of the Department of Cooperative Governance and Traditional Affairs in Zululand District Municipality.

- 5. Further note that the acceptance of your application does not grant you the right to commence with prospecting activities. It only signifies that your application will be processed and evaluated. The Minister or his delegate will make a decision once the process of the evaluation and appeal on the Environmental Authorization application has been finalized.
- 6. You are in terms of Section 17(1) of the Act required to give effect to the objects referred to in Section 2 (d) of the Act. Therefore please submit on or before 24<sup>th</sup> November 2022 (within 60 days from the date of this letter) to this office for the attention of Regional Manager any documentation proving such including but not limited to:-
- 6.1 Duly signed shareholders agreements with your empowerment partner in which provision shall be made for entrepreneurs, local community and employees,
- 6.2 Share certificates.
- 6.3 Details relating to the equity by the BEE shareholders, Any other agreement relating to the BEE shareholding including the voting pool agreement where applicable,
- 6.4 Articles and memorandum of association of the company.
- 6.5 Any other information that may be necessary to explain and serve as evidence that the applicant meets the appropriate HDSA ownership and/or compliance requirements of the aforesaid Act and Mining Charter.
- 7. Please submit within 60 days (13th January 2022) from date of this letter for the attention of Regional Manager a complete prospecting work programme prepared in terms of Regulation 7 of the Mineral and Petroleum Resources Development Act, 2002 (Act no 28 of 2002): Mineral and Petroleum Development Regulation.
- 8. You are also required to adhere with the requirements of Mine Health and Safety Inspectorate and upload on system the required information and details on or before 24<sup>th</sup> November 2021 (within 30 days from the date of this letter)
- 9. Please be advised that your application might be processed in terms of section 9 (1) (b) of the Act. If this office discovers that there is an existing or pending application on the same properties and for the same mineral, this application shall discontinue.

10. Please take note that failure to adhere to the timeframe stipulated above and to submit any documentation required in terms of this notice will result into noncompliance with the provision of the Act and the Amendment Act and will result in the refusal of your application.

Yours faithfully

ACTING REGIONAL MANAGER

**KWAZULU NATAL REGION** 

DATE: 15/10/2021

#### MR FHUMULANI STANLEY RAKHADANI

Profession Mining & Environmental Geologist

Position in firm Principal Consultant

Qualification BSc (Hons) Mining and Environmental Geology

Contact details 078 840 9798 / 071 4075 8332. E: stanley@geoaspex.co.za

Qualification: Bachelor of Earth Science in Mining and Environmental Geology

(University of Venda, Acquired in 2015)

**Areas of Expertise:** Environmental Management (incl. compliance monitoring & auditing), Mining and Geology (incl. resource estimation and grade control), Geohydrology, Environmental Law, Waste Management, Water Management (incl. water licence auditing), ISO 14001, & Project Management.

**Experience:** Junior Consultant (Environmental Geologist)- Singo Consulting Pty Ltd (Witbank), 03/07/2017-08/01/2018. Project Manager/Senior Consultant (Environmental Geologist)- Singo Consulting Pty Ltd (Witbank), 08/01/2018-15/03/2019. Principal consultant Geoaspex (Pty) Ltd, April 2019-current.

Key Responsibilities: As entitled by the policies of GeoAspex (Pty) Ltd, Mr Stanley Rakhadani's (i.e. Principal Consultant) duties involve taking full responsibility to ensure quality control on all projects as well as managing in house team of consultants. Ensuring that projects are managed efficiently and according to their agreed timeframes and allocated budgets. Liaise with Clients and competent authorities. Conduct mineral exploration, due diligence on geological reports, input on mine plans, environmental impacts assessment, public participation activities, environmental compliance audit (i.e. environmental control officer, dust monitoring, waste management procedures), compilation of social labour plans, water use licence audit(incl. groundwater monitoring, design of mine water management system), borehole certification, pump tests, mine feasibility studies and compile sound and reader friendly reports/plans. Lodge permits/licence applications in terms of the Republic of South Africa laws such as NEMA (i.e. Environmental Authorizations), MPRDA (i.e. Prospecting Rights, Mining Permits, Mining Rights).

Positions Held in Mine Environment: CoalX mine (Balmoral)- assistant environmental control officer. Uitkyk Colliery (Middelburg) – Geology and Environmental consultant, Roan coal (Breyten) – Environmental Control Officer, Vredendal (Western Cape) Kaolin Exploration – Exploration Geologist, Springbok (Northern Cape) Lithium Exploration – Exploration Geologist, Loskop Colliery

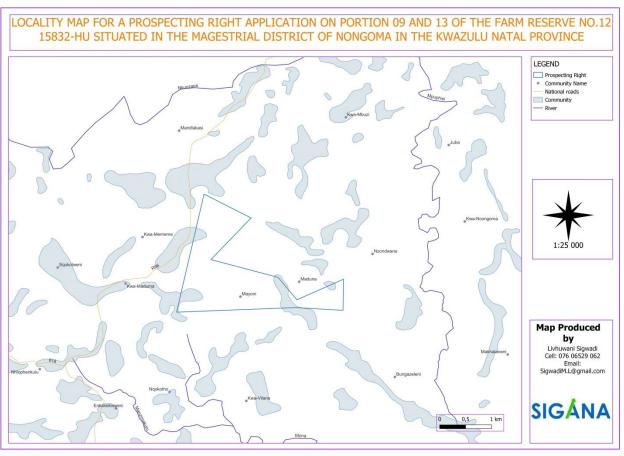
(Vryheid-KZN) – compilation of Surface water and groundwater management plan, Environmental (compliance monitoring &dust monitoring) management plan. Compilation of Mine Rehabilitation and Closure Plan (Driefontein-Middelburg)

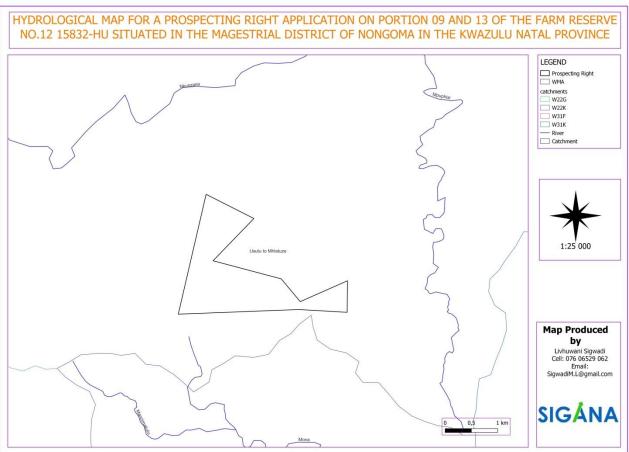
**Recent Training**: Environmental law, Waste Classification & Management, ISO 14001 (March 2018). Environmental Management Principles (May 2018).

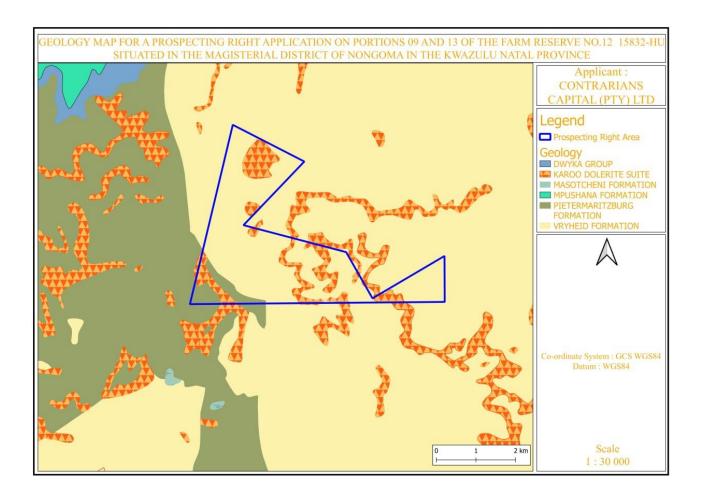
Academic Projects: Evaluation of the Suitability of Coal Coke Formation from Seam 4 at Standerton, Mpumalanga Province (2016, Sole Researcher).

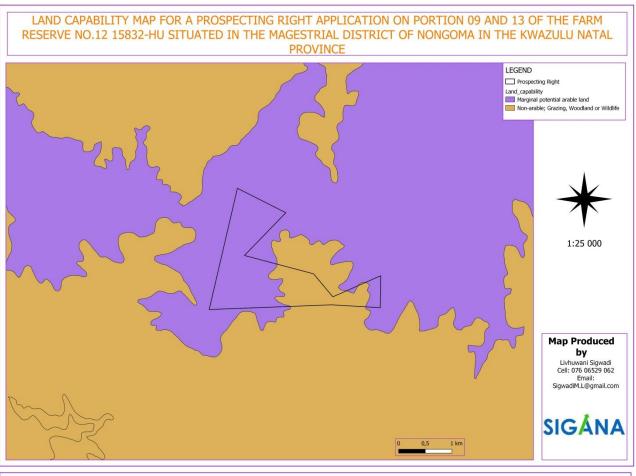
Co-researcher on the project "Assessment of the potential Acid Mine Drainage (AMD) occurrence around previously mine stressed area using available boreholes (within 2km radius) and newly drilled boreholes at Goedvertrouwd Coal Mine in Balmoral, Mpumalanga Province" (on-going).

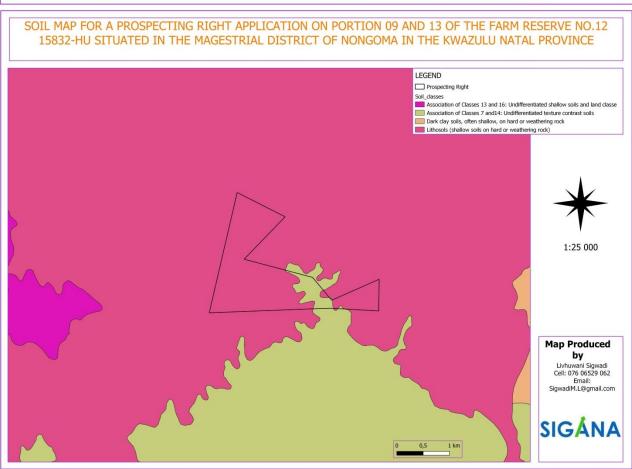
Appendix C: Maps of the Project

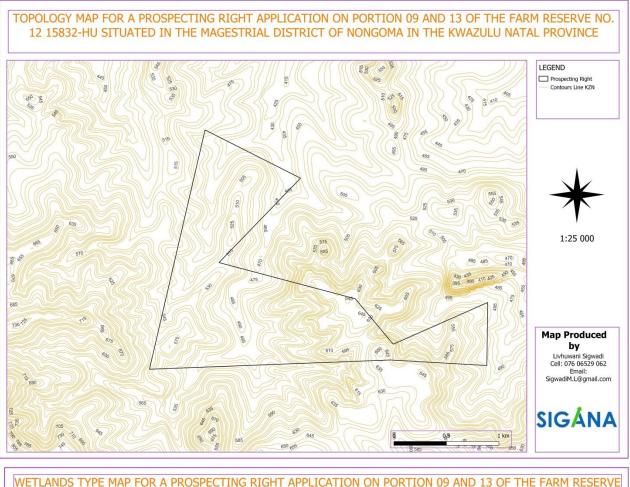


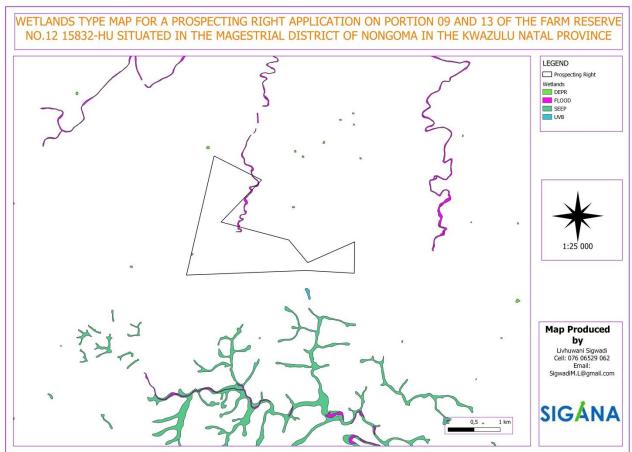




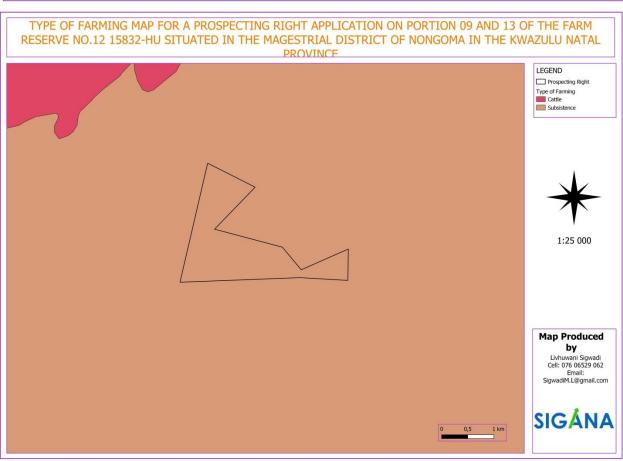












### Appendix D: BID of the Project

### **BACKGROUND INFORMARTION DOCUMENT**

PROPOSED PROSPECTING RIGHT APPLICATION ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGISTERIAL DISTRICT OF NONGOMA IN THE KWAZULU NATAL PROVINCE: KZN30/5/1/1/2/11125 PR

Prepared by: Geo-Aspex (Pty) Ltd Prepared for: Contrarians Capital Pty Ltd

### PURPOSE OF THIS DOCUMENT

Geo-Aspex (Pty) Ltd has been appointed as an independent Environmental Consultant by Contrarians Capital Pty Ltd to conduct Environmental Impact Assessment (EIA), Compile an Environmental Management Plan (EMP) and undertake Public Participation Process (PPP). This is done for processes of acquiring environmental authorization for the proposed Prospecting Right application within Portion 09 and 13 of the farm reserve no.12 15832-HU in the magisterial district of Nongoma in the KwaZulu Natal Province

The Purpose of this Background Information Document (BID) is to provide a perfunctory description of the project and outline EIA processes to be followed and contributions from Interested and Affected Parties (IAPs) on the issues related to the project in question, allowing comments and concerns to be raised.

Results of the EIA, both negative and positive will be submitted and made available to the relevant Departments such as the Department of Mineral Resources and if requested, Environmental Affairs, Water and Sanitation, Landowners and other interested stakeholders.

This Background Information Document therefore requests and invites IAPs to comment on the environmental, physical, social and economic impacts associated with the proposed Mining Activities. Be assured that your comments are of great value as they ensure that relevant issues are taken into consideration. Attached at the end of this document is a registration from, kindly complete it and send it back to Livhuwani Sigwadi through given means of communication also attached there.

### **PROJECT DESCRIPTION**

The prospecting work will be done in phases, each phase conditional on the success of the previous phase. Desktop Studies as the preliminary assessment of the potential resource area or rather the applied farm and its surrounding areas. It provides baseline information which includes but not limited to; exact location of the farm, accessibility, general topography, and the geological setting of the area. Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite drilling operations will be carried out for the purpose of retrieving core samples and laboratory analyses will be performed on the core samples to establish the quality of coal and associated rocks properties. Ten (10) exploration boreholes will be drilled, each up to a depth of approximately 500 m are planned for the five years period; however, a 20% additional or retention of boreholes may be necessary depending on the new geological information gathered during the initial stages of the drilling programme. On average, a borehole takes approximately three days to complete. Should it be necessary to conduct any bulk sampling operations, an application for Ministerial approval in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002, which includes an amended Environmental Management Plan (EM Plan), will be submitted once the necessary studies have been conducted.

#### REGULATORY FRAMEWORK

Therefore, EIA process to be undertaken will be conducted in accordance with the National Environmental Management Act (Act 38 of 1998) and Environmental Impact Assessment regulations as amended (April 2017).

The prospecting right is required for a period of five years. Prospecting will take place according to the time-frame for the Coal, Iron Ore, Psuedocoal, Mica, Graphite, Manganese and Torbanite minerals therefore; this will be conducted in accordance with Mineral and Petroleum Resources Development Act, (Act 28 of 2002). Other regulatory guidelines to be followed include: National Water Act, 1998 (Act 36 of 1998), National Air Quality Standards (GN 1210: 2009) and National Dust Control Regulations (GN 275: 2017).

### BASIC AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESSES

These are planning and decision-making tools used in identifying potential environmental, economic and social consequences of a proposed activity prior the commencement of the activity.

These together with the public issues and concerns are to be identified sufficiently early so that they can be assessed and incorporated into the final reports when/if necessary.

These tools are regarded crucial because they are utilized in order to demonstrate to the relevant stakeholders about the potential impacts, which in turn leads to the Mining application process being a success or declined.

### **PUBLIC PARTICIPATION PROCESS**

Public Participation remains a cornerstone of the Environmental Impact Assessment process. It ensures provision of relevant and enough information with openness and transparency. Public Participation process presents to IAPs, an opportunity to understand what the project is about, and affords them an opportunity to make valuable contributions towards the EIA process.

IAP can be any person, group of persons or organization interested in or affected by the proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity.

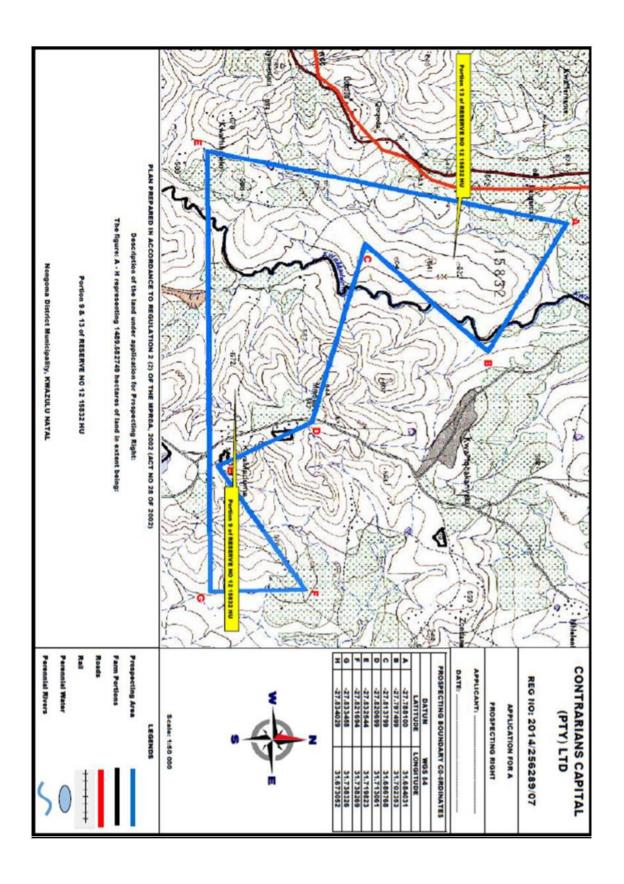
The key objective of PPP during the Scoping phase is to afford the IAPs with an opportunity to comment and provide valuable inputs during the planning phase of the project.

For this specific proposed project, IAPs will be given a period of 30 days to comment and raise issues/concerns with regards to this BID.

Kindly keep the following dates:

- Stakeholder engagement and consultation: 26 November 2021 15 January 2022
- Review of Draft Basic Assessment Report: 16 January 2022 14 February 2022
- Submission of the Final EMP: 18 February 2022

Please note: According to the regulation3(3) of the NEMA regulations, public participation process (PPP) will not take place from the 15th of December 2021 to the 5th of January 2022.



# APPLICATION FOR A PROSPECTING RIGHT APPLICATION ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGISTERIAL DISTRICT OF NONGOMA IN THE KWAZULU NATAL PROVINCE

### **I&APS REGISTRATION & COMMENT SHEET**

Attention: Livhuwani Sigwadi Email: livhuwani@geoaspex.co.za

Cell: 076 065 29062

Name	Surname
Company	
Position	
Address	
Tel No.	Fax No.
E-mail	Cell No.
Method pref	erred for further communication: Email Postal or Fax
Indicate you	r interest in the above-mentioned project
Provide your	comments here:
B dala	
Provide your	questions here:
Add any per	son you think may be interested and affected parties:
Full names	
Address	
E-mail	
Contact No.	

### Appendix E: CORRESPONDENCE WITH STAKEHOLDERS

Emails were recorded in the order which they were sent (the most recent is at the bottom)

From: Khodani Rakhadani <rakhadani.kr@gmail.com>

Date: Tue, 14 Dec 2021 09:54:33 +0200

Subject: LAND CLAIM ENQUIRY PROPOSED FOR APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU, SITUATED IN THE MAGESTRIAL DISTRICT

OF NONGOMA IN THE KWAZULU NATAL PROVINCE

To: lynn.boucher@drdlr.gov.za

Cc: stanley@geoaspex.co.za, sigwadim.l@gmail.com

Good day, I hope this finds you well.

You are kindly receiving this email as an enquiry for any possible land claim of the proposed Prospecting Right application on portion 09 and 13 of the farm reserve no.12 15832-HU situated in the Magisterial district of Nongoma in the Kwazulu Natal Province.

This is to ensure that all claimants are properly consulted and are given opportunity to:

Register as an I&AP and to respond to the environmental compliance process; Raise issues of concern and provide suggestions for enhanced benefits;

Contribute to local knowledge; Comment on the Draft Basic Assessment Report (DBAR) & Environmental Management Program (EMP); and Inform any other person / organization that they may feel should be informed about the project.

Your correspondence will of great assistance

Kind Regards,

Rodney Rakhadani Environmental Assessment Practitioner

T: 076 946 6379

E: rakhadani.kr@gmail.com /rodney@geoaspex.co.za <rakhadani.kr@gmail.com/rodney@geoaspex.co.za>

A: Office 7, 8 Corridor Crescent, N4 Business Park, Ben Fleur x11, Witbank, 1034

From: Khodani Rakhadani <rakhadani.kr@gmail.com>

Date: Mon, 13 Dec 2021 14:30:15 +0200

Subject: STAKEHOLDER INVITATION FOR THE APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGESTRIAL DISTRICT OF

NONGOMA IN THE KWAZULU NATAL PROVINCE

To: BuhleM@daff.gov.za

Cc: stanley@geoaspex.co.za, sigwadim.l@gmail.com

Good day, I hope this finds you well

This Notification is being given in compliance with the terms of: Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), National Environmental Management Act, 1998 (Act No.107 of 1998), and EIA Regulations (as amended, 07 April 2017) which requires that stakeholders must be notified of The Contrarians Capital Pty Ltd's intention to obtain a Prospecting Right for the applied minerals.

This invitation is being extended to you because the department that you represent might be somehow enforcing any of the Republic of South Africa's laws of which ensures; prevention of pollution & environmental degradation, promotes sustainable development & socio-economic

development, or instead might be affected by prospecting activities. Hence you are being offered an opportunity to:

- Register as an I&AP and to respond to the environmental compliance process;
- Raise issues of concern and provide suggestions for enhanced benefits;
- Contribute to local knowledge;
- Comment on the Draft Basic Assessment Reports (DBAR) & Environmental Management Programs (EMP)

Geo-Aspex (Pty) Ltd has been appointed as an independent Environmental Assessment Practitioner (EAP) to manage the environmental authorization process, by conducting Environmental Impact Assessment, Public Participation for the proposed project and compiling an Environmental Management Plan. A Basic Assessment process has commenced, for your participation. Kindly fill the comment form in the last page of attached BID and register your comments, issues, questions that you have about the proposed project. Should you need any clarity on the attached documents or have any queries with regards to the project, please do not hesitate to contact me on the details below.

Please find the attached Background Information Document (BID) for detailed description of the proposed projects and timelines. Draft BAR and EMPR hard copies of each project will be forwarded to your office once ready for further comment.

If you know anyone who might be interested in these projects, kindly forward this email to that person.

Kind Regards
Rodney Rakhadani
Environmental Assessment Practitioner
T: 076 946 6379
E: rakhadani.kr@gmail.com/rodney@geoaspex.co.za
<rakhadani.kr@gmail.com/rodney@geoaspex.co.za>
A: Office 7, 8 Corridor Crescent, N4 Business Park, Ben Fleur x11, Witbank, 1034

From: Khodani Rakhadani <rakhadani.kr@gmail.com>

Date: Tue, 14 Dec 2021 09:41:39 +0200

Subject: STAKEHOLDER INVITATION FOR THE APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGESTRIAL DISTRICT OF

NONGOMA IN THE KWAZULU NATAL PROVINCE

To: Siphosethu.xulu@kznedtea.gov.za

Cc: sigwadim.l@gmail.com, stanley@geoaspex.co.za

To: BuhleM@daff.aov.za

Cc: stanley@geoaspex.co.za, sigwadim.l@gmail.com

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T: 076 946 6379
E: rakhadani.kr@gmail.com/rodney@geoaspex.co.za
<rakhadani.kr@gmail.com/rodney@geoaspex.co.za>
A: Office 7, 8 Corridor Crescent, N4 Business Park, Ben Fleur x11, Witbank, 1034

From: Khodani Rakhadani <rakhadani.kr@gmail.com>

Date: Tue, 14 Dec 2021 09:39:49 +0200

Subject: STAKEHOLDER INVITATION FOR THE APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGESTRIAL DISTRICT OF

NONGOMA IN THE KWAZULU NATAL PROVINCE

To: nerrisa.pillay@kznwildlife.com, dinesree.thambu@kznwildlife.com

Cc: sigwadim.l@gmail.com, stanley@geoaspex.co.za

To: BuhleM@daff.gov.za

Cc: stanley@geoaspex.co.za, sigwadim.l@gmail.com

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T: 076 946 6379
E: rakhadani.kr@gmail.com /rodney@geoaspex.co.za
<rakhadani.kr@gmail.com/rodney@geoaspex.co.za>
A: Office 7, 8 Corridor Crescent, N4 Business Park, Ben Fleur x11, Witbank, 1034

From: Khodani Rakhadani <rakhadani.kr@gmail.com>

Date: Tue, 14 Dec 2021 09:49:56 +0200

Subject: STAKEHOLDER INVITATION FOR THE APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGESTRIAL DISTRICT OF

NONGOMA IN THE KWAZULU NATAL PROVINCE

To: lindim@amafapmb.co.za

Cc: sigwadim.l@gmail.com, stanley@geoaspex.co.za

To: BuhleM@daff.gov.za

Cc: stanley@geoaspex.co.za, sigwadim.l@gmail.com

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E: rakhadani.kr@gmail.com/rodney@geoaspex.co.za
<rakhadani.kr@gmail.com/rodney@geoaspex.co.za>
A: Office 7, 8 Corridor Crescent, N4 Business Park, Ben Fleur x11, Witbank, 1034

### Appendix F: Responses from Stakeholders

From: "Pillay Renelle (DBN)" <PillayR@dws.gov.za>

Date: Mon, 13 Dec 2021 12:12:34 +0000

Subject: RE: STAKEHOLDER INVITATION FOR THE APPLICATION FOR A PROSPECTING RIGHT ON PORTION 09 AND 13 OF THE FARM RESERVE NO.12 15832-HU IN THE MAGESTRIAL DISTRICT OF

NONGOMA IN THE KWAZULU NATAL PROVINCE
To: Khodani Rakhadani < rakhadani kr@gmail.com>

Cc: "sigwadim.l@gmail.com" <sigwadim.l@gmail.com>, "stanley@geoaspex.co.za"

<stanley@geoaspex.co.za>

Dear Sir

Please be advised that I have forwarded your email to the Acting Deputy Director: Water Quality Management, Mr Strini Govender whose Sub-directorate is responsible for reviewing and commenting on BAR's etc.

In future you can send such documents to Mr S. Govender who can be contacted on 031 336 2759 or on 082 885 9665 or at govenders2@dws.gov.za<mailto:govenders2@dws.gov.za>

Regards Renelle

## Appendix G: Impact Management Outcomes

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Whether listed or not, e.g. excavations, blasting stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams/boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control berms, roads, pipelines, power lines, conveyors, etc.	Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.		In which impact is anticipated e.g. construction, commissioning, operational, decommissioning, closure, post-closure.	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. E.g. modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.	Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Planning and Project Management	EMP	Project Management	Planning	A finalized EMP must address all authorization conditions stipulated by the DEA (and other commenting authorities). EMP must encompass all environmental impact mitigation measures as identified in the final BAR.	MPRDA & NEMA
	Appointment of Environmental Officer	Project Management	Planning	The Geoaspex (Pty) Ltd environmental geologist will serve as the Environmental Officer during construction, given the short duration of construction and the low significance impacts which are envisage Contrarians Capital Pty Ltd environmental geologist will be responsible for monitoring the compliance of the construction workers and employees on site with the EMP and ensure their co-operation.	MPRDA & NEMA
	Permits and Permissions		Planning	Nongoma Local Municipality must ensure that all licensing, permits or certificates required for the project are obtained and in place prior to the commencing of any construction activities on site.	MPRDA & NEMA
	Emergency Response Planning	Safety and health personnel on site	Planning	Plan all emergency responses including:  Response procedures to fires, explosions, or any accidents that will require rapid medical	MPRDA & NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>responses; and</li> <li>Responses to community and stakeholder concerns and communication procedures with potentially affected parties (I&amp;AP).</li> </ul>	
	Project Schedule	Undertaking the project in a timeous manner	Planning	Plan and develop a construction sequence to alleviate noise generation during the construction phase.	N/A
	Method statement	Project Management	Planning	Ensure that a method statement has been compiled and submitted to the Site/Construction manager.	N/A
	Grievances	Project Management	Planning	Develop grievance mechanisms for the recording and management of complaints and grievances specifically including (but not limited to) grievances from those living in the area.	N/A
	Records and Administration	Project Management	Planning	<ul> <li>Ensure the following are up to date and available on site:</li> <li>A complaint registers.</li> <li>An approved method statements.</li> <li>Copies of the EMP.</li> <li>Environmental Permits and authorizations.</li> <li>Copies of weekly checklists, compliance reports, incidence reports and corrective action reports.</li> <li>Photographs of areas of concern (photos of non-compliance areas as well corrective action).</li> <li>Attendance registers of environmental awareness training.</li> </ul>	
	Recruitment of Labor	Project Management	Planning	<ul> <li>Where possible, the contractor must make use of local labour in support of the local economy.</li> <li>Advertise employment opportunities</li> </ul>	Basic Conditions of Employment Act, No. 75 of 1997 (as

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
DDE DDILLING /EVDI OD ATION				<ul> <li>adequately, so as not to limit application opportunities.</li> <li>Implement a transparent process of recruiting construction staff, following pre-established and accepted criteria.</li> </ul>	amended)
PRE-DRILLING/EXPLORATION	Site establishment	Project Management	Planning	<ul> <li>The Contractor must, in agreement with the Construction Manager, decide upon an area for the location of a construction camp. The construction camp should be properly demarcated and fenced, and be adequately sized, with enough space for site offices, construction vehicles, equipment, material and waste storage areas</li> <li>The construction camp must be located in an area with minimal damage or disturbance to the environment.</li> <li>Establish 'NO-GO' areas- where no construction personnel, equipment/machinery or vehicles are permitted. Any identified Environmental Sensitive or important areas should be designated as 'NO-GO' areas.</li> </ul>	
	Site Housekeeping	Project Management	Planning	The construction camp should always be kept clean and orderly.	
	Ablution Facilities	Project Management	Planning	<ul> <li>Enough toilet facilities should be provided near construction camp. The toilets should be properly covered and ventilated and should contain hand washing facilities.</li> <li>Portable toilets should be properly secured to the grounds to avoid toppling in the case of a wind/storm event.</li> <li>Ensure that all toilets function properly and</li> </ul>	

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Site establishment activities (-ve):  • Vegetation clearance	Cultural and heritage	Destruction or loss of Cultural and Heritage	Construction/ set-up	<ul> <li>are in a hygienic state. The toilets should be cleaned and emptied regularly.</li> <li>Ensure that there are no spillages when toilets get cleaned and emptied.</li> <li>Urination on site should be strictly prohibited.</li> <li>Environmental Permits and authorizations.</li> <li>Copies of weekly checklists, compliance reports, incidence reports and corrective</li> </ul>	Heritage Act
<ul> <li>Topsoil stripping &amp; stockpiling</li> <li>Drill pad compaction</li> <li>Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage</li> <li>Vehicle movements</li> <li>Waste management</li> </ul>		Resources: No cultural/heritage artefacts have been identified on site		action reports.	
	Noise	Noise Generation	Construction/ set-up	<ul> <li>Photographs of areas of concern (photos of non-compliance areas as well corrective action).</li> </ul>	SANS 10103
	Visual	Visual intrusion	Construction/ set-up	Attendance registers of environmental awareness training.	N/A
	Traffic	Increase in traffic volumes near the drilling site	Construction/ set-up	<ul> <li>Traffic signs to be put around the site to notify motorist of the activities</li> <li>Construction vehicles to make trips on/off site only when necessary</li> <li>Construction vehicles to adhere to local speed limits as far as possible when driving in around site</li> </ul>	National Traffic Act Regulations
	Signage	Traffic volumes, safety	Construction/ set-up	The construction management needs to communicate the commencement and	National Traffic Act Regulations

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>duration of construction activities to the community.</li> <li>Clear signage needs to be put up to make and keep the community awareness of construction activities to prevent any hazardous occurrences.</li> <li>Provide adequate safety warning signage on the roads.</li> </ul>	
	Dust fall	Dust fall and nuisance from activities	Construction/ set-up	<ul> <li>Wet suppression should be applied to ensure that no visible dust is raised by any of the prospecting operations;</li> <li>Separation of distance of minimum 500m, but preferably 1000m to be maintained between drill sites and dwellings; and</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>	GN R. 827 (NEMAQA
	Soil and vegetation	The potential impact of the proposed prospecting on the vegetation would occur at proposed drilling sites and the access routes used to get to these sites.	Construction/ set-up	<ul> <li>The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be carried out unless necessary to establish a level drill pad.</li> <li>Rather that surface vegetation is cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow; and</li> <li>Disturbed areas will be re-vegetated with locally indigenous species as soon as possible.</li> </ul>	NEMBA
	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and	Construction/ set-up	<ul> <li>Environmental awareness training sessions should be part of the workers' induction and site workshops; and</li> <li>If any animals are encountered they must not be killed or injured, but should rather be</li> </ul>	NEMBA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		general activity will keep the animal life away from the site while the prospecting is ongoing.		removed or chased away from the site with the assistance of an animal specialist	
	Social	Friction between local residents/land owners and construction personnel	Construction/ set-up	<ul> <li>All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution;</li> <li>All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the</li> <li>prospecting activities in the area;</li> <li>There will always be a strict requirement to treat residents with respect and courtesy.</li> </ul>	NEMA
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Construction/ set-up	No mitigation measures required.	NEMA
	Storage and Disposal of Waste	Safety and aesthetic/ visual aspects of the property, as well as waste disposal practices	Construction/ set-up	<ul> <li>Litter generated by construction workers must be collected in containers that are clearly labeled and disposed of weekly at registered waste disposal sites.</li> <li>Enough weather- and vermin- proof bins should be placed on site for the disposal of solid waste. Littering on site should be strictly prohibited. The burning of waste on site should also be prohibited.</li> <li>All waste generated from construction activities (building rubble, solid and liquid)</li> </ul>	National Waste Act

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>waste etc.), should be disposed of as frequently at an appropriately licensed refuse facility.</li> <li>Minimize waste generation, e.g. by providing re-usable items and refillable containers (e.g. for drinking water) and adopt a 'cradle to grave' responsibility for wastes.</li> <li>Comply with legal requirements for waste management and pollution control and employ "good housekeeping" and monitoring practices.</li> </ul>	
	Hazardous Waste	Safety and aesthetic/visual aspects of the property, as well as waste disposal practices.	Construction/ set-up	<ul> <li>Any hazardous waste that may be generated should be separated from general waste and stored in clearly marked and properly sealed secondary containers.</li> <li>Any hazardous waste generated should be disposed of accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).</li> </ul>	National Waste Act
	Spills and Leaks	Safety and aesthetic/ visual aspects of the property, as well as waste disposal practices.	Construction/ set-up & Operation	<ul> <li>Any equipment that is leaking should be temporarily</li> <li>Decommissioned and removed from the construction site, to a surface with an impermeable surface and waste water collection system.</li> <li>Spill response kits must be readily available and accessible to all personnel on site.</li> </ul>	National Waste Act
	PPE			always Ensure that all persons on site use Personal Protective Equipment (PPE), this including safety boots, safety vests, protective masks etc.	Employment Act
	Illegal Fires			Ensure that no fires are ignited on site unless	NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				required for construction purposes, in which case the EC should designate areas for the fires. The designated areas should be as far as possible from vegetation.	
	Erosion	The properties of the receiving environment and ensuring that the ground is not susceptible to erosion beyond that which can be rehabilitated.	Construction/ set-up & Operation	<ul> <li>Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities.</li> <li>All topsoil stockpiles (if any) must be protected against wind, erosion and seeds, i.e. by use of shade cloth or netting.</li> <li>Topsoil stockpiles should not exceed 2 m in height.</li> </ul>	NEMA
PRE-DRILLING/EXPLORATION					
<ul> <li>Exploration drilling (ve)</li> <li>Drilling</li> <li>Drill maintenance and refueling</li> <li>Core sample collection and storage</li> <li>Vehicle movements</li> <li>Waste generation and management</li> </ul>	Noise	Noise generation	Operations	<ul> <li>Construction/setup, operational and decommissioning activities will be limited to daylight hours on Mondays to Saturdays and no activities on Sundays and public holidays.</li> <li>Separation of distance of minimum 500m, but preferably 1000m to be maintained between drill sites and dwellings; Noise abatement equipment, such as mufflers on diesel engines, will be maintained in good condition.</li> <li>If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.</li> </ul>	Heritage Act
	Visual	Visual intrusions	Operations	The drilling rig and other visually prominent items on the site will be in consultation with the landowner;	SANS 10103

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				<ul> <li>Make use of existing vegetation as far as possible to screen the prospecting operations from view; and</li> <li>If necessary, the operations can be screened from view by erecting a shade cloth barrier.</li> </ul>	
	Traffic	Increase in traffic volumes near the drilling site	Operations	<ul> <li>Traffic signs to be put around the site to notify motorist of the activities</li> <li>Construction vehicles to make trips on/off site only when necessary</li> <li>Construction vehicles to adhere to local speed limits as far as possible when driving in around site</li> </ul>	N/A
	Dust fall	Dust fall and nuisance from activities	Operations	<ul> <li>Wet suppression will be applied to ensure that no visible dust is raised by any of the prospecting operations;</li> <li>Separation of distance of minimum 500m, but preferably 1000m to be maintained between drill sites and dwellings; and</li> <li>Low vehicle speeds will be enforced on unpaved surfaces.</li> </ul>	National Traffic Act Regulations
	Soil and vegetation	Soil and vegetation disturbance from drill pad preparation	Operations	<ul> <li>The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be carried out unless necessary to establish a level drill pad. Rather that surface vegetation be cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow; and</li> <li>Disturbed areas will be re vegetated with locally indigenous species as soon as possible.</li> </ul>	GN R. 827 (NEMAQA)
	Animal life	Animal life will	Operations	Measures implemented during site	NEMBA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.		establishment should apply in this phase as well.	
	Social	Friction between residents/land owners and construction personnel	Operations	<ul> <li>All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution;</li> <li>All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the prospecting activities in the area;</li> <li>There will always be a strict requirement to treat residents with respect and courtesy.</li> </ul>	NEMBA
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Operations	No mitigation measures required.	Basic Conditions of Employment Act, No. 75 of 1997 (as amended)
DECOMMISSIONING AND REHAE	BILITATION				
Rehabilitation of the drill sites and surroundings	Removal of construction structures	Ensuring the receiving environment is	Rehabilitation	Clear and completely remove from site all construction plant equipment, storage containers, signage, temporary fencing,	NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		not impacted on any further, by dismantling machinery and equipment appropriately.		<ul> <li>temporary services, fixtures and any other temporary works; and</li> <li>Ensure that all access roads utilized during construction (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to construction.</li> </ul>	
	Waste and Rubble Removal	Visual aspects by preventing any further pollution.	Rehabilitation	<ul> <li>Clear the site of all inert waste and rubble, including surplus rock, foundations and batching plant aggregates.</li> <li>Load and haul excess spoil and inert rubble to fill in borrow pits / dongas or to dump sites indicated / approved by an environmental control specialist</li> <li>Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.</li> </ul>	National Waste Act
	Solid and Hazardous Waste			<ul> <li>Store hazardous waste as indicated in the approved Environmental Management Plan.</li> <li>Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site.</li> <li>Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner.</li> <li>Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment.</li> <li>Dispose of all visible remains of excess material when exiting the site.</li> </ul>	National Waste Act
	Erosion protection		Rehabilitation	Protect all areas susceptible to erosion and ensure that there is no undue soil erosion	NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				resultant from activities within and adjacent to the construction site.	
				Retain shrubbery and grass species wherever possible.	
				Perform regular monitoring and maintenance of erosion control measures.	

Appendix H: Site conditions and proof of impact assessment survey







Appendix I: Proof of Site Notice Placed on the Site

