



**Draft Basic Assessment Report for the Environmental
Authorisation of Coal, Pseudocoal and Oil Shale/
Torbanite Prospecting Right Application on the
Remainder of the farm Rustplaats No. 165- HU within
the magisterial district of Zululand at Abaqulisi Local
Municipality, Kwazulu- Natal Province.**

REFERENCE NO.: KZN 30/5/1/1/2/ 11048 PR

JULY 2021

Prepared for Coal African Mining Pty Ltd

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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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:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated;
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

PART A
SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. Contact Person and correspondence address

1.1. Details of

1.1.1. Details of the EAP

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1.1.2. Expertise of the EAP.

(a) The qualifications of the EAP

BSc Hons in Environmental Management and Certificate in Environmental Compliance and Enforcement.

(b) Summary of the EAP's past experience.

This report was prepared by Thabelo Teressa Nelwamondo (Pr. Sci. Nat), a certified Environmental Assessment Practitioner with over 7 years working experience in the field of Environmental Sciences. She holds an Honours degree in Environmental Management and specialises in EIA (Environmental Impact Assessment) and related projects. She has been involved in a variety of different types of EIAs, construction project, mineral tenure and water related projects in South Africa. Thabelo Matshisevhe has also been involved in public participation programmes on a number of projects.

2. Location of the overall Activity.

Table 1: Location of the overall Activity

Farm Name:	Rustplaats No. 165 HU
Application area (Ha)	
Magisterial district:	Zululand
Distance and direction from nearest town	50 km from Vryheid
21 digit Surveyor General Code for each farm portion	NOHU00000000016500000

2.1. Locality map

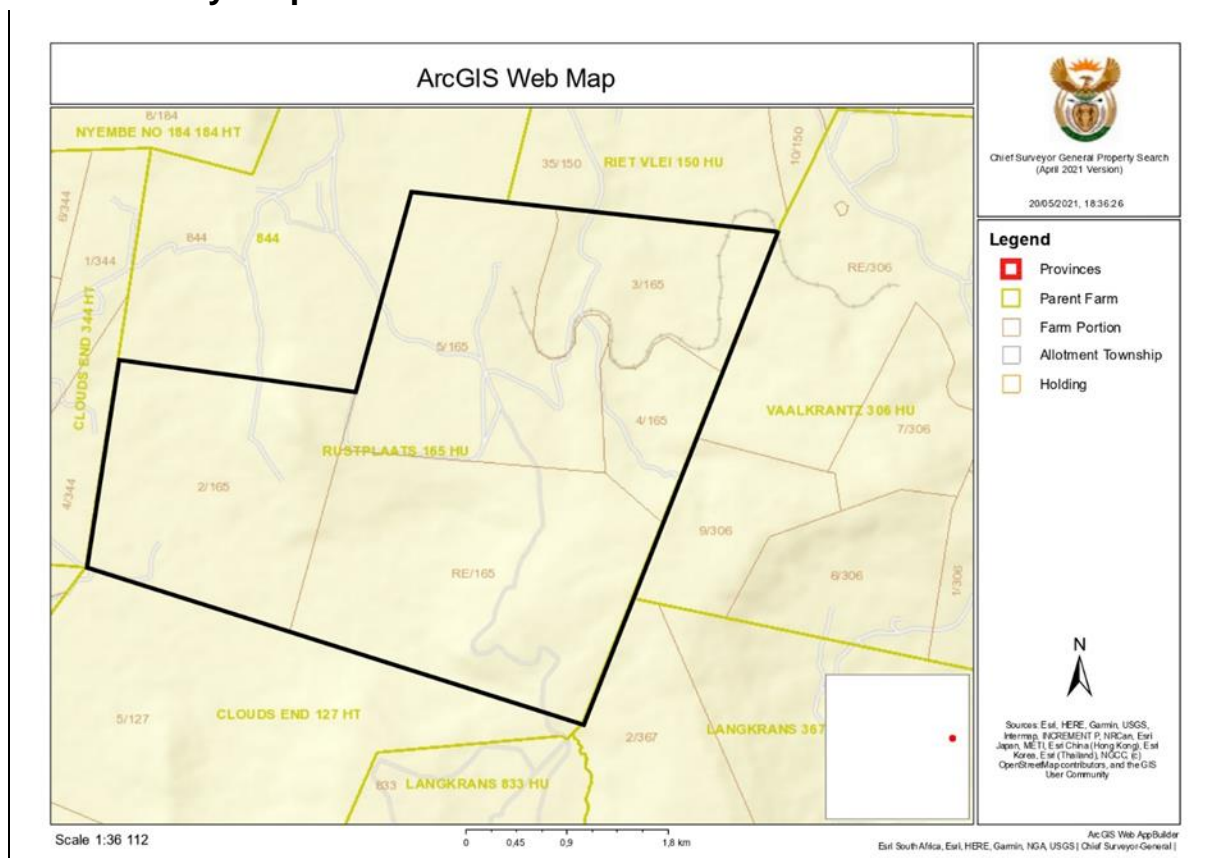


Figure 1: Locality map for the remainder of farm Rustplaats No. 165 HU

3. Description of the scope of the proposed overall activity.

The detailed geology and Coal, Pseudocoal and Torbanite/ Oil Shale potential of the area is relatively unknown, and as such exploration work will commence from a very basic level. The Prospecting Work Programme will therefore be designed in phases, each phase conditional on the success of the previous phase and will include:

a. Phase 1 – Desktop Study - Analysis of Existing Data,

The exploration records of all previous work in the area will be re-examined, and the following studies will be carried out:

- Literature review
- Detailed aerial photograph and satellite image interpretation
- Regional airborne geophysics with main emphasis on magnetic and gravity
- Regional soil geochemistry interpretation
- Geological mapping will also be carried out.

These records will need to be captured into a GIS format for geological modelling and exploration scheduling analysis. This work will form an initial desktop and surface fieldwork study to be continued during the period that the prospecting permit application is being assessed and, presumably, approved. A period of 12 months is estimated for this.

b. Phase 2 – Follow up Ground Geophysics, Soil Geochemistry and Trenching

Once targets have been generated in the first phase there will be a need to follow up on these targets. A detailed and denser soil geochemistry exercise will need to be carried out. Coupled with this will be ground geophysics to sharpen the identified potential areas. Gravity magnetic and time domain EM will need to be done.

After soil geochemical and geophysical targets are generated a trenching or pitting exercise will be done on the anomalies to determine the sidewall properties, profiles and average grades and to do drill-hole targeting. It is anticipated that phase will take approximately 12 months to complete.

c. Phase 3 –Drilling and Resource Generation

In the event that the present application is approved and areas with possible targets for the minerals applied for, this identified prospective target will require further subsurface investigation.

Drilling (air core, or RAB or RC) of the prospective areas will commence to establish presence of mineralization. Geological borehole logging, down the hole logging and sampling will also be carried out.

Whole rock analysis of all the potential intersections will be carried out. For budgeting purposes, it is assumed that every meter of the initial holes will be analysed will be made. It is anticipated that initially approximately 25 drill-holes will be drilled. Drill holes could vary in depth from 50 to 150m, with an average depth in the order of 100 meters. The total amount of drilling to be budgeted for at this stage is 2 500 meters. Dependent on the results of this drilling further 50 drill-holes totalling 5 000 meters may be required. The geological information generated will be used to model and estimate resource. The resources will at least be expected to be in the Indicated Category according to the appropriate reporting standard (SAMREC, JORC, or NI43 - 101).

d. Phase 4 – Resources drilling and Pre-feasibility Study

The final phase of the prospecting programme would involve preparation of a prefeasibility study. This would include:

- Resource drilling
- Geological Modelling
- Initial conceptual Mine Planning.
- Planning the infrastructure requirements
- Environmental management planning
- Financial modelling
- Market analysis
- Analysis of transport logistics to markets
- Assessment of personal and training requirements
- Assessment of socio-economic factors

A feasibility study is multidisciplinary in nature, and requires the highest levels of expertise available. Such studies are both costly and time consuming

3.1. Listed and specified activities

Table 2: Listed and specified activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY Mark with an X where applicable or affected.	APPLICABLE LISTING NOTICE
Prospecting activities	Approximately 700 ha	X	GNR 327, Activity 20
Drilling activities		X	GNR 327, Activity 20
Soil sampling activities (A typical sampling site will be approximately 1 m ²). It is unlikely that more than 100 samples will be taken, however, this will be confirmed on site as part of the prospecting activities.		X	GNR 327, Activity 20
Roads (roads will be temporary gravel roads, not exceeding 3.5 m in width)	Approximately 16 000 m ²	–	
Temporary Camp site	Approximately 200 m ²	–	
Site Clearance	Approximately 20 ha	X	GNR 324, Activity 12
Sludge from drilling activities	Less than 100m ²	-	
Hydrocarbon storage (storage and handling of a dangerous good)	Less than 30m ²	-	GNR 327 Activities 14; GNR 324, Activity 10

3.2. Description of the activities to be undertaken

The following section presents a detailed description of all the activities associated with the proposed Prospecting Application. Due to the nature of the Prospecting Works Programme, and the fact that the specific prospecting activities required are dependent 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 under taken.

3.2.1. Access Roads

Access to the site will be required during loam sampling, and drilling activities (Phase 2 and 3). Access requirements can only be determined after Phase 1 has been concluded. A number of existing roads and tracks already traverse the proposed prospecting site and where practicable, these roads will be used.

During soil sampling activities, vehicle access will be gained to sampling site through the veld and the establishment of a track to gain repeated access to a soil sample site will not be required. Once the drill site have been identified, temporary access roads may be established for repeated access to the drill site if the identified drill site cannot be access via existing roads and tracks.

3.2.2. Water Supply

Currently it is not known whether there are any water boreholes located on the site and whether access and supply will be granted by the landowners. It is anticipated that water brought onto the site, will be sourced from the Abaqulisi Local Municipality, Water will be trucked from the nearby borehole to the identified drill sites, water bowsers will be deployed to these sites as and when required.

Continuous water supply will be required during drilling, at an estimated rate of 1,000 litres per hour. On- site water storage tanks with a capacity of 15,000 for water supply to the drill, will be installed.

Additional water requirements relates to the potable water supply for employees and workers. A temporary 260 litre on- site vertical water storage tank for drinking water and general use by persons will be provided at the drill site.

3.2.3. Ablution

Ablution facilities at the drill site will involve the installation of drum or tank type portable toilets.

3.2.4. Temporary Office Area

A temporary site office shaded area will be erected at the drill sites. No on-site electricity generation through the use of generators will be undertaken. 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.

3.2.5. Accommodation

No accommodation for staff and workers will be provided on-site and all people will be accommodated in nearby towns. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

3.2.6. Blasting

As per the Prospecting Works Programme does not allow for bulk sampling, no blasting will take place.

3.2.7. Storage of Dangerous Goods

During the drilling activities limited quantities of diesel fuel, oil and lubricants will be stored on site. The only dangerous good that will be stored in any significant quantity is diesel fuel. A maximum amount of 60 m³ will be stored in above ground diesel storage tanks.

3.3. Detailed Prospecting Activities

3.3.1. Phase 1: Data acquisition and a Desktop study

A desktop study of all available data for the area will be undertaken to accumulate as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, and satellite imagery and existing geophysical information (if available) all Coal deposits deposits will be targeted.

3.3.2. Phase 2: Target Generation and Ground Truthing and Delineation

a. Phase 2a: Magnetometer Surveys

Should the initial results of the desktop study be encouraging, further data will be generated through a ground magnetometer survey. Anomalies identified through the initial magnetic survey will be followed by more detailed anomaly-specific ground geophysics (magnetic and gravity), as well as grid loam (soil) sampling.

It is currently foreseen that the ground magnetics survey will be carried out on parallel lines spaced at 100m across the prospecting area using a magnetometer. A magnetometer is an instrument used to measure the strength and/ or direction of the earth's magnetic field in the direct vicinity of the instrument. Local magnetic intensity is directly affected by the magnetic properties of the underlying rock mass, so magnetic surveying can be used to detect and map out magnetically distinct geological entities.

A ground magnetic survey is usually carried out using two proton precession magnetometers. One is kept stationary at a "base- station" for the duration of the survey, and measures diurnal variation in the earth's magnetic field. The other magnetometer ("roving magnetometer") is moved over the area of interest usually on a pre-determined grid of parallel straight lines. The base station data is used to correct the survey data for diurnal variation in the earth's magnetic field. The corrected magnetic survey data is then processed and gridded to reveal changes in the magnetic field over the area surveyed caused by changes in the underlying rock mass.

Proton magnetometers are small, portable machines that are easily carried by one person. Magnetic surveying needs little or no bush clearing and is extremely low impact from an environmental perspective. As no significant environmental impacts are expected during this phase, rehabilitation will not be required.

b. Phase 2b: Soil Sampling

Based on the outcomes of the magnetic survey, soil sampling will be undertaken for target areas. Soil samples will be taken to detect the presence of minerals being released into the soil layer by the weathering of the underlying rock.

Soil samples of up to 200 litres (0.2 m³ or 5-10k g) in volume will be taken in the top most soil layer (up to 20-30cm deep) and sieved on site to remove very fine (<4 25 micron) material. A typical sampling site will be approximately 1m². Access to the sampling sites will be via existing

gravel roads as far as practically possible each site will only be visited once. In arid environments the top most soil layer will be scraped off the surface as these minerals are generally denser than the other soil minerals present and get concentrated by wind action.

Soil samples are excavated using simple shovel and bucket, so soil sampling is a low impact exploration method in terms of environmental disturbance. The distance between soil sample positions is determined on-site, generally in conjunction with a ground geophysical survey.

Minimal disturbance of vegetation and wildlife is envisaged. Each soil sampling site will be levelled after the sample was taken and due to small size of these sites, the re-vegetation of the sites will not be required as it is expected that natural vegetation will re-establish itself within a short period.

3.3.3. Scout Drilling and Delineation Drilling

Targets generated during the sampling and geophysical surveys will be investigated on the ground and tested by initial diamond or percussion drilling. If any of the exploration targets give a positive result, a drilling program will be undertaken in order to delineate and give a preliminary assessment of the diamond potential of the deposit identified. These will be analysed by electron microprobe for major and selected minor elements and the results will be interpreted to assess copper ore and heavy minerals potential.

Should delineation and initial evaluation of the deposit indicate a sufficient size and grade to warrant further evaluation, an appropriate bulk sampling program will be undertaken in order to establish grade and confirm its viability for mining.

4. Policy and Legislative Context

Table 3: Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
National Environmental Management Act , 1998	This Basic Assessment Report & EMP	An application for Environmental Authorisation was submitted to the DMR Limpopo. The application was accepted by the DMR on the 22 nd of April 2021 (KZN 30/5/1/1/2/ 11048 PR). The Department of Mineral Resources requested the submission of the BAR and EMP within the period of 90 days of the acceptance letter.
National Water Act , 1998	Groundwater abstraction as part of drilling activities. Soil sampling for Coal, Pseudocoal and Torbanite/ Oil Shale.	In terms of Government Notices Regulation 399, the applicant will be allowed to abstract 75 m ³ of groundwater per hectare per annum from groundwater within quaternary catchment. This use will be Generally Authorised. Although each soil sample will only be 1 m ² in size, these may be located within any River or a tributary within the application area. Clarification is required from DWS whether a Section 21 (c) and (i) Water Use License will be required.
Mineral and Petroleum Resources Development Act, 2002	Application for Prospecting in terms of Section 16	A Prospecting Right Application has been submitted to the Department of Mineral Resources by the Applicant. The application was accepted by the Department of Mineral Resources- Durban regional office on the 22 nd of April 2021, KZN 5/1/1/2/ 11048 PR).
Strategic Development	Alternatives	In terms with the SDF of the Abaqulisi Local

Framework (SDF)		municipality, various strategies and associated policies should be adopted to ensure effective spatial Development.
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5. Need and desirability of the proposed activities.

Exploration work is very important in coming up with a decision to open a mine. The planned surface work including drilling is important to be done on rocks that have potential to host the minerals to be explored. In the area is characterised by the igneous and sedimentary rocks of the Karoo Supergroup. The planned drilling positions are located on the rocks forming part of the Bushmanland Group and it is important that the drill holes are located on these sites. Detailed desktop study and geophysical surveys will refine the drill-hole location thus these may be moved once work begins.

The definition of Prospecting interms of the MPRDA states: “intentionally searching for any mineral by means of any method which disturbs the surface or subsurface of the earth, including any portion of the ear th that is under the sea or under other water...”. The company therefore applied for prospecting on the properties as discussed in this report to determine the presence of Coal, Pseudocoal and Torbanite/ Oil Shale, and whether these are feasible to enter into further studies towards a Mining Right.

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

5.1.1. Preferred site

The proposed prospecting area is targeted as, historically several Coal occurrences are known in the area of the closure of the Coronation, Mnyathi, and Hlobane mines in 1997 and 1998 (Integrated Development Plan 2009/2010, 2009). The site therefore regarded as preferred site and alternative site is not considered.

5.1.2. Technological and Site Activity Alternatives

Geophysical surveys, trenching and drilling are the only major methods used in exploring for deposits of this type and also for resource definition and evaluation. The technology to be used cannot be replaced by any other methods thus these are the preferred activities

Due to the nature of the proposed prospecting activities future land use alternatives will not be compromised. Once available reserve has been confirmed a comprehensive Social and Environmental Impact Assessment will be required (in accordance with legislation), during which time alternative land use to mining would be investigated.

In terms of the technologies proposed, these have been chosen based on the long term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, 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 Prospecting Works Programme. All infrastructure will be temporary and/or mobile.

6. Full description of the process followed to reach the proposed preferred alternatives within the site.

6.1. Details of the development footprint alternatives considered.

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

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

6.1.1. The property on which or location where it is proposed to undertake the activity;

Coal African Mining Pty Ltd applied for prospecting right on remainder of the farm Rustplaats No. 165 HU within the Abqulisi local municipality and Zululand District municipality. Based on the evidendence of the closure of a coal mines within the municipality, the possibility to encounter further minerals reserves on the properties subject to this Prospecting Right Application was identified (Abaqulisi Local Municipality IDP; 2016/2017).

6.1.2. The type of activity to be undertaken;

In terms of the technologies proposed, these have been chosen based on the long term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques .

6.1.3. The design or layout of the activity;

The location of activities will be determined based on the location of the prospecting activities, which will only be determined during Phase 1 of the Prospecting Works Programme. All infrastructure erected on site will be temporary.

6.1.4. The technology to be used in the activity;

In terms of the technologies proposed, these have been chosen based on the long term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

6.1.5. The operational aspects of the activity;

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage facilities are required.

The activities will commence with Magnetometer Surveys (as previously discussed), which will comprise of non- invasive techniques. This manner of survey will ensure that the client can clearly delineate areas which are regarded as suitable for further investigation and no unnecessary surface disturbance will be undertaken.

Based on the outcomes of the magnetic survey, soil sampling will be undertaken for target areas only. Soil samples is planned to be excavated using a simple shovel and bucket. Soil 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 it relates to exploratory drilling will comprise the establishment of the drillpad (drill pad clearing and compaction), drilling operations (drill maintenance, refueling, 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. Impact associated

with the drilling operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

6.1.6. The option of not implementing the activity.

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

The municipality must provide alternative means of support for rural/ informal population in order to decrease dependence on the environment and subsistence agriculture. For this purpose the following policies are adopted:

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

6.2. Details of the Public Participation Process Followed

6.2.1. Identification of Interested and Affected Parties

Settlements were identified through the use of the 1:50 000 topographical map, aerial imagery Title deed searches and through consultation. No communities are situated on the said properties, landclaim has been lodged by the community close to the farm (Ward 5) but it has not been granted. Farm wner was contacted about the project and there was no respond.

Other I&APs identified, include Organs of State, who have jurisdiction over, or might have an interest in the proposed protecting activities, adjacent and other landowners, non-governmental organisations and other organisations and/ private persons.

Adjacent and non-adjacent landowners were identified through the review of property databases and deed searches, natural person (s) contact databases, and expanded through queries and recommendations made by identified stakeholders and general internet based searches.

a. Methodology of Notification:

- Cadastral search and Deeds searches to identify farm portions
- Adverts and Site Notices to notify stakeholder

- Distribution of BIDs with comments sheet requesting the recommendation of any other stakeholders
- Site Visit to consult with stakeholder
- Community or Communities Identified and whether these parties are the landowner.

b. Land Claims

The request for a Land Claim Letter was e-mailed to from J Boucher (Department of Rural Development and Land Reform- landclaims enquiries) on the 26th of May 2021. Envirostep is still waiting for response till this day.

c. Traditional Authorities

The ward councillor for ward 5 Mr Ntombela and Mr Mdititit has been the contact person to the community.

d. Municipalities

The project is located within the Magisterial District of Zululand, under the jurisdiction of the Abaqulisi Local Municipality, located within Zululand District Municipality. The Local Municipality was informed via e-mail and BID and Site Notices were hand delivered on the 21st of May 2021.

e. Landowners and Notification Methodology

Farm owners identified for the farm under application includes, Leeuw Mining and Exploration, Pienaar FJ and Xstrata South Africa. They were all contacted and no response have been received from them.

f. Adverts were placed in the:

- Classifieds on the 04th of June 2021
- BID and Registration Sheet with a Locality map was sent to all interested and affected parties via e-mail on the 21st of May 2021.
- A site visit was conducted on 21st of May 2021.
- All Government department were informed of the said application via e-mail.
- A3 Site Notices were placed at the site boundary, Abaqulusi Local Municipality on 21st May 2021 and on the farm under application.
- BIDs were printed and made available within the study area, local libraries and local municipalities.

- A draft copy of the EMP will be provided to all I&APs registered on the project database for a period of 30 days to allow I&APs the opportunity to comment on the findings of the EMP. The draft EMP report will be made available to I&APs on the 19th of July 2021 to tge 19th of August 2021.

g. Issues and Response Register

All comments received by Stakeholders are included in the table below.

6.2.2. Summary of issues raised by I&Aps

Table 4: Summary of issues raised by I&APs

Interested and Affected Parties		Date	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Comments Received			
<u>AFFECTED PARTIES</u>					
Landowner/s	X				
Leeuw Mining and Exploration	X				
Pienaar FJ	X				
Xstrata Sout Africa	X				
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Mr Ntomela	X	21/05/2021			
Municipality	X				

Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Abauqulusi LM	X				
Communities					
Mr Ntombela (Ward councillor)	X				
Dept. Land Affairs					
Department of Rural Development and Land Refore- Piertermaritzburg	X				
Traditional Leaders					
Chief Buthelezi	X				
Dept. Environmental Affairs					
KZN Department of Economic Development and Environmental Affairs	X				
Other Competent Authorities affected					
SAHRA	X				

6.3. Concluding Remarks on Stakeholder Consultation

No key issues have been raised to date. The consultation commenced one month prior to the submission of the draft report and therefore the findings in this section should be considered preliminary and will be updated once the final report is available. The consultation report had already been submitted to the DMR (Competent Authority) at the time of the compilation of the draft report.

7. The Environmental attributes associated with the alternatives.

7.1. Baseline Environment

7.1.1. Type of environment affected by the proposed activity.

Abaqulusi falls in varied climatological zones as defined by the bio-resource classification of the KZN Department of Agriculture and Environmental Affairs. The dominant bio-resource groups are the Moist Tall Grassveld, the Warm Sour Sandveld, the Warm Moist Transitional Tall Grassland, and the Dry Zululand Thornveld. The mean annual rainfall in these areas range from 640 mm and 800 mm but rises up to between 800 mm and 1000 mm east of Khambi along the eastern boundary of Ward 3.

The mean annual temperature lies between 170C and 190C. Summers are generally warm to prolonged hot spells reaching 300C. Winters are cold to very cold. Very cold winter periods are often associated with moderate to severe frost. The dominant vegetation type in the municipality is grassland. The grassland consists of tall grass species predominantly Hyparrhenia hirta and other species of Hyparrhenia in lesser prevalence. Woody vegetation is found on dolerite hillsides where the dominant tree species are Acacia caffra, and Acacia kerroo mainly along the watercourses.

The relevance of this issue to the Abaqulusi Municipality is that there is large-scale forestry activity in the municipality as well as some extensive areas of indigenous forests. The occurrence of timber plantations in association with the tall grassland vegetation supplies sufficient biomass for the disastrous bushfires. The issue of a high potential for Abaqulusi to be

a fire prone municipality becomes even more significant considering the fact that climatic conditions favours the development and spread of uncontrollable bush fires. (Abaqulusi Final IDP; 2016/2017)

7.1.2. Description of the current land uses.

Based on the available information gathered during the site visit, only sparse vegetation was seen with old piles of coal. The land portions under Prospecting Right Application is currently not utilized for anything. This was confirmed during a site investigation and stakeholder investigation process conducted on the 22nd and 23rd of May 2021.

7.2. Description of specific environmental features and infrastructure on the site.

7.2.1. Biodiversity

The Abaqulusi Municipality is among many municipalities that have had large areas of vegetation transformed as a result of one kind of land use or another. Wide spread land transformation occurs mainly in Wards 14 to 20 along the western part of the municipality and Wards 7 to 11 in the north western part. Other areas where significant transformation has occurred are in Wards 5 and 3 at the southern end of the municipality

7.2.2. Protected areas

As per the Municipal SDF, there are only 2 protected areas within the municipality, namely:

- Ithala Game Reserve
- Vryheid Mountain Nature Reserve

These 2 areas mentioned above constitute 1% of the land cover in Abaqulusi.

7.2.3. Key Hydrological Features

The proposed site is located within the Pongola Mtamvuna Water Management Area (WMA). Located under the quaternary catchment W31A.

a. Wetlands

Areas saturated with water either permanent or seasonal are found within Abaqulusi Region. Wetlands make important contributions to the hydrological functioning and linkages in the Municipality. The largest wetlands are found within the Western part of Umfolozi catchment in

Ward 12 to 19 and from place to place in Vryheid especially around Bhekuzulu location. In Lakeside, Blood River Vlei, and Klipfontein Bird sanctuary, wetlands are also found.

Wetlands in the areas of this municipality have been significantly drained due to frequent burning, over-grazing, and agricultural activities, climate change and drought. Wetlands have reduced the functionality of storm-water attenuation.

b. Catchment Areas / Rivers

Two major catchments originate from Abaqulusi Municipality: Umfolozi catchment and Mkhuze catchment. Umfolozi is the largest with approximately twice the total surface area occupied by the Mkhuze catchment. These catchments are the source of several rivers that serve the socio-economic, agricultural, and industrial water demands of Abaqulusi. The following rivers are found within Abaqulusi:

White and Black Umfolozi	Mkhuze River
Mvunyana River	Sikwebezi River
Sandsruit River	Bululwana River
Thala River	

7.2.4. Geology

The site, Farm Toonversnaas 518 HU, lies in the Vryheid coalfield and south of the Hlobane Colliery. This is in the north eastern part of the main Karoo Basin. Mudstones, siltstones, sandstones and coal seams have filled in the uneven topography of the basin during the Permian and Triassic periods. Jurassic dolerite dykes have cut through these sediments, mostly to the south and west of this area, and are associated with the Drakensberg basalt outpourings. To the east of the site are several small exposures of the slightly older Dwyka Group tillites, diamictites, sandstones and mudstones, also of the Karoo Supergroup.

7.2.5. Climate change

More frequent and severe flooding as a result of higher intensity storm events and possibly more frequent hail events. This will and will impact on human settlements, infrastructure, human health and place a greater burden on particularly impoverished communities. Higher rainfall may increase agricultural production but water availability could become a limiting factor, requiring increased irrigation. Ground and surface water systems are vulnerable.

In this regard small scale farming is likely to be most affected. Heat waves may result in increased heat stress to plants, animals and humans and will increase associated fire risk placing livestock and grazing capacity under threat. Below or average levels of rainfall may result in prolonged shortages in water supply resulting in severe drought for an unknown period of time. From a spatial planning perspective, responses are largely focused around avoiding new development and insisting on development controls around flood prone areas. Other responses are generally considered good practice and regardless of climate change, they will generally lead to an improved standard of living. These mentioned responses, if implemented should increase the resilience of vulnerable communities to climate change.

7.2.6. Land capability

Agricultural potential for any given land area is generally classified into eight potential ratings as: very high, high, good, moderate, restricted, very restricted, low, and very low potential. Agricultural potential within Abaqulusi Municipality falls into seven of the eight potential ratings namely: High good, relatively good, moderate, restricted, very restricted low, and very low agricultural potential areas. The majority of the municipality has well to moderate agricultural potential. High agricultural land occupies 13% of the total land area of approximately 41 8461 ha. About 30% of the land has minimal agricultural value. The Map below indicates the Land Capability within the Abaqulusi Municipality.

7.2.7. Soil

Soil The Application Area consists of Areni-Endoleptic Regosols which is predominantly found in arid areas, in the dry topics and in mountain regions. Regosols in mountains areas are best left under forest and this is clearly evident in the maps produced illustrating land cover of the site.

7.2.8. Air Quality

The sources of air pollution from human activities comprise of three broad categories i.e. stationary sources (mining, quarrying,), community sources (homes or buildings, municipal waste, fireplaces, cooking facilities, laundry services and cleaning plants) and mobile sources combustion-engine vehicles and fugitive emissions from vehicle traffic). Air pollutants are generally classified into suspended particulate matter (dust, fumes, mists and smokes), gaseous pollutants (gases and vapours) and odours. Assessment of the proposed prospecting right area has determined that all three categories of air pollution sources are expected to be of a low significance within the Application area.

7.2.9. Noise

Noise Potential noise sources from the area may emanate from the following sources i.e. roads and surrounding land uses.

7.2.10. Socio-economic

The proposed prospecting site is located in Ward 3 of the Abaqulusi Local Municipality under the jurisdiction of the Zululand District Municipality.

The Municipality is located in the northern part of KwaZulu-Natal and is approximately 1943 km² in extent and has a population of about 211 060 people. (Statistics SA: Census 2011). The population of Abaqulusi Local Municipality consists of 95, 4% Black Africans, 0.5% Coloureds, 0.4% Indians, 3.5% Whites, with the female sex at 52.4%, slighter higher than that of their male counterparts at 47.6%. Unemployment is rife in the area with more than 60 000 people not economically active. These numbers equate to an unemployment rate of 35.4% and youth unemployment at 45.1%.

The application area is 50km away from Vryheid, Zululands main commercial, industrial and business centre. It is well located at the intersection of major transport routes, which traverse the region. However, over the years the Abaqulusi region has seen a significant decline in its economy mainly due to the closure of many mines in and around the region which was the primary economic activity in the 80's and 90's. Upon closure of these mines around 1998 and 1999, many people were left unemployed and towns were then deserted and neglected. Many of the effects caused by these mine closures are still evident today in town such as Hlobane, Corronation and Vaalbank. The above considerations has resulted in additional pressure on the municipality to provide sustainable services to these areas. According to data released in 2011 by Stats SA, just over 60% of the population within the Abaqulusi region source their water from the Municipal water scheme. Only 40% of the LM is connected to the Municipal sewage system.

7.3. Environmental and current land use map.

Attached to Appendix A

8. Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

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

Table 5: Potential impacts associated with each activity.

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
Phase 1: Data Acquisition and Desktop Study						
Phase 1: Data Acquisition	N/A	Data collection and assessment (desktop only)	None identified.	N/A	N/A	N/A
Phase 1: Desktop Study	N/A	Data Assessment	None identified.	N/A	N/A	N/A
Phase 2: Target Generation and Ground Truthing						
Phase 2: Airborne geophysics survey	N/A	Site fly-over (flying height of approximately 25m over a period of approximately 1 week)	Noise impacts resulting from site fly-overs affecting cattle and game farm animals. Nuisance noise impacts on communities and landowners and other persons.	Yes	No	No
Phase 2: Ground geophysics survey	N/A	Ground survey	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Yes	No	Yes
Phase 2: Soil Sampling	Construction Phase	No construction or site establishment activities will be undertaken.	No anticipated impacts.	N/A	N/A	N/A

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
	Operation Phase	Site access	<ul style="list-style-type: none"> • Destruction and/ or disturbance of on-site fauna and flora. • Poor access control resulting in impacts on cattle movement, breeding and grazing practices. • Vehicle traffic noise impact affecting cattle and/ or wildlife. • Poor housekeeping could result littering and associated impacts this will have on the aesthetics of the area, contamination of river systems in the rainy season and also the potential health hazard to cattle. • Activities within the river bed could result in the 	<p>Partial</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Partial</p>	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>Pontential</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			<p>disturbance to the natural geomorphology.</p> <ul style="list-style-type: none"> Activities within the river bed could result in safety hazards during rainy periods. 	No	No	Yes
		Soil Sampling	Soil disturbances from soil sampling resulting in soil 30 kg of soil per sample?	Yes	No	No
	Decommissioning Phase	No decommission will be required	No anticipated impacts	N/A	N/A	N/A
Phase 3: Scout Drilling and Delineation Drilling						
	Construction Phase	Site Access	Destruction and/ or disturbance of on-site fauna and flora.	Partial	No	Yes
			Soil compaction resulting from repeated use of access roads to drill sites.	Yes	No	No
			Vehicle traffic noise impact affecting cattle and/ or horses.	Yes	No	No

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Yes	No	Yes
			Potential destruction of heritage resources.	No	Yes	Yes
		Site establishment activities including: (a) Vegetation clearing of drill pad area. (b) Topsoil stripping and stockpiling. (c) Drill pad compaction (d) Excavation and lining of drill water sump. (e) Erection of temporary site office shaded area, potable ablution facilities and water storage tanks and core bay.	Destruction and/ or disturbance of on-site fauna and flora.	Partial	No	Yes
			Soil disturbance and compaction and topsoil stockpiling resulting in soil erosion.	Yes	Partial	No
			Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Yes	No	Yes
			Visual impact affecting visual character and “sense of place”	Yes	No	Partial

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
		(f) Erection of fuel storage tank. (g) Erection of safety barrier. (h) Waste generation and management.	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of the theft and opportunistic crime.	Yes	No	Partial
	Operational Phase	Exploration drilling and core sample collection and storage including:	Water and soil pollution resulting from disposal of drill fluids.	Yes	Partial	Yes
		(a) Scout and delineation drilling.	Continued soil erosion from topsoil stockpile and compaction from drill pad platform.	Yes	No	Yes
		(c) Core sample collection and storage. (d) Drill fluid collection, storage and evaporation.	Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Yes	Partial	Yes
		(e) Waste generation and management.	Dust emissions from drilling and general site activities (including vehicle entrained	Yes	No	Yes

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			dust).			
			Visual impact affecting visual character and “sense of place”	Yes	No	Partial
			Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Yes	No	Partial
			Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	No	No	Yes
			Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Yes	No	Partial
			Impact on the pans and associated ecosystem in the area.	No	Yes	Yes
			Decommissio	Removal of temporary	Dust emissions from	Yes

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
	ning phase	infrastructure including:	decommissioning activities (including vehicle entrained dust).			
		(a) Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	No	No	Yes
		(b) Boreholes capping	Potential water and soil pollution from hydrocarbon spills.	Yes	Partial	Yes
		Drill pad rehabilitation including:	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Yes	No	Yes
		(a) Ripping of drill pad and access road.				
		(b) Re-spreading of stockpiled topsoil.				
		(c) Re-vegetation				

9. Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

9.1. Criteria of assigning significance to potential impacts

The evaluation of impacts is conducted in terms of the criteria detailed in Table 5 to Table 8. The various environmental impacts and benefits of this project are discussed in terms of impact status, extent, duration, probability, and intensity. Impact significance is regarded as the sum of the impact extent, duration, probability and intensity and a numerical rating system has been applied to evaluate impact significance; therefore an impact magnitude and significance rating is applied to rate each identified impact in terms of its overall magnitude and significance (Table 9).

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

9.2. Impact Status

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

Table 5: Status of Impact

Rating	Description	Quantitative Rating
Positive	A benefit to the receiving environment	P
Neutral	No cost or benefit to the receiving environment	-

Rating	Description	Quantitative Rating
Negative	A cost to the receiving environment	N

9.3. Impact Extent

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

Table 7: *Extent of impact*

Rating	Description	Quantitative Rating
Low	Site specific: occurs within the site boundary	1
Medium	Local: Extends beyond the site boundary; Affects the immediate surrounding environment (i.e. up to 5km from the project site boundary)	2
High	Regional: Extends far beyond the site boundary; widespread effect (i.e. 5km and more from the project site boundary)	3
Very High	National: Extends far beyond the site boundary; widespread effects.	4

9.4. Impact Duration

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

Table 6: Duration of Impact

Rating	Description	Quantitative Rating
Low	Short term: Quickly reversible; less than the project lifespan; 0-5 years.	1
Medium	Medium term: Reversible over time; Approximate lifespan of the project; 5-17 years.	2
High	Long term: Permanent; Extends beyond the decommissioning phase; >17 years	3

9.5. Impact Probability

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

Table 7: Probability of impact

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

9.6. Impact Intensity

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

Table 8: Intensity of Impact

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

Rating	Description	Quantitative Rating
	cease.	
Very Severe	Where natural, cultural and/ or social functions or processes are altered to the extent that it will permanently cease.	-5

9.7. Impact Significance

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

Table 9: Impact Magnitude and Significance Rating

Impact	Rating	Description	Quantitative Rating
7	High	Of the highest positive order possible within the bounds of impacts that could occur.	+12- 16
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. Other means of achieving this benefit are approximately equal in time, cost and effort.	+6- 11
	Low	Impacts is of a low order and therefore likely to have a limited effect. Alternative means of achieving this benefit are likely to be easier, cheaper, more effective and less time-consuming.	+1- 5
No Impact	No Impact	Zero impact	0
Negative	Low	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. Social, cultural, and economic activities of communities can continue	-1- 5

Impact	Rating	Description	Quantitative Rating
		unchanged.	
	Medium	Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly possible. Social cultural and economic activities of communities are changed but can be continued (albeit in a different form). Modification of the project design or alternative action may be required.	-6- 11
	High	Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time-consuming or a combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt.	-12- 16

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

As discussed in the previous section, Coal African Mining Ltd applied for prospecting rights over the area which looks like an old Coal mine or an area where community is practicing illegal mining. Based on the outcome of the desktop investigation, the possibility to encounter further minerals (Coal, Pseudocoal and Torbanite/ Oil Shale on the properties subject to this Prospecting Right Application is very high.

The applicant applied for prospecting on the property as discussed in this report to determine the presence of Coal, Pseudocoal and Torbanite/ Oil Shale and whether these are feasible to enter into further studies towards a Mining Right Application. No alternatives are available that will have an impact on a different setting than the environment discussion provided below.

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

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

The following impacts are regarded as community impacts:

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

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and/ or regional communities will result from the prospecting activities.

10.1.1. Water quality and availability

There is no river identified close by.

10.1.2. Influx of persons resulting in increased crime rates

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

10.1.3. Visual Impact

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

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

The section below provides a summary of the key management measures associated with the impacts identified in the previous section. The detailed rating and management plan is presented in Section 9, page 42.

10.2.1. Measures to manage the potential impact on heritage resources

No Heritage Impact Assessment study has been conducted. No graveyards were identified during the site visit

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

a. Pollution Prevention

- Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities, landowners and other stakeholders. These mitigation and management measures are discussed in the following section.

b. Noise due to the under taking of the site fly-overs and prospecting activities;

- Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farms.
- Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, with a view to prevent possible injury or damage as a result of animals being start led by the noise.
- Site activities will be conducted during day time hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.

- c. Poor access control resulting in impacts on cattle movement, breeding and grazing practices;
- Access control procedures must be agreed on with farm owners and all staff trained on these procedures.
- d. Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime;
- Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
 - The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.
 - If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.
- e. Visual Impact
- Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.
 - The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
 - A waste management system will be implemented and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and/ or regional communities will result from the prospecting activities.

10.2.3. Measures to manage the potential impact on Water quality and availability

a. Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion will be mitigated and managed as follows;

- Existing tracks and roads must be used as far as is practicable to minimize the potential for soil erosion. In instances where access to drill sites are to be established, and if required, raised blade clearing will be undertaken with a view to maintain vegetation cover to limit soil erosion potential .
- Soil disturbances are to be limited as far as is practicable to minimize the potential for soil erosion.
- When establishing the drill pad, topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stock pile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. Stockpiled topsoil will be used during rehabilitation efforts.
- Where practicable topsoil will be stripped to a depth of 10cm. Topsoil will be stockpiles to a maximum height of 1.5 m with a side slope of not more than 1:3.
- Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles to stabilise slopes.
- To reduce the potential for water pollution during the drilling activities, a sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.
- The sump will be constructed to divert storm water away and/ or around the sump to avoid clean stormwater inflow.
- Oils and lubricant will be stored with in secondary containment structures.
- Where practicable, vehicle maintenance will be undertaken off- site.
- In the event that vehicle maintenance is undertaken on- site (i.e. such as break down maintenance), drip trays and/ or UPVC sheets will be used to prevent spills and leaks onto the soil.
- A waste management system will be implemented and sufficient waste bins will be provided for onsite. A fine system will be implemented to further prohibit littering and poor housekeeping practices.
- Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).
- Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.

- Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.
- Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes.
- Drill holes must be permanently capped as soon as is practicable.

10.2.4. Motivation where no alternative sites were considered.

Based on the old piles of Coal in the farm under application, there is possibility to encounter further minerals (Coal, Pseudocoal, Torbanite/ Oil Shale) on the properties subject to this Prospecting Right Application was identified.

The applicant therefore applied for prospecting right on the properties as discussed in this report to determine the presence of Coal, Pseudocoal, Torbanite/ Oil Shale and whether these are feasible to enter into further studies towards a Mining Right. No alternatives are available that will have an impact on a different setting than the environment discussion provided below.

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

10.2.5. Statement motivating the alternative development location within the overall site.

As it is clear from the information provided, each of the phases is dependent on the results of the preceding phase. The location and extent of soil sampling, and possible core drilling will be determined based on information derived from the geophysics surveys. Sampling and drill sites will be selected to avoid known heritage features and water courses where practicable.

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

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

The stakeholder consultation process was undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input in to the project. This is a key focus, as the local residences have capabilities of providing site specific information, which may not be available in desktop research material. Stakeholders are requested (as part of the BID) to provide their views on the project and any potential concerns which they may have. All comments and concerns will be captured and formulated into the impact assessment.

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

- South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system;
- Geographic Information System base maps;
- Department of Water Affairs information documents such as the (ISP and Groundwater Vulnerability Reports);
- Municipal Integrated Development Plan;
- Municipal Strategic Development Framework; etc.

A site visit was undertaken on the 21st of May 2021. This site visit was utilized to ensure that the information gathered as part of the desktop investigation reflects the current status of the land.

The rating of the identified impacts was undertaken in a quantitative manner as provided from Impact Ratings. The ratings are undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and actual views. The identification of management measures

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

11.1. Assessment of each identified potentially significant impact and risk

Table 10: Identified potentially significant impacts and risk

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
Phase 1: Data Acquisition and Desktop Study						
Data Collection and assessment (desktop only)	None identified	N/A	Planning	N/A	No mitigation proposed.	N/A
Data Assessment	None identified	N/A	Planning	N/A	No mitigation proposed	N/A
Phase 2: Target Generation and Ground Truthing						
Site fly-over	Noise impacts resulting from site fly-overs affecting cattle and other animals	Noise generation	Planning	7	Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on animals found on site and also in proximity	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					areas. Farm owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, which may result in injury or damage.	
	Nuisance noise impacts on communities and landowners and other persons.	Noise generation	Planning	7	No mitigation proposed.	7
Ground surveys	Poor access control resulting in impacts on cattle and horses movement, breeding and grazing practices.	Loss of cattle and horses	Planning	10	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	8
No construction or site establishment activities will be undertaken.	No anticipated impacts	N/A	N/A	N/A	No mitigation proposed.	N/A
Soil sampling (30 kg	Destruction and/ or	Loss of	Operational	6	Use existing track and roads in all	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
of soil per sample)	disturbance of on-site fauna and flora.	fauna	Phase		<p>instances as far as practicable.</p> <p>As part of the soil sampling programme, no tracks will be cleared for once-off access to sampling sites.</p> <p>Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified sampling site.</p> <p>Site activities will be conducted during daytime hours 07h00- 17h30 to avoid night noise disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.</p>	
	Poor access control resulting in impacts on	Noise generation	Operational Phase	10	Access control procedures must be agreed on with farm owners and all	8

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	cattle movement, breeding and grazing practices.				staff trained on these procedures.	
	Vehicle traffic noise impact affecting cattle and horses or even wildlife from neighbouring farms.	Loss of cattle and/or nuisance creation.	Operational Phase	6	Siet activities will be conducted during daytime hours 07h00- 17h30 to avoid night time noise disturbances and night time collisions with fauna.	4
	Poor housekeeping could result in littering and the associated impacts this will have on the area, contamination of river systems in the rainy season and also the potential health hazard to cattle and other animals.	Loss of aesthetic value, loss of water resources, loss of fauna and flora.	Operational Phase	13	<p>A waste management system will be implemented and sufficient waste bins will be provided for on site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.</p> <p>Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals</p>	6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					overnite. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.	
	Activities within the river bed could result in the disturbance to the natural geomorphology.	Loss of fauna and flora, altering the river bed.	Operational Phase	12	Only sampling may be undertaken in the river bed. No other activities (drilling, roads, etc.) may be undertaken.	4
	Activities within the river bed could result in safety hazards during rainy periods.	Loss and. Or damage to life.	Operational Phase	15	No sampling within the riverbed will be permitted during rainy periods. A first aid station and emergency must be available on site.	7
	Soil disturbance from soil sampling resulting in soil structure destruction, compaction and erosion.	Loss of soil resources	Operational Phase	6	Soil disturbances are to be limited as far as is practicable.	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
No decommissioning activities will be required.	No anticipated impacts.	N/A	Decommissioning Phase	N/A	No mitigation proposed.	N/A
Phase 3: Scout Drilling and Delineation Drilling						
Site Access	Destruction and/ or disturbance of on-site fauna and flora.	Loss of fauna and flora	Operational Phase	10	<p>Map indicating the location of the drilling sites must be submitted to the relevant landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed.</p> <p>Use existing track and roads in all instances as far as is practicable.</p> <p>Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such trees and large shrubs will be avoided.</p> <p>Site activities will be conducted during</p>	6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>daytime hours 07h00- 17h30 to avoid night time noise disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.</p>	
	Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources.	Construction Phase	8	<p>Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts.</p> <p>As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.</p>	5
	Vehicle traffic noise impact affecting cattle, horses and other animals on site.	Loss of fauna	Construction Phase	6	Site activities will be conducted during daytime hours 07h00- 17h30 to avoid night time noise disturbance.	4
	Poor access control resulting in impacts on cattle and horses	Loss of fauna	Construction Phase	10	Access control procedures must be agreed on with farm owners and staff trained.	8

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	movement, breeding and grazing practices.					
	Potential destruction of heritage resources	No heritage/cultural resources on site	Construction Phase	N/A	No mitigation proposed.	N/A
Site establishment activities including: (a) Vegetation clearing of drill pad area. (b) Topsoil stripping and stockpiling (c) Drill pad compaction. (d) Excavation and lining of drill water sump. (e) Erection of temporary site office	Destruction and/or disturbance of fauna and flora	Loss of fauna and flora	Construction Phase	10	The removal of vegetation within the drill pad area will be minimized. If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts. The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
<p>shaded area, potable ablution facilities and water storage tanks and core bad.</p> <p>(f) Erection of fuel storage tank</p> <p>(g) Erection of safety barrier.</p> <p>(h) Waste generation and management.</p>	<p>Soil disturbance and topsoil stockpiling resulting in soil compaction and erosion.</p>	<p>Loss of soil resources</p>	<p>Construction Phase</p>	<p>11</p>	<p>habitat which may result from fire.</p> <p>In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil.</p> <p>Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Where practicable topsoil will be stripped to a depth of 10 cm.</p> <p>Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts.</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>Topsoil will be stockpiled to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>Mechanical erosion control methods will be implemented if required. This may include the use of geotiles to stabilise slopes.</p>	
	Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Dust emissions	Construction Phase	10	<p>Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when deemed.</p> <p>Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.</p>	6
	Visual impact affecting character and "sense of	Loss in aesthetics	Construction Phase	6	The shaded office area, portable ablution facilities, vertical water tanks	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	place”.				and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured	
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Construction Phase	8	<p>Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the South African Police Services (SAPS) will be informed of unauthorised persons encountered on site.</p>	7
Exploration drilling	Water and soil pollution	Loss of	Operational	12	A sump will be constructed with a	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
and core sample collection and storage including: (a) Scout and delineation drilling (b) Drill	resulting from disposal of drill fluids.	water resources, loss of soil resources	Phase		suffucuent capacity to receive drill fluids and allow for evaporation. The sump will be constructed to divert stormwater away and/ or around the sump to avid clean stormwater inflow.	
maintenance and re-fuelling. (c) Core sample collection and storage. (d) Waste generation and management.	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational Phase	11	In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3. The topsoil stockpile will shaped to divert stormwater around the drill pad to minimise soil erosion of the pad. Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.	7
	Potential water and soil	Loss of	Operational	12	Fuel storage tanks will have a	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	pollution resulting from hydrocarbon spills and drill maintenance activities.	water resources and loss of soil resources	Phase		<p>secondary containment structure with a capacity of 110% of the total tank capacity.</p> <p>Oils and lubricant will be stored within secondary containment structures.</p> <p>Where practicable, vehicle maintenance will be undertaken off-site.</p> <p>In the event that vehicle maintenance is undertaken in-site (i.e. such as breakdown maintenance), drip trays and. Or UPVC sheetd will be used to prevent spills and leaks onto the soil.</p> <p>Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>Regular inspections of all vehicles must be carried out to ensure that all leaks identified early and rectified.</p> <p>A sufficient number of waste receptacles will be provided.</p> <p>Waste separation will be undertaken to source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	Dust emissions from drilling and general site activities (including vehicle entrained dust).	Increase in dust emissions.	Operational Phase	10	Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	6
	Visual impact affecting visual character and "sense of place"	Loss of aesthetic value	Operational Phase	6	Visual impact of structures will be mitigated through measures indicated on this table. Visual dust dispersion will be mitigated through the same measures.	5
	Vehicle traffic and drill noise impact affecting animals on site.	Loss of fauna	Operational Phase	5	Site will be conducted during daytime hours 07h00- 17h30 to avoid night time noise disturbances.	4
	Poor access control	Loss of	Operational	10	Access control procedures must be	8

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	resulting in impacts on cattle movement, breeding and grazing practices.	cattles and other animals	Phase		agreed on with farm owners.	
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	8	<p>Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the SAPS will be informed of unauthorised persons encountered on site.</p>	7
	Impact on the plans and associated ecosystems in the area.	Loss of sensitive environments, loss of fauna and flora	Operational Phase.	12	<p>The prospecting areas must be clearly demarcated.</p> <p>No prospecting activities may be undertaken within the pan areas.</p>	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					All site plans must indicate the presence of pans.	
Removal of temporary infrastructure including: (a) Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay. (b) Borehole capping	Destruction and/ or disturbance of on-site fauna.	Loss of sensitive environments, loss of fauna, loss of flora	Decommissioning	10	Drill holes must be temporarily plugged immediately after drilling is complete and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes. Drill holes must be permanently capped as soon as is practicable.	7
Drill pad rehabilitation including: (a) Ripping of drill pad and access road.	Dust emissions from decommissioning activities (including vehicle entrained dust)	Increased in dust emissions	Decommissioning	9	Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	Based 6
	Poor access control	Loss of	Decommissioning	10	Access control procedures must be	8

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
(b) Re-spreading of stockpiled topsoil. (c) Re-vegetation	resulting in impacts on cattle and horses movement, breeding and grazing practices.	cattle and horses	g		agreed on with farm owners and staff trained.	
	Potential water and soil pollution resulting from hydrocarbon spills.	Loss of water and soil resources	Decommissioning	12	All fuel storage tanks will be emptied prior to removal. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.	7
	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established	Loss of soil resources	Decommissioning	11	Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. Re-vegetation will be conducted	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist.</p> <p>Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding.</p> <p>An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months</p>	

11.2. Summary of specialist reports.

Table 11: Summary of Specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
No studies have been conducted for this application.	N/A	N/A	N/A

12. ENVIRONMENTAL IMPACT STATEMENT

12.1. Summary of the key findings of the environmental impact assessment;

The proposed project site is characterised by its distinct flatness. The general fall of the land is from the high-lying areas in the west and lower lying areas in the east. Flat surface helps in terms of mobility as it creates the movability of rig to be easy. It is believed that coal occurrence is mostly on flat laying area. The area is currently not being used for either plantation or residential.

There are no graves present within the prospecting area.

12.2. Final Site Map

Attach to **Appendix A**.

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

- Increased ambient noise levels resulting from geophysics surveys site fly-overs and increased traffic movement during all prospecting phases as well as drilling activities.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.
- Potential water and soil pollution impacts result from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity with in the area resulting in the possible destruction and disturbance of fauna and flora.
- Poor access control to farms which may impact on cattle movement, breeding and grazing practices.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.
- Potential visual impacts caused by drilling activities.

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and/ or regional communities will result from the prospecting activities.

12.4. Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts.
- Provide sufficient information and guidance to plan prospecting activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- Provide a management plan that is effective and practical for implementation.

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

- Noise impacts can be managed through consultation and through the restriction of operating hours;
- The pollution of soil and water resources can be effectively managed through containment;
- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.
- Visual impact can be minimized through giving consideration to drill site infrastructure placement and materials used.

12.5. Aspects for inclusion as conditions of Authorisation.

The following conditions should be included into the Authorisation:

- A map detailing the drilling locations should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities;
- No activities may be undertaken in the pans;
- No activities, with the exception of the soil sampling, may take place within 32m from any river.

12.6. Description of any assumptions, uncertainties and gaps in knowledge.

The following assumptions, uncertainties and gaps are applicable to this project:

- Due to significant time constraints allowed for the assessment of the impacts, and at the time of compiling the draft Basic Assessment Report and EMP:
 - ✓ The Stakeholder Consultation is not yet complete.
 - ✓ Not all landowners were consulted with in person.
 - ✓ Details from the DWS regarding Water Use Licensing requirements is not yet available.
 - ✓ Details regarding the presence and status of land claims are not available.
- No Heritage Impact Assessment was undertaken for this application.
- No detailed site layout is available due to the nature of the prospecting activities. The study is therefore undertaken as a holistic assessment of the overall site.
- Site investigation by EAP was undertaken on the 21st of May 2021. No public meeting was held due to Covid-19 Lockdown restrictions.

13. Reasoned opinion as to whether the proposed activity should or should not be authorised

13.1. Reasons why the activity should be authorized or not.

- It is the opinion of the EAP that the activity may be authorized.
- The proposed prospecting area is targeted as, during the exploration of Coal, Pseudocoal and Torbanite/ Oil Shale on the area, old stockpiles of Coal were identified in the area during the site visit.
- The site is therefore regarded as the preferred site and alternative sites are not considered.
- The option of not approving the activities will result in a significant loss to valuable information regarding the mineral status present on these properties. In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

13.2. Conditions that must be included in the authorisation

The following conditions must be included in the authorisations:

- A map detailing the drilling locations will be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities;
- No activities may be undertaken in the pans;
- No activities, with the exception of the soil sampling, may take place within 32 m from any river.

13.3. Period for which the Environmental Authorisation is required.

The Prospecting Right has been applied for a period of 5 (five) years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

14. Undertaking

- An undertaking by the EAP and the client is provided for in Section 2 of the EMP. The financial provision for the environmental rehabilitation and closure of any mine/ prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.
- The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites.

15. Financial Provision

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

15.1. Explain how the aforesaid amount was derived.

Most important to note is that the prescribed method for estimating a closure costs, as provided for by the DMR in the form of the Guideline Document for the Evaluation of Financial Provisions,

only acts as a guideline, and therefore indicates the minimum requirements for assessing and reporting on a closure cost estimate.

15.1.1. Method of Assessment

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

Table 14: Method of assessment of financial provision

Step	Description	DMR Applicable Table	Outcomes
1	Determine primary mineral and saleable mineral by-products	Table B.12	Low Risk
2	Determine Risk Class	Table B.12	Primary Risk Class: C (Small operation, no waste, no processing). Risk Class C is considered a low risk with a low probability of occurrence of the impact with a negligible consequence.
3	Determine the Area Sensitivity	Table B.4	Medium to High Sensitivity.
4.1	Determine the level of information	N/A	Limited information is available which is based on desktop investigations and consultation with stakeholders.
4.2	Determine the closure components	Table B.5	
4.3	Determine the unit rates for closure components	Table B.6	
4.4	Determine and apply the weighting factors	Table B.7 Table B.8	Weighting factor 1 (Nature of the terrain): 1 (generally flat terrain) Weighting factor 2 (Peri-urban, less

Step	Description	DMR Applicable Table	Outcomes
			than 150km from a developed urban area): 1.05 (Rural/ Urban).
4.5	Identify areas of disturbance	N/A	No areas of disturbance are considered in this assessment. The area in which the prospecting activities are planned is considered to be undisturbed.
4.6	Identify closure costs from specialist studies	Table B.9	Due to the fact that the operation in question is only a prospecting operation, no residual impacts should take place. During the Life of Prospecting and ongoing rehabilitation, the self-succession results should be assessed and monitored. If self-succession does not take place satisfactorily the client may be subjected to additional specialist investigations (ecological and pedology) to determine seeding and re-vegetation requirements.
4.7	Calculate Closure Costs	Table B.10	See the following section.

15.1.2. Quantity Estimation

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

15.1.3. Determination of Rates

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

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

CALCULATION OF THE QUANTUM

Applicant:
Evaluators:

**Coal African Mining Pty Ltd
Envirstep Pty Ltd**

Ref No.:
Date:

**MP 30/5/1/2/2/ 11048 PR
17/07/2021**

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	14,05	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	195,76	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	288,49	1	1	0
3	Rehabilitation of access roads	m2	0,001	35,03	1	1	0,03503
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	340,01	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	185,46	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	391,53	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	205242,16	1	1	0
7	Sealing of shafts adits and inclines	m3	0	105,09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,001	136828,1	1	1	136,8281
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	170416,93	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	494971,55	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	114572,93	1	1	11457,293
10	General surface rehabilitation	ha	0,2	108390,94	1	1	21678,188
11	River diversions	ha	0	108390,94	1	1	0
12	Fencing	m	0	123,64	1	1	0
13	Water management	ha	0	41213,28	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	14424,65	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
Sub Total 1							33272,34413

1	Preliminary and General	3992,681296	weighting factor 2	3992,681296
			1	
2	Contingencies	3327,234413		3327,234413
Subtotal 2				40592,26

VAT (14%)	5682,92
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Grand Total	46275
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15.1.4. Financial Provision

The financial provision required by the holder of the prospecting right must be provided for by one or more of the following methods in order to achieve the total quantum of rehabilitation and remediation of environmental impacts and damage as well as final closure:

- Approved dedicated trust fund;
- Financial guarantee from a South African registered bank or any other approved financial institution;
- Cash deposit to be deposited at the office of the Regional Manager; or
- Any other manner determined by the Minister.

The client is required to annually assess the total quantum of environmental liability for the operation and ensure that financial provision is sufficient to cover the current liability (in the event of premature closure), as well as the end of life liability.

As per Government Legislature, the client is required to ensure full financial cover for the current liability at any point in the life of the operation. Pecuniary provision must be made for the short fall between the existing trust fund balance and the premature closure or current environmental rehabilitation liability if applicable.

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

It should be noted that the current expenditure provided for in the Prospecting Works Programme does not include the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission of the Prospecting Works Programme.

The provision for closure, should be updated into the Prospecting Works Programme prior the decision by the DMR should this decision be positive.

16. Specific information required by the Competent Authority

16.1. 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:-

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

No specific report was generated for the purposes of the socio-economic conditions. All findings are presented hereafter:

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

The following impacts are regarded as community impacts:

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

Prospecting will be undertaken by specialist sub-contractors and it is not anticipated that employment opportunities for local and/ or regional communities will result from the prospecting activities.

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

- Pollution Prevention
 - ✓ Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities, landowners and other stakeholders. These mitigation and management measures are discussed in the following section.

- Noise due to the undertaking of the site fly-overs and prospecting activities;
 - ✓ Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farms.
 - ✓ Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, with a view to prevent possible injury or damage as a result of animals being start led by the noise.
 - ✓ Site activities will be conducted during day time hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.
- Poor access control resulting in impacts on cattle movement, breeding and grazing practices;
 - ✓ Access control procedures must be agreed on with farm owners and all staff trained on these procedures.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime;
 - ✓ Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
 - ✓ The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.
 - ✓ If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.
- Visual Impact
 - ✓ Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.
 - ✓ The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
 - ✓ A waste management system will be implemented and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

Prospecting will be undertaken by specialist sub- contractors and it is not anticipated that employment opportunities for local and/ or regional communities will result from the prospecting activities.

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

As outlined in *Table 9, Table 12- Table 14* of this report, prospecting will be undertaken in phases; the first phase being a desktop assessment, followed by ground and/ or aerial magnetic survey and soil sampling.

Based on the outcome of these activities, soil sampling and potential drill sites will be determined. Potential heritage impact will only occur once soil sampling and geophysics have been used to identify sites for drilling.

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

None.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Environmental Management Programme.

1.1. Details of the EAP

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

1.2. Description of the Aspects of the Activity

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 3.

1.3. Composite Map

Please refer to Appendix A.

1.4. Description of Impact management objectives including management statements

1.4.1. Determination of closure objectives.

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, an airborne/ ground geophysics survey and/ or loam sampling programme will be initiated. Targets that have been prioritized through detailed anomaly- specific loam sampling will be tested by initial drilling.

The location and extent of soil sampling and drill sites can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken.

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

The closure objectives are to:

- Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.

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

1.4.2. Volumes and rate of water use required for the operation.

In terms of Government Notices Regulation 399, the applicant will be allowed to abstract 75m³ of groundwater per hectare per annum from groundwater within the quaternary catchment W31A of Pongola Mtamvuna Water Management. It is currently not anticipated that this quantity will be exceeded.

1.4.3. Has a water use licence has been applied for?

The use of abstracting groundwater will be Generally Authorised by DWS. Based on the outcomes of discussions with the Department of Water and Sanitation, the potential abstraction of water due to drilling activities will be clarified.

Furthermore, depending on the DWS's opinion on the soil sampling, potentially in the river beds, a WUL may be required. Should it be deemed necessary, on instruction by the department, to submit a water use license application, this will be undertaken.

1.5. Impacts to be mitigated in their respective phases

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

Table 12: Impacts to be mitigated in their respective phases.

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
Phase 1: Data Acquisition and Desktop Study					
Data collection and assessment (desktop study only)	Planning	Entire property (1399.11ha)	1. No mitigation proposed	Identification of the potential of invasive prospecting activities to occur within sensitive environments such as the pans and river systems, in this event the necessary consultation must be initiated with the DWS.	N/A
Data Assessment	Planning	Entire property	2. No mitigation proposed.	Identification of the potential of invasive prospecting activities to occur within sensitive environments such as the pans and river systems, in this event the necessary consultation	N/A

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
				must be initiated with the DWS.	
Phase 2: Target Generation and Ground Truthing					
Site fly-over	Planning	Entire property	<p>3. Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farms.</p> <p>4. Farms owners must be consulted and informed of any low fly-overs which may affect cattle being held in restricted</p>	Identification of the potential of invasive prospecting activities to occur within sensitive environments such as the pans and river systems, in this event the necessary consultation must be initiated with the DWS.	N/A

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			holding pens, which may result in injury or damage. 5. No mitigation proposed of noise impacts.		
Ground surveys	Planning	Entire property	6. Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	Identification of the potential of invasive prospecting activities to occur within sensitive environments such as the pans and river systems, in this event the necessary consultation must be initiated with the DWS.	N/A
No construction or site establishment activities will be undertaken	N/A	N/A	7. No mitigation required for construction as no facilities will be erected.	N/A	N/A
Soil sampling (30kg of soil per sample)	Operational	Less than 10ha	8. Use existing track and roads in all instances as far as is practicable.	No bulk sampling activities in terms of Section 20 of the MPRDA have been allowed	Concurrently with the completion of prospecting activities in an area.

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>9. As part of the soil sampling programme, not racks will be cleared for once-off access to sampling sites.</p> <p>10. Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified sampling site.</p> <p>11. Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.</p> <p>12. Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.</p> <p>13. Access control</p>	<p>for. Soil sampling should be restricted to the 1m² size and depth of maximum 30cm. Depending on the feedback by the DWS, additional applications for Section 21 (c) and (i) of the NWA may be required. This is however highly unlikely due to the nature and scale of the proposed activities.</p> <p>The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in terms of waste management and that all activities are undertaken with a precautionary approach. Where impacts</p>	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>procedures must be agreed on with farm owners and all staff trained on these procedures.</p> <p>14. A waste management system will be implemented and sufficient waste bins will be provided for on site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.</p> <p>15. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>16. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p>	<p>may result a proactive manner should be implemented to ensure that potential negative results are avoided.</p> <p>The applicant must comply with the conditions of the Environmental Authorisation at all times.</p>	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance standards with	Time period for implementation
			<p>17. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p> <p>18. Only soil sampling may be undertaken in the river bed. No other activities (drilling, roads, may be undertaken.</p> <p>19. No sampling within the riverbed will be permitted during rainy periods. A first aid station and emergency plan must be available on site.</p> <p>20. Soil disturbances are to be limited as far as is practicable.</p>		
No Decommissioning associated with the		N/A	21. No mitigation proposed.	N/A	N/A

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
soil sample					
Phase 3: Scout Drilling and Delineation Drilling					
Site Access	Construction	Less than 1600 m ²	<p>22. Map indicating the location of each of the drilling sites must be submitted to the relevant landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceeds.</p> <p>23. Use existing track and roads in all instances as far as is practicable.</p> <p>24. Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided.</p>	<p>The prospecting activities must be undertaken in line with the approved Prospecting Works Programme.</p> <p>The financial provision required for rehabilitation must be guaranteed before the commencement of prospecting activities.</p> <p>Activities should stay clear of pans and outside of the 32m river buffer in order to avoid the need to apply for a Section 21 (c) and (i) Water Use License.</p>	Concurrently with the completion of prospecting activities in an area.

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance standards with	Time period for implementation
			<p>25. Site activities will be conducted during day time hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.</p> <p>26. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.</p> <p>27. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts.</p> <p>28. As part of rehabilitation, all compacted roads and drill pads will be ripped and ring day time hours 07h00–17h30 to avoid night time noise</p>		

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>disturbances.</p> <p>29. Access controls and staff trained.</p> <p>30. Prior to the establishment of new access roads and management measure for the protection of such resources must be implemented</p>		

1.6. Impact Management Outcomes

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

Table 13: Impact Management Outcomes

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Phase1: Data Acquisition and Desktop Study					
Data collection and assessment (desktop only)	None identified.	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective Implementation of the data acquisition and desktop study.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Data Assessment	None identified.	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the data Acquisition and desktop study.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Phase 2: Target Generation and Ground Truthing					
Site fly-over	Noise impacts resulting from site fly-overs affecting cattle and game	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the site fly	Remain within the ambits of the Prospecting Works Programme and

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	farm animals.			over study. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Environmental Authorisation.
	Nuisance noise impacts on communities and landowners and other persons	Noise generation	Planning		
Ground surveys	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of vegetation		Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the ground surveys.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
No construction or site establishment activities will be undertaken.	No anticipated impacts	N/A	N/A		
Soil sampling	Destruction and/ or	Loss of Fauna	Operational	Control through the clear	Remain within the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
(30kg of soil per sample)	disturbance of on-sitenfauna and flora.	and Flora	Phase	delineation of the prospecting area.	ambits of the Prospecting Works. No removal of vegetation outside of demarcated areas.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Noise generation	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the Noise Regulation Standards for Rural Areas.
	Vehicle traffic noise impact affecting cattle and/ or wildlife.	Loss of cattle and/or nuisance creation	Operational Phase	Control through the limiting of the activities to the day time and the Implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Poor housekeeping could result in littering and the associated impacts this will have on	Loss of aesthetic value, loss of water resources,	Operational Phase	Control through the limiting of the Activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospect ing Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	the area, contamination of river systems in the rainy season and also the potential health hazard to cattle.	loss of fauna and flora		Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	No removal of vegetation outside of demarcated areas.
	Activities within the river bed could result in the disturbance to the natural geomorphology.	Loss of fauna and flora, altering the river bed	Operational Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Activities within the river bed could result in safety hazards during periods.	Loss and/or damage to life	Operational Phase	Control through the clear delineation of the prospecting area.	Maintain a 100% fatal and injury free operation.
	Soil disturbance from soil resulting in soil structure destruction, compaction and	Loss soil Resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil	Retain topsoil for the re-use in rehabilitation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	erosion.			management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	
No decommissioning activities will be required	No anticipated impacts	N/A	Decommissioning Phase	N/A	N/A
Site Access	Destruction and/ or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Construction Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil Resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in terms of the correct topsoil	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				removal, stockpiling and rehabilitation practices as discussed in the EMP.	rehabilitation.
	Vehicle traffic affecting cattle and/ or wildlife.	Loss of fauna	Construction Phase	Control through the clear delineation of the prospecting area. Control through the limiting of the activities to the day time and the implementation of an open and Transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of fauna	Construction Phase	Control through the clear delineation of the prospecting area. Control through the limiting of the activities to the day time and the implementation of an open and Transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Site establishment activities including: (a) Vegetation clearing of drill pad	Destruction and/ or disturbance of on-site fauna and flora.	Loss of Fauna and Flora	Construction Phase	Control through the clear delineation of the prospecting area	Remain within the ambits of the Prospecting Works Programme and

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
area. (b) Topsoil stripping and stockpiling.					Environmental Authorisation.
(c) Drill and compaction. (d) Excavation and lining of drill water sump (e) Erection of temporary site office shaded area, potable ablution facilities and water storage tanks and core bay	Soil disturbance and topsoil stockpiling resulting in soil compaction and erosion.	Loss of soil resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain within the limits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
(f) Erection of fuel storage tank (g) Waste generation and management.	Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Dust emissions	Construction Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area Demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					Act, 2004 Dust Regulation guidelines for rural communities.
	Visual impact affecting visual character land "sense of place"	Loss in aesthetics	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation Outside of demarcated areas.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Construction Phase	Control through the limiting of the activities to the day time and the implementation of an open and Transparent channel of communication.	Maintain a 100% crime Free area within the control of the prospecting activities and applicant.
Exploracion drilling ad core sample	Water and soil pollution resulting	Loss of water resources,	Operational Phase	Control through the clear delineation of the prospecting	Remain within the ambits of the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
<p>collection and storage including.</p> <p>(a) Scout and delineation drilling</p> <p>(b) Drill maintenance and re-fuelling.</p> <p>(c) Core sample collection and storage.</p> <p>(d) Drill fluid collection, storage and evaporation.</p> <p>(e) Waste generation and management</p>	<p>from disposal of drill fluids.</p>	<p>loss of soil resources</p>		<p>area.</p> <p>Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.</p> <p>Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.</p> <p>Control through the implementation of the NWA GN704 water management principles.</p>	<p>Prospecting Works Programme and Environmental Authorisation.</p> <p>Retain topsoil integrity for the reuse in rehabilitation.</p>
	<p>Continued soil erosion from topsoil stockpile</p>	<p>Loss of soil resources</p>	<p>Operational Phase</p>	<p>Control through the clear delineation of the prospecting area.</p>	<p>Remain within the ambits of the Prospecting Works</p>

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	and soil compaction from drill pad platform.			Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	Dust emissions from drilling and general site activities (including vehicle entrained dust)	Increase in dust emissions	Operational Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area demarcated for prospecting activities. Remain within the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Visual Impact affecting visual character and sense and “sense of place”	Loss in aesthetic value	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of the conditions in the EMP.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational Phase	<p>fine system.</p> <p>Control through the clear delineation of the prospecting area.</p> <p>Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.</p> <p>Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.</p>	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and	Increase in petty crimes	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Maintain a 100% crime free area within the Control of the prospecting activities and applicant.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	opportunistic crime.				
Removal of temporary infrastructure including: (a) Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay (b) Borehole capping Drill pad rehabilitation including: a) Ripping of drill pad and access road b) Re-	Destruction and/or disturbance of on-site fauna	Loss of Sensitive environments, loss of fauna, loss of flora	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambit of the Prospecting Works Programme and Environmental Authorisation.
	Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression	Remain within the designated area demarcated for prospecting activities. Remain within the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
spreading of stockpiled topsoil. c) Re-vegetation.					National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Decommissioning	Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Potential water and soil pollution resulting from hydrocarbon spills.	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Soil erosion resulting from the	Loss of soil resources	Decommissioning	Control through the clear delineation of the prospecting	Remain within the ambits of the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	re-spreading of topsoil before vegetation is re-established.			<p>area.</p> <p>Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.</p> <p>Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.</p>	Prospecting Works Programme and Environmental Authorisation.

1.7. Impact Management Actions

Table 14: Impact Management Actions

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Phase 1: Data Acquisition and Desktop Study				
Data collection and assessment (desktop only)	None identified.	No mitigation proposed	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Data Assessment	None identified.	No mitigation proposed	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Phase 2: Target Generation and Ground Truthing				
Site fly-over	Noise impacts Resulting from site fly-overs affecting cattle and game farm animals.	Directly affected, adjacent Landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>flyovers which may affect aspects such as hunting activities on game farms.</p> <p>Farms owners must be consulted and informed of any low flyovers which may affect cattle being held in restricted holding pens, which may result in injury or damage.</p>		
	Nuisance noise impacts on communities and landowners and other persons.	No mitigation proposed	N/A	Remain within the Noise Regulation Standards for Rural Areas.
Ground surveys	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
No construction or site establishment activities	No anticipated impacts.	No mitigation proposed	N/A	N/A

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
will be undertaken				
Soil sampling (30kg of soil per sample)	Destruction and/ or disturbance of on-site fauna and flora.	<p>Use existing track and roads in all instances as far as is practicable.</p> <p>As part of the soil sampling programme, no tracks will be cleared for once-off access to sampling sites.</p> <p>Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified sampling site.</p> <p>Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.</p>	Concurrently with the completion of prospecting activities in an area.	<p>Remain within the ambit of the Prospecting Works.</p> <p>No removal of vegetation outside of demarcated areas.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.		
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	Concurrently with the completion of prospecting activities.	Remain within the Noise Regulation Standards for Rural Areas.
	Vehicle traffic noise impact affecting cattle and/ or wildlife.	Site activities will be conducted during daytime hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.	Concurrently with the completion of prospecting activities.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Poor housekeeping could result in littering and the associated impacts this will have on the aesthetic of the	Waste management system will be implemented and sufficient waste bins will be provided for on site. A fine system will be implemented	Concurrently with the completion of prospecting activities in an area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	<p>area, contamination of river systems in the rainy season and also potential health hazard to cattle.</p>	<p>to further prohibit littering and poor housekeeping practices.</p> <p>Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to</p>		<p>outside of demarcated areas.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		a licensed recycling facility.		
	Activities within the river bed could result in the natural geomorphology.	Only soil sampling may be Undertaken in the river bed. No other activities (drilling, roads, etc.) may be undertaken.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Activities within the river bed could result in safety hazards during rainy periods.	No sampling within the riverbed will be permitted during rainy periods. A first aid station and emergency plan must be available on site.	Concurrently with the completion of prospecting activities	Maintain a 100% fatal and injury free operation.
	Soil disturbance from soil sampling resulting in soil structure.	Soil disturbances are to be limited as far as is practicable.	Concurrently with then completion of prospecting activities in an area.	Retain topsoil for the reuse in rehabilitation.
No decommissioning activities will be required	No anticipated impacts	No mitigation proposed	N/A	N/A
Phase 3: Scout Drilling and Delineation Drilling				
Site Access	Destruction and/ or disturbance of on-site fauna and flora.	Map indicating the location of each of the drilling sites must be submitted to the	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>relevant landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed.</p> <p>Use existing track and roads in all instances as far as is practicable.</p> <p>Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided.</p> <p>Site activities will be Conducted during daytime hours 07h00–17h30 to avoid night time noise</p>		Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.</p>		
	Soil compaction	<p>Where track clearing is necessary, raised blade Clearing be conducted to minimise disturbance and aid rehabilitation efforts.</p> <p>As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.</p>	Concurrently with the completion of prospecting activities	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p> <p>Retain topsoil integrity for the reuse in rehabilitation.</p>
	Vehicle traffic impact affecting cattle and/ or wildlife.	Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and staff trained.	Concurrently with the completion of prospecting activities.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
<p>Site establishment activities including:</p> <p>(a) Vegetation clearing of drill pad area.</p> <p>(b) <i>Topsoil stripping and stockpiling</i></p> <p>(a) <i>Excavation and lining of drill water sump</i></p> <p>(b) <i>Erection of temporary site office shaded area, potable ablution facilities and water storage tanks and core bay</i></p> <p>(c) <i>Erection of fuel</i></p>	Destruction and/ or disturbance of on-site fauna and flora.	<p>The removal of vegetation within the drill pad area will be minimized.</p> <p>If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts.</p> <p>The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment.</p> <p>A fire emergency procedure will be developed to contain and minimise the</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
<i>storage tank</i> (d) <i>Erection of safety barrier.</i>		destruction of flora and faunal habitat which may result from fire.		
(e) <i>(Waste generation and management)</i>	Soil disturbance and top soil stockpiling resulting in soil compaction and erosion.	<p>In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil.</p> <p>Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Where practicable topsoil will be stripped to a depth of 10 cm.</p> <p>Vegetation removed</p>	Concurrently with the completion of prospecting activities	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p> <p>Retain topsoil integrity for the reuse in rehabilitation.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts.</p> <p>Topsoil will be stockpiled to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>Mechanical erosion control methods will be implemented if required.</p> <p>This may include the use of geotextiles to stabilise slopes.</p>		
	Dust emissions resulting from site clearing, soil stripping and construction activities (including	Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities. Remain within the National

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	vehicle entrained dust).	<p>movement and other construction activities as and when needed.</p> <p>Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.</p>		<p>Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.</p>
	Visual impact affecting visual character and “sense of place”	<p>The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and Mat-black options which will blend in with the surrounding area must be favoured.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p> <p>No removal of vegetation outside of demarcated areas.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	<p>Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.</p>	Concurrently with the completion of prospecting activities	Maintain a 100% crime free area within the control of the prospecting activities and applicant.
Exploration drilling and core sample collection and storage including: a) Scout and drilling	Water and soil pollution resulting from disposal of drill fluids.	<p>A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.</p> <p>The sump will be constructed to divert</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		stormwater away and/ or around the sump to avoid clean stormwater inflow.		
	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	<p>In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>The topsoil stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Management efforts through the use of mechanical erosion control methods will be implemented if required.</p> <p>This may include the use of</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		geotextiles.		
	Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	<p>Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity.</p> <p>Oils and lubricant will be stored within secondary containment structures.</p> <p>Where practicable, vehicle maintenance will be undertaken off-site.</p> <p>In the event that vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and/ UPVC sheets will be used to prevent spills and leaks onto the soil.</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.</p> <p>Regular inspections of all vehicles must be carried out to ensure that all leaks are identified early and rectified.</p> <p>A sufficient number of waste receptacles will be provided.</p> <p>Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p>		

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>		
	<p>Dust emissions from drilling and general site activities (including vehicle entrained dust)</p>	<p>Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement.</p> <p>Depending on the need and quantity of water used for wet suppression, chemical</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the designated area demarcated for prospecting activities.</p> <p>Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		suppression alternatives must be considered in order to conserve water resources.		
	Visual impact affecting visual character and “sense of place”	Visual impact of structures will be mitigated through a fence around the drilling site. Visual dust dispersion will be mitigated through water browser.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Site activities will be conducted during daytime hours 07h00–17h30 to avoid night time noise disturbances.	Concurrently with the completion of prospecting activities.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Influx of persons (job	Casual labour will not be	Concurrently with the	Maintain a 100% crime free

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	<p>seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.</p>	<p>recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.</p>	<p>completion of prospecting activities</p>	<p>area within the control of the prospecting activities and applicant.</p>
	<p>Impact on the pans and associated ecosystems in the area.</p>	<p>The prospecting areas must be clearly demarcated.</p> <p>No prospecting activities may be under taken within the pan areas.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		All site plans must indicate the presence of pans.		
<p>Removal of temporary infrastructure including:</p> <p><i>a. Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay</i></p> <p><i>b. Borehole capping</i></p> <p>Ripping of drill pad and access road</p> <p>Re-vegetation</p>	Destruction and/ or disturbance of on-site fauna.	<p>Drill holes must be temporarily plugged immediately after drilling is completed and remain plugged until they are permanently plugged below ground to eliminate the risk posed to fauna by open drill holes.</p> <p>Drill holes must be permanently capped as soon as is practicable</p>	Concurrently with the completion of prospecting activities	Remain within the ambit of the Prospecting Works Programme and Environmental Authorisation.
	Dust emissions from decommissioning activities (include vehicle entrained dust)	Based on visual observation wet dust suppression will be undertaken to manage dust emissions from vehicle movement.	Concurrently with the completion of prospecting activities	<p>Remain within the designated area demarcated for prospecting activities.</p> <p>Remain within the National</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.		Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Potential water and soil pollution resulting from hydrocarbon spills.	All fuel storage tanks will be emptied prior to removal. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination. Wastes will be removed and	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.		
	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	<p>Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.</p> <p>Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist.</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

2. Financial Provision

2.1. Determination of the amount of Financial Provision.

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

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, an airborne/ ground geophysics survey and/or loam sampling programme will be initiated. Targets that have been prioritized through detailed anomaly- specific loam sampling will be tested by initial drilling.

The location and extent of soil sampling and drill sites can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken.

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

The closure objectives are to:

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

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

This Basic Assessment Report and Environmental Management Plan will be made available to each registered stakeholder for review and comment from the 17th of July 2021 to the 17th of August 2021 (thus 30 days of public review). All comments will be captured in the issues and response section and will be included into the final report.

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

As previously mentioned, each phase of the prospecting activities is dependent on the success of the previous. Depending on the outcome of the Phase 1 assessment, an airborne/ ground geophysics survey and/or loam sampling programme will be initiated. Targets that have been prioritized through detailed anomaly- specific loam sampling will be tested by initial drilling.

The location and extent of soil sampling and drill sites can therefore not be determined at this stage. Mapping of the prospecting activities could thus not be undertaken.

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

The only rehabilitation that will specifically be required is borehole capping and revegetation:

a. Borehole capping

Drill holes must be permanently capped as soon as is practicable. Figure 2 below provides the prepared procedure for the secure plugging of exploration drill holes.

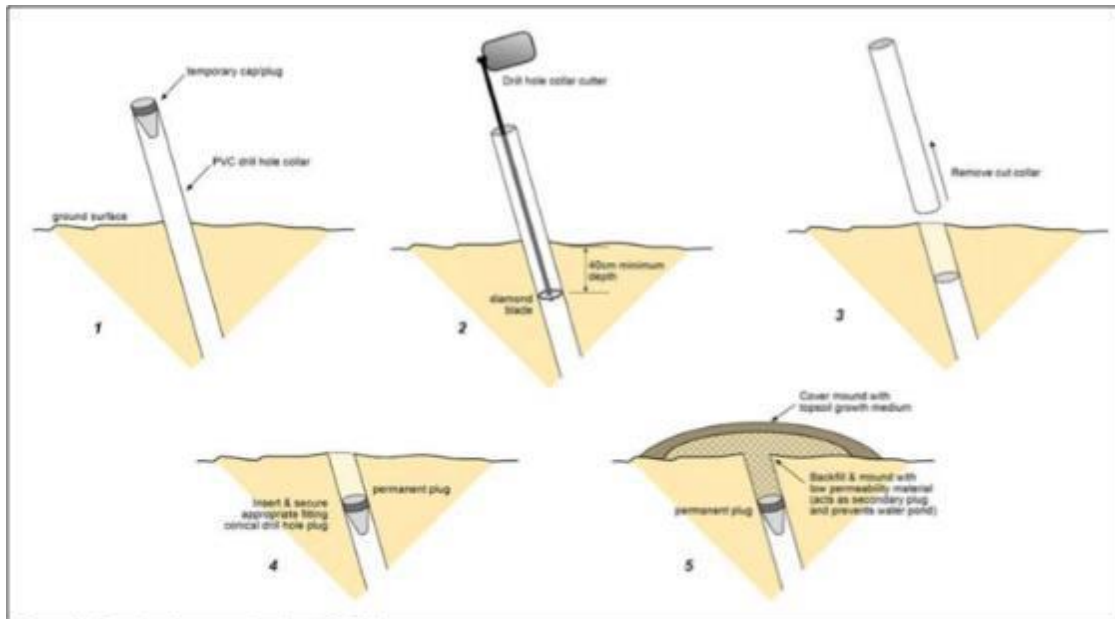


Figure 2: Borehole capping (Source: Department of Mines and Petroleum, DRAFT Guidelines for Environmentally Responsible Mineral Exploration & Prospecting in Western Australia, March 2012)

b. Re-vegetation

It is recommended that a standard commercial fertilizer high in the standard elements is added to the soil before re-vegetation, at a rate of 10-20k g/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in as low release granular form.

A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding. Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetat ion cover of 45% must be achieved. Re- seeding will be under taken if this cover has not been achieved after six months.

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

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

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

The financial provision for the environmental rehabilitation and closure of any mine/ prospecting and its associated operations forms an integral part of the MPRDA. Sections 4 1(1), 41(2), 41(3) and 45 of the MPRDA deals with the financial provision for rehabilitation and closure. During 2012 the DMR made updated rates available for the calculation of the closure costs, where contractor's costs are not available these are used in assessments.

The "Guideline Document for the Evaluation of Financial Provision made by the Mining Industry" was developed by the DMR in January 2005, in order to empower the personnel at Regional DMR offices to review the quantum determination for the rehabilitation and closure of mining sites. With the determination of the quantum for closure it must be assumed that the infras tructure has no salvage value (clean closure).The closure cost estimate (clean closure) was determined in accordance with the DMR guidelines and is based, where possible, on actual costs provided by a third party contractor.

2.1.6. Confirm that the financial provision will be provided as determined.

It should be noted that the current expenditure provided for in the Prospecting Works Programme does not included the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission- into the Prospecting Work Programme prior the decision by the DMR should this decision be positive.

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

- a. Monitoring of Impact Management Actions
- b. Monitoring and reporting frequency
- c. Responsible persons
- d. Time period for implementing impact management actions
- e. Mechanism for monitoring compliance

Table 15: Mechanisms for monitoring compliance

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
Phase1: Data Acquisition and Desktop Study	None identified.	None	N/A	N/A
Phase 2: Target Generation and Ground Truthing	Noise impacts resulting from site fly-overs affecting cattle and game	Adjacent landowners will be informed of the planned dates of the Airborne geophysics survey and agrievance mechanism will	Prospecting Manager	Once-off upfront consultation with affected parties. As required as grievances are received.

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
	farm animals	be made available.		<p>Consultation to be signed-off by Environmental Management;</p> <p>All grievances to be signed-off by Environmental Management;</p> <p>All corrective action and close out of grievances to be signed off by Environmental Management;</p> <p>Proof of consultation to be submitted to the Department of Mineral Resources prior to airborne survey is conducted;</p> <p>Record of grievances, corrective action taken and close out to be submitted to the Department of Mineral resources at the end of the project phase.</p>
Phase 3: Ground Geophysics and	All site activities to be undertaken must	As soon as the extent of site activities are known. These must	Prospecting Manager	Confirmation of the extent of site activities to be submitted to the

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
Soil Sampling	be communicated with directly affected landowners.	be communicated with directly affected landowners. The following procedures must developed in conjunction with these landowners:		Department of Mineral Resources prior to such activities been undertaken; Proof of consultation with directly affected landowners and the outcome of such consultation to be submitted to the Department of Mineral Resources; Continuous monitoring of compliance with the access control procedure will be undertaken.
Phase III : Exploratory Drilling	Visual inspection of soil erosion and/ or compact ion	All exposed areas, access roads, the drill pad and soil stockpiles must be monitored for erosion on a regular basis and specifically after rain events.	Prospecting Manager Contractor	Weekly and after rain events 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager.

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
				3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.
	Dust generated will be assessed through visual observation.	If dust outfall is excessive and regarded to affect any sensitive receptors a monitoring programme must initiated based on the input of a suitably qualified air quality specialist.	Prospecting Manager	On-going 1. Monthly monitored reports to be signed-off by the Environmental Manager. 2. Corrective to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the Department Resources.
	Visual inspection of biodiversity impacts the occurrence of	Visual inspection of clearing activities and other possible secondary impact on biodiversity	Prospecting Manager Contractor.	Once-off during clearing activities. Weekly inspection of secondary impacts.

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
	invader species.	will be undertaken. The introduction of alien invasive vegetation species will be determined.		<ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.
	Visual inspection of pollution incidents, the integrity of secondary containment structures and waste	All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify potential leaks.	Prospecting Manager Contractor	Daily <ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
	management.	<p>All spill incidents will be identified and corrective action taken in accordance with an established spill response procedure.</p> <p>Waste management practices will be monitored to prevent contamination and littering.</p>		<p>Environmental Manager.</p> <p>3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.</p> <p>4. Incident reporting will be undertaken as required in terms of the relevant legislation including, but not limited to, the:</p> <ul style="list-style-type: none"> a) Mineral and Petroleum Resources Development Act 28 of 2002; and b) National Water Act 36 of 1998.
Post Closure Monitoring	Follow-up inspections and monitoring of	Inspection of all rehabilitated areas to assess whether any soil erosion is occurring and	Prospecting Manager	Monthly for a period of 6 months after rehabilitation activities are concluded.

Source Activity	Impacts requiring monitoring programmes	Functional requirements for monitoring	Roles and responsibilities	Monitoring and reporting frequency and time periods for implementing impact management actions
	rehabilitation	<p>implement corrective action where required.</p> <p>Confirm that the set target of 45% cover for all re-vegetated areas have been achieved after a period of 6 months and re-seed where required</p> <p>Identify any areas of subsidence around drill holes and undertake additional backfilling if required.</p>		<ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources. 4. Final impact and risk assessment report for site closure to be submitted to the Department of Mineral Resources for approval

3.1. Indicate the frequency of the submission of the performance assessment/ environmental audit report.

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

4. Environmental Awareness Plan

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

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

Table 16: Environmental Training and Awareness Schedule

Frequency	Time allocation	Objective
Induction (all staff and workers)	1 hour training on environmental awareness training as part of site induction	<p>31. Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects.</p> <p>32. Establish a basic knowledge of the environmental legal framework and consequences of non-compliance.</p> <p>33. Clarify the content and required actions for the implementation of the Environmental Management</p>

Frequency	Time allocation	Objective
		Plan. 34. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. 35. Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents
Monthly Awareness Talks (all staff and workers)	30 minute awareness talks	Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.
Risk Assessments (supervisor and workers involved in task)	Daily task based risk assessment	Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily tool box talks.

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

As prescribed in Table 16 above, Task/ Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish an understanding of the risks associated with a specific task and the required mitigation and management measures.

4.2.1. Environmental Awareness Training Content – Induction Training:

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

- Description of the approved prospecting activities and content of the prospecting right;
- An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):
 - ✓ General Environmental Legal Principles and Requirements
 - ✓ Air Quality Management
 - ✓ Water and Wastewater Management
 - ✓ Hazardous Substances
 - ✓ Non-Mining-Related Waste Management
 - ✓ The Appropriate Remediation Strategies & Deteriorated Water Resources
 - ✓ Biodiversity
 - ✓ Weeds and Invader Plants
 - ✓ Rehabilitation
 - ✓ Contractors and Tenants
 - ✓ Energy & Conservation
 - ✓ Heritage Resources
 - ✓ General Health and Safety Matters
 - ✓ Basic Conditions of Employment
 - ✓ Compensation for Occupational Injuries and Diseases
 - ✓ General Mine Health and Safety Matters
 - ✓ Smoking in the Workplace
 - ✓ Noise & Hearing Conservation
 - ✓ Handling, Storage and use of Hazardous Substances
 - ✓ Weapons and Fire arms
- Content and implementation of the approved Environmental Management Plan
 - ✓ Allocated responsibilities and functions
 - ✓ Management and Mitigation Measures
 - ✓ Identification of risks and requirements adaptation
- Sensitive environments and features
 - ✓ Description of environmentally sensitive areas and features
 - ✓ Prohibitions as it relates to activities in or in proximity to such areas.
- Emergency Situations and Remediation
 - ✓ Methodology for the identify areas where accidents and emergency situations may occur, communities and individuals that may be impacted
 - ✓ An overview of the response procedures,

- ✓ Equipment and resources
- ✓ Designate of responsibilities
- ✓ Communication, including communication with potentially Affected Communities
- ✓ Training schedule to ensure effective response.

4.2.2. Development of procedures and checklists

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

4.2.3. Emergency Preparedness and Response

The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals) will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected landowners.

In the event that risks are identified which may affected adjacent landowners or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

4.2.4. Incident Reporting Procedure

Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- Provide details of the responsible person including any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident ;or (iii) was in control when the incident occurred;
- Provide details of the incident (time, date, location);
- The details of the cause of the incident;
- Identify the aspects of the environment impacted;
- The details corrective action taken, and
- The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

4.2.5. Environmental and Social Audit Checklist

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

5. Specific information required by the Competent Authority

No specific information has been required by the Competent Authority.

6. Undertaking

The EAP herewith confirms

- a. the correctness of the information provided in the reports;
- b. the inclusion of comments and inputs from stakeholders and I&APs;
- c. the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d. that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein.

SIGNED.

Signature of the environmental assessment practitioner:

Envirostep Pty Ltd

Name of company:

17/07/2021

Date:

-END-

APPENDIX A: MAPS

APPENDIX B: CONSULTATION REPORT

APPENDIX E: DETAILS OF THE EAP