Fecund Consultants

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).

NAME OF APPLICANT: Ditubiz Pty Ltd

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FILE REFERENCE NUMBER SAMRAD: LP 30/5/1/1/2/ 14005 PR

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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 the these aspects to determine:

  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

  (ii) the degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss 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 ASSSSMENT AND BASIC ASSESSMENT REPORT

1. Contact Person and correspondence address

1.1. Details of

1.1.1. Details of the EAP

Name of The Practitioner: Thabelo Teressa Nelwamondo
Tel No.: 081 760 7362
Fax No. :
e-mail address: info@fecundconsultants.com

1.1.2. Expertise of the EAP.

(a) The qualifications of the EAP

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

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

This report was prepared by Thabelo Teressa Nelwamodo (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:	Pentoville 216 LQ
Application area (Ha)	1105.14 Ha
Magisterial district:	Lephalale
Distance and direction from nearest town	15 km from Lephalale town
21 digit Surveyor General Code for each farm portion	T0LQ00000000021600000

2.1. Locality map

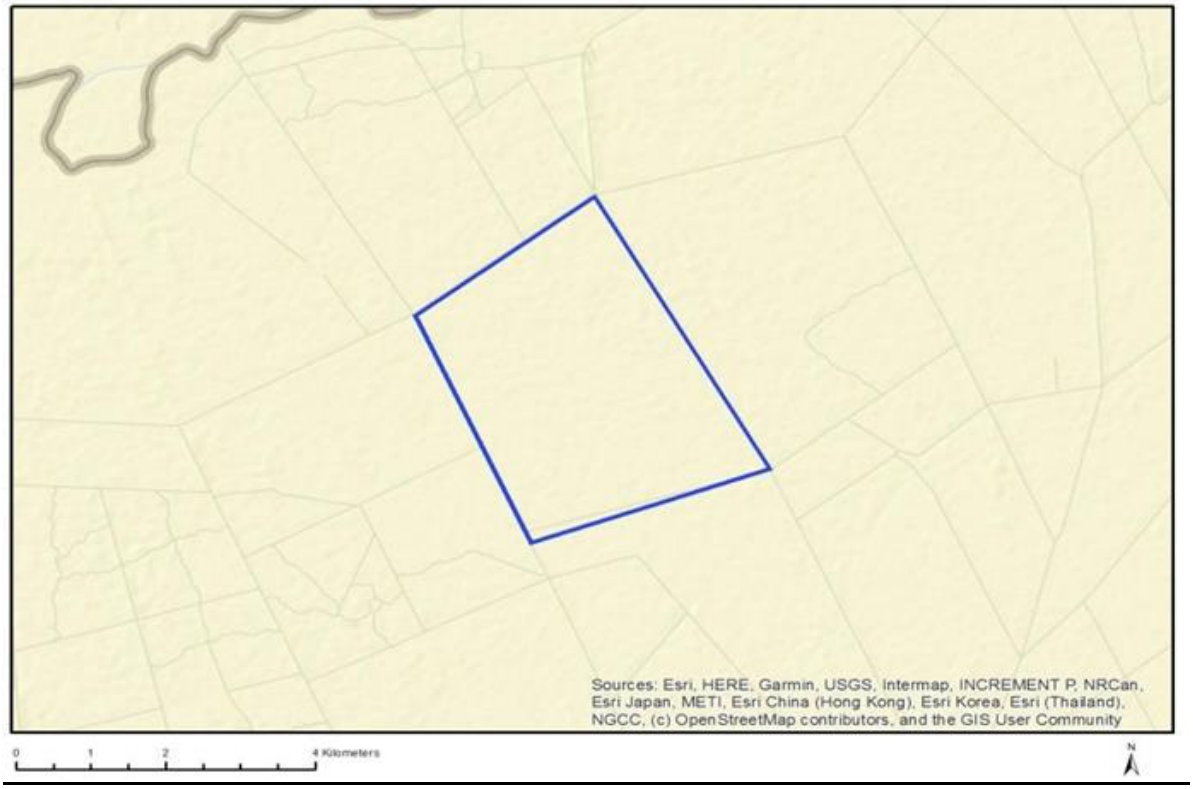

Figure 1: Locality map for portion 0 of Pentoville 216 LQ

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 activites (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 propecting 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 de termined 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 ident ified, temporary access roads may be established for repeated access to the dr ill site if the identified dr ill 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 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 (i.e. Lephalale and Marapong Township). 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 s ignificant quantity is diesel fuel. A maximum amount of 60 m^3 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 iron ore 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 us ing 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 othermagnetometer ("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 under lying 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 f rom 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 m^3 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 $1m^2$. 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 concent rated by wind action.

A 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 COMPLIY 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 01st of April 2021 (LP 5/1/1//2/14005 PR). The Department of Mineral Rsources requested the submission of the BAR and EMP within the period of 90 days of the acceptance letter.
Nat ional 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 the A42J quaternary catchment of the Limpopo Water Management Area (WMA). This use will be Generally Authorised. Although each soil sample will only be 1 m^2 in size, these may be located within the non-perennial Vaal River, a tributary of the Orange river. Clarification is required from DWS whether a Section 21 (c) and (i) Water Use License will be required.
Mineral and Petroleum Resources Development Act,	Application for Prospecting in terms of Section	A Prospecting Right Application has been submitted to the Department of Mineral Resources by the Applicant.

2002	16	The application was accepted by the Department of Mineral Resources on the 01st of April 2021, (LP 5/1/1//2/14005 PR).
Strategic Development Framework (SDF)	Alternatives	In terms with the SDF of the Lephalale Local municipality, various strategies and associated policies should be adopted to ensure effective spatial Development. In terms of Section 5.1 of the SDF the municipality must provide alternative means of support for rural/ informal populat ion in order to decrease dependence on the environment and subsistence agriculture. For this purpose the following policies are adopted: Maximise economic benefit from mining industrial, business, agricultural and tourism development within the area Promote a climate for economic development. Improve public and investor conf idence in the region through crime reduction and infrastructure development.

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, Psedocoal 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 occurences are known in the area with a coal mine (Groetegeluk mine) within 15km from the site area. 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;

Ditubiz Pty Ltd applied for prospecting right on the northern part of Grootegeluk coal mine (Exxaro) and Weastern ide of Matimba Power Station. Based on the evidendence of thepresence of a coal mine close by, the possibility to encounter further minerals reserves on the properties subject to this Prospecting Right Application was identified.

The applicant therefore applied for prospecting on Pentoville 216 LQ, Portion 0, in Lephalale 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.

6.1.2. The type of activity to be undertaken;

In terms of the technologies proposed, these have been chosen based o n 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 a pproach 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 sampl ing 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 explorat ion 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.

In addition to the above, the SDF of the Lephalale municipality, states that various strategies and associated policies should be adopted to ensure effective spatial development. In terms of Section 5.1 of the SDF 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. All the affected properties belong to private farmers and some portions are state owned land.

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 the Liimpopo Department of Rural Development and Land Reform (Mpobonyane Rampora) on the 03rd of May 2021. The department confirmed that to this date (03rd/05/2021), there is no landclaim on their database in respect of the property. This includes the database of claim lodged by 31st of December 1998; and those lodged between on the 07th of July 2016 in terms of Restitution of Land Rights Amendment Act, 2014.

c. Traditional Authorities

No Traditional Authority was identified.

d. Municipalities

The project is located within the Magisterial District of Lephalale, under the jurisdiction of the Lephalale Local Municipality, located with in Waterberg District Municipality. The Local Municipality was informed via e -mail and BID and Site Notices were hand delivered.

e. Landowners and Notification Methodology

The Landowners involved are all private farmers. Some of the portions belong to the State. Fecund Consultants obtained the details for each landowner from the Title Deed search done. Each landowner was contacted and informed of the said application. BIDs were also sent where applicable. In addition a Site Visit to the study area was done on the 29th of April 2021. In addition meetings with stakeholders were not held due to Covid-19 lockdown restrictions. The following method was applied in informing relevant stakeholders.

f. Adverts were place in the:

- Mogolpos on the 23rd of April 2021

- BID and Registration Sheet with a Locality map was sent to all interested and affected parties via e-mai l on the 02nd of May 2021.
- A site visit was conducted on 29th May 2021.
- All Government department where informed of the said application via e-mail.
- A3 Site Notices were placed at the site boundary, Lephalale Local Municipality and Lephalale local library and Marapong library on 29th May 2021.

- 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 01st of June 2021.
- Unfortunately due to Covid-19 lockdonw restrictions, meetings were not held, only telephones calls and emails notifications about the project were done.

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 List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	**X**				
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	**X**				
Municipal councillor	**X**				
Municipality	**X**	25/05/2016			

Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs					
Traditional Leaders					
No Traditional Leaders within the site area					
Dept. Environmental Affairs					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

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.

The project area is located in the Limpopo Sweet Bushveld vegetation type of the savanna biome. The savanna biome is the largest biome in South Africa, covering approximately 35% of the country's land surface. Savannas are characterised by a dominant grass layer, over-topped by a discontinuous, yet distinct woody plant component. Primary determinants of savanna composition, structure and functioning are fire, a distinct seasonal climate, substrate type, and browsing and grazing by large herbivores. Limpopo Sweet Bushveld extends northwards from the lower reaches of the Crocodile and Marico Rivers to the Limpopo Valley and into Botswana. It is characterised by undulating or irregular plains dominated by open woodland.

7.1.2. Description of the current land uses.

Based on the available information it is assumed that the land portions included in the prospecting right application is currently not utilized for anything but communities close buy take their animals for grazing. This was confirmed during a site investigation and stakeholder investigation process conducted on the 29th of April 2021.

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

7.2.1. Geology

a. Regional Geology

Based on the 1:250 000 Geological Map Series 2326 Ellisras, Council for Geoscience, the regional geology in the area is characterised by the igneous and sedimentary rocks of the Karoo Supergroup (Golder Associates Africa, 2017). The Ditubiz Project is situated on the southern portion of the Limpopo Depression, a relatively small corridor between the Limpopo River in the west and the Palala-Pietersburg Plateau in the east (Brink & Van der Linde, 2018). The Ditubiz Project Area is located on the Waterberg Coal Field and includes all the major units of the Karoo Supergroup, comprising from surface of the Stormberg Group, Beaufort Group, Ecca Group and the Dwyka group forming the basement.

Table 5: Stratigraphy of the Karoo Super Group

Group	Formation (SACS – 1980)	Formation (Cilliers 1951_	Representative Rock Type	Average Thickness
Stormberg	Drakensberg	Basalt Drakensberg	Lava, purplish to red, amygdaloidal	95 m
	Clarens Sandstone	Cave Sandstone	Sandstone, fine grained, white to yellow-brown to reddish	80 m
	Elliot	Red Beds	Mudstone, red to chocolate brown, clayey	90 m
	Molteno	Molteno	Sandstone, white, medium to coarse grained, scattered pebbles	15 m
Beaufort	Beaufort	Beaufort	Mudstone, purple and greenish grey,	90 m

Group	Formation (SACS – 1980)	Formation (Cilliers 1951_	Representative Rock Type	Average Thickness
			alternating at top, light grey at base	
Ecca	Volksrust Shale	Upper Ecca	Intercalated shale and bright coal	60 m
	Vryheid	Middle Ecca	Sandstone and grit, intercalated carbonaceous shale, siltstone, few thick coal seams, mainly dull	55 m
	Pietermaritzburg Shale	Lower Ecca	Shale and sandstone, grit in lower portions	150 m
Dwyka	Dwyka	Dwyka	Tillite	3 m

The Waterberg Coal Field covers an area of approximately 88 km (east to west) and 40 km north-south. The coalfield also extends westward into Botswana. The Waterberg Coal Field is part of the late Palaeozoic to early Mesozoic (100-200 Ma) Erathems of the Karoo Supper Group. The coalfield is fault-bounded and forms a graben structure. The Eenzaamheid Fault forms the southern boundary, with rocks of the Waterberg Group occurring to the south and the Karoo to the north. The northern boundary is delineated by the Zoetfontein Fault with Archaean granites outcropping north of the fault (Golder Associates Africa, 2017). The coal seams of the Waterberg Coal Field occur in the Volksrust and Vryheid Formations of the Karoo Super Group. These are also referred to as the Grootegeluk and Goedgedacht Formations, respectively.

The coalfield is further subdivided by the Daarby Fault that delineates a shallower western part of the coalfield, which is suitable for opencast mining and a deep north-eastern part, which is not suitable for opencast mining. The Zoetfontein Fault was tectonically active before and during Karoo deposition, while the Eenzaamheid and Daarby faults, as most of the other faults in the Waterberg Coalfield, are younger than the Karoo Sequence. Sedimentation occurred in a shallow east-west striking trough and the general direction of transport was ENEWSW.

Karoo sediments are deposited on the Waterberg Group in the southern portion of the coalfield, while the basement rocks to the north of the Zoetfontein Fault are Archaean rocks. The paleo-floor in the eastern portion consists of granite and basic rocks of the Bushveld Igneous Complex. Relatively few dolerite dykes outcrop in the south-eastern portion of the coalfield and no sills have been intersected in any of the exploration boreholes (Golder Associates Africa, 2017).

b. Structural Geology

Three major geological fault zones intersect the greater study area, i.e. Zoetfontein Fault (to the north of Grootegeluk mine), Daarby Fault(north – east trending fault) and Eenzaamheid Fault to the south of Ditubiz, as well as several minor faults and fractures which have been delineated by Exxaro as indicated on Figure *2* (Brink & Van der Linde, 2018).

- Zoetfontein Fault:

The Zoetfontein Fault is a high angled east northeast– west southwest striking major fault. Significant postKaroo displacement is evident and is known to be still seismically active; this resulted in the extensive downthrow to the north and sinistral horizontal movement. The basement complex consists of Archaean granite and gneiss, outcropping to the north of the fault zone (Brink & Van der Linde, 2018).

- Daarby Fault:

The Daarby Fault is a major north-east, then north-west trending fault, assumed to be part of one set of events because both “legs” of the fault exhibit the same throw and throw direction. Both faults have consequently been combined into the one name. The Daarby Fault is a normal fault with a downthrow of 360 m to the north and the fault dips at an angle of between 50º and 60º to the north, bringing up-thrown Beaufort and Ecca Group Formations to the south into contact with the down-thrown Letaba, Clarens, Elliott and Molteno Formations in the north.

- Eenzaamheid Fault:

The Eenzaamheid Fault, situated south of the Daarby fault, has a throw of 250 m to the north brining the upthrown Waterberg Group on the southern side of the fault into contact with the down-thrown Beaufort and Ecca Groups on the northern side of the fault. The dip angle of the Eenzaamheid Fault is near vertical.

- Minor faulting:

The associated step faults, associated with the Daarby and Eenzaamheid faults, are classed as minor faulting that have varying strikes, throws and throw directions. These faults have been interpreted from exploration boreholes, the geological model and mapping within the open pit excavation (Golder Associates Africa, 2017).

c. Local Geology

The Ditubiz Project Area is dominated by the geology of three major Karoo Super Group Formations, namely the Volksrust, the Vryheid and the Clarence Formations. The local geology of the Waterberg Coal Field as found in the vicinity of the project area is presented in Figure *2* (provided by Exxaro).

The general stratigraphy of the Ditubiz Project Area consists of weathered formation which is approximately 25 to 30m thick and is made up of topsoil, calcrete, minor ferricrete, a sandy alluvium, weathered shale, clay and non-reactive carbonaceous material. A generalized stratigraphy for the Ditubiz project areas.

The overburden overlays minor occurrences of Volksrust Formation coals in the western portion of the project area that disappears to the east of the project area. These coal measures are predominately material from what is defined as Benches 4 and 5 at Grootegeluk mine. In the eastern portion of the farm, the Vryheid Formation lies directly under the overburden (provided by Exxaro). The thickness distribution of the overburden is shown in Figure *3* (provided by Exxaro).

Description		Thickness
Completely weathered, reddish brown to brown (where reworked with organic material), non-cohesive, aeolian sand with abundant quartz grains, upper most part of the profile.		29.35m
Hard to very hard, nodular, boulder or hardpan calcrete. Minor sporadic occurrences of ferricrete		
Highly weathered, cream to brown and reddish brown in places, coarse grained to gravelly, loose to moderately cemented (calcified), with abundant quartz grains and quartz pebbles throughout the horizon. Some rounded Karoo siltstone/shale fragments, alluvial sand.		
Highly weathered, yellowish brown and cream to brownish grey and light grey, fine grained, soft to slightly/moderately hard shale fragments and chips in a very fine powdery clay matrix, moulds in hand but has overall granular feel when moulded, weathered Karoo shales/siltstone		
Highly to completely weathered, light yellow brown and cream to brownish grey, fine grained and powdery, minor very soft to clayey shale fragments, easily moulded when compressed in hand and stains hands when wet, weathered Karoo shales/siltstones.		
Volkrust formation: Intercalated shale and bright coal layers. Only present in western portion of project area.		14.50m
Vryheid formation: Sandstone and grit, intercalated carbonaceous shale, siltstone, few thick coal seams, mainly dull		30.73m

Figure 2: Generalised Stratigraphy of Ditubiz Project Area (Brink & Van der Linde, 2018)

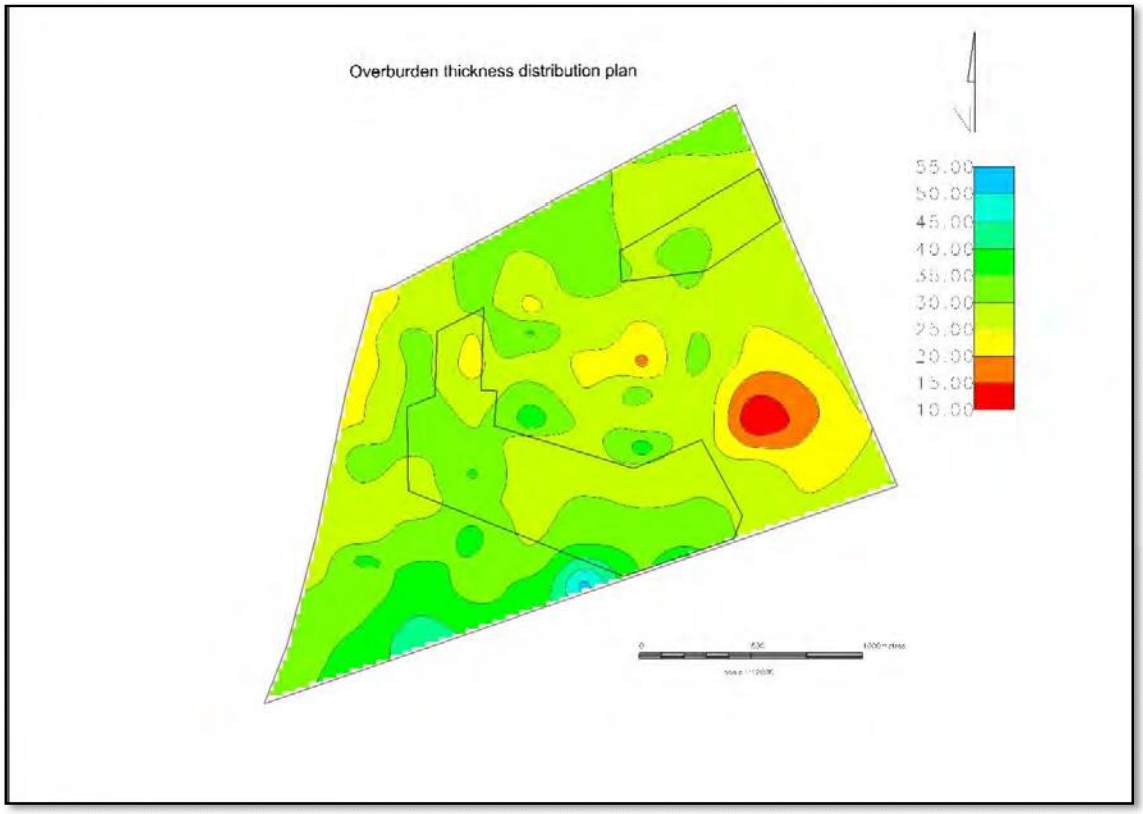

Figure 3: Overburden Thickness Distribution (Brink & Van der Linde, 2018)

The full Waterberg coal succession does not occur on the project area. A number of factors contribute to this. These include but are not limited to (provided by Exxaro):

- Differential weathering of the coal measures of the Volksrust and Vryheid Formations.
- The project area is situated in a narrow corridor that is bounded by two regional faults namely the Daarby and Eenzaamheid Faults. These faults appear to have a number of smaller, sympathetic faults associated with them. These fault zones make the project area more structurally complex and may contribute to the disappearance of portions of the coal measures in the area. These faults have been inferred by Exxaro from exploration boreholes and the geological model Figure 6 (Brink & Van der Linde, 2018).

7.2.2. Climate

The proposed Ditubiz project area is located in the Waterberg region of South Africa which falls within the subtropical high-pressure belt. The mean circulation of the atmosphere over the subcontinent, except for near the surface, is anti-cyclonic throughout the year. The synoptic

patterns affecting the typical weather experienced at the mine owe their origins to the subtropical, tropical and temperate features of the general atmospheric circulation over South Africa. The highest temperatures are typically experienced during the summer months of December, January and February, and the lowest during the winter months of June, July and August (Boyd &Dama-Fakir, 2018).

a. Temperature

Average temperatures in the region range from a minimum of approximately 5°C in June and July, to a maximum of approximately 33°C in January and December (Table 6).

Table 6: Average temperatures in the Lephalale area (https://en.climate-data.org/location/26819/)

Parameter	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Avg. Temperature (°C)	26	25.2	23.8	21.1	17.4	14	14.1	17	21.3	23.5	24.7	25.6
Min. Temperature (°C)	19.5	18.9	16.9	13.4	8.2	4.4	4.5	7.6	12.4	15.6	17.8	18.9

b. Rainfall

Data from three rainfall stations in close proximity to the project area, with reasonably long and reliable records, were analysed and are presented in Table *7* below.

Table 7: Metadata for the rain stations

Station Name	**Station No**	**Distance**	**Latitude**	**Longitude**	**Record**	**Patched Data**	**Reliability**	**AP**	**Altitude**
		km	Degrees	Degrees	Years	%	%	m	mamsl
Grootfontein	0674429 W	18.796	23.39	27.45	44	57.9	42.1	40	853

Station Name	Station No	Distance	Latitude	Longitude	Record	Patched Data	Reliability	AP	Altitude
Ellisras (POL)	0674400 W	17.102	23.41	27.44	3	66.2	33.8	63	837
Grootegeluk	0674100 W	0.000	23.40	27.34	24	76.9	23.0	449	908

From the data analysed, it was observed that the same trend is present in both wet and dry seasons, as illustrated in Figure *4*. The wet season is from October to March and the dry season from April to September, with the maximum average rainfall recorded in December and the minimum average rainfall recorded in July (Boyd & Dama-Fakir, 2018).

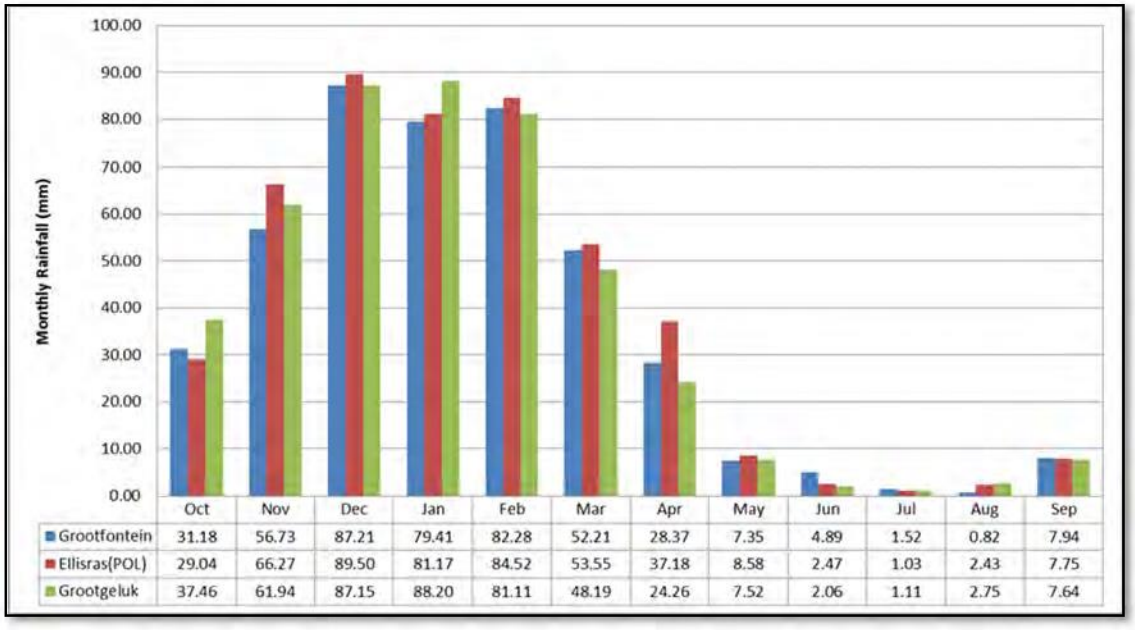

Figure 4: Average monthly rainfall for the stations analysed (Boyd & Dama-Fakir, 2018)

c. Evaporation

The nearest Symons (S)-Pan Evaporation station to the Turfvlakte farm (A4E007) has a Mean Annual Evaporation (MAE) of 1 844 mm/year. Mean monthly evaporation values are presented in Figure *5*. It is important to note that the mean annual evaporation is almost 4 times higher than the rainfall.

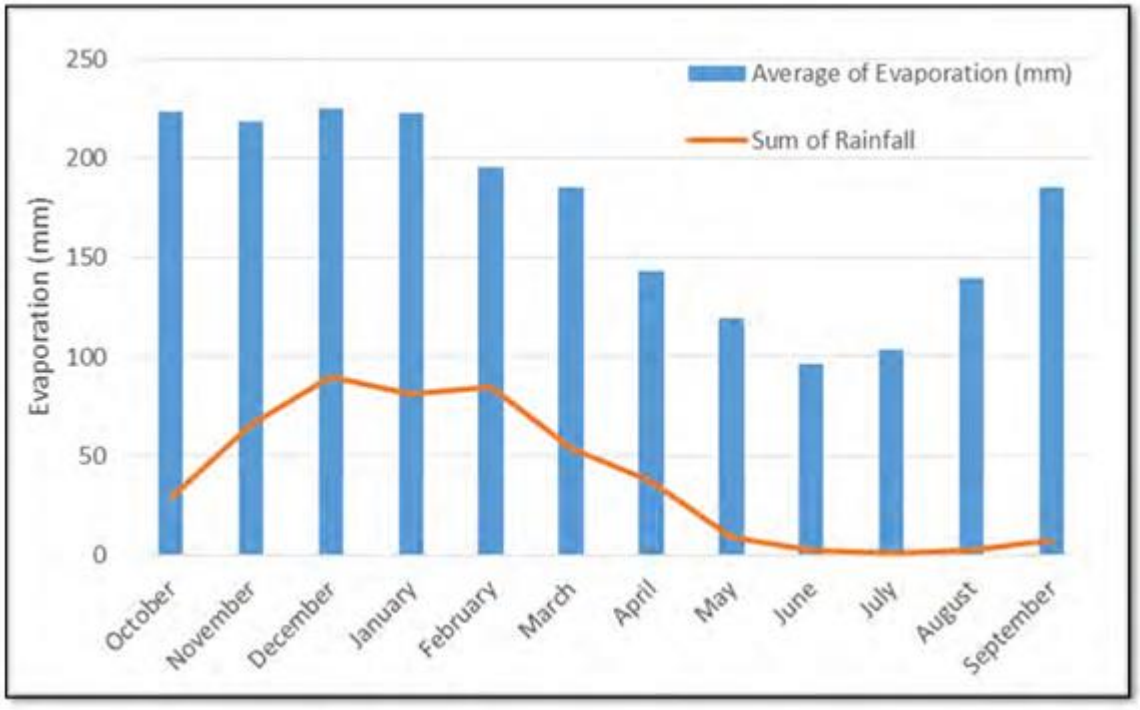

Figure 5: Average monthly evaporation measurements for the Lephalale area (Boyd & Dama-Fakir, 2018)

d. Wind Speed and Direction

Winds at the Ditubiz project area are expected to originate from the north-east to east-north-easterly sector. Wind speeds are moderate, averaging 3.2 m/s with a low percentage (10%) of calm conditions (<1 m/s).

The seasonal and diurnal wind roses are provided in Figure 6.

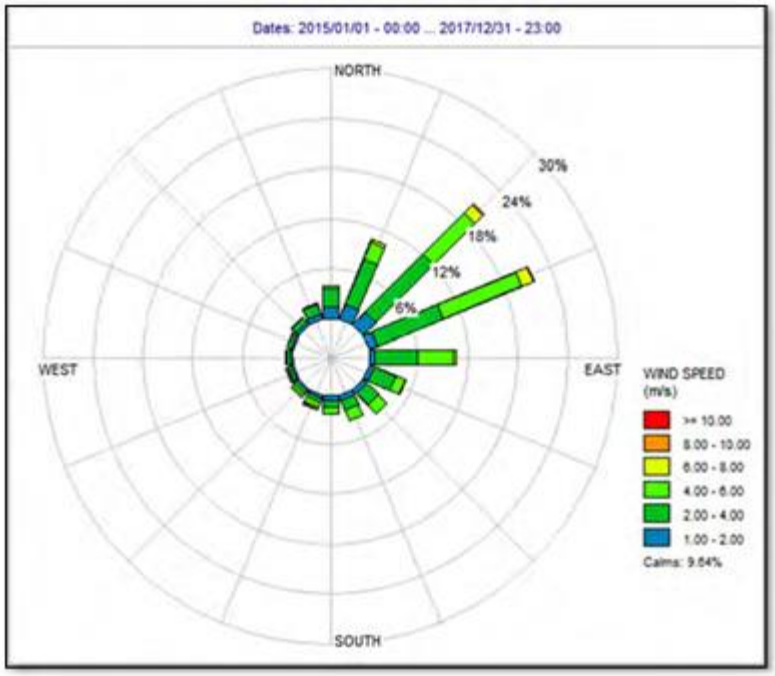

Figure 6: Period (2015 - 2017) modelled wind rose for the Ditubiz project area (Allan & Coetzee, 2018)

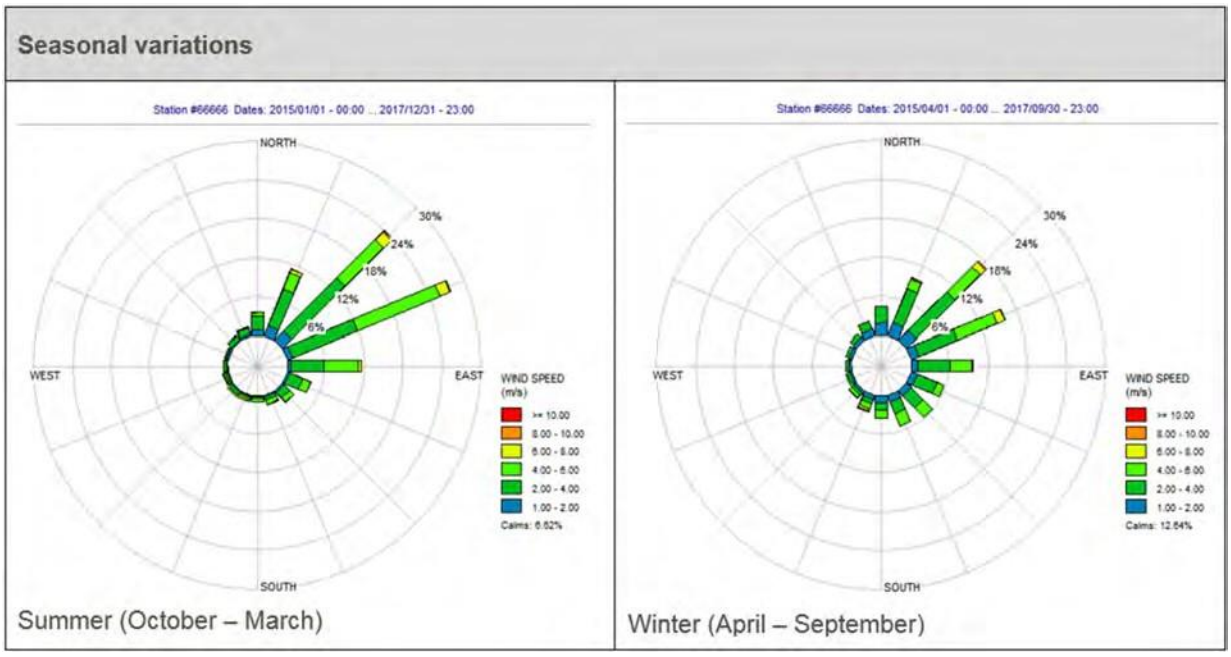

Figure 7: Seasonal variations in wind speed and direction (Allan & Coetzee, 2018)

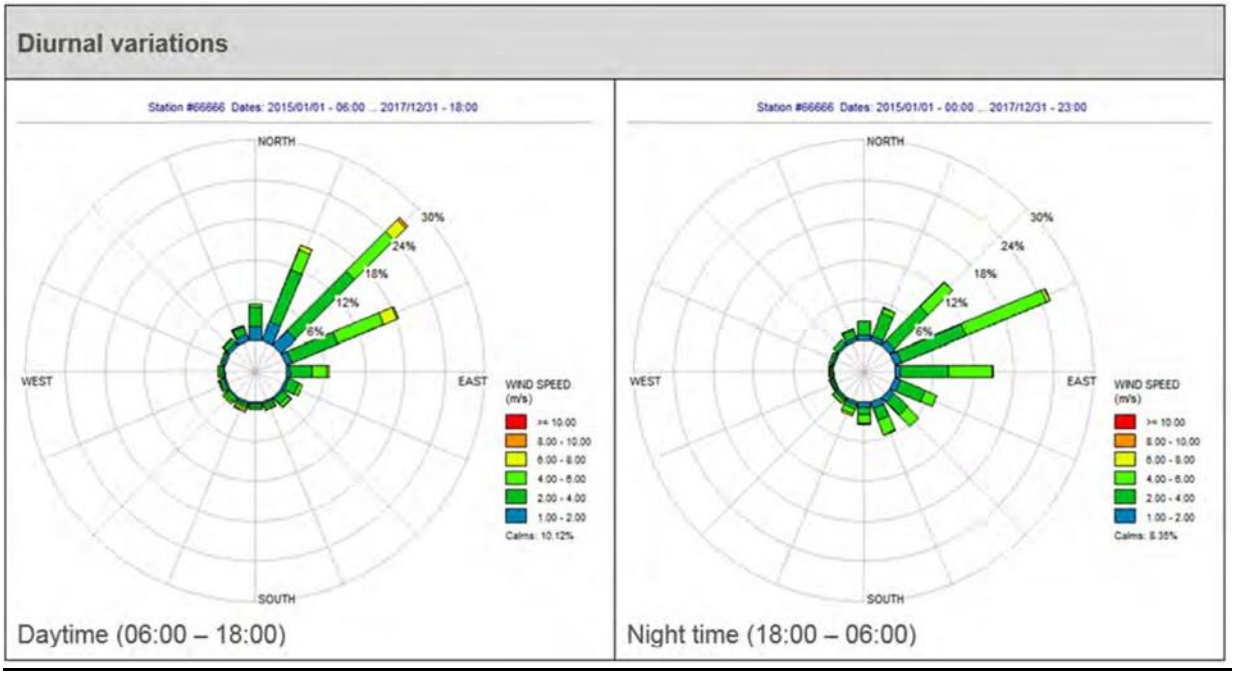

Figure 8: Diurnal variations in wind speed and direction (Allan & Coetzee, 2018)

Extreme Weather Events

The area is mainly frost free and hail seldom occurs

7.2.3. Air Quality

Priority Area

The Ditubiz project area is located within the Waterberg-Bojanala Priority Area (WBPA).

Land Use and Sensitive Receptors

The region is characterised by natural bushveld, interspersed with plots of cultivated land, small scale farming and protected natural reserves. The Ditubiz prospecting right activities, and the neighbouring Eskom power stations, Medupi and Matimba, are prominent features in the local landscape.

Potential sensitive receptors in the vicinity of the current Prospecting area, include dispersed farm houses, lodges, towns and natural reserves.

7.2.4. Topography

The general topography of the area is described as “Plains”, with slopes that vary between 0 and 3%. Elevation around the project area varies from 900 to 922 m above sea level. The area is generally featureless except for elevation differences caused by Nelsonskop (922 m) in the north and the Waterberg range (3,600 m) in the south. Drainage appears to be in an east-north-easterly direction towards the Mogol River and consists mainly of dry sandy gullies such as the “Sandloopspruit”.

7.2.5. Soil, Land Use and Land Capacity

The Ditubiz project area comprise of land types Ae252 and Ah85, as derived from the land type memoirs and associated maps of 2326 Ellisras.

7.2.6. Ecology

The Ditubiz project area is located in the Limpopo Sweet Bushveld vegetation type of the savanna biome. The savanna biome is the largest biome in South Africa, covering approximately 35% of the country’s land surface. Savannas are characterised by a dominant grass layer, over-topped by a discontinuous, yet distinct woody plant component. Primary determinants of savanna composition, structure and functioning are fire, a distinct seasonal climate, substrate type, and browsing and grazing by large herbivores.

Limpopo Sweet Bushveld extends northwards from the lower reaches of the Crocodile and Marico Rivers to the Limpopo Valley and into Botswana. It is characterised by undulating or irregular plains dominated by open woodland.

A number of statutorily declared nature reserves, as well as informal conservation areas are present in the broader region surrounding the study area. These include Marakele National Park, D’Nyala Nature Reserve, Welgevonden Private Nature Reserve, Hans Strijdom Nature Reserve and the neighbouring Tierkop Private Nature Reserve.
The Waterberg Biosphere Reserve occupies approximately 650 000 ha of the Waterberg district to the south of the Ditubiz project area

7.2.7. Surface Water

The Ditubiz project area is situated in the A42J quaternary catchment of the Limpopo Water Management Area (WMA). The main water resources in the quaternary catchment are the Sandloopspruit which flows east north-east to join the Mokolo River approximately 40 km south of the Limpopo River.

7.2.8. Groundwater

The aquifer at the Ditubiz Project Area is classified as a minor aquifer system, as defined by the Hydrogeological Map Series published by DWAF (1996). The small western part of the Ditubiz project area aquifer is classified as a fractured aquifer zone, whereas the greater part (proposed locality of Pit 1 and PIT 2) is classified as intergranular and fractured. Both aquifer zones have an average borehole yield of about 0.5 l/s, which is typical of the Karoo Super Group.

7.2.9. Noise

Ambient noise sources observed at the study area include distant mining activities, power station noise, traffic and domestic noise.

7.2.10. Visual

The wider study area is characterised by a mixture of completely transformed and developed land associated with the adjacent Grootegeluk Coal Mine, Eskom Power Stations, the Marapong residential area as well as large tracts of undeveloped natural bushveld, under either game or livestock management. The Ditubiz project area comprises natural bushveld with negligible levels of transformation and disturbance that are limited to a network of game viewing vehicle tracks.

7.2.11. Cultural and Heritage

The proposed Ditubiz project is located in an area covered by consistent level sandy plains with open savannah bush. A solitary kopje, Nelsonskop, occurs near the project area and is associated with human occupation in the past.

Pistorius (2018) states that the Ditubiz project area was sparsely populated by humans in the past. However, occupation started at an early period, resulting in the presence of humans in the area over a long time span, but on a limited scale.

7.2.12. Palaeontology

The Karoo Supergroup is renowned for its fossil wealth. It is marked as Undifferentiated Strata of the Karoo Supergroup, but correlates with the Vryheid Formation, Ecca Group and the Grootegeluk Formation which is rich in plant fossils such as the *Glossopteris* flora represented by stumps, leaves, pollen and fructifications.

7.2.13. Traffic

The Ditubiz project site is accessed *via* the existing Grootegeluk Mine entrance, which is accessible from Road D2001 at the intersection with the road to Marapong. The intersection of D2001, that provides access to both Grootegeluk Coal Mine and Marapong, is signalised.

7.10.14. Socio-economic

The Ditubiz project area falls within the Waterberg District Municipality (DM) and the Lephalale Local Municipality (LM) in the Limpopo Province. The Lephalale LM forms the main growth and development point in the municipal area. The population within the LM was 115 767 in 2001 and increased significantly to 136 626 in 2016.

Mining, Agriculture and Tourism comprise the main sectors which characterise the economic profile of the Waterberg District. The mining industry in the municipal area contributes to the economic development of the Waterberg District and Limpopo Province. The Lephalale LM has a 44% employment rate, with 42% being economically inactive and 12% unemployed.

7.3. Environmental and current land use map.

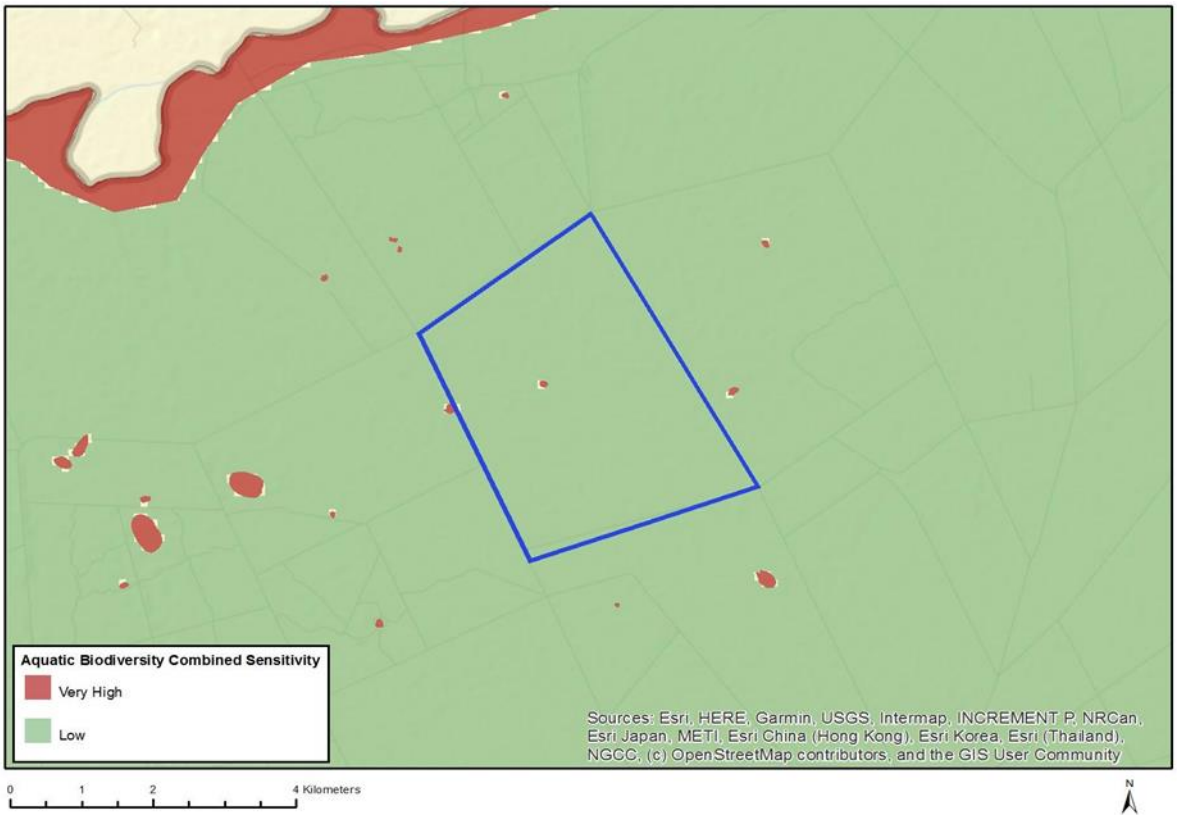

Figure 9: Relative terrestrial biodiversity theme sensitivity

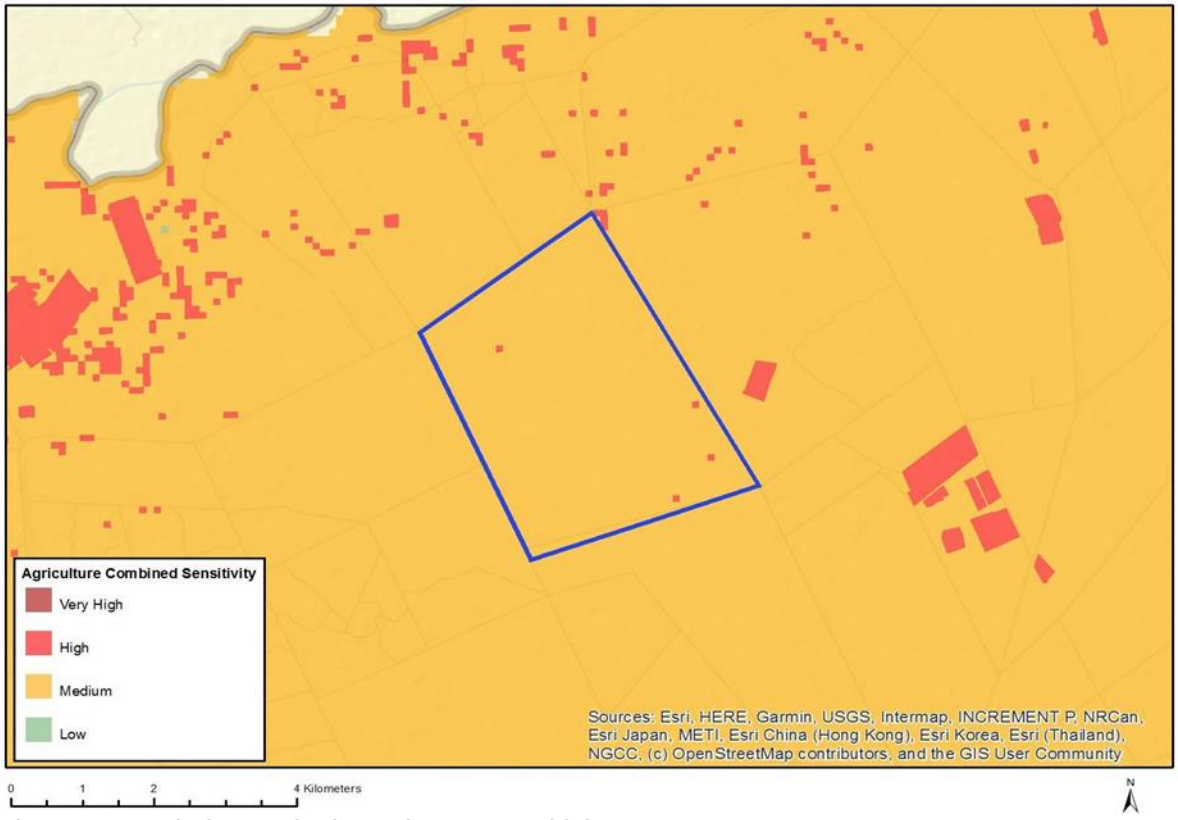

Figure 10: Relative agriculture theme sensitivity

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	Irreplaceble Damage	Can impact be avoided
Phase 1: Data Acquisition and Desktop Study						
Phase 1: Data Acquisi tion	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	No anticipated impacts.	N/A	N/A	N/A

Phase		Activities	Potential Impacts	Reversible	Irreplaceble Damage	Can impact be avoided
		undertaken.				
	Operation Phase	Site access	• 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.	Partial Yes Yes Yes	No No No No	Yes Yes Yes Yes

Phase		Activities	Potential Impacts	Reversible	Irreplaceble Damage	Can impact be avoided
			• Activities within the river bed could result in the disturbance to the natural geomorphology. • Activities within the river bed could result in safety hazards during rainy periods.	Partial No	Pontential No	Yes Yes
		Soil Sampling	Soil disturbances from soil sampling resulting in soil 30 kg of soil per sample?	Yes	No	No
	Decomissioning Phase	No decommission wil be required	No anticipitated 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

Phase		Activities	Potential Impacts	Reversible	Irreplaceble Damage	Can impact be avoided
			Vehicle traffic noise impact affecting cattle and/ or horses.	Yes	No	No
			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 faculties and	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

Phase		Activities	Potential Impacts	Reversible	Irreplaceble Damage	Can impact be avoided
		water storage tanks and core bay. (f) Erection of fuel storage tank. (g) Erection of safety barrier. (h) Waste generation and management.	Visual impact affecting visual character and "sense of place"	Yes	No	Partial
			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: (a) Scout and delineation drilling. (b) Drilling maintenance and re-fuelling. (c) Core sample collection and storage. (d) Drill fluid collection, storage and evaporation.	Water and soil pollution resulting from disposal of drill fluids.	Yes	Partial	Yes
			Continued soil erosion from topsoil stockpile and compaction from drill pad platform.	Yes	No	Yes
			Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Yes	Partial	Yes

Phase		Activities	Potential Impacts	Reversible	Irreplaceble Damage	Can impact be avoided
		(e) Waste generation and management.	Dust emissions from drilling and general site activities (including vehicle entrained dust).	Yes	No	Yes
			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	No	Yes	Yes

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

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 8 to Table 11. 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 11).

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 8: 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
Negetive	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 of if it affects a wide area or group of people. Impact extent can be site specific (within the boundaries of the development area), local, regional or national and/or international.

Table 7: *Extent of impact*

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

9.4. Impact Duration

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

Table 9*:* 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 10: 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 occur rence 10 – 49.9%.	2
Highly Probable	It is expected that the impact will occur; Chance of occurrence 50– 90%.	3
Def ini te	Impact will occur regardless of any prevention measures; Chance of occurrence >90%.	4
Definite and Cumulat ive	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 11: 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 marginal ly benef i ted.	+2
Negligible Benefit	Where the impact af fects the envi ronment in such a way that natural, cul tural and/ or social funct ions or processes are negligibly benefited.	+1
Neut ral	Where the impact af fects the envi ronment in such a way that natural, cul tural and/ or social funct ions or processes are not affected.	0
Negl igible	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 overal l magnitude and significance.

Table 12: 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
Negat ive	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 cont inued (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, Ditubiz Pty Ltd applied for prospecting rights over the area Northern side of Grootegeluk coal mine and western side of Matimba Power station. Based on the outcome of the desktop investgation, 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 alternativesites 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 55.

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 s ite.
    - 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 max imum 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 prohibitlittering 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 existing Coal mine in the area, 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 29th of April 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 13: 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 consulte 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		instances as far as practicable. As part of the soil sampling programme, no tracks will be cleared for once-off access to sampling sites. 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. Site activities will be conducted during daytime hours 07h00- 17h30 to avoid night noise disturbances and night time collisions with fauna. Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.	
	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	A waste management system will be implemented and suffiecient waste bins will be provided for on site. A fine system will be implemented to further prohibit littering and poor housekeeping practices. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals	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	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 proceeds. Use existing track and roads in all instances as far as is practicable. 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. Site activities will be conducted during	6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	SignificancE
					daytime hours 07h00- 17h30 to avoid night time noise disturbances and night time collisions with fauna. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.	
	Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources.	Construction Phase	8	Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.	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 heritage resources	No heritage/ cultural reources 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. Id 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
shaded area, potable ablution faculties and water storage tanks and core bad. (f) Erection of fuel storage tank (g) Erection of safety barrier. (h) Waste generation and management.					habitat which may result from fire.	
	Soil disturbance and topsoil stockpiling resulting in soil compaction and erosion.	Loss of soil resources	Construction Phase	11	In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil. 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. Where practicable topsoil will be stripped to a depth of 10 cm. 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.	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	SignificancE
					Topsoil will be stockpiled to a maximum height of 1.5m 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 geotiles to stabilise slopes.	
	Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Dust emissions	Construction Phase	10	Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when deeded. 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.	6
	Visual impact affecting character and “sense of	Loss in aesthetics	Construction Phase	6	The shaded office area, portable ablution facilitities, 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 inclresed activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Construction Phase	8	Casual labour will not be recruited at the site to elimimate 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 Services (SAPS) will be informed of unauthorised persons encountered on site.	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 maintenance and re-fuelling. (c) Core sample collection and storage. (d) Waste generation and management.	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.	
	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operationsl 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		secondary containment structure with a capacity of 110% of the total tank capacity. Oils and lubricant will be stored within secondary containment structures. Where practicable, vehicle maintenance will be undertaken off-site. 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. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	SignificancE
					Regular inspections of all vehicles must be carried out to ensure that all leaks identified early and rectified. A sufficient number of waste receptacles will be provided. Waste separation will be undertaken to 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.	

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 muct be considered in inorder 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 inclresed activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	8	Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. The landowner (Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site. If deemed necessary, the SAPS will be informed of unauthorised persons encountered on site.	7
	Impact on the plans and associated ecosystems in the area.	Loss of sensitive environments, loss of fauna and flora	Operational Phase.	12	The prospecting areas must be clearly demarcated. No prospecting activities may be undertaken within the pan areas.	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 faculties, water storage tanks and core bay. (b) Borehole capping Drill pad rehabilitation including: (a) Ripping of drill pad and access road.	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 rist posed to fauna by open drill holes. Drill holes must be permanently capped as soon as is practicable.	7
	Drust 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 muct be considered in inorder to conserve water resources.	Based 6
	Poor access control	Loss of	Decommissionin	10	Acces 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
					through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist. Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months	

11.2. Summary of specialist reports.

Table 14: 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 were 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 general topography of the area is described as “Plains”, with slopes that vary between 0 and 3%. Elevation around the project area varies from 900 to 922 m above sea level. The area is generally featureless except for elevation differences caused by Nelsonskop (922 m) in the north and the Waterberg range (3,600 m) in the south. Drainage appears to be in an east-north-easterly direction towards the Mogol River and consists mainly of dry sandy gullies such as the “Sandloopspruit”.

The project area is located in the Limpopo Sweet Bushveld (ref. SVcb19) vegetation type of the savanna biome. The savanna biome is the largest biome in South Africa, covering approximately 35% of the country’s land surface. Savannas are characterised by a dominant grass layer, over-topped by a discontinuous, yet distinct woody plant component. Primary determinants of savanna composition, structure and functioning are fire, a distinct seasonal climate, substrate type, and browsing and grazing by large herbivores.

Limpopo Sweet Bushveld extends northwards from the lower reaches of the Crocodile and Marico Rivers to the Limpopo Valley and into Botswana. It is characterised by undulating or irregular plains dominated by open woodland. A number of statutorily declared nature reserves, as well as informal conservation areas are present in the broader region surrounding the study area. These include Marakele National Park, D’Nyala Nature Reserve, Welgevonden Private Nature Reserve, Hans Strijdom Nature Reserve and the neighbouring Tierkop Private Nature Reserve.
The Waterberg Biosphere Reserve occupies approximately 650 000 ha of the Waterberg district to the south of the Ditubiz project area

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 geophysic 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 ye t available.
  - Details regarding the presence and status of land claims are not available.

- Heritage Impact Assessment was undertaken for mining right application on the same farm in 2015. No Heritage Impact Assessment was undertaken for this application.
- No detailed site layout is available due to then ature of the prospecting activities. The study is therefore under taken as a holistic assessment of the overall site.
- Site investigation by EAP was undertaken on the 29th of April 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, Pesudocoal and Torbanite/ Oil Shale on the area, Coal occurences was identified in the area thus Grootegeluk Cola mine by Exxaro.
- 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 should be submitted to the relevant landowners and the DWS and DMR prior to the commencement of these activities;
- No activities may be under taken in the pans ;
- No activities, with the exception of the soil sampling, may take place with in 32 m f rom 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 undertaken 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. The closure costs are estimated as follows:

- Sub-Total 1: R133 824. 00 (excluding VAT)

The following section presents the methodology for the determination of the f inancial provision.

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 theref ore indicates the minimum requirements for assessing and report ing on a closure cost estimate.

15.1.1. Method of Assessment

As mentioned before, Fecund Consultants 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 informat ion	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 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 t he prospect ing act ivi t ies 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,

Step	Description	DMR Applicable Table	Outcomes
			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 thi s assessment, Fecund Consulants 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 Fecund Consultants Pty Ltd in this assessment.

CALCULATION OF THE QUANTUM

Applicant: **Ditubiz (Pty) Ltd** **Ref No.:** **LP 30/5/1/1/3/2/1 (14005) PR**

Evaluator: **Fecund Consultants (Pty) Ltd** **Date:** **30-May-21**

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	20	12.28	1	1	245.6
2 (A)	Demolition of steel buildings and structures	m2	0	171	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	252	1	1	0
3	Rehabilitation of access roads	m2	150	30.6	1	1	4590
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	279	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	162	1	1	0
5	Demolition of housing and/or administration facilities	m2	150	342	1	1	51300
6	Opencast rehabilitation including final voids and ramps	ha	0.1	174057.55	1	1	17405.755
7	Sealing of shafts adits and inclines	m3	0	91.8	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0.1	119518.31	1	1	11951.831
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	148857.9	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	432353.9	1	1	0
9	Rehabilitation of subsided areas	ha	0	100078.59	1	1	0
10	General surface rehabilitation	ha	0.1	94678.67	1	1	9467.867
11	River diversions	ha	0	94678.67	1	1	0

12	Fencing	m	0	108	1	1	0
13	Water management	ha	0	35999.49	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0.1	12599.82	1	1	1259.982
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		96221.035

1	Preliminary and General	11546.5242	**weighting factor 2** 1	11546.5242
2	Contingencies	9622.1035		9622.1035
			Subtotal 2	117389.66
			VAT (15%)	17608.449
			Grand Total	**134998.1**

15.1.4. Financial Provision

The financial provision required by the holder of the mining 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 Prospect ing 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 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 envi ronmental 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 geophysic s 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 f arm 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 cons idered 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 pract ices.

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 Section 7.2.11, page 44 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 envi ronmental management programme is already included in PART A, section 3.

1.3. Composite Map

Please refer to Appendix A for the Composite Map.

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 out come of the Phase 1 assessment, an airborne/ ground geophysics survey and/ or loam sampling programme will be initiated. Targets that have been pr ioritized 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 r isks associated therewith.

The closure objectives are to:

- Eliminate any safety risk associated with drill holes and sumps though 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 eros ion 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 res tore 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 75m^3 of groundwater per hectare per annum from groundwater within the A24J Quaternary Catchment of WMA. 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 out comes 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 15: 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 (614.200ha)	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	N/A

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
				necessary consultation must be initiated with the DWS.	
Phase 2: Target Generat ion and Ground Truthing					
Si te f ly-over	Planning	Entire property	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. 4. Farms owners must be consul ted and informed of any low f ly overs which may affect cattle being held in restricted	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 under taken	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
			9. As part of the soil sampling programme, not racks will be cleared for once-off access to sampling sites. 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. 11. Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna. 12. Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts. 13. Access control	for. Soil sampling should be restricted to the $1m^2$ 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. The applicant must adhere to the NEMA Section 2 Principle and ensure that acradle to grave approach is followed in terms of waste management and that all activities are under taken with a precautionary	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			procedures must be agreed on with farm owners and all staff trained on these procedures. 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. 15. Waste separation will be under taken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste). 16. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight. 17. Wastes will be removed	approach. Where impacts may result a proactive manner should be implemented to ensure that potential negative results are avoided. The applicant must comply with the conditions of the Environmental Authorisation at all times.	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility. 18. Only soil sampling may be undertaken in the river bed. No other activities (drilling, roads, may be undertaken. 19. No sampling within the riverbed will be permitted during rainy periods. A first aid station and emergency plan must be available on site. 20. Soil disturbances are to be limited as far as is practicable.		
No Decommissioning associated wi th the soi l sample		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
Phase 3: Scout Drilling and Delineation Drilling					
Site Access	Construction	Less than 1600 m2	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. 23. Use existing track and roads in all instances as far as is practicable. 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 avoid. 25. Site activities will be	The prospecting activities must be under taken in line with the approved Prospecting Works Programme. The financial provision required for rehabilitation must be guaranteed before the commencement of prospecting activities. Activities should stay clear of pans and outside of the 32m river bufferin order to avoid the need to apply for a Section 21 (c) and (i) Water Use License.	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
			conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna. 26. Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts. 27. Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts. 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 disturbances.		

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

1.6. Impact Management Outcomes

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

Table 16: Impact Management Outcomes

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Phase1: Data Acquisition and Desktop Study					
Data collect ion and assessment (desktop only)	31. None identified.	N/A	Planning	Control potential deviations f rom the approved Prospecting Works Programme through the effective Implementation of the data acquisition and desktop study.	Remain within the ambits of the Prospect ing Works Programme and Environmental Authorisation.
Data Assessment	32. 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 wi thin the ambits of the Prospect ing Works Programme and Environmental Author isation.
Phase 2: Target Generation and Ground Truthing					
Site fly-over	33. Noise impacts resulting from site fly-overs affecting cattle and game farm	N/A	Planning	Control potential deviat ions f rom the approved Prospect ing Works Programme through the ef fect ive implementation of the site fly	Remain wi thin the ambits of the Prospect ing Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	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.	
	34. Nuisance noise impacts on communities and landowners and other persons	Noise generation	Planning		
Ground surveys	35. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of Cattle		Control potential deviat ions f rom 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 contruction or site establishment activities will be undertaken.	36. No anticipated impacts	N/A	N/A		

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Soil sampling (30kg of soil per sample)	37. Destruction and/ or disturbance of on-sitenfauna and flora.	Loss of Fauna and Flora	Operational Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works. No removal of vegetation outside of demarcated areas.
	38. 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.
	39. 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.
	40. Poor housekeeping could result in	Loss of aesthetic value,	Operational Phase	Control through the limiting of the Activities to the day time and the implementation of an open	Remain within the ambits of the Prospect ing Works Programme

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	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.	loss of water resources, loss of fauna and flora		and transparent channel of communication. Control through the implementation of environmental induction and toolbox talks, as well as theImplementation of a fine system.	and Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	41. 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.
	42. 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.
	43. Soil disturbance from	Loss soil Resources	Operational Phase	Control through the clear delineation of the prospecting	Retain topsoil for the re-use in rehabilitation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	soil resulting in soil structure destruction, compaction and erosion.			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.	
No decommissioning activities will be required	44. No anticipated impacts	N/A	Decommissioning Phase	N/A	N/A
Site Access	45. 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.
	46. Soil compaction resulting from repeated use of access roads to	Loss of soil Resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the	Remain within the ambits of the Prospecting Works Programme and Environmental

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	drill sites.			implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	47. 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 implementat ion of an open and Transparent channel of communication.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	48. 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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Site establishment activities including: (a) Vegetation clearing of drill pad area. (b) Topsoil stripping and stockpiling. (c) Drill and compaction. (d) Excavation and lining of drill water sump (e) Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay (f) Erection of fuel storage tank (g) Waste	49. 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.
	50. 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 topsoi l removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain wi thin the ambi ts of the Prospect ing Works Programme and Envi ronmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	51. Dust emission resulting from site clearing, soil stripping and construction	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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
generation and management.	activities (including vehicle entrained dust)				Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	52. Visual impact affecting visual character land “sense of place”	Loss in aesthet ics	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.
	53. Influx of persons (job seekers) to site as a result of increased activity resulting in	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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	increased incidents of theft and pportunistic crime.				
Explorarion drilling ad core sample collection and storage including. (a) Scout and delineation drilling (b) Drill maintenance and re-fuelling. (c) Core sample collection and storage. (d) Drill fluid collection, storage and evaporation. (e) Waste generation and management	54. Water and soil pollution resulting from disposal of drill fluids.	Loss of water resources, loss of soil resources	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 fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP. Control through the implementation of the NWA	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				GN704 water management principles.	
	55. Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operational 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 ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	56. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activites.	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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	57. 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 requi red. Dust suppression methods could include wet suppression.	Remain wi thin the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	58. 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.
	59. Vehicle	Loss of fauna	Operational	Control through the clear	Remain within the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	traffic and drill noise impact affecting wildlife game farm animals.		Phase	delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	ambits of the Prospecting Works Programme and Environmental Authorisation.
	60. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of cattle	Operational Phase	Control through the clear delineation of the 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 ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	61. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Maintain a 100% cr ime free area within the Control of the prospecting activities and applicant.
Removal of temporary infrastructure including: (a) Removal of temporary site office shaded area, potable ablution faculties, water storage tanks and core bay (b) Borehole capping	62. Destructtion 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	Remain within the ambit of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				and transparent channel of communication.	
Drill pad rehabilitation including: a) Ripping of drill pad and access road b) Re-spreading of stockpiled topsoil. c) Re-vegetation.	63. Dust emissions from decommissioning activites (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	Cont rol to the implementat ion of dust suppression methods, when this is requi red. Dust suppression methods could include wet suppression	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	64. 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	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				communication.	
	65. 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.
	66. Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Loss of soil resources	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

1.7. Impact Management Actions

Table 17: Impact Management Actions

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Phase1: Data Acquisition and Desktop Study				
Data collection and assessment (desktop only)	None identified.	Nomitigation proposed	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Data Assessment	None identified.	Nomitigation proposed	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Phase 2: Target Generat ion 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 agrievance mechanism will be made available. Mitigation alternatives are limited to	N/A	Remain wi thin the ambi ts of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		timing of the flyovers which may affect aspects such as hunting act ivities on game farms. Farms owners must be consulted and informed of any low flyovers which may affect cattle being held in restricted holding pens, which may result ininjury or damage.		
	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	No anticipated	No mitigation proposed	N/A	N/A

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
establishment activities will be undertaken	impacts.			
Soil sampling (30kg of soil per sample)	Destruction and/ or disturbance of on-site fauna and flora.	Use existing track and roads in all instances as far as is practicable. As part of the soil sampling programme, no tracks will be cleared for once-off access to sampling sites. 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. Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time	Concurrently with the completion of prospecting activities in an area.	Remain wi thin the ambits of the Prospecting Works. No removal of vegetation outside of demarcated areas.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		collisions with fauna. 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 daytimehours 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 Author isat ion.
	Poor housekeeping could result in littering and the associated impacts this will have	Waste management s ystem will be implemented and sufficient waste bins will be provided for on site.	Concurrently with the completion of prospecting activities in an area.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	on the aethestic of the area, contamination of river systems in the rainy season and also potential health hazard to cattle.	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		No removal of vegetation outside of demarcated areas.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		recyclables will be taken to 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	Map indicating the location of each of the drilling sites	Concurrently with the completion of prospecting	Remain within the ambits of the Prospecting Works

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	fauna and flora.	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. Use existing track and roads in all instances as far as is practicable. 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. Site activities will be conducted during daytime hours 07h00– 17h30 to	activities	Programme and Environmental Authorisation.

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

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		disturbances.		
	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.
Site establishement activities including: (a) Vegetation clearing of drill pad area. *(b) Topsoil stripping and stockpiling* *(a) Excavation and lining of drill water sump* *(b) Erection of temporary site office shaded area, potable ablution faculties and water storage tanks and core bay*	Destruction and/ or disturbance of on-site fauna and flora.	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	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
(c) Erect ion of fuel storage tank *(d) Erection of safety barrier.*		and minimise the destruction of flora and faunal habitat which may result from fire.		
(e) (*Waste generation and management*	Soil disturbance and top soil stockpiling resulting in soil compaction and erosion.	In the event that the drill pad is cleared of all vegetation, lower blade clearing will be undertaken prior to the stripping of topsoil. Topsoil including the remaining vegetation, will be st r ipped 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. Where practicable topsoil will be stripped to a depth of 10 cm.	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
		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. Topsoil will be stockpiles to a maximum height of 1.5m wi th 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.		
	Dust emissions resulting from site clearing, soil stripping	Based on visual observation, wet dust suppression will be	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	and construction activities (including vehicle entrained dust).	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.		Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Visual impact affecting visual character and "sense of place"	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	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.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		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.	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.	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:	Water and soil pollution resulting from disposal of drill fluids.	A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.	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
a) Scout and drilling		The sump will be constructed to divert stormwater away and/ or around the sump to avoid clean stormwater inflow.		Retain topsoil integrity for the reuse
	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	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 be 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	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
		implemented if required. This may include the use of geotextiles.		
	Potential water and soil pollution resulting from hydrocarbon spils and drill maintenance activities.	Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity. Oils and lubricant will be stored within secondary containment structures. Where practicable, vehicle maintenance will be under taken off-site. In the event that vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will be used to	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
		prevent spills and leaks onto the soil. Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop. Regular inspections of all vehicles must be carr ied out to ensure that all leaks are identified early and rectified. A sufficient number of waste receptacles will be provided. Waste separation will beunder taken at source and separate receptacles will be provided (i.e. general		

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		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.		
	Dust emissions from drilling and general site activities (including vehicle entrained dust)	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	Concurrently with the completion of prospecting activities	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.		Regulation guidelines for rural communities
	Visual impact affecting visual character and “sense of place”	Visual impact of st ructures will be mitigated through measures as included in I tem 35. Visual dust dispersion will be mitigated through measures as included in Item 33.	Concurrently with the completion of prospecting activities	Remain wi thin 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,	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

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	breeding and grazing practices.			Environmental Author isat ion.
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment. The landowner (the Department of Rural Development and Land Reform) 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.	Concurrently with the completion of prospecting activities	Maintain a 100% crime free area within the control of the prospecting activities and applicant.
	Impact on the pans and associated ecosystems in the	The prospecting areas must be clearly demarcated.	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
	area.	No prospecting activities may be under taken within the pan areas. All site plans must indicate the presence of pans.		Environmental Authorisation.
Removal of temporary inf rast ructure including: *a. Removal of temporary site office shaded area, potable ablut ion faculties, water storage tanks and core bay* *b. Borehole capping* Ripping of drill pad *and access road* *Re-vegetation*	Destruction and/ or disturbance of on-site fauna.	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 permanent ly capped as soon as is pract icable	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Dust emissions from decommissioning	Based on visual observation wet dust suppression will be	Concurrently with the completion of prospecting	Remain within the designated area demarcated for

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	activities (include vehicle entrained dust)	under taken 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.	activities	prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on wi th farm owners and all staff trained.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Author isat ion.
	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	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
		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.		
	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles. Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist.	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. Mappin g of the prospecting activities could thus not be undertaken.

The rehabilitation plan is developed on the basis that the rehabilitated areas are safe, table, 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 obje tive, a high level risk assessment of the prospec t ing component s has been under taken to establish the potential risks associated therewith.

The closure objectives are to:

- Eliminate any safety risk as sociated with drill holes and sumps though adequate drill hole capping and backfilling.
- Remove and/ or rehabilitate all pollution and pollution sources such as was te 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. 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 11 below provides the prepared procedure for the secure plugging of exploration drill holes.

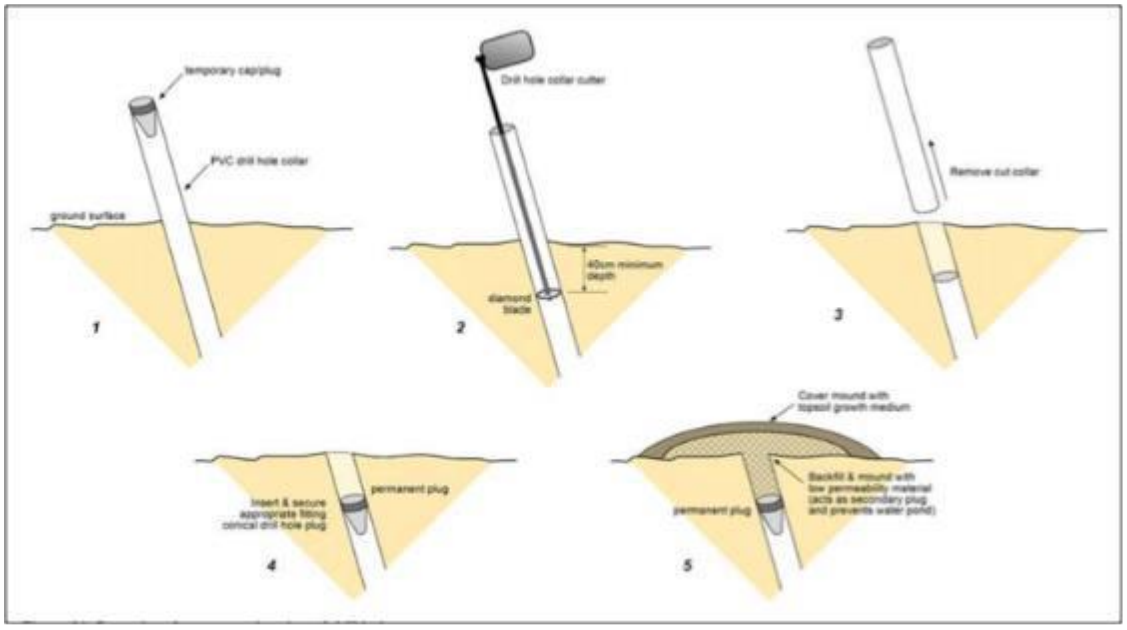

Figure 11: Borehole capping (Source: Department of Mines and Petroleum, DRAFT Guidelines for Environmentally Responsible Mineral Exploration & Prospecting in Western Australia, March 2012)

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 i n 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 submision- 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 18: 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.		Consultation to be signed-off by Environmental Management. All grievances to be signed-off by Environmental Management. All corrective action and close out of grievances to be signed off by Environmental Management. Proof of consultation to be submitted to the Department of Mineral Resources prior to airborne survey is conducted. 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.
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 Depar tment of Mineral Resources. 4.
	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	Visual inspection of clearing activities and other possible	Prospecting Manager Contractor.	Once-off during clearing activities.

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
	the occurrence of invader species.	secondary impact on biodiversity will be undertaken. The introduction of alien invasive vegetation species will be determined.		Weekly inspection of secondary imnpacts. 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) tobe submitted to the Department of Mineral Resources.
	Visual inspection of pollution incidents, the integrity of secondar	All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify	Prospecting Manager Contractor	Daily 1. Monthly monitoring reports to be 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
	containment structures and waste management.	potential leaks. All spill incidents will be identified and corrective action taken in accordance with an established spill response procedure. Waste management practices will be monitored to prevent contamination and littering.		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. Incident reporting will be undertaken as required in terms of the relevant legislation including, but not limited to, the: a) Mineral and Petroleun Resources Development Act 28 of 2002; and b) National Water Act 36 of 1998.
Post Closure	Follow-up	Inspection of all rehabilitated	Prospecting Manager	Monthly for a period of 6 months

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
Monitoring	inspections and monitoring of rehabilitation	areas to assess whether any soil erosion is occurring and implement corrective action where required. Confirm that the set target of 45% cover for all re-vegetated areas have been achieved after a period of 6 months and re-seed where required Identify any areas of subsidence around drill holes and undertake additional backfilling if required.		after rehabilitation activities are concluded. 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 19: 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	67. 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. 68. Establish a basic knowledge of the environmental legal framework and consequences of non-compliance. 69. Clarify the content and required actions for the implementation of the Environmental Management

Frequency	Time allocation	Objective
		Plan. 70. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. 71. 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 requi rements, appropriate responses and measures for the adaptat ion 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 19 above, Task/ Issue Based Risk Assessments must be under taken 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 f eatures
    - ❖ 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 inaccordance with an established incident reporting procedure to (including but not limited to):

- o 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;
- o Provide details of the incident (time, date, location);
- o The details of the cause of the incident;
- o Identify the aspects of the environment impacted;
- o The details corrective action taken, and
- o 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 was 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.

Signature of the environmental assessment practitioner:

Fecund Consultants Pty Ltd

Name of company:

30/05/2021

Date:

-END-

APPENDIX A: MAPS

APPENDIX B: CONSULTATION REPORT

APPENDIX E: DETAILS OF THE EAP