



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT
And
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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Important Notice

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

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

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

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

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided

headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context.
- (b) identify the alternatives considered, including the activity, location, and technology alternatives.
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed.
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided, or mitigated.
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative.
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF 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 Teresa Nelwamondo

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1.1.2. Expertise of the EAP.

(a) The qualifications of the EAP

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

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

This report was prepared by Thabelo Teresa Nelwamondo (Pr. Sci. Nat. Reg. EAP), a registered Environmental Assessment Practitioner with EAPASA and have over 9 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 in construction project, mineral tenure and water related projects in South Africa. Thabelo Nelwamondo has also been involved in public participation programmes on a number of diverse projects.

2. Location of the overall Activity.

Table 1: Location of the overall Activity

Farm Name:	B.V.B Ranch 776LT Buffalo Ranch 834 LT Danie 789 LT Willie 787LT Josephine 777LT Fareell 781 LT
Application area (Ha)	139144546 Ha
Magisterial district:	Phalaborwa
Distance and direction from nearest town	Approximately 25 km from Phalaborwa town
21-digit Surveyor General Code for each farm portion	TOLT0000000007760000 TOLT0000000007760001 TOLT0000000007760002 TOLT0000000007760003 TOLT0000000007760004 TOLT0000000007760005 TOLT0000000007760006 TOLT0000000007760007 TOLT0000000007760008 TOLT0000000007760009 TOLT0000000007760010 TOLT0000000007760011

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2.1. Locality map

See attached the locality map attached to this report. (Appendix A).

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

The detailed geology for Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon, Silver potential of the area is relatively unknown, and as such exploration work will commence from a very basic level. The Prospecting Work Programme is therefore designed in phases, each phase is 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 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 right application is being assessed and, presumably, approved. A period of 12 months is estimated for this phase.

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 be carried out. Coupled with this will be ground geophysics to sharpen the identified potential areas. Gravity magnetic and time domain EM will 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 this phase will take approximately 12 months to complete (see the PWP attached).

c. Phase 3 –Drilling and Resource Generation

If the present application is approved, 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. 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 10 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 139 144 546 ha	X	GNR 327, Activity 20
Drilling activities		X	GNR 327, Activity 20
Soil sampling activities (A typical sampling site will be approximately 1 m ²). It is unlikely that more than 100 samples will be taken, however, this will be		X	GNR 327, Activity 20

confirmed on site as part of the prospecting activities.			
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 150 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 undertaken.

3.2.1. Access Roads

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

During soil sampling activities, vehicle access will be gained to sampling site through the existing road tracks. Once the drill site have been identified, temporary access roads may be established for repeated access to the drill site if the identified drill site cannot be access via existing roads and tracks.

3.2.2. Water Supply

Currently it is not known whether there are any water boreholes located on the site and whether access and supply will be granted by the landowners. It is anticipated that water brought onto the site, will be sourced from the Ba-Phalaborwa Local Municipality, Water will be trucked 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 L for water supply to the drilling site 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 (Leeuwpoot). Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

3.2.6. Blasting

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

3.2.7. Storage of Dangerous Goods

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

3.3. Detailed Prospecting Activities

3.3.1. Phase 1: Data acquisition and a Desktop study

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

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

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

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

b. Phase 2b: Soil Sampling

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

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

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

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 is 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 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 the mineral being prospected (Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon and Silver.).

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

4. Policy and Legislative Context

Table 3: Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
National Environmental Management Act, 1998	This Basic Assessment Report & EMP	An application for Environmental Authorisation was submitted to the DMRE Limpopo. The application was acknowledged by the DMRE on the 09 th of May 2023 (LP 5/1/1/3/2/14955 EM). The Department of Mineral Resources and Energy requested the submission of the BAR and EMP within the period of 90 days of the acknowledgment letter.
National Water Act, 1998	Soil sampling for Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon and Silver.	Although each soil sample will only be 1 m ² in size. Clarification is required from DWS whether a Section 21 (c) and (i) Water Use License will be required.
Mineral and Petroleum Resources Development Act, 2002	Application for Prospecting in terms of Section 16	A Prospecting Right Application has been submitted to the Department of Mineral Resources and Energy by the Applicant. The application was accepted by the Department of Mineral Resources and Energy-Limpopo.

<p>Strategic Development Framework (SDF)</p>	<p>Alternatives</p>	<p>In terms with the SDF of the Ba-Phalaborwa Local municipality, various strategies and associated policies should be adopted to ensure effective spatial development.</p> <p>In terms of the SDF the municipality must provide alternative means of support for rural/ informal population to decrease dependence on the environment and subsistence agriculture. For this purpose the following policies are adopted:</p> <ul style="list-style-type: none"> • Maximise economic benefit from mining industrial, business, agricultural and tourism development within the area. • Promote a climate for economic development. Improve public and investor confidence in the region through crime reduction and infrastructure development.
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5. Need and desirability of the proposed activities.

Exploration work is very important in coming up with a decision to open a mine. The planned surface work including drilling is important to be done on rocks that have

potential to host the minerals to be explored. In the area is characterised by the igneous and sedimentary rocks of the Karoo Supergroup. The planned drilling positions are located on the rocks 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 in terms 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 earth 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 Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon and Silver, and whether these are feasible to enter further studies towards a Mining Right Application.

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 mineral deposits occurrences are known in the area with mines such as Foskor in the 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 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.

Envirostep Pty Ltd applied for prospecting right in Phalaborwa, approximately 25km from the town. Based on the evidendence of the presence mine in the area, 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 farms BVB Ranch 776 LT, Buffalo Ranch 834 LT, Danie 789 LT, Willie 787 LT, Josephine 777 LT and Fareell 781 LT, in

Phalaborwa to determine the presence of Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon and Silver 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 on the long term success of the company in terms of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques .

6.1.3. The design or layout of the activity;

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

6.1.4. The technology to be used in the activity;

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

6.1.5. The operational aspects of the activity;

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

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

Based on the outcomes of the magnetic survey, soil sampling will be undertaken for target areas only. Soil samples is planned to be excavated using a simple shovel and bucket. Soil sampling is a low impact exploration method in terms of environmental disturbance.

After the preliminary exploration work, the anomalies identified will be ranked for exploratory drilling. Site activities as it relates to exploratory drilling will comprise the establishment of the drillpad (drill pad clearing and compaction), drilling operations (drill maintenance, refueling, core extraction and core storage) and rehabilitation activities (drill pad ripping and re-vegetation). No feasible alternative to the proposed exploratory drill methods currently exists. Impact associated with the drilling operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

6.1.6. The option of not implementing the activity.

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

In addition to the above, the SDF of the Ba-Phalaborwa Local municipality, states that various strategies and associated policies should be adopted to ensure effective spatial development. In terms of the SDF the municipality must provide alternative means of support for rural/ informal population 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;*
- b. *Promote a climate for economic development, and*
- c. *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

Communities such as Lyden extension, Gravelotte, Murchison, Mashishimale- Tshepe village and Mashishimale location are situated on and close to the said properties and lodges (Selati lodge) and Selati nature reserve within the proposed farms. All the affected properties belong to private farmers and some are declared Big Five Game farms.

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 search 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 Limpopo Department of Rural Development and Land Reform (Mpobonyane Rampora) on the 05th of July 2023. Envirostep still awaits response.

c. Traditional Authorities

This is will be confirmed on the 07th of July 2023 during the site visit.

d. Municipalities

The project is located within the Magisterial District of Phalaborwa, under the jurisdiction of the Ba-Phalaborwa Local Municipality, located with in Mopani District Municipality. The Local Municipality will be informed in person (07/07/2023), (BID and Site Notices and DBAR and EMPr will be hand delivered).

e. Landowners and Notification Methodology

Majority of Landowners for the farms under application are all private farmers. Farm Josephine 777 LT is state owned and portions 1 and 5 of the farm Fareell 781 LT are owned by the local municipality. Only portion 7 of the farm Fareell 781 LT is owned by Modjadji Manufacturing Pty Ltd which is assumed to be the community. Fecund Consultants obtained the details for each landowner from the winded search (Lexis WinDeed). Each landowner will be contacted and be informed of this application. All necessary documents will be shared with each farm owner and meetings were required will be held privately with farm owners and/ FGM with the community. The following method was applied in informing relevant stakeholders.

f. Adverts were place in the:

- Phalaborwa Herald (date and page to be confirmed)

- BID and Registration Sheet with a Locality map will be distributed to all interested and affected parties in person on the 07th of July 2023.
- A site visit was conducted on 07th of July 2023.

- All Government departments will be informed of the said application via e-mail and in person.
- A3 Site Notices will be placed at the site boundary, Ba-Phalaborwa Local Municipality and local libraries.
- BIDs will be made available within the study area, local libraries and local municipality.
- A draft copy of the EMP will be distributed 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 BAR and EMP. The draft EMP report will be made available to I&APs on the 07th of July 2023.

g. Issues and Response Register

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

6.2.2. Summary of issues raised by I&Aps

Table 4: Summary of issues raised by I&APs

Interested and Affected Parties		Date	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Comments Received			
<u>AFFECTED PARTIES</u>					
Landowner/s	X				
BRYAN HAVEMANN General Manager			<p>Good afternoon Thabelo</p> <p>I am registering as an Interested and Affected Party for the Basic Assessment Report (BAR) for the prospecting right REF NO: LP 30/5/1/1/3/2/1 (14955) EM</p> <p>Please send me the draft BAR, so that I can provide written comments.</p>	<p>Good Morning</p> <p>Please note that you have been registered as an I&AP for the aforementioned application (REF NO: LP 30/5/1/1/3/2/1 (14955) EM).</p>	



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Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Municipality	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs					
Mpobonyane Rampora					
Traditional Leaders					



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Dept. Environmental Affairs					
Other Competent Authorities affected					
<u>OTHER AFFECTED PARTIES</u>					
<u>INTERESTED PARTIES</u>					

6.3. Concluding Remarks on Stakeholder Consultation

None.

7. The Environmental attributes associated with the alternatives.

7.1. Baseline Environment *(Type of environment affected by the proposed activity.)*

7.1.1. Description of the current land uses.

Based on the available information it is assumed that the land portions included in the prospecting right application are part of big 5 game reserves and communities as well as business such as lodges. Land portions owned by municipality and government are not utilised for anything. Conclusive confirmation will be on the Final report.

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

7.2.1. Climate

The project area falls within the summer rainfall area, receiving most of its rainfall in the summer months. Average minimum temperatures range from approximately 7.9-15.3°C in summer to 5.5-10.4°C in winter. Reference is made to Table 5 and Table 6 for the minimum temperatures and average annual rainfall. Table 5 shows that the average minimum temperature between the years are similar whilst average yearly rainfall range from 291 to 575mm from 2014 to 2016 with a 49% decrease recorded in 2015. Relative humidity is lowest during winter and spring and highest during summer and autumn.

Table 5: Average Monthly minimum temperature (°C)

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Months	Average Monthly Temperature (°C)	
	2015	2016
January	14.8	14.3
February	15.1	14.0
March	15.3	12.3
April	11.4	11.5
May	7.8	10.4
June	7.8	4.7
July	5.5	6.2
August	5.9	6.0
September	10.6	7.8
October	7.9	12.1
November	14.2	10.8
December	14.8	15.7

Source: rp5.co.za (Hoedspruit Airport Station)

Table 6: Average Annual Rainfall, 2014-2016

Year	Average annual rainfall (mm)
2016	401
2015	291
2014	575

Source: rp5.co.za (Hoedspruit Airport Station)

The predominant wind direction recorded at the airport is from the East North-East (ENE). Wind speeds are generally slow to moderate with wind speeds exceeding 5m/s recorded infrequently.

7.2.2. Soil

Areas are classified into land types based on their slope, soil type and depth and underlying geology. The project area is characterized with slopes ranging from 0-9% and there are red yellow apedal and glen rosa and/ mispah soils dominated by swelling clays. The clay content in this area is between 15% and 35%. An investigation will be carried out during the Environmental impact to assess the agricultural potential of the area.

7.2.3. Surface water resources

The proposed project area is located in the Olifants Water Management Area (WMA 2) which includes the Olifants, Letaba and Shingwedzi systems. The spatial extent of the area includes tertiary drainage regions B72 and B81. In addition to the numerous seasonal tributaries and wetlands traversed across by the power lines, three prominent rivers will also be traversed, i.e., Olifants, Groot Letaba and Ga-Selati Rivers.

The Letaba River catchment is drained by the Groot Letaba River and its major tributaries are the Klein-Letaba, Middle Letaba, Letsitele and Molototsi River whilst the Olifants River catchment is a sub catchment of the Limpopo Basin and is the largest tributary of the Limpopo River. According to the Department of Water Affairs (2013), Olifants WMA is a highly utilised and regulated catchment and like many other WMAs in South Africa, its water resources are becoming more stressed due to an accelerated rate of development and the scarcity of water resources. The map below shows the Olifants WMA as well as the area affected by the proposed development.

7.2.4. Groundwater

Groundwater forms part of the four sources of water available within the Local Municipalities. Some villages and mining industries make use of ground water as their water source. The project area is characterized of a minor aquifer with a depth of approximately 20-30m. The groundwater zone is low to moderate yielding formation except where fractured. The water bearing fractures are principally restricted to a shallow zone below groundwater level.

7.2.5. Geological formation

a. Lithostratigraphy

The Goudplaats Gneiss and Makhutswi Gneiss underlie most of the project area, with a smaller contribution from the ultramafic metavolcanics (rocks rich in chlorite, amphibole, talc and serpentine) and meta-sediments of the Giyani Greenstone Belt. Soils are red-yellow apedal, freely drained, but also shallow. Gravelotte and surrounding areas is underlain by varied geology which is largely composed of schist and amphibolite of the Gravelotte and Giyani Groups, with a few quartzitic and granitic hills. Miscellaneous,

often shallow, soils with Glenrosa and Mispah forms common. Land types are mainly Ib, Fa, Ae and Fb.

7.2.6. Topography

Due to the length of the proposed power line corridors, the terrain the alternative power line corridors traverse across differ and they are characterised by:

- Irregular plains with low ridges: this terrain was observed in areas surrounding Foskor and Selati Game Reserve;
- Plains with open low hills: this terrain was observed in areas surrounding Spencer substation;
- Open low mountains;
- High hills; in areas surrounding Murchison and Gravelotte near Alternative 2;
- Level plains with some relief in in areas surrounding Murchison and Gravelotte near Alternative 2; and
- Plains with open high hills in areas surrounding Spencer Substation

Surrounding elevations range from approximately 200-1000 metres above mean sea level with the proposed sites situated at approximately 330- 620 metres above sea level.

7.2.7. Flora & Fauna

a. Flora

The threat of an ecosystem status defines the degree to which an ecosystem is still intact or has lost some of its vital aspects of its structure, function or composition. The proposed power line traverses across five vegetation types of the savanna type, two of which have been listed as threatened in terms of the Environmental Management Act (NEM:BA).

Tsende Mopaneveld (SVmp5)

This vegetation type is distributed around the Hans Merensky Nature Reserve in the west to the vicinity of Letaba Rest Camp in the east. The vegetation is classified as least threatened characterized of a medium to high shrub dominated savanna with scattered trees and a dense field layer. Tree and shrub species include *Acacia nigrescens* and

Sclerocarya birrea subsp. *caffra*; *Colophospermum mopane*, *Combretum apiculatum*, *Combretum hereroense*, *Dichrostachys cinerea*, *Euclea divinorum* and *Grewia bicolor* (tall shrubs), amongst others. The field layer comprises *Clerodendrum ternatum*, *Indigofera schimperii*, *Bothriochloa radicans*, *Digitaria eriantha* subsp. *pentzii*, *Heteropogon contortus* and *Panicum maximum* (grasses). The vegetation type is endemic and well protected.

Lowveld Rugged Mopaneveld (SVmp6)

This vegetation type is distributed in the Limpopo and Mpumalanga Provinces. In the project area, it is distributed around the Foskop substation, parts of Balule Private Nature and Selati Game Reserve. The vegetation is usually characterized of dense shrubs with occasional trees and a sparse ground layer. Woody plants can become particularly dense where fire is excluded by very rocky terrain, such as in the vicinity of the Olifants River. Trees and shrubs found in this vegetation type include: *Acacia nigrescens*, *Sclerocarya birrea* subsp. *Caffra*, *Colophospermum mopane*, *Combretum apiculatum*, *Terminalia prunioides*, *Acacia exuvialis*, *A. nilotica* and *Boscia albitrunca*. It is classified as least threatened with a target conservation status of 19%. 34% is statutorily conserved in the Kruger National Park whilst an additional 5% conserved in private reserves such as Klaserie, Letaba Ranch and Selati Game Reserve. Approximately 20% is already transformed mainly by cultivation and some urban and built-up areas.

Phalaborwa-Timbavati Mopaneveld (SVmp7)

This vegetation is distributed in Limpopo and Mpumalanga Provinces and occurs south of the Olifants River between Amalgated Private Nature Reserves and Kruger National Park at an altitude between 300-600m. The vegetation is characterized of open tree savanna on undulating plains with the sandy uplands dominated by *Combretum apiculatum*, *Terminalia sericea* and *Colophospermum mopane* trees, with *T. sericea*. This type is classified as least threatened with a target for conservation set at 19%. Vegetation type is largely protected in Kruger National Park and the Private Nature Reserves. Approximately 5% has been transformed, mainly by development of human settlements as well as by mining. Reference is made to Figure 5-5 below for the vegetation near Selati Game Reserve.

Granite Lowveld (SVI3)

The vegetation type is distributed in Limpopo and Mpumalanga Provinces, Swaziland and marginally also KwaZulu-Natal. In the project area, it can be found in areas surrounding Murchison and Spencer Substation. Vegetation is characterized of dense thicket to open savanna with *Acacia nigrescens*, *Dichrostachys cinerea*, *Grewia bicolor* in the woody layer. The dense herbaceous layer contains the dominant *Digitaria eriantha*, *Panicum maximum* and *Aristida congesta*. The vegetation type is classified as vulnerable with a target for conservation set at 19%. 17% is statutorily conserved in the Kruger National Park. Approximately the same amount conserved in private reserves mainly the Selati, Klaserie, Timbavati, Mala Mala, Sabi Sand and Manyeleti Reserves. More than 20% is already transformed, mainly by cultivation and by settlement development.

Gravelotte Rocky Bushveld (SVI7)

The vegetation is found in Limpopo Province around the Murchison Range in the Gravelotte area including surrounding mountains and hills including Ga-Mashishimale. It is characterized of open deciduous to semideciduous woodland on rocky slopes and inselbergs, contrasting strongly with the surrounding plains. *Encephlartos dyerianus* is endemic to this area. The vegetation type is least threatened with a target for conservation at 19%. 7% is conserved in a small proportion of the area in the northern part of the Selati Game Reserve. Approximately 15% is transformed due to cultivation and some development of settlements.

Tzaneen Sour Bushveld (SVI8)

The vegetation type is found near the Spencer substation and is characterized of deciduous, tall open bushveld with a well-developed, tall grass layer, occurring on low to high mountains with undulating plains mainly at the base of and on the lower to middle slopes of the northeastern escarpment. Scattered alien plants associated with this type include *Solanum mauritianum*, *Melia azedarach* and *Caesalpinia decapetala*. The conservation status is endangered with a target for conservation set at 19%. The vegetation on site has been transformed mainly by settlements and cultivation.

b. Fauna

Various nature reserves are scattered across the project area and these are characterized of natural and near natural habitats for fauna species. More than 55 mammal species have been recorded including lion, rhino, elephant and sable.

c. Avi-fauna

The proposed project area is characterised by natural and near natural environment consisting of open woodland, shrub land and grassland habitat potential for hosting a variety of avi-faunal species. The presence of rivers, drainage lines and dams also offers habitat for breeding and foraging wetland associated species.

7.2.8. Critical Biodiversity Areas

The current Systematic Biodiversity Plan for the province is the Limpopo Conservation Plan (version 2) whose purpose is to inform land-use planning and development on a provincial scale and to aid in natural resource management. One of the outputs is a map of Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's) which are classified into different categories based on biodiversity characteristics, spatial configuration and requirement for meeting targets for biodiversity pattern and ecological processes.

Table 7: CBA Categories

CBA MAP CATEGORY	DESCRIPTION	% COVERAGE
Protected Areas	Declared and formally protected areas under the Protected Areas Act, such as National Parks, legally declared Nature Reserves, World Heritage Sites and Protected Environments	30.8
Critical Biodiversity Area (CBA1)	are sites that are required to meet each ecosystem's biodiversity targets	18.7

CBA MAP CATEGORY	DESCRIPTION	% COVERAGE
Critical Biodiversity Area (CBA2)	The selected sites are the ones that best achieve targets of the systematic biodiversity plan though their areas that might achieve these targets.	13.6
Ecological Support Area (ESA1)	Areas that are important for maintaining the ecological processes on which CBAs depend. These are largely natural areas.	9.50
Ecological Support Area (ESA2)	These areas are no longer intact but potentially retain significant importance from a process perspective.	8.40
Other Natural Areas	areas that still contain natural habitat but that are not required to meet biodiversity targets.	11.9
No Natural Areas	These are areas without intact habitat remaining.	7.3

The table above shows that protected areas and CBA1 areas constitute a larger percentage of the area in the District Municipality. The Nature Reserves traversed by the power line corridors are classified as CBA1 areas whilst the areas near the Spencer substation are classified as Other Natural Areas and No Natural Areas. This is due to the human activities such as settlements and substance farming.

7.2.9. Protected and Nature Reserves

According to the Draft Mopani Bioregional Plan, protected areas including a portion of the Kruger National Park (KNP) cover 31.7% of Mopani District and private reserves cover an additional 10.2%. The Associated Private Nature Reserves (APNR) represents the bulk of the Private Nature Reserves (PNR) that are within the project area. The APNR is comprised of:

- a. Timbavati Private Nature Reserve;

- b. Umbabat Private Nature Reserve;
- c. Klaserie Private Nature Reserve; and
- d. Balule Private Nature Reserve

These areas are not formally protected by law but are considered to be conservation areas which also represent part of the Kruger to Canyons Biosphere Region. The proposed project area traverses across the Balule Private Nature Reserve and other nature reserves. The table below lists and show the Nature Reserves within and in close proximity to the corridors.

Table 8: Protected and Conservation Areas within and near the Project Area

Name	Management Authority
Kruger National Park	SANParks
Letaba Ranch Nature Reserve	LEDET
Hans Merensky Nature Reserve	LEDET
Amalgated Private Nature Reserves	Private
Selati Game Ranch	Private
Solomon Private Nature Reserve	Private
J.S.A. Macdonald Private Nature Reserve	Private
Marbadane Nature Reserve	Private
Thankerton Private Nature Reserve	Private
Mazunga Private Nature Reserve	Private
Andeon Private Nature Reserve	Private
Sannie Private Nature Reserve	Private
Volstruis Nature Reserve	Private
Parks Ranches Nature Reserve	Private
John Roux Nature Reserve	Private
Chester Nature Reserve	Private
Ndzalama Private Nature Reserve	Private
Vyeboom Private Nature Reserve	Private

Platveld Private Nature Reserve	Private
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7.2.10. Land use

Land cover data indicates that 86% of the Mopani District is in a natural or near-natural state and this is largely due to the conservation and protected areas that are within the District Municipality. (Draft Mopani District Bioregional Plan, 2016). The land cover within the protected and conservation area is characterized of woodland, open bushland, thicket or dense bushland and grassland. Foskopos substation and some sections of the power line corridors traverse across mining areas in Phalaborwa and Gravelotte. Rural settlements are located in areas surrounding Spencer substation and subsistence agriculture and grazing also occurs close to the settlements. Commercial agriculture is also concentrated along the Groot Letaba River.

7.2.11. Archaeological and palaeontological attributes

According to the National Heritage Resources Act, 1999 (Act No.2 of 1999) objects that may be affected include the burial sites, buildings of more than 60 years of age, special geological features (fossil prints and bushman rock art) and paleontological objects. Clearing the area may result in the discovery of such objects. Construction of the service access roads, the proposed substation extension and power lines could potentially impact on heritage sites.

7.2.12. Air Quality

Several activities associated with transmission line construction can cause particulate matter and gases to enter the atmosphere and degrade air quality. Particulate matter originates from smoke from open burning of waste vegetation as well as from dust generated by construction activities. Gaseous hydrocarbons and oxides of sulfur and nitrogen are emitted from vehicle exhaust and open burning. The impact that these air pollutants have on sensitive persons or crops depends on topographic and meteorological factors, as well as the amount of each pollutant emitted. The air quality in areas surrounding Foskopos substation is generally poor due to the mining activities

undertaken in the area. The topography of the area also contributes to poor air quality by trapping air pollutants in the atmosphere under stable atmospheric conditions. The main impacts on air quality result from pollution and dust emissions from mining, agricultural, domestic and industrial activities.

7.2.13. Socio-Economic Environment

According to Tony Barbour, 2007, there is a need to understand the social environment and communities affected by the proposed development in order to ensure that positive benefits associated with the project are enhanced and the negative impacts are avoided or mitigated. There is therefore a need to collect baseline data on the current social environment and historical social trends. This section therefore covers the socio-economic profile of the area at a local and regional level. Desktop review of the Mopani District Municipality, Greater Letaba, Ba-Phalaborwa and Maureing Local Municipalities Integrated Development Plans and documents pertaining to the project area were consulted.

a. Population Demographics

According to Census 2011, Mopani District's population accounts for 20.1% of the Province's population. Ba-Phalaborwa accounts for 13.8% of the District's population though it occupies the largest area within the District. This can be attributed to the nature reserves that are within the Local Municipality which occupy large tracts of land. Ba-Phalaborwa has the highest urban and farming population accounting for 51% and 12.8% respectively. (*Source: Mopani District Municipality IDP 2016/17 version 1*).

The percentage growth of population for Ba-Phalaborwa has increased immensely by 14.9% from 2001 to 2011. This growth is higher than the District Municipality and it can be attributed to the mining and conservation activities being undertaken in Phalaborwa and Gravelotte.

b. Gender

This could be attributed to low levels of education intensified by the out migration by men seeking jobs elsewhere. Ba-Phalaborwa has comparable balance in numbers between

females and males, however with more males than females work within the economically active age group.

c. Language

According to Mopani District Municipality 2016/17 IDP, the most dominant languages are Northern Sotho and Tsonga accounting for 46% and 44% respectively of the total district's population. Afrikaans and English account for 2% and 1.3% respectively.

d. Level of Education

Education is very important in one's life. It creates a range of options which a person can choose from and it also opens doors to better opportunities and great achievements. The District Municipality has a low level of education accounting for 40% of the adult population being regarded as functionally illiterate. Approximately 13,7% have only completed some form of primary education whilst 6.5% has completed some form of higher education. (*Mopani District IDP version 1*)

e. Employment Profile

The farming sector is the second largest employer within the District Municipality employing 25.9% of the District population. In Ba-Phalaborwa, mining is the second largest employer accounting for 19.5% of the population. 39% of the economically active population in the District are unemployed, 60% of which are women.

f. *Households by Dwelling Type*

There are four broad types of settlements within the District Municipality which are distinguished primarily by the availability of services and the security of tenure. The settlements are described as follows:

i. **Formal Urban Settlements**

These have a formal layout, are serviced with a full range of municipal services and the settlement households can obtain security of tenure. These include areas such as Phalaborwa, Gravelotte.

ii. **Tribal Settlements**

These traditional authorities play a very important role in terms of their traditional culture and therefore also have a major influence in the manner in which land is made available to individuals for settlement, as well as the use for economic purposes.

iii. **Rural Settlements**

These are settlements that are similar in nature to the tribal settlements regarding the residential densities and functions, but they are not located on tribal land.

7.2.14. Access to Services

Access to social and economic services enables people to participate fully in the economy and their communities. When services such as water, energy and transport are available to people, they can spend more time doing profitable work, and communication establishes a vital link between people and the outside world.

- **Energy**

Eskom provides electricity for lighting to most of the communities within the Mopani District Municipalities. The most frequent use of electricity in Ba-Phalaborwa Local Municipality and Greater Letaba Local Municipality is lighting accounting for 90.8 % electricity for lighting.

- **Water**

Mopani District Municipality is the Water Service Authority (WSA) and is responsible for bulk water supply and sanitation facilities within the local municipalities. The municipalities are responsible for water reticulation in agreement with the district municipality.

- **Toilet facilities**

The towns and their extensions have well developed sanitation systems whilst most rural areas do not due to their dispersed nature which makes it difficult to provide services. Most dwellings in the rural areas use pit latrines or have no sanitation facilities at all.

- **Refuse removal and Waste Disposal**

Most of waste management services by municipalities are prioritized in urban areas (townships & towns) and most of rural communities in the Mopani District Municipality do not have access to waste removal services by their local municipalities. This results to residents in rural areas dispose waste on their own, often to illegal dumping occurring. According to Census 2011, Ba-Phalaborwa Municipality has the highest percentage (48.8%) of refuse removal per week whilst Maruleng Local Municipality only accounts for 5.9% of refuse removal per week.

7.2.15. Economic Activity

The mining sector is the largest contributor of the Mopani District Municipality's Gross Domestic Product (GDP) constituting 30% whilst agriculture is the most important sector in Greater Tzaneen, Greater Letaba and Maruleng Local Municipalities. Mining is concentrated in Ba-Phalaborwa Local Municipality where it contributes approximately 80% of the Local Municipality's GDP and employs more than 2 000 people and an additional 450 contractors. Agriculture is predominant in Tzaneen, Maruleng and Letaba where ZZ2 dominates the industry in terms of output and the major focus is on sub-tropical fruit. These two industries focus is to produce for exportation. According to Mopani District Municipality's IDP, Greater Letaba currently makes the least contribution to the District's GDP.

7.2.16. Tourism

Tourism is deemed to be an engine that drives growth and development in areas and is often seen as a mechanism for local communities to capitalize on assets such as the natural environment and cultural heritage. In Mopani District Municipality, it also plays an important role. The indigenous forests, biospheres, nature reserves, wetlands, endangered species as well as Kruger National Park offer several opportunities for tourism. These include opportunities for eco-tourism, as well as tourism associated with the variety of historical and cultural interests found within the district. Mopani District is also considered the home of the big five due to abundance of such animals in Kruger National Park and surrounding private game farms and nature reserves. The numerous

nature reserves within the district include: Selati Game reserve, Chester Reserve, Ndzalama Wildlife Reserve, Klaserie, Thorny Bush and Timbavati, Westfalia Estates, Merensky Reserve, Letaba Ranch, Geothermal springs in Hans merensky Nature Reserve and Soutini Baleni, Manotsa and Madrid and Shiluvane. Tourism related activities offered in these areas include: hiking, white water rafting, abseiling, hot air ballooning, rock climbing and bird watching. A Tourism Impact Assessment will be carried out during the EIA and the report detailing the impacts of constructing the power line in the area will be attached to the Environmental Impact Report.

Airports

There are several landing strips within the area which play a significant role in increasing tourist traffic and establishing the area as a gateway to the Kruger National Park and the surrounding areas. There are two airports within the 3000m corridor located on Archie 156KT and Lillie 148KT with the landing strip having a length of 1.1km. These airports cater for visitors to the Boulders Game Ranch. Two other airports are also near the corridors, namely Hendrick Van Eick Airport and Gravelotte Airports.

7.3. Environmental and current land use map.

See Appendix A for maps

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

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

Table 5: Potential impacts associated with each activity.

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

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
geophysics survey			breeding and grazing practices.			
Phase 2: Soil Sampling	Construction Phase	No construction or site establishment activities will be undertaken.	No anticipated impacts.	N/A	N/A	N/A
	Operation Phase	Site access	<ul style="list-style-type: none"> • Destruction and/ or disturbance of on-site fauna and flora. • Poor access control resulting in impacts on cattle movement, breeding and grazing practices. • Vehicle traffic noise impact affecting cattle and/ or wildlife. • Poor housekeeping could result littering and 	<p>Partial</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>	<p>No</p> <p>No</p> <p>No</p> <p>No</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			<p>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.</p> <ul style="list-style-type: none"> 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. 	<p>Partial</p> <p>No</p>	<p>Pontential</p> <p>No</p>	<p>Yes</p> <p>Yes</p>
		Soil Sampling	Soil disturbances from soil sampling resulting in soil 30 kg of soil per sample?	Yes	No	No

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
	Decommissioning Phase	No decommission will be required	No anticipated impacts	N/A	N/A	N/A
Phase 3: Scout Drilling and Delineation Drilling						
	Construction Phase	Site Access	Destruction and/ or disturbance of on-site fauna and flora.	Partial	No	Yes
			Soil compaction resulting from repeated use of access roads to drill sites.	Yes	No	No
			Vehicle traffic noise impact affecting cattle and/ or horses.	Yes	No	No
			Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Yes	No	Yes

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			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 water storage tanks and core bay.	Destruction and/ or disturbance of on-site fauna and flora.	Partial	No	Yes
			Soil disturbance and compaction and topsoil stockpiling resulting in soil erosion.	Yes	Partial	No
			Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Yes	No	Yes
			Visual impact affecting visual character and "sense of place"	Yes	No	Partial

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

Phase		Activities	Potential Impacts	Reversible	Irreplaceable 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 because of increased activity resulting in increased	Yes	No	Partial

Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
			incidents of theft and opportunistic crime.			
			Impact on the pans and associated ecosystem in the area.	No	Yes	Yes
	Decommissioning phase	Removal of temporary infrastructure including: (a) Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay (b) Boreholes capping Drill pad rehabilitation including:	Dust emissions from decommissioning activities (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



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Phase		Activities	Potential Impacts	Reversible	Irreplaceable Damage	Can impact be avoided
		(a) Ripping of drill pad and access road. (b) Re-spreading of stockpiled topsoil. (c) Re-vegetation	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 9 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 9: Status of Impact

Rating	Description	Quantitative Rating
Positive	A benefit to the receiving environment	P

Rating	Description	Quantitative Rating
Neutral	No cost or benefit to the receiving environment	-
Negative	A cost to the receiving environment	N

9.3. Impact Extent

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

Table 7: *Extent of impact*

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

9.4. Impact Duration

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

Table 10: 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 11: Probability of impact

Rating	Description	Quantitative Rating
Improbable	Possibility of the impact materialising is negligible; Chance of occurrence <10%.	1
Probable	Possibility that the impact will materialise is likely; Chance of occurrence 10 – 49.9%.	2

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

9.6. Impact Intensity

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

Table 12: Intensity of Impact

Rating	Description	Quantitative Rating
Maximum Benefit	Where natural, cultural and/or social functions or processes are positively affected resulting in the maximum possible and permanent benefit.	+5
Significant Benefit	Where natural, cultural and/ or social functions or processes are altered to the extent that it will result in temporary but significant benefit.	+4
Beneficial	Where the affected environment is altered but natural, cultural and/ or social functions or processes continue, albeit in a modified, beneficial way.	+3
Minor Benefit	Where the impact affects the environment in such a way that natural, cultural and/ or social functions or processes are only marginally benefited.	+2

Rating	Description	Quantitative Rating
Negligible Benefit	Where the impact affects the environment in such a way that natural, cultural and/ or social functions or processes are negligibly benefited.	+1
Neutral	Where the impact affects the environment in such a way that natural, cultural and/ or social functions or processes are not affected.	0
Negligible	Where the impact affects the environment in such a way that natural, cultural and/ or social functions or processes are negligibly affected.	-1
Minor	Where the impact affects the environment in such a way that natural, cultural and/ or social functions or processes are only marginally affected.	-2
Average	Where the affected environment is altered but natural, cultural and/ or social functions or processes continue, albeit in a modified way.	-3
Severe	Where natural, cultural and/ or social functions or processes are altered to the extent that it will temporarily cease.	-4
Very Severe	Where natural, cultural and/ or social functions or processes are altered to the extent that it will permanently cease.	-5

9.7. Impact Significance

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

Table 13: 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 unchanged.	-1- 5
	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	-6- 11

Impact	Rating	Description	Quantitative Rating
		cultural and economic activities of communities are changed but can be continued (albeit in a different form). Modification of the project design or alternative action may be required.	
	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, Envirostep Pty Ltd applied for prospecting rights over the area based on the outcome of the desktop investigation, the possibility to encounter further minerals (Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon, Silver.) 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 Beryl ore, Chancedony, Cobalt, Copper, Molybdenum,

Silicon and Silver 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 river close by the farms under applications are Olifants river and Ga-Selati river.

The Letaba River catchment is drained by the Groot Letaba River and its major tributaries are the Klein-Letaba, Middle Letaba, Letsitele and Molototsi River whilst the Olifants River catchment is a sub catchment of the Limpopo Basin and is the largest tributary of the Limpopo River. According to the Department of Water Affairs (2013), Olifants WMA is a highly utilised and regulated catchment and like many other WMAs in South Africa, its

water resources are becoming more stressed due to an accelerated rate of development and the scarcity of water resources

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 61.

10.2.1. Measures to manage the potential impact on heritage resources

No Heritage Impact Assessment study has been conducted.

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 will be consulted and informed of any low fly overs which may affect animals in the nature reserves and out of the nature reserves, 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 will be agreed on with farm owners and all staff trained on these procedures.

d. Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime;

- Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
- The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.
- If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.

e. *Visual Impact*

- Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.
- The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
- A waste management system will be implemented and sufficient waste bins will be provided for on- site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

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

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

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

- Existing tracks and roads will be used as far as is practicable to minimize the potential for soil erosion. In instances where access to drill sites are to be established, and if required, raised blade clearing will be undertaken with a view to maintain vegetation cover to limit soil erosion potential .
- Soil disturbances are to be limited as far as is practicable to minimize the potential for soil erosion.

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

10.2.4. Motivation where no alternative sites were considered.

Based on the existing mine in the area, there is possibility to encounter further minerals (Gold, Silver, Tin Ore and Copper) 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 Beryl ore, Chancedony, Cobalt, Copper, Molybdenum, Silicon and Silver and whether these are feasible to enter further studies towards a Mining Right Application. No alternatives are available that will have an impact on a different setting than the environment discussion provided below.

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

10.2.5. 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 will be undertaken on the 07th of July 2023. The site visit will 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 14: 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	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					the flyovers which may affect aspects such as hunting activities on animals found on site and also in proximity areas. Farm owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, which may result in injury or damage.	
	Nuisance noise impacts on communities and landowners and other persons.	Noise generation	Planning	7	No mitigation proposed.	7
Ground surveys	Poor access control resulting in impacts on cattle and horses	Loss of cattle	Planning	10	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	8

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	movement, breeding and grazing practices.	and horses				
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 of soil per sample)	Destruction and/ or disturbance of on-site fauna and flora.	Loss of fauna	Operational Phase	6	Use existing track and roads in all 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	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>is required to access an identified sampling site.</p> <p>Site activities will be conducted during daytime hours 07h00- 17h30 to avoid night noise disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.</p>	
	<p>Poor access control resulting in impacts on cattle movement, breeding and grazing practices.</p>	<p>Noise generation</p>	<p>Operational Phase</p>	<p>10</p>	<p>Access control procedures must be agreed on with farm owners and all staff trained on these procedures.</p>	<p>8</p>

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	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 sufficient 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).	6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
				12	<p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>	
	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

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	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
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	6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed.</p> <p>Use existing track and roads in all instances as far as is practicable.</p> <p>Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such trees and large shrubs will be avoided.</p> <p>Site activities will be conducted during daytime hours 07h00- 17h30</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>to avoid night time noise disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.</p>	
	Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil resources	Construction Phase	8	<p>Where track clearing is necessary, raised blade clearing be conducted to minimise disturbance and aid rehabilitation efforts.</p> <p>As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.</p>	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	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 movement, breeding and grazing practices.	Loss of fauna	Construction Phase	10	Access control procedures must be agreed on with farm owners and staff trained.	8
	Potential destruction heritage resources	No heritage/ cultural resources on site	Construction Phase	N/A	No mitigation proposed.	N/A
Site establishment activities including:	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.	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
(a) Vegetation clearing of drill pad area. (b) Topsoil stripping and stockpiling (c) Drill pad compaction. (d) Excavation and lining of drill water sump. (e) Erection of temporary site office shaded area, potable ablution facilities and water storage					If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts. The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment. A fire emergency procedure will be developed to contain and minimise the destruction of flora and faunal habitat which may result from fire.	
	Soil disturbance and topsoil stockpiling resulting in soil	Loss of soil resources	Construction Phase	11	In the event that the drill pad is cleared of all vegetation, lower	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
<p>tanks and core bad.</p> <p>(f) Erection of fuel storage tank</p> <p>(g) Erection of safety barrier.</p> <p>(h) Waste generation and management.</p>	<p>compaction and erosion.</p>				<p>blade clearing will be undertaken prior to the stripping of topsoil.</p> <p>Topsoil including the remaining vegetation, will be stripped and stockpiled up-slope of the pad. The stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Where practicable topsoil will be stripped to a depth of 10 cm.</p> <p>Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts.</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>Topsoil will be stockpiled to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>Mechanical erosion control methods will be implemented if required. This may include the use of geotiles to stabilise slopes.</p>	
	<p>Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)</p>	<p>Dust emissions</p>	<p>Construction Phase</p>	<p>10</p>	<p>Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed.</p> <p>Depending on the need and quantity of water used for wet</p>	<p>6</p>

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.	
	Visual impact affecting character and "sense of place".	Loss in aesthetics	Construction Phase	6	The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured	5
	Influx of persons (job seekers) to site as a result of increased activity resulting in increased	Increase in petty crimes	Construction Phase	8	Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	incidents of theft and opportunistic crime.				<p>The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the South African Police Services (SAPS) will be informed of unauthorised persons encountered on site.</p>	
Exploration drilling and core sample collection and storage including: (a) Scout and delineation drilling	Water and soil pollution resulting from disposal of drill fluids.	Loss of water resources , loss of soil resources	Operational Phase	12	<p>A sump will be constructed with a sufficient capacity to receive drill fluids and allow for evaporation.</p> <p>The sump will be constructed to divert stormwater away and/ or around the sump to avoid clean stormwater inflow.</p>	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
(b) Drill maintenance and re-fuelling. (c) Core sample collection and storage. (d) Waste generation and management.	Continued soil erosion from topsoil stockpile and soil compaction from drill pad platform.	Loss of soil resources	Operations/Phase	11	<p>In the event that raise blade clearing is not undertaken, and the drill pad is cleared, topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>The topsoil stockpile will shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.</p>	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Loss of water resources and loss of soil resources	Operational Phase	12	<p>Fuel storage tanks will have a secondary containment structure with a capacity of 110% of the total tank capacity.</p> <p>Oils and lubricant will be stored within secondary containment structures.</p> <p>Where practicable, vehicle maintenance will be undertaken off-site.</p> <p>In the event that vehicle maintenance is undertaken in-site (i.e. such as breakdown maintenance), drip trays and. Or UPVC sheetd will be used to</p>	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>prevent spills and leaks onto the soil.</p> <p>Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.</p> <p>Regular inspections of all vehicles must be carried out to ensure that all leaks identified early and rectified.</p> <p>A sufficient number of waste receptacles will be provided.</p> <p>Waste separation will be undertaken to source and</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					<p>separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>	

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	Dust emissions from drilling and general site activities (including vehicle entrained dust).	Increase in dust emissions.	Operational Phase	10	Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	6
	Visual impact affecting visual character and "sense of place"	Loss of aesthetic value	Operational Phase	6	Visual impact of structures will be mitigated through measures indicated on this table.	5

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					Visual dust dispersion will be mitigated through the same measures.	
	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 nighttime noise disturbances.	4
	Poor access control resulting in impacts on cattle movement, breeding, and grazing practices.	Loss of cattles and other animals	Operational Phase	10	Access control procedures must be agreed on with farm owners.	8
	Influx of persons (job seekers) to site because of increased 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	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					Reform) will be notified of unauthorised persons encountered on site. If deemed necessary, the SAPS will be informed of unauthorised persons encountered on site.	
	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. All site plans must indicate the presence of pans.	5
Removal of temporary	Destruction and/ or disturbance of on-site fauna.	Loss of sensitive environment	Decommissioning	10	Drill holes must be temporarily plugged immediately after drilling is complete and remain plugged	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
infrastructure including: (a) Removal of temporary site office shaded area, potable		ents, loss of fauna, loss of flora			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.	
ablation facilities, water storage tanks and core bay. (b) Borehole capping Drill pad rehabilitation including:	Dust emissions from decommissioning activities (including vehicle entrained dust)	Increased dust emissions	Decommissioning	9	Based on visual observation wet dust suppression will be undertaken as and when required to manage dust emissions from vehicle movement. Depending on the need and quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	Based 6

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
(a) Ripping of drill pad and access road. (b) Re-spreading of stockpiled topsoil.	Poor access control resulting in impacts on cattle and horses' movement, breeding and grazing practices.	Loss of cattle and horses	Decommissioning	10	Access control procedures must be agreed on with farm owners and staff trained.	8
(c) Re-vegetation	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	7

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
	Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established	Loss of soil resources	Decommissioning	11	<p>recyclables will be taken to a licensed recycling facility.</p> <p>Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.</p> <p>Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass species as determined by a suitably qualified ecologist.</p> <p>Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding.</p>	7



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Name of Activity	Potential Impact	Aspects Affected	Phase	Significance	Mitigation Type	Significance
					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 15: Summary of Specialist reports

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

12. ENVIRONMENTAL IMPACT STATEMENT

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

This will be completed after the site visit to be conducted on the 07th of July 2023.

12.2. Final Site Map

Attach to **Appendix A.**

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

- Increased ambient noise levels resulting from geophysics surveys site fly-overs and increased traffic movement during all prospecting phases as well as drilling activities.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.
- Potential water and soil pollution impacts result from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity within 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 DMRE prior to the commencement of these activities;
- No activities may be undertaken in the pans;
- No activities, with the exception of the soil sampling, may take place within 32m from any river.

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

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

- Due to significant time constraints allowed for the assessment of the impacts, and at the time of compiling the Draft Basic Assessment Report and EMP:
 - The Stakeholder Consultation is not yet complete.
 - Not all landowners were consulted with in person.
 - Details from the DWS regarding Water Use Licensing requirements is not yet available. The EAP is yet to confirm with DWS if Water Use License Application will be required.
 - Details regarding the presence and status of land claims are not available.
- No Heritage Impact Assessment was undertaken for this application.
- No detailed site layout is not available due to the nature of the prospecting activities. The study is therefore undertaken as a holistic assessment of the overall site. Only a map that shows the position of the holes to be drilled can be made available on a request.
- Site investigation will be undertaken on the 07th of July 2023.

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 site is therefore regarded as the preferred site and alternative sites are not considered.
- The option of not approving the activities will result in a significant loss to valuable information regarding the mineral status present on these properties. In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost.

13.2. Conditions that must be included in the authorisation.

The following conditions must be included in the authorisations:

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

13.3. Period for which the Environmental Authorisation is required.

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

14. Undertaking

- An undertaking by the EAP and the client is provided for in Section 2 of the EMP. The financial provision for the environmental rehabilitation and closure of any mine/ prospecting and its associated operations forms an integral part of the MPRDA. Sections 41(1), 41(2), 41(3) and 45 of the MPRDA deal with the financial provision for

rehabilitation and closure. During 2012 the DMRE 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 DMRE in January 2005, in order to empower the personnel at Regional DMRE 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 DMRE guidelines and is based, where possible, on actual costs provided by a third party contractor. The following section presents the methodology for the determination of the financial 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 DMRE in the form of the Guideline Document for the Evaluation of Financial Provisions, only acts as a guideline, and therefore indicates the minimum requirements for assessing and reporting on a closure cost estimate.

15.1.1. Method of Assessment

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 information	N/A	Limited information is available which is based on desktop investigations and consultation with stakeholders.
4.2	Determine the closure components	Table B.5	
4.3	Determine the unit rates for closure components	Table B.6	
4.4	Determine and apply the weighting factors	Table B.7 Table B.8	Weighting factor 1 (Nature of the terrain): 1 (generally flat terrain) Weighting factor 2 (Peri-urban, less than 150km from a developed urban area): 1.05(Rural/Urban).

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

15.1.2. Quantity Estimation

For the purposes of this assessment, Fecund Consultants 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 DMRE. 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 DMRE Guideline Document and indicates which rates were used by Fecund Consultants Pty Ltd in this assessment.

CALCULATION OF THE QUANTUM

Applicant:
Evaluators:

**Envirostep Pty Ltd
Fecund Consultants Pty Ltd**

Ref No.:
Date:

**LP 30/5/1/1/3/2/1 14955 EM
04/07/2023**

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

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



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Subtotal 2	40592,26
VAT (14%)	5682,92
Grand Total	46275

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 Prospecting Works Programme does not include the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission of the Prospecting Works Programme.

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

16. Specific information required by the Competent Authority

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

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

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

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

The following impacts are regarded as community impacts:

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

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

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

- Pollution Prevention
 - ❖ Mitigation and management measures must be implemented to prevent environmental pollution which may impact on environmental resources utilized by communities, landowners and other stakeholders. These mitigation and management measures are discussed in the following section.
- Noise due to the undertaking of the site fly-overs and prospecting activities;
 - ❖ Directly affected, adjacent landowners and game farms in proximity to the site will be informed of the planned dates of the airborne geophysics survey and a grievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting activities on game farms.
 - ❖ Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, with a view to prevent possible injury or damage as a result of animals being startled by the noise.
 - ❖ Site activities will be conducted during day time hours 07h00 –17h30 to avoid night time noise disturbances and night time collisions with fauna.
- Poor access control resulting in impacts on cattle movement, breeding and grazing practices;
 - ❖ Access control procedures must be agreed on with farm owners and all staff trained on these procedures.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime;
 - ❖ Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment .
 - ❖ The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.
 - ❖ If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.

- Visual Impact
 - ❖ Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction activities as and when needed. Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.
 - ❖ The portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a consideration for colour. Natural earth, green and mat black options which will blend in with the surrounding area must be favoured.
 - ❖ A waste management system will be implemented and sufficient waste bins will be provided for on-site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.

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

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

As outlined in Section **Error! Reference source not found.**, page 16 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.

1.2. Description of the Aspects of the Activity

The requirement to describe the aspects of the activity that are covered by the Environmental 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 risks associated therewith.

The closure objectives are to:

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

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

In terms of Government Notices Regulation 399, the applicant will be allowed to abstract 75m³ of groundwater per hectare per annum from groundwater within the Olifants River 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 outcomes of discussions with the Department of Water and Sanitation, the potential abstraction of water due to drilling activities will be clarified.

Furthermore, depending on the DWS's opinion on the soil sampling, potentially in the river beds, a WULA 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 16: 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	N/A



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Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
				pans and river systems, in this event the necessary consultation must be initiated with the DWS.	
Phase 2: Target Generation and Ground Truthing					
Site fly-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	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
			<p>hunting activities on game farms.</p> <p>4. Farms owners must be consulted and informed of any low fly overs which may affect cattle being held in restricted holding pens, which may result in injury or damage.</p> <p>5. No mitigation proposed of noise impacts.</p>		
Ground surveys	Planning	Entire property	6. Access control procedures must be agreed on with farm owners and all	Identification of the potential of invasive prospecting activities to occur within sensitive	N/A

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			staff trained on these procedures.	environments such as the pans and river systems, in this event the necessary consultation must be initiated with the DWS.	
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. 9. As part of the soil sampling programme, not racks will be cleared for once-off access to sampling sites.	No bulk sampling activities in terms of Section 20 of the MPRDA have been allowed for. Soil sampling should be restricted to the 1m ² size and depth of maximum 30cm. Depending on the	Concurrently with the completion of prospecting activities in an area.

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>10. Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified sampling site.</p> <p>11. Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.</p> <p>12. Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.</p>	<p>feedback by the DWS, additional applications for Section 21 (c) and (i) of the NWA may be required. This is however highly unlikely due to the nature and scale of the proposed activities.</p> <p>The applicant must adhere to the NEMA Section 2 Principle and ensure that a cradle to grave approach is followed in terms of waste management and that all activities are under taken</p>	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>13. Access control procedures must be agreed on with farm owners and all staff trained on these procedures.</p> <p>14. A waste management system will be implemented and sufficient waste bins will be provided for on site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.</p> <p>15. Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste,</p>	<p>with a precautionary approach. Where impacts may result a proactive manner should be implemented to ensure that potential negative results are avoided.</p> <p>The applicant must comply with the conditions of the Environmental Authorisation at all times.</p>	

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>recyclables and hazardous waste).</p> <p>16. Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>17. Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p> <p>18. Only soil sampling may be undertaken in the river bed. No other activities</p>		

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			(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 with the soil sample		N/A	21. No mitigation proposed.	N/A	N/A
Phase 3: Scout Drilling and Delineation Drilling					
Site Access	Construction	Less than 1600m ²	22. Map indicating the location of each of the drilling sites must be submitted to the	The prospecting activities must be undertaken in line with the approved	Concurrently with the completion of

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>relevant landowners, as well as to the DMRE and DWS. Upon agreement of the location of the activities can the applicant proceed.</p> <p>23. Use existing track and roads in all instances as far as is practicable.</p> <p>24. Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation such as trees and large shrubs will be avoided.</p>	<p>Prospecting Works Programme.</p> <p>The financial provision required for rehabilitation must be guaranteed before the commencement of prospecting activities.</p> <p>Activities should stay clear of pans and outside of the 32m river buffer in order to avoid the need to apply for a Section 21 (c) and (i) Water Use License.</p>	<p>prospecting activities in an area.</p>

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

Activities	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
			<p>28. As part of rehabilitation, all compacted roads and drill pads will be ripped and ring day time hours 07h00 – 17h30 to avoid night time noise disturbances.</p> <p>29. Access controls and staff trained.</p> <p>30. Prior to the establishment of new access roads and management measure for the protection of such resources must be implemented</p>		

1.6. Impact Management Outcomes

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

Table 17: Impact Management Outcomes

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Phase1: Data Acquisition and Desktop Study					
Data collection and assessment (desktop only)	31. None identified.	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective Implementation of the data acquisition and desktop study.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Data Assessment	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 within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Phase 2: Target Generation and Ground Truthing					
Site fly-over	33. Noise impacts resulting from site fly-overs affecting cattle and game farm animals.	N/A	Planning	Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the site fly over study. 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.
	34. Nuisance noise impacts on communities and landowners and other persons	Noise generation	Planning		

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Ground surveys	35. Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Loss of Cattle		Control potential deviations from the approved Prospecting Works Programme through the effective implementation of the ground surveys.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
No construction or site establishment activities will be undertaken.	36. No anticipated impacts	N/A	N/A		
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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	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 littering and the associated impacts this will have on the area,	Loss of aesthetic value, loss of water resources, loss of fauna and flora	Operational Phase	Control through the limiting of the Activities to the day time and the implementation of an open and transparent channel of communication.	Remain within the ambits of the Prospect ing Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	contamination of river systems in the rainy season and also the potential health hazard to cattle.			Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	No removal of vegetation outside of demarcated areas.
	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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	43. Soil disturbance from soil resulting in soil structure destruction, compaction and erosion.	Loss 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.	Retain topsoil for the re-use in rehabilitation.
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

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					Environmental Authorisation.
	46. Soil compaction resulting from repeated use of access roads to drill sites.	Loss of soil Resources	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of a soil management programme in terms of the correct topsoil 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.
	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	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				ion of an open and Transparent channel of communication.	
	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.
Site establishment activities including: (a) Vegetation clearing of drill pad area.	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.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
(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 facilities and water storage tanks and core bay (f) Erection of fuel storage tank	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 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.
	51. Dust emission resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust)	Dust emissions	Construction Phase	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression.	Remain within the designated area Demarcated for prospecting activities.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
(g) Waste generation and management.					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 aesthetics	Construction Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. No removal of vegetation Outside of demarcated areas.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	53. Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.	Increase in petty crimes	Construction Phase	Control through the limiting of the activities to the day time and the implementation of an open and Transparent channel of communication.	Maintain a 100% crime Free area within the control of the prospecting activities and applicant.
Exploratorion drilling ad core sample collection and storage including. (a) Scout and delineation drilling	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	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
(b) Drill maintenance and re-fuelling. (c) Core sample collection and storage. (d) Drill fluid collection, storage and evaporation. (e) Waste generation and management				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 GN704 water management principles.	Retain topsoil integrity for the reuse in rehabilitation.
	55. Continued soil erosion from topsoil stockpile and soil	Loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	compaction from drill pad platform.			Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	56. Potential water and soil pollution resulting from hydrocarbon spills and drill maintenance activities.	Loss of water resources, loss of soil resources	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of the NWA GN704 water management principles.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation. Retain topsoil integrity for the reuse in rehabilitation.
	57. Dust emissions from	Increase in dust	Operational Phase	Control to the implementation of dust	Remain within the designated area

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	drilling and general site activities (including vehicle entrained dust)	emissions		suppression methods, when this is required. Dust suppression methods could include wet suppression.	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.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				Control through the implementation of the conditions in the EMP.	No removal of vegetation outside of demarcated areas.
	59. Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Loss of fauna	Operational Phase	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	60. Poor access control resulting in impacts on cattle movement,	Loss of cattle	Operational Phase	Control through the clear delineation of the prospecting area.	Remain within the ambits of the Prospecting Works Programme and Environmental

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	breeding and grazing practices.			<p>Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system.</p> <p>Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.</p>	Authorisation.
	61. Influx of persons (job seekers) to site as a result of increased activity resulting in	Increase in petty crimes	Operational Phase	Control through the limiting of the activities to the day time and the implementation of an open and transparent channel of communication.	Maintain a 100% crime free area within the Control of the prospecting activities and applicant.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	increased incidents of theft and opportunistic crime.				
Removal of temporary infrastructure including: (a) Removal of temporary site office shaded area, potable ablution facilities, water storage tanks and core bay (b) Borehole capping	62. Destruction and/or disturbance of on-site fauna	Loss of Sensitive environments, loss of fauna, loss of flora	Decommissioning	Control through the clear delineation of the prospecting area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the limiting of the activities to the day time and the implementation of an open	Remain within the ambit of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Drill pad rehabilitation including: a) Ripping of drill pad and access road b) Re-spreading of stockpiled topsoil. c) Re-vegetation.				and transparent channel of communication.	
	63. Dust emissions from decommissioning activities (including vehicle entrained dust).	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression methods could include wet suppression	Remain within the designated area demarcated for prospecting activities. Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.
	64. Poor access control resulting in impacts on cattle	Loss of cattle	Decommissioning	Control through the implementation of environmental induction	Remain within the ambit of the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	movement, breeding and grazing practices.			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.	Prospecting Works Programme and Environmental Authorisation.
	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	Loss of soil resources	Decommissioning	Control through the clear delineation of the prospecting area.	Remain within the ambits of the

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

1.7. Impact Management Actions

Table 18: Impact Management Actions

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



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>survey and agrievance mechanism will be made available. Mitigation alternatives are limited to timing of the flyovers which may affect aspects such as hunting act ivities on game farms.</p> <p>Farms owners must be consulted and informed of any low flyovers which may affect cattle being held in restricted holding pens, which may result in injury or damage.</p>		
	Nuisance noise impacts on communities and	No mitigation proposed	N/A	Remain within the Noise Regulation Standards for Rural Areas.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	landowners and other persons.			
Ground surveys	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	N/A	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
No construction or site establishment activities will be undertaken	No anticipated impacts.	No mitigation proposed	N/A	N/A
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	Concurrently with the completion of prospecting activities in an area.	Remain within the ambits of the Prospecting Works. No removal of vegetation outside of demarcated areas.



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>once-off access to sampling sites.</p> <p>Avoid significant vegetation such as trees and large shrubs in the event that driving through the veld is required to access an identified sampling site.</p> <p>Site activities will be conducted during daytime hours 07h00 – 17h30 to avoid night time noise disturbances and night time collisions with fauna.</p>		

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		Vehicle speed will be reduced, particularly in highly vegetated areas to avoid deaths by vehicle impacts.		
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained on these procedures.	Concurrently with the completion of prospecting activities.	Remain within the Noise Regulation Standards for Rural Areas.
	Vehicle traffic noise impact affecting cattle and/ or wildlife.	Site activities will be conducted during daytime hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.	Concurrently with the completion of prospecting activities.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	<p>Poor housekeeping could result in littering and the associated impacts this will have on the aesthetic of the area, contamination of river systems in the rainy season and also potential health hazard to cattle.</p>	<p>Waste management system will be implemented and sufficient waste bins will be provided for on site. A fine system will be implemented to further prohibit littering and poor housekeeping practices.</p> <p>Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed</p>	<p>Concurrently with the completion of prospecting activities in an area.</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p> <p>No removal of vegetation outside of demarcated areas.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>(i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight .</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>		
	<p>Activities within the river bed could result in the natural geomorphology.</p>	<p>Only soil sampling may be Undertaken in the river bed. No other activities (drilling, roads, etc.) may be undertaken.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>

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

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>landowners, as well as to the DMR and DWS. Upon agreement of the location of the activities can the applicant proceed.</p> <p>Use existing track and roads in all instances as far as is practicable.</p> <p>Where track clearing is necessary, raised blade clearing will be conducted to minimise disturbance and aid rehabilitation efforts and significant vegetation</p>		<p>Environmental Authorisation.</p>



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>such as trees and large shrubs will be avoided.</p> <p>Site activities will be conducted during daytime hours 07h00–17h30 to avoid night time noise disturbances and night time collisions with fauna.</p> <p>Vehicle speed will be reduced, particularly in highly vegetated areas is one way to avoid deaths by vehicle impacts.</p>		
	Soil compaction	Where track clearing is necessary, raised blade	Concurrently with the completion of prospecting	Remain within the ambits of the Prospecting Works Programme and

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>clearing be conducted to minimise disturbance and aid rehabilitation efforts.</p> <p>As part of rehabilitation, all compacted roads and drill pads will be ripped and re-vegetated.</p>	activities	<p>Environmental Authorisation.</p> <p>Retain topsoil integrity for the reuse in rehabilitation.</p>
	<p>Vehicle traffic impact affecting cattle and/ or wildlife.</p>	<p>Site activities will be conducted during day time hours 07h00 – 17h30 to avoid night time noise disturbances.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>
	<p>Poor access control resulting in impacts on cattle movement,</p>	<p>Access control procedures must be agreed on with farm owners and staff trained.</p>	<p>Concurrently with the completion of prospecting activities.</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	breeding and grazing practices.			
<p>Site establishment activities including:</p> <p>(a) Vegetation clearing of drill pad area.</p> <p>(b) Topsoil stripping and stockpiling</p> <p>(a) Excavation and lining of drill water sump</p> <p>(b) Erection of temporary site office shaded area, potable ablution facilities and water</p>	<p>Destruction and/ or disturbance of on-site fauna and flora.</p>	<p>The removal of vegetation within the drill pad area will be minimized.</p> <p>If practicable, raised blade clearing be conducted for the entire drill pad to minimise disturbance and aid rehabilitation efforts.</p> <p>The design of the drill fluid sump must incorporate effective fauna egress to avoid entrapment.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>

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



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Where practicable topsoil will be stripped to a depth of 10 cm.</p> <p>Vegetation removed through lower blade clearing will be mixed with topsoil to increase organic content and to preserve the seed bank in order to aid rehabilitation efforts.</p>		

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>Topsoil will be stockpiles to a maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>Mechanical erosion control methods will be implemented if required.</p> <p>This may include the use of geotextiles to stabilise slopes.</p>		
	<p>Dust emissions resulting from site clearing, soil stripping and construction activities (including vehicle entrained dust).</p>	<p>Based on visual observation, wet dust suppression will be undertaken to manage dust emissions from vehicle movement and other construction</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the designated area demarcated for prospecting activities.</p> <p>Remain within the National Environmental Management: Air Quality</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>activities as and when needed.</p> <p>Depending on the need and quantity of water used for wet suppression, a suitable, low environmental impact chemical suppression alternative must be considered in order to conserve water resources.</p>		<p>Act, 2004 Dust Regulation guidelines for rural communities.</p>
	<p>Visual impact affecting visual character and "sense of place"</p>	<p>The shaded office area, portable ablution facilities, vertical water tanks and any other infrastructure should be acquired with a</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>consideration for colour. Natural earth, green and Mat-black options which will blend in with the surrounding area must be favoured.</p>		<p>No removal of vegetation outside of demarcated areas.</p>
	<p>Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.</p>	<p>Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (all private and state land owners) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Maintain a 100% crime free area within the control of the prospecting activities and applicant.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		South African Police Service will be informed of unauthorised persons encountered on site.		
Exploration drilling and core sample collection and storage including: a) Scout and drilling	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. The sump will be constructed to divert stormwater away and/ or around the sump to avoid clean stormwater inflow.	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
	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	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
		<p>maximum height of 1.5m with a side slope of not more than 1:3.</p> <p>The topsoil stockpile will be shaped to divert stormwater around the drill pad to minimise soil erosion of the pad.</p> <p>Management efforts through the use of mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.</p>		Retain topsoil integrity for the reuse in rehabilitation.
	Potential water and soil pollution	Fuel storage tanks will have a secondary	Concurrently with the	Remain within the ambits of the Prospecting Works

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	<p>resulting from hydrocarbon spills and drill maintenance activities.</p>	<p>containment structure with a capacity of 110% of the total tank capacity.</p> <p>Oils and lubricant will be stored within secondary containment structures.</p> <p>Where practicable, vehicle maintenance will be under taken off-site.</p> <p>In the event that vehicle maintenance is undertaken on-site (i.e. such as breakdown maintenance), drip trays and / or UPVC sheets will</p>	<p>completion of prospecting activities</p>	<p>Programme and Environmental Authorisation.</p> <p>Retain topsoil integrity for the reuse in rehabilitation.</p>



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>be used to prevent spills and leaks onto the soil.</p> <p>Unused machinery must be completely drained of oil and other hydrocarbons to ensure that leaks do not develop.</p> <p>Regular inspections of all vehicles must be carried out to ensure that all leaks are identified early and rectified.</p> <p>A sufficient number of waste receptacles will be provided.</p>		



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		<p>Waste separation will be undertaken at source and separate receptacles will be provided (i.e. general waste, recyclables and hazardous waste).</p> <p>Receptacles will be closed (i.e. fitted with a lockable lid) to eliminate the possibility of access by animals overnight.</p> <p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified)</p>		

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		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 quantity of water used for wet suppression, chemical suppression alternatives must be considered in order to conserve water resources.	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 Regulation guidelines for rural communities
	Visual impact affecting visual	Visual impact of structures will be mitigated through measures as included in	Concurrently with the completion of prospecting activities	Remain within the ambit of the Prospecting Works Programme and

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	character and "sense of place"	Item 35. Visual dust dispersion will be mitigated through measures as included in Item 33.		Environmental Authorisation. No removal of vegetation outside of demarcated areas.
	Vehicle traffic and drill noise impact affecting wildlife game farm animals.	Site activities will be conducted during daytime hours 07h00–17h30 to avoid night time noise disturbances.	Concurrently with the completion of prospecting activities.	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	<p>Influx of persons (job seekers) to site as a result of increased activity resulting in increased incidents of theft and opportunistic crime.</p>	<p>Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.</p> <p>The landowner (the Department of Rural Development and Land Reform) will be notified of unauthorised persons encountered on site.</p> <p>If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Maintain a 100% crime free area within the control of the prospecting activities and applicant.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Impact on the pans and associated ecosystems in the area.	<p>The prospecting areas must be clearly demarcated.</p> <p>No prospecting activities may be undertaken within the pan areas.</p> <p>All site plans must indicate the presence of pans.</p>	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
Removal of temporary infrastructure including: a. <i>Removal of temporary site office shaded area, potable ablution facilities,</i>	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.	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
<p><i>water storage tanks and core bay</i></p> <p><i>b. Borehole capping</i></p> <p>Ripping of drill pad and access road</p> <p>Re-vegetation</p>		<p>Drill holes must be permanently capped as soon as is practicable</p>		
	<p>Dust emissions from decommissioning activities (include vehicle entrained dust)</p>	<p>Based on visual observation wet dust suppression will be under taken to manage dust emissions from vehicle movement.</p> <p>Depending on the need and quantity of water used for wet suppression, chemical suppression</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the designated area demarcated for prospecting activities.</p> <p>Remain within the National Environmental Management: Air Quality Act, 2004 Dust Regulation guidelines for rural communities.</p>

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		alternatives must be considered in order to conserve water resources.		
	Poor access control resulting in impacts on cattle movement, breeding and grazing practices.	Access control procedures must be agreed on with farm owners and all staff trained.	Concurrently with the completion of prospecting activities	Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.
	Potential water and soil pollution resulting from hydrocarbon spills.	All fuel storage tanks will be emptied prior to removal. Drill holes must be permanently capped as soon as is practicable to eliminate the risk of groundwater contamination.	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
		<p>Wastes will be removed and disposed of at an appropriately licensed landfill (facility disposal licenses will be verified) and recyclables will be taken to a licensed recycling facility.</p>		
	<p>Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.</p>	<p>Mechanical erosion control methods will be implemented if required. This may include the use of geotextiles.</p> <p>Re-vegetation will be conducted through hand seeding exposed areas using indigenous grass</p>	<p>Concurrently with the completion of prospecting activities</p>	<p>Remain within the ambits of the Prospecting Works Programme and Environmental Authorisation.</p>



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Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
		species as determined by a suitably qualified ecologist.		

2. Financial Provision

2.1. Determination of the amount of Financial Provision.

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

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

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

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

The closure objectives are to:

- Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.
- Remove and/ or rehabilitate all pollution and pollution sources such as waste materials and spills;
- To establish rehabilitated area which is not subject to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources; and

- Restore disturbed area and re-vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable.

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

This Basic Assessment Report and Environmental Management Plan will be made available to each registered stakeholder for review and comment. 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. **Error! Reference source not found.** below provides the prepared procedure for the secure plugging of exploration drill holes.

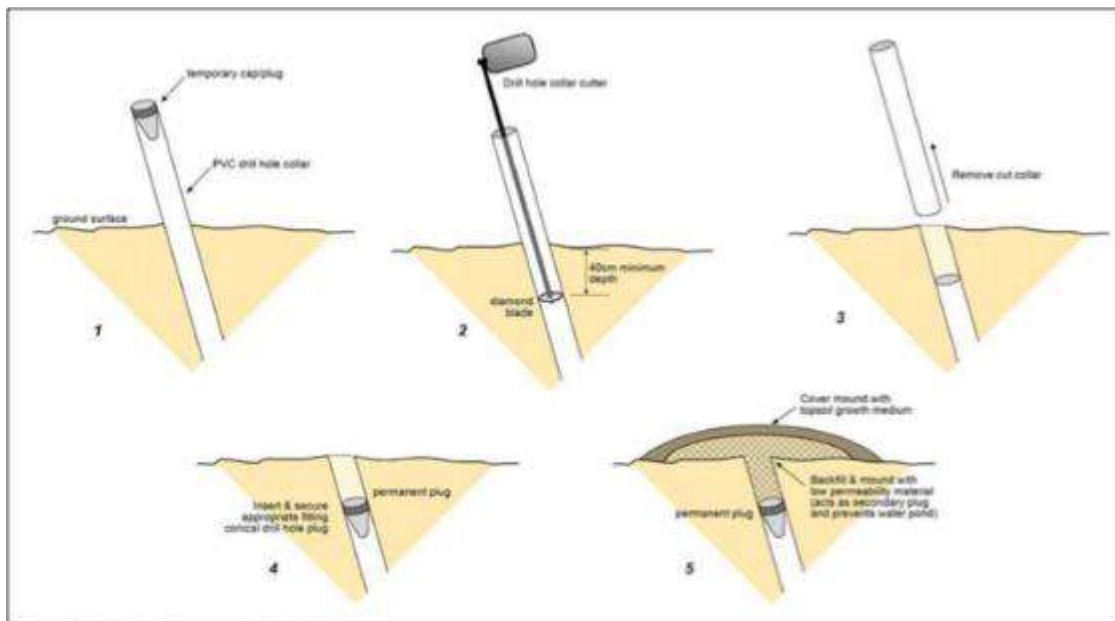


Figure 1: Borehole capping (Source: Department of Mines and Petroleum, Guidelines for Environmentally Responsible Mineral Exploration & Prospecting in Western Australia, March 2012)

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 vegetation cover of 45% must be achieved. Re-seeding will be undertaken 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 41(1), 41(2), 41(3) and 45 of the MPRDA deals with the financial provision for rehabilitation and closure. During 2012 the DMRE 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 DMRE in January 2005, in order to empower the personnel at Regional DMRE 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 infrastructure has no salvage value (clean closure). The closure cost estimate (clean closure) was determined in accordance with the DMRE 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 include the calculated Financial Provision as included into this Basic Assessment, as these values were not available at the time of the submission- into the Prospecting Work Programme prior the decision by the DMR should this decision be positive.

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

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

Table 19: 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
Phase 1: 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	Adjacent landowners will be informed of the planned dates of the Airborne geophysics	Prospecting Manager	Once-off upfront consultation with affected parties.



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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
	cattle and game farm animals	survey and grievance mechanism will be made available.		<p>As required as grievances are received.</p> <p>Consultation to be signed-off by Environmental Management.</p> <p>All grievances to be signed-off by Environmental Management.</p> <p>All corrective action and close out of grievances to be signed off by Environmental Management.</p> <p>Proof of consultation to be submitted to the Department of Mineral Resources prior to airborne survey is conducted.</p>



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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
				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 Soil Sampling	All site activities to be undertaken must be communicated with directly affected landowners.	As soon as the extent of site activities are known. These must be communicated with directly affected landowners. The following procedures must developed in conjunction with these landowners:	Prospecting Manager	Confirmation of the extent of site activities to be submitted to the 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

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
				<p>the Department of Mineral Resources.</p> <p>Continuous monitoring of compliance with the access control procedure will be undertaken.</p>
Phase III : Exploratory Drilling	Visual inspection of soil erosion and/ or compaction	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	<p>Weekly and after rain events</p> <ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the



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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
				corrective action taken) to be submitted to the Department of Mineral Resources and Energy.
	Dust generated will be assessed through visual observation.	If dust outfall is excessive and regarded to affect any sensitive receptors a monitoring programme must be 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	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
	<p>impacts the occurrence of invader species.</p>	<p>secondary impact on biodiversity will be undertaken. The introduction of alien invasive vegetation species will be determined.</p>		<p>Weekly inspection of secondary impacts.</p> <ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.



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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
	<p>Visual inspection of pollution incidents, the integrity of secondary containment structures and waste management.</p>	<p>All secondary containment structure will be inspected on a regular basis to confirm the integrity thereof and to identify potential leaks.</p> <p>All spill incidents will be identified and corrective action taken in accordance with an established spill response procedure.</p> <p>Waste management practices will be monitored to prevent contamination and littering.</p>	<p>Prospecting Manager Contractor</p>	<p>Daily</p> <ol style="list-style-type: none"> 1. Monthly monitoring reports to be signed-off by the Environmental Manager. 2. Corrective action to be confirmed and signed-off by the Environmental Manager. 3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources and Energy. 4. Incident reporting will be undertaken as required in terms of the relevant legislation including, but not limited 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
				a) Mineral and Petroleum Resources Development Act 28 of 2002; and b) National Water Act 36 of 1998.
Post Closure Monitoring	Follow-up inspections and monitoring of rehabilitation	Inspection of all rehabilitated 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	Prospecting Manager	Monthly for a period of 6 months 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.



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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
		<p>after a period of 6 months and re-seed where required</p> <p>Identify any areas of subsidence around drill holes and undertake additional backfilling if required.</p>		<p>3. Consolidated monthly monitoring reports (including the corrective action taken) to be submitted to the Department of Mineral Resources.</p> <p>4. Final impact and risk assessment report for site closure to be submitted to the Department of Mineral Resources for approval</p>

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 20: 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	1. 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. 2. Establish a basic knowledge of the environmental legal framework and consequences of non-compliance.

Frequency	Time allocation	Objective
		<p>3. Clarify the content and required actions for the implementation of the Environmental Management Plan.</p> <p>4. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions.</p> <p>5. Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents</p>
<p>Monthly Awareness Talks (all staff and workers)</p>	<p>30 minute awareness talks</p>	<p>Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.</p>
<p>Risk Assessments (supervisor and workers involved in task)</p>	<p>Daily task based risk assessment</p>	<p>Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on</p>

Frequency	Time allocation	Objective
		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 20 above, Task/ Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish an understanding of the risks associated with a specific task and the required mitigation and management measures.

4.2.1. Environmental Awareness Training Content – Induction Training:

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

- Description of the approved prospecting activities and content of the prospecting right;
- An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):
 - General Environmental Legal Principles and Requirements
 - Air Quality Management
 - Water and Wastewater Management
 - Hazardous Substances
 - Non-Mining-Related Waste Management
 - The Appropriate Remediation Strategies & Deteriorated Water Resources
 - Biodiversity
 - Weeds and Invader Plants
 - Rehabilitation
 - Contractors and Tenants

- Energy & Conservation
- Heritage Resources
- General Health and Safety Matters
- Basic Conditions of Employment
- Compensation for Occupational Injuries and Diseases
- General Mine Health and Safety Matters
- Smoking in the Workplace
- Noise & Hearing Conservation
- Handling, Storage and use of Hazardous Substances
- Weapons and Fire arms

- Content and implementation of the approved Environmental Management Plan
 - Allocated responsibilities and functions
 - Management and Mitigation Measures
 - Identification of risks and requirements adaptation

- Sensitive environments and features
 - Description of environmentally sensitive areas and features
 - Prohibitions as it relates to activities in or in proximity to such areas.

- Emergency Situations and Remediation
 - Methodology for the identify areas where accidents and emergency situations may occur, communities and individuals that may be impacted
 - An overview of the response procedures,
 - Equipment and resources
 - Designate of responsibilities
 - Communication, including communication with potentially Affected Communities
 - Training schedule to ensure effective response.

4.2.2. Development of procedures and checklists

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

4.2.3. Emergency Preparedness and Response

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

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

4.2.4. Incident Reporting Procedure

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

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

4.2.5. Environmental and Social Audit Checklist

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

5. Specific information required by the Competent Authority

No specific information 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:

04/07/2023

Date:



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-END-

APPENDIX A: MAPS



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APPENDIX B: CONSULTATION REPORT



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APPENDIX C: DETAILS OF THE EAP