PROPOSED PROSPECTING RIGHT ON PORTIONS 1, 2 AND 3 OF THE FARM KAMBREEK NO 38 AND KLEIN PELLA NO 40 (1 546.52 HA), FOR COPPER ORE, IRON ORE, LEAD, LITHIUM ORE, RARE EARTHS AND ZINC ORE IN THE NAMAQUALAND MAGISTERIAL DISTRICT IN THE NORTHERN CAPE PROVINCE.

DRAFT BASIC ASSESSMENT REPORT

MAY 2024

REFERENCE NUMBER: NC 30/5/1/1/2/13459 PR

PREPARED FOR:	**PREPARED BY:**
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EXECUTIVE SUMMARY

African Exploration Mining and Finance Corporation SOC Ltd ("hereinafter referred to as "the Applicant"), applied for environmental authorisation (EA) and a prospecting right for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province. The proposed activity will make use of non-invasive as well as invasive prospecting that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended 2017) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation. This report, the Draft Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the EIA process.

Project Description

The proposed prospecting footprint applied for is 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 for copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore within the Namaqualand Magisterial District in the Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Non-Invasive Activities will consist of the following:

Desktop study

Desktop study will include compilation of existing and historical geological information to enable focus and targeting of ongoing activities.

Remote sensing:

Remotely sensed datasets will be acquired from public domains and processed to extract any existing features associated with deposits of the minerals being applied for.

Field mapping

Field mapping will be conducted to map lithological units and structures and to identify any features related to deposits being applied for. Also, this will aid in assessing the results of the processed remotely sensed data.

Geochemical survey

Geochemical survey will be carried out to identify any anomalous concentrations of zinc, iron, lead, copper, nickel, lithium and rare earth minerals in the prospecting area.

Geophysical survey

Geophysical survey or procurement of public and private geophysical data that exists over the project area will be carried out to locate geophysical anomalies associated with deposits of metals being applied for.

Resource evaluation

Should potential targets be identified by any of the activities outlined above, the focus of the project will be to define a Mineral Resource as defined by the SAMREC Code.

Invasive Activities will consist of the following:

Drilling/Trenching

The implementation of trenching and/or drilling will be determined based on the results from initial exploratory work. Either technique will be implemented at spacing grid capable of providing an Inferred Mineral Resource. This Resource is defined at a low degree of confidence but is sufficient to be used to complete a Scoping Study and to evaluate the economic feasibility of the project to advise the decision to continue to feasibility study work.

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial part of Phase 2.

Identified Alternatives:

- **The property on which, or location where, it is proposed to undertake the activity - Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1 was identified as the preferred and only viable site alternative based on the following: The Prospecting area with a footprint of approximately 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province (hereafter referred to as the application property).

- As mentioned in the prospecting work programme at this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code. Should there be a need to conduct an extra exploration work, which is not indicated herein, in order to clearly define Mineral Resource Category, Department of Mineral Resources and Energy will be provided with an addendum in respect to the Prospecting Work Programme.

Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

- **Type of activity to be undertaken**

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

- **Design and layout of the activity.**

Layout Alternative: Site 1

Final Layout Alternative (FLA) (Preferred Layout): During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Therefore, no additional design/layout alternatives were deemed viable for this project.

- **Technology to be used in the activity.**

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or

diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The process does not require highly specialised technology and no secondary processing will be required. Therefore, no technology alternatives were deemed viable for this project.

No-go Alternative:

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to prospect for any possible mineral resource;
- The application, if approved, would allow the applicant to determine the available mineral as well as provide employment opportunities to local employees. Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees and clients; and
- The applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be mined, and that this opportunity will be lost.

Public Participation Process:

In accordance with the timeframes stipulated in the EIA Regulations, as amended, the Draft Basic Assessment Report was compiled and will be distributed for comment and perusal to the I&APs and stakeholders. A 30-day commenting period, ending 4 July 2024 at 17:00, will be allowed for perusal of the documentation and submission of comments. The comments received on the DBAR will be incorporated into the Final Basic Assessment Report (FBAR) to be submitted for decision making to DMRE.

During this public participation process the relevant stakeholders and I&APs were informed of the project by means of an advertisement in the Die Plattelander Newspaper on 31 May 2024, Site notices were placed in Afrikaans and English at the Nie Moller Centre in Pofadder and at the security gate at the farm boundary fence of Klein Pella.

Basic Assessment Report:

The Basic Assessment Report identifies the potential positive and negative impacts that the proposed activity will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts.

The key finding of the environmental impact assessment entail the following:

Topography:

The topography of the study area consists of sloping plains, sharply contrasting with the surrounding rocky hills and mountains. The altitude varies between 250–900 m.

Visual Characteristics:

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

Air and Noise Quality:

The proposed activity will contribute the emissions of a drilling rig and field vehicles to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Geology & Soil:

The proposed area is characterized by pegmatite and sulphide minerals hosting geological formations The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist.

Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

The proposed area is characterized by quaternary sheet-wash alluvial deposits, sands, deep in places; in south, red-yellow apedal, freely drained soils with a high base status. Land types Ag and Ae.

Hydrology:

The site falls within quaternary catchment D82A which forms part of the Orange Water Management Area (WMA). The collecting Rivers occur within the catchment namely the Orange River. The proposed application area will fall parallel to the Orange River.

As per the Aquatic Biodiversity Specialist Assessment the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by *Ziziphus mucronate, Euclea psuedebenus* and *Tamariz ueneoides*). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

It was concluded that the impact assessment conducted as part of the report indicates that the proposed prospecting activities could lead to low impacts on the Orange River. During the prospecting phase of a mine, specifically drilling for metal ore, the impact on the Orange River is generally expected to be low. This is due to the fact that drilling activities are conducted at specific target locations that are determined through geological surveys and assessments. These target locations are away from major water bodies like the Orange River, reducing the direct impact on the river itself. It is of the most outmost importance that it is noted that none of the drilling positions are within 500 m of the Orange River.

However, it is essential to implement recommended mitigation measures to address potential risks. It is recommended that a GA be applied for. This will ensure proper management and regulation of water usage, mitigating potential adverse impacts on water resources.

Mining, Biodiversity and Groundcover:

The prospecting activities does not require the removal of any large trees or vegetation of significance. According to the CBA dataset, the proposed prospecting areas intercept with a Critical Biodiversity Areas 1 and 2 along with an Ecological Support Area in the southern portion of the proposed site.

The management objectives of Critical Biodiversity Areas (CBAs) 1 and 2 aim to reduce biodiversity loss and protect important ecosystems outside of protected areas.

The management objectives of an Ecological Support Area (ESA) involve maintaining the ecological functioning of a Conservation Biodiversity Area (CBA) or protected area, generating or delivering key ecosystem services, and meeting biodiversity targets for ecosystem types or species when it is not feasible to achieve them in natural or near natural areas .Although the proposed prosecting area does indeed fall in sections within an Ecological Support Area, however it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the small geophytesIn light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of low significance. According to the Terrestrial Impact Assessment (Appendix K2), the area according to the Red List of Ecosystems dataset (Skowno & Monyeki, 2021) overlaps with a Least Concern (LC) ecosystem. As for the indicator of the extent to which ecosystems are adequately protected or under-protected the proposed area overlaps with a Poorly Protected (PP) and Not Protected (NP) ecosystem. The Northern Cape Department of Environment and Nature Conservation has developed the Northern Cape CBA Map which identifies biodiversity priority areas for the province for which the area overlaps with a Critical Biodiversity Area 1, a Critical Biodiversity Area 2 and an Ecological Support Area. According to the latest National Protetced Areas Expansion Strategy (NPAES) dataset, the application area is located within a Priority Focus Area and is included in expansion plans for the Augrabies National Park. The application area and its 500 m Regulated Area overlap with LC rivers and a CR wetland. The application area and its 500 m Regulated Area overlap with a Freshwater Ecosystem Priority Areas (FEPA) river and a FEPA wetland. Considering the location of the proposed development in a CBA area as well as the area currently being managed for conservation as well as being part of the planned expansion for the Augrabies National Park, the proposed development is considered possible only is all mitigation measures provided in this and other specialist reports are implemented, no fatal flaws could be identified that prevents the activity continuing.

Fauna:

Various small mammals and reptiles occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed.

According to the Terrestrial Impact Assessment (Appendix K2), No herpetofauna or mammals are identified by the Screening Tool as important for the site, two avifauna SCC were identified as High sensitivity for the site.

Please note that the Screening Tool report includes lists of bird, mammal, reptile, amphibian, butterfly and plant species of conservation concern known or expected to occur on the proposed development footprint. Some of these SCC are sensitive to illegal harvesting. Such species have had their names obscured and are listed as sensitive plant unique number / sensitive animal unique number. As per the best practise guideline that accompanies the protocol and screening tool, the **name of the sensitive species may not appear in the final EIA report nor any of the specialist reports released into the public domain**. It should be referred to as *sensitive plant* or *sensitive animal* and its threat status may be included, e.g. *critically endangered sensitive plant* or *endangered sensitive animal*.

Furthermore, the fauna of the area will be disturbed by the human presence and drilling activity. While this will not be of relevance to the more common species which will not move very freely due to either specialised habitat requirements or to territorial restrictions, could be affected.

With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

Cultural and Heritage Environment:

As per the screening report, the area has a low heritage impact but has a medium palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area extend over an area of insignificant/zero (grey) concern.

A desktop heritage survey was undertaken for the proposed prospecting at Kambreek by African Mining Explorations. The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. There are potential heritage sites of medium to high significance within the study area.

The study area requires a Phase 1 HIA before prospecting. They type of prospecting to be used and the location of these points need to be given. This is important in that graves could occur. If prospecting occurs on an archaeological site, the client will require a permit from SAHRA.

The Heritage Impact Assessment (Appendix K3) states that There have been no previous heritage studies within the study area, thus the type of heritage sites is currently unknown. The desktop study did note that there are several structures from the 1962 aerial photographs and 1971 topographical maps. These built structures would be protected if they still existed, even if as ruins.

The heritage surveys from nearby properties noted that the general area varies from low to high significance. Most of the low significance sites are open stone tool scatters or turn of the century copper smelting sites. One KhoeKhoe campsite was noted, and this was of high significance. Graves have also been associated with the open sites.

The sites of medium to high significance tend to be found on small hills and in the mountains themselves. The small hills have overhangs and stone walling and represent nuclear family domestic areas. Rock art has been associated with these sites. Large shelters and overhangs occur in the larger hills/mountains. One of these shelters was related to a mass killing of San hunter-gatherers 25km to the south. The historical records referred to in the previous surveys also noted that many of the valleys were used as hideouts in the 19th century, by the San and KhoeKhoe.

The study area for the proposed prospecting areas occurs mostly in the valley, but some occur on hills/mountains. There are two significant mountains that appear to have ideal locales for overhangs at various altitudes. Drill 10, 7, 5 and 4 occur on hills or knolls and these could affect potential sites. Drill point 10 specifically, is above a potential rock art site.

The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. The study area requires a Phase 1 HIA before prospecting. The client will need to provide details of access roads to each point as the access roads themselves may affect sites.

No further PIA management is required.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk through, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

Site Specific Infrastructure:

The prospecting site will contain the following:

- Surveying Equipment;
- Chemical toilet;
- Drilling equipment;
- Geophysical logging equipment;

- Field Vehicles;
- Sample Analysis equipment; and
- Other relevant field equipment.

During the Environmental Impact Assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

Environmental Management Programme (EMPR)

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 80 269,09.

LIST OF ABBREVIATIONS

BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
DALR&RD	Department of Agriculture, Land Reform and Rural Development
DBAR	Draft Basic Assessment Report
DMRE	Department of Mineral and Resources and Energy
DoT	Department of Transport
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
EISC	Ecological Importance and Sensitivity Category
EMPR	Environmental Management Programme
ESA	Early Stone Age
FBAR	Final Basic Assessment Report
GDP	Gross Domestic Product
GNR	Government Notice
I&APs	Interested and Affected Parties
LSA	Late Stone Age
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No 25 of 1999)
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NWA	National Water Act, 1998 (Act No. 36 of 1998)

PAOI	Project Area of Influence
PCB's	Polychlorinated Biphenyl
PCO	Pest Control Officer
PES	Present Ecological State
PPE	Personal Protective Equipment
PR	Prospecting Right
PSM	Palaeontological Sensitivity Map
RA	Risk Assessment
REC	Recommended Ecological Category
S1	Site Alternative 1
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
USBM	US Bureau of Mines
WMA	Water Management Area
WULA	Water Use Licence Application

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ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	African Exploration Mining and Finance Corporation SOC Ltd
TEL NO:	010 010 6100
FAX NO:	N/A
POSTAL ADDRESS:	P.O. Box 78969, Sandton
FILE REFERENCE NUMBER SAMRAD:	NC30/5/1/2/2/13459PR

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 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 can 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, signification, consequence, extent, duration, and probability of the impacts occurring to; and

  (ii) the degree to which these impacts –

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –

  (i) identify and motivate a preferred site, activity and technology alternative;

  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

  (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental impact assessment (EIA) of any activities regulated in terms of the aforementioned Act. African Exploration Mining and Finance Corporation SOC Ltd appointed Greenmined Environmental to undertake the study needed. Greenmined Environmental has no vested interest in African Exploration Mining and Finance Corporation SOC Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended) (EIA Regulations).

i) Details of the EAP

Name of the Practitioner:	Mrs Sonette Smit (Senior Environmental Consultant)
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	sonette.s@greenmined.co.za

ii) Expertise of the EAP.

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

Mrs. S Smit has sixteen years of experience in environmental legal compliance audits, (GIS) geographic information system, mining right and permit applications and applications for environmental authorisations & Water use applications. Please find full CV attached in Appendix I.

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

Sonette Smit is an Environmental Consultant with 17 years' experience in the environmental sector. She specialized in the last 12 years in the mining sector where she conducted mining related reports and programs. She has also been involved in a number of other environmental and water use application projects

where she compiled environmental management plans, environmental impact assessments, environmental audits, IWULA's/IWWMP's.

Mrs. S Smit is a registered Environmental Assessment Practitioner (registration no: 2020/2467) with EAPASA (Environmental Assessment 19 Practitioners Association of South Africa) since 2020. See a list of past projects attached as Appendix I.

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	Portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province.
Application area (Ha)	1 546.52 ha
Magisterial district:	Namaqualand District Municipality
Distance and direction from the nearest town	The proposed area is situated about 30 km northeast and 40 north west of Aggeneys and Pofadder, respectively.
21-digit Surveyor General Code for each farm portion	• C05300000000003800001 • C05300000000003800002 • C05300000000003800003 • C05300000000004000000

c) Locality map

(show nearest town, scale not smaller than 1:250000).

The requested map is attached as Appendix B.

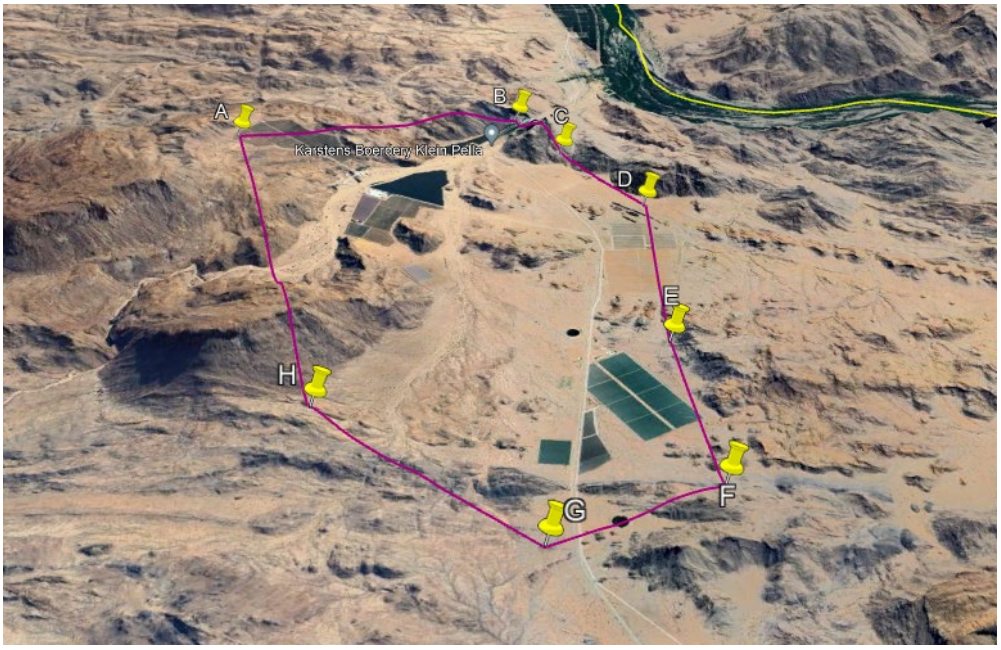

Figure 1: Satellite view of the proposed prospecting right area of African Exploration Mining and Finance Corporation SOC Ltd (image obtained from Google Earth).

d) Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all aforesaid main and listed activities, and infrastructure to be placed on site.

African Exploration Mining and Finance Corporation SOC Ltd ("hereinafter referred to as "the Applicant") applied for a prospecting right over portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province (1 546.52 ha). The proposed prospecting area is a natural area. The planned activity for the proposed site is detailed below under point i. All activities will be contained within the boundaries of the site. Prospecting drill sites will be moved to various area depending on sensitivity and accessibility.

See attached as Appendix C for a copy of the prospecting activities and the proposed drill plan of the prospecting right.

i) Listed and specified activities

Table 2: Listed and specified activities triggered by the associated prospecting activities.

NAME OF ACTIVITY (E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	**Aerial extent of the activity** Ha or m^2	**LISTED ACTIVITY** Mark with an X where applicable or affected	**APPLICABLE LISTING NOTICE** (GNR 324, GNR 325, GNR 326 OR GNR 327)
Prospecting	1 546.52 ha	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Drilling	0.01 ha	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Site Camp	80 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Ablution Facilities	10 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Equipment storage	50 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Sample Storage	40 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Temporal Site Offices	40 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
Access Roads	100 m²	**X**	GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20
GN517 Environmental Impact Assessment Regulations Listing Notice 1 Activity 20 *Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Minerial and Petroleum Resources Development Act, as well as any other applicable activity as contained in the Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right.*			

ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

The proposed prospecting footprint applied for is 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore within the Namaqualand Magisterial District in the Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various areas depending on sensitivity and accessibility.

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place, e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.)

Phase 1:

Database compilation

Upon granting of the Prospecting Right, the initial activity will be to source additional public domain data from agencies such as the Council for Geoscience and Department of Mineral Resources and Energy. In particular, historical exploration work such as sample data, geophysics, and diamond drill information is particularly relevant to inform the ongoing exploration programme.

Preliminary project logistical activities

Prior to engaging in exploration of any new area, it is necessary to contact and obtain the permission of the surface rights holders to engage in exploration activities on their land. Initially, the site exploration works will be the low-key activities mentioned below; therefore, accommodation will be at a suitable local commercial facility. Should the project progress, certain, logistical activities such as identification of a suitable site office/accommodation will require completion prior to commencing Phase 3 activities.

Remote sensing/Field mapping/Geochemical survey/Geophysical survey

These activities will be conducted to outline potential deposits of the metals being applied for. Remotely sensed data such as ASTER and Sentinel multispectral data will be processed using GIS software to locate features diagnostic to these deposits. As for field mapping, it will be conducted by walking over the prospecting right and taking field observations and samples of the rocks that outcrop; Geochemical survey will be conducted preferably through hand-held XRF techniques.

With regards to geophysics, public and private domain geophysical data that exists over the project area will be procured and utilised to facilitate and inform the ongoing exploration. At any stage of the project, it may be decided that additional, more detailed geophysical surveys may be required for various technical reasons. These surveys

may comprise magnetic and electromagnetic surveys although other techniques may also be considered. The decision to utilise additional geophysical methods will be taken by the Competent Person, in consultation with the companies consulting geophysicists, at the appropriate stage of the project. All the above work will be continually compiled and interpreted within the GIS environment. This will enable the focus of ongoing activities on the areas of potential.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc.)

Drilling/Trenching

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial part of Phase 2.

At this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code. Should there be a need to conduct an extra exploration work, which is not indicated herein, in order to clearly define Mineral Resource Category, Department of Mineral Resources and Energy will be provided with an addendum in respect to the Prospecting Work Programme. Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners, thereby keeping the impact on the receiving environment as low as possible.

1.1 Access Road

Drill sites will be accessed utilizing existing roads to minimize environmental disruption and ensure efficient transport logistics.

1.2 Equipment and Infrastructure

The applicant plans to establish an area of 1m X 1m area per drilling site no extensive trenching will be done. The only equipment to be used during the invasive phase of the prospecting activities is the percussion drill rig, two vehicles and a small excavator or tractor-loader-backhoe to be used for trenching. No other infrastructure is needed or will be established. The drilling crew will reside at the nearest accommodation in the area and therefore no campsite is needed on the earmarked properties.

1.3 Water Use

The drilling operation requires ±1 000 l of water per day that will be sourced from a commercial source. Potable water will be brought to site daily by the employees.

1.4 Electricity

The prospecting activities do not require electricity.

1.5 Waste Management

Due to the nature of the project, the small scale of the activity, and the fact that no infrastructure is established, or maintenance work done within the earmarked footprint, very little to no general waste is generated as a direct result of the prospecting activities. Any waste generated during the invasive phase, is contained in the site vehicles, and daily removed from the site.

Hazardous waste will mainly be the result of accidental spillages or breakdowns. Such contaminated areas will be cleaned up immediately and contaminated soil will be contained in designated hazardous waste containers to be removed daily to a hazardous waste disposal yard in the area. Major spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up, and remediation must commence immediately in the case of NEMA section 30 incidents, and the necessary documentation must be completed and submitted within the prescribed timeframes.

The applicant is reminded of its “general duty of care towards the environment” as prescribed in section 28 of the NEMA, 1998 which states that “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment

is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

1.6 Servicing and Maintenance

No workshop or service area is needed or will be established within the boundaries of the prospecting right. When and if applicable the maintenance/service of the drill rig will be performed on site within the drilling area and in line with approved impact management measures (i.e., hydrocarbon spill management, etc.).

The prospecting site will contain the following:

- Surveying Equipment;
- Chemical Toilet;
- Drilling equipment;
- Geophysical logging equipment;
- Field Vehicles;
- Sample Analysis equipment; and
- Other relevant field equipment.

DESCRIPTION OF PRE-/FEASIBILITY STUDIES:

(Activities in this section include but are not limited to: initial geological modelling, resource determination, possible future funding models, etc.)

Scoping study

Following the completion of the Phase 2 and initial stages of Phase 3 work and should a potentially economic Mineral Resource have been defined that is metallurgically recoverable; a Scoping Study will be completed as per normal industry practice. This will include a preliminary mine and plant design, provisional environmental and social impact studies, and a financial model that will provide an indication whether the project is potentially viable. This work is generally performed by a Competent Person and will be done off-site. Should the Scoping study prove positive, the decision will be taken to move the project to the Feasibility study.

Feasibility study

A multi-disciplinary pre-feasibility study will be done based on the geological model and mineral resource category outlined above. The outcome of the pre-feasibility Study

will be a complete mine and plant design, together with a preliminary EMPR for the operations. Should this prove positive, feasibility study work will commence.

Feasibility study will essentially improve the degree of accuracy of the pre-feasibility. This may include the detailed mine design, bulk sampling, or trial mining; preparation and application for the water use licence, EMPR, and mining licence; and placement of provisional orders for construction. The outcome of the feasibility study will provide a blueprint for construction, and the procurement of permitting and project finance.

DECOMMISSIONING PHASE

The decommissioning phase will entail the removal of the drill rig and any foreign material from site; progressive closing of the drill holes and using material from around the boreholes and landscaping any compacted surfaces (if needed) will be implemented as the contractor moves from one borehole to the next. Upon closure of the prospecting right the area will return to its natural state. Due to the nature of the activity no buildings or permanent infrastructure needs to be demolished and the access roads will remain intact to be used by the landowner.

The decommissioning activities will therefore consist of the following:

- Removal of all prospecting machinery from the prospecting area;
- Removal of the chemical toilet from the prospecting area;
- Capping of all the boreholes with sand material from around the boreholes;
- Landscaping and replacing the topsoil (if removed); and
- Controlling the invasive plant species.

The PR Holder will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

Final Rehabilitation:

Final rehabilitation of the surface area shall entail landscaping, levelling, maintenance, and clearing of invasive plant species (if applicable). All equipment, plant and other items used during the prospecting period will be removed from site (section 44 of the MPRDA, 2002). Waste material of any description will be removed from the prospecting area and disposed of in line with the company's waste management procedure. It will not be permitted to be buried or burned on the site. The replacement of topsoil in areas surrounding the development footprint should be sought in situ immediately after the disturbance. The management of invasive plant species will be done (if

applicable) in a sporadic manner during the life of the activity. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site. All re-growth of invasive vegetative material must be monitored by the Applicant during the decommissioning phase of the development. Final rehabilitation shall be completed within a period specified by the Regional Manager. All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cordoned off, to prevent vehicular, pedestrian and livestock access. Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages, instabilities, and erosion with concomitant remedial and maintenance actions.

Once the prospecting area was rehabilitated the PR Holder is required to submit a closure application to Department of Mineral Resources and Energy in accordance with section 43(4) of the MPRDA, 2002 that states: *"An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report".* The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended). See attached as Appendix C a copy of the site activities map for the proposed project.

The table below lists the GPS coordinates of the proposed prospecting area as shown on the Regulation 2(2) Mine Plan attached as Appendix A.

See attached as Appendix C a copy of the site activities map for the proposed project.

Table 3: GPS Coordinates of the proposed prospecting footprint.

Name	DEC DEGREES	
	LAT	LONG
A	-28.93635	18.96683
B	-28.93465	18.99153

C	-28.94143	18.99518
D	-28.94943	19.00578
E	-28.96824	19.00167
F	-28.98312	19.00348
G	-28.98774	18.99197
H	-28.97577	18.9767
A	-28.93635	18.96683

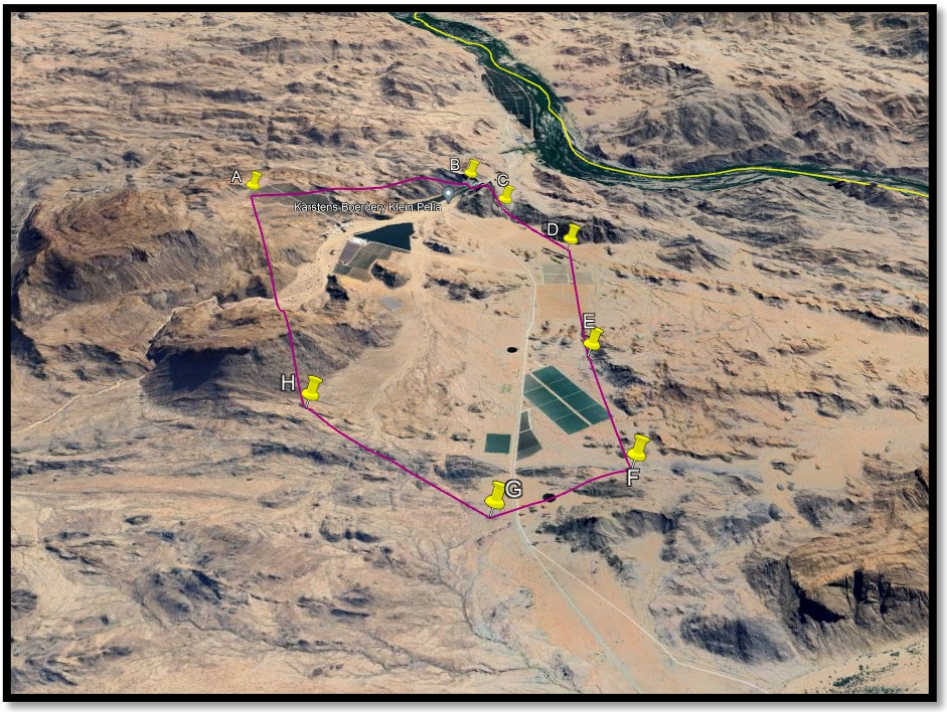

Figure 2: Satellite view showing the position of Site Alternative 1 (purple polygon) within the surrounding landscape (image obtained from Google Earth).

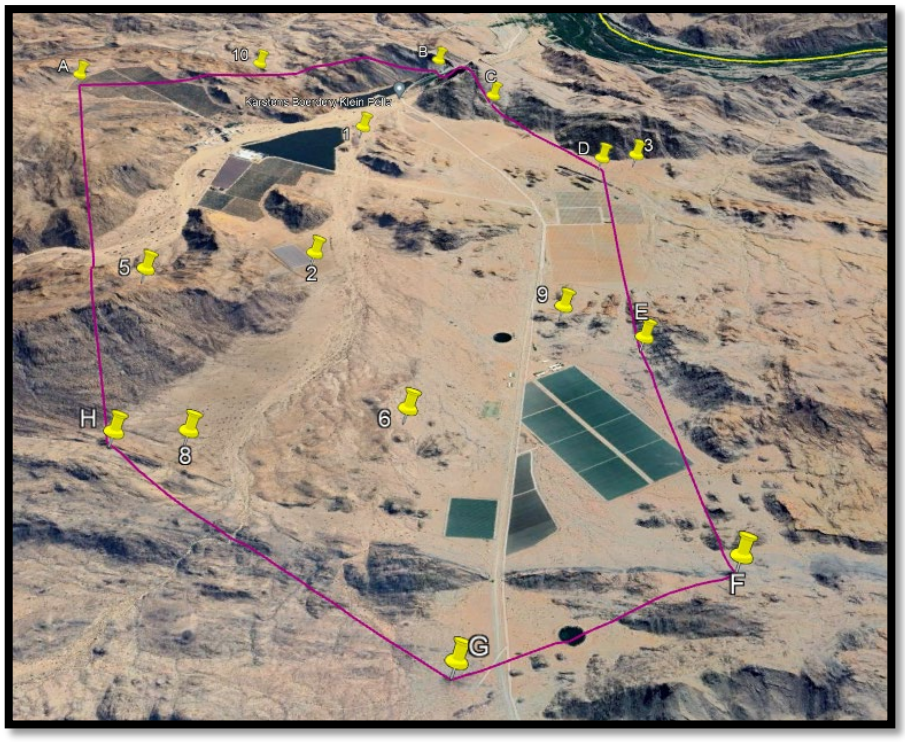

Figure 3: Drilling plan showing the proposed drilling locations of Site Alternative 1. Prospecting sites will be moved to various areas depending on sensitivity and accessibility.

Should the PR be issued and the prospecting for Lithium; Iron; Zinc; Rare Earths; Lead; Nickel; and Copper Ore be allowed, the proposed project will comprise of activities that can be divided into three key phases as discussed in more detail below:

Phase	**Activity** (what are the activities that are planned to achieve optimal prospecting)	**Skill(s) required** (refers to the competent personnel that will be employed to achieve the required results)	**Timeframe** (in months) for the activity)	**Outcome** (what is the expected deliverable, e.g. geological report, analytical results, feasibility study, etc)	**Timeframe for outcome** (deadline for the expected outcome to be delivered)	**What technical expert will sign off on the outcome?** (e.g. geologist, mining engineer, surveyor, economist, etc)
1	Non-Invasive prospecting - Desktop study - Remote sensing data processing - Field mapping - Geochemical survey - Geophysical survey - Planning of trenching/drilling and sampling programme	Geologist	18 months	Preliminary reports on historical data. Conceptual target map. Geological map. Geochemical anomaly targets (Target generation) Geophysical anomaly map (Target generation) Trenching/Drilling plans.	1-18 months	Geologist
2	Invasive prospecting - Trenching/Drilling on wide spaced grid; - Follow up trenching/drilling on denser grid in identified target Non-Invasive prospecting - Geochemical analysis of samples - Geological modelling and Resource estimation	Geologist, and Economic Geologist	18 months	Trench geo-profiles and detailed reports Borehole geological logs and analytical results; Geochemical results Preliminary geological modelling report and resource estimation statement	18-36 months	Geologist, and Economic Geologist
3	- Invasive prospecting - Advanced phase of detailed drilling/trenching and sampling; - Mineral resource and reserve estimations in line with industry requirements; Non-Invasive prospecting	Geologist Economic, Geologist Environmentalist and Mine Geologist	24 months	Detailed geological modelling report and resource estimation statement • Scoping report • Pre-Feasibility report • Environmental impact assessment report • Mine plan	36-60 months	Geologist Economic, Geologist Environmentalist and Mine Geologist

	- Scoping study; - Prefeasibility study; - Environmental impact - assessment for a potential mining operation; - Conceptual mine planning; - Permitting and authorisations			• Pre-feasibility study report • Mining authorization and permit		

e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: *Physical Environment – Geology and Soil.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of Health and Safety Risks.*	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto. • Section 16	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a prospecting right submitted to DMRE-NC. Ref No: NC30/5/1/2/2/13459PR
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended by GNR 326 effective 7 April 2017) • GNR 517 Listing Notice 1 Activity 20	Part A(1)(d)(i) Listed and specified activities.	Application for environmental authorisation submitted to DMRE-NC Ref No: NC30/5/1/2/2/13459PR
National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Air and Noise Quality.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Dust Handling*.	The mitigation measures proposed for the site consider the NEM: AQA, 2004 and the National Dust Control Regulations.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - *Biological Environment* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto. NEM: WA, 2008: National norms and standards for the storage of waste (GN 926)	Part A(1)(d)(ii) Description of the activities to be undertaken	The mitigation measures proposed for the site consider the NEM: WA.
National Heritage Resources Act. 1999 (Act No 25 of 1999).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Human Environment*	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
Guideline on Need and Desirability	Part A(1)(f) Need and desirability of the proposed activities.	The need and desirability of the project was assessed in accordance with these guidelines.
The South African Constitution	Implied throughout the document	To be upheld throughout the EIA assessment, planning-, construction-, operational- and decommissioning phases.
Financial Provisioning Regulations, 2015 (as amended),	Part A(1)(h)(i)(l) Closure phase of the proposed activity	Application for environmental authorisation submitted to DMRE-NC to be applied throughout the EIA assessment, Closure phase. Ref No: NC30/5/1/2/2/13459PR
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations

f) Need and desirability of the proposed activities.

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were ecological integrity considerations taken into account?	As discussed under *Part A(1)(g)(iv)(1)(a) Type of environment affected by the proposed activity,* prospecting of the proposed area will be performed over a period of 5 years and divided into three phases. The prospecting programme will consist of non-invasive and invasive exploration. Non-invasive prospecting activity is implemented to limit the environmental footprint experienced within the prospecting area and generally leaves little to no evidence of exploration activity. The Invasive exploration will however entail drilling and minimal trenching. Also refer to: • Part A(1)(g)(i) Details of the development footprint alternatives considered. • Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Vegetation. • Part A(1)(g)(viii) The possible mitigation measures that could be applied and the level of risk.	Desirable
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?		
How will this development pollute and/or degrade the biophysical environment?	Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners, thereby keeping the impact on the receiving environment as low as possible.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
What waste will be generated by this development?	The general waste generated by the prospecting activities mainly consist of items such as food wrappers of the drilling operators. This is kept within the site vehicles and daily removed from site. As mentioned earlier, hazardous waste is mainly the result of accidental spillages/breakdowns. Such contaminated areas are immediately (within first hour of the occurrence) cleaned and the contaminated soil is contained in a designated hazardous waste container that is daily (when applicable) removed, from where it is disposed of as hazardous waste at the nearest hazardous waste disposal site. The chemical toilet will be serviced by an accredited contractor. No waste is/will be disposed of or treated on site.	Highly Desirable
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	As per the screening report, the area has a low heritage impact but has a medium palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area extend over an area of insignificant/zero (grey) concern. The Heritage Impact Assessment (Appendix K3) states that there have been no previous heritage studies within the study area, thus the type of heritage sites is currently unknown. The desktop study did note that there are several structures from the 1962 aerial photographs and 1971 topographical maps. These built structures would be protected if they still existed, even if as ruins. The heritage surveys from nearby properties noted that the general area varies from low to high significance. Most of the low significance sites are open stone tool scatters or turn of the century copper smelting sites. One KhoeKhoe campsite was noted, and this was of high significance. Graves have also been associated with the open sites. The sites of medium to high significance tend to be found on small hills and in the mountains themselves. The small hills have overhangs and stone walling and represent nuclear family domestic areas. Rock art has been associated with these sites. Large shelters and overhangs occur in the larger hills/mountains. One of these shelters was related to a mass killing of San hunter-gatherers 25km to the south. The historical records referred to in the previous surveys also noted that many of the valleys were used as hideouts in the 19th century, by the San and KhoeKhoe.	Could not be determined

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	The study area for the proposed prospecting areas occurs mostly in the valley, but some occur on hills/mountains. There are two significant mountains that appear to have ideal locales for overhangs at various altitudes. Drill 10, 7, 5 and 4 occur on hills or knolls and these could affect potential sites. Drill point 10 specifically, is above a potential rock art site. The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. The study area requires a Phase 1 HIA before prospecting. The client will need to provide details of access roads to each point as the access roads themselves may affect sites. No further PIA management is required. However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk through, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.	
How will this development use and/or impact on non-renewable natural resources?	As per the prospecting work programme (PWP), The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist. Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.	Could not be determined

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	The prospecting activities does not make use of electricity and water will be sought from a commercial source.	Highly Desirable
How were a risk-averse and cautious approach applied in terms of ecological impacts?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that ecological impacts should be fully mitigated.	Desirable
How will the ecological impacts result from this development impact on people's environmental right?	Should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	Highly Desirable
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the mining activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner, nor will it impact negatively on the socio-economic status of the area.	Desirable
Based on all of the above, how will this development positively or negatively impact on		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
ecological integrity objectives/targets/considerations of the area?		
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the "best practicable environmental option" in terms of ecological considerations		
2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
What is the socio-economic context of the area?	Please refer to Heading 2(h)(iv)(1)(a) Socio-economic Environment.	Highly Desirable
Considering the socio-economic context, what will the socio-economic impacts be of the	As mentioned earlier, should this prospecting right be approved, the applicant will be able to, • Prospect for any possible Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore resource. • Determine the available mineral resource as well as provide employment opportunities to local employees.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
development, and specifically also on the socio-economic objectives of the area?	• It will also diversify the income of the property as well as potential employees and clients.	
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the prospecting activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner, nor will it impact negatively on the socio-economic status of the area.	Highly Desirable
Will the development result in equitable impact distribution, in the short- and long-term?	The prospecting activities proposes to operate in a socially and economically sustainable manner during both the short- and long term.	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	As per the prospecting work programme (PWP), • The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist. • Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area. Availability of the mineral resource will only be determined should prospecting be granted and drilling can take place.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	No negative socio-economic impacts could, at this stage, be identified that cannot be managed through the implementation of mitigation measures.	Highly Desirable
How will the socio-economic impacts result from this development impact on people's environmental right?	As mentioned in Heading *3(j)(1) Impact on the socio-economic condition of any directly affected person*, the activity may have an impact on the visual characteristics of the surrounding environment and may potentially affect air quality and possibly the noise ambiance of the study area. However, should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity.	Highly Desirable
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts?	As mentioned above should the prospecting activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of very low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	Please refer to: • Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?		
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	The prospecting site will (if approved) operate in accordance with, amongst others, the following: • CARA, 1983 – to ensure agriculture related compliance; • Financial Provision Regulations, 2015 – to ensure compliance in terms of rehabilitation; • Mine Health and Safety Act, 1996 (as amended) – to ensure employee safety; • MPRDA, 2002 (as amended) – to ensure prospecting related compliance; • NEM:AQA, 2004 – to ensure air quality related compliance; • NEM:BA, 2004 – to ensure biodiversity related compliance; • NEM:WA, 2008 – to ensure waste related compliance; and • NEMA, 1998 (as amended) – to ensure environmental related compliance;	Highly Desirable
What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community that is consistent with the priority needs of the local area.	The proposed prospecting will also contribute to the diversification of activities on the property, extending it from grazing and agriculture to small scale prospecting. The need is to find iron ore, lead, zinc ore, nickel ore, and copper ore	Highly Desirable
What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.	The prospecting right activities will be in accordance with the specifications of the Mine Health and Safety Act, 1996. Site management will have daily discussions with the drill rig operators regarding the work to be performed and the environment in which the work will take place. Grievances/concerns can be lodged during the daily site meetings.	Highly Desirable
Describe how the development will impact on job creation in terms of, amongst other aspects?	As mentioned earlier, should this prospecting right be approved, the applicant will be able to, • Prospect for the applied mineral resources. • Determine the available mineral resources as well as provide employment opportunities to local employees. • It will also diversify the income of the property as well as potential employees and clients.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage.	Should the prospecting right be approved, the activities will operate under a valid prospecting right issued by the DMRE. Compliance of the prospecting right with the approval conditions can be reported on as per the departmental specifications and be managed in accordance with all the prospecting right and environmental related legislations.	Highly Desirable
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when and if applicable) by the proposed activities. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, the residual impact on the environment is of low significance.	Highly Desirable
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	In terms of Section 41 of the MPRDA, 2002 a prospecting right holder must submit a financial provision to the DMRE that is sufficient to rehabilitate or manage the negative environmental impacts related to the prospecting activity.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	Please refer to: - Part A(1)(g)(i) Details of the development footprint alternatives considered. - Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Socio-Economic Environment. - Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the prospecting activities will not cause a cumulative socio-economic impact should the prospecting right application be approved, seeing that there are no other rated activities in the vicinity.	Highly Desirable

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

The proposed prospecting footprint is 1 546.52 ha over portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore in Namaqualand Magisterial District in the Northern Cape Province, and will involve the following invasive activities.

- **Drilling/Trenching:**

  Drilling will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching of a 1 m x 1 m water reticulation sump during drilling. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial part of Phase 2. Due to the small scale and nature of the prospecting activities the pollution potential is of low significance. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners, thereby keeping the impact on the receiving environment as low as possible.

  At this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code.

  The aim of the exploration activity is to verify the geology, historical data and any and all site data for the project, as well as to produce a most up-to-date current surface geological and geotechnical map of the mineralised zone.

  Land access and site visit will be communicated prior to commencement of activities.

  The Environmental Impact Assessment process assessed the feasibility of the proposed site alternative to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant another site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing. In light of the above, the prospecting proposal was updated to incorporate the project related mitigation measures and monitoring programmes identified during the assessment process. The

preferred development footprint was subsequently finalized and is depicted on the attached prospecting site activities plan (Appendix C). It is important to note that prospecting sites can be moved away from/to various areas depending on sensitivity and accessibility.

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

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix C 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.

The proposed prospecting footprint applied for is 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore in The Namaqualand Magisterial District in the Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

<u>Non-Invasive Activities will consist of the following:</u>

<u>Database compilation</u>

Upon granting of the Prospecting Right, the initial activity will be to source additional public domain data from agencies such as the Council for Geoscience and Department of Mineral Resources and Energy. In particular, historical exploration work such as sample data, geophysics, and diamond drill information is particularly relevant to inform the ongoing exploration programme.

<u>Preliminary project logistical activities</u>

Prior to engaging in exploration of any new area it is necessary to contact and obtain the permission of the surface rights holders to engage in exploration activities on their land. Initially, the site exploration works will be the low-key

activities mentioned below; therefore, accommodation will be at a suitable local commercial facility. Should the project progress, certain, logistical activities such as identification of a suitable site office/accommodation will require completion prior to commencing Phase 3 activities.

Remote sensing/Field mapping/Geochemical survey/Geophysical survey

These activities will be conducted to outline potential deposits of the metals being applied for. Remotely sensed data such as ASTER and Sentinel multispectral data will be processed using GIS software to locate features diagnostic to these deposits. As for field mapping, it will be conducted by walking over the prospecting licence area and take field observations and samples of the rocks that outcrop; Geochemical survey will be conducted preferably through hand-held XRF techniques.

With regards to Geophysics, public and private domain geophysical data that exists over the project area will be procured and utilised to facilitate and inform the ongoing exploration. At any stage of the project, it may be decided that additional, more detailed geophysical surveys may be required for various technical reasons. These surveys may comprise magnetic and electromagnetic surveys although other techniques may also be considered. The decision to utilise additional geophysical methods will be taken by the Competent Person, in consultation with the companies consulting geophysicists, at the appropriate stage of the project. All of the above work will be continually compiled and interpreted within the GIS environment. This will enable the focus of ongoing activities on the areas of potential.

Invasive Activities will consist of the following:

- Drilling: Reverse Circulation drilling is the most cost-effective method for the testing and assessing the deposit with Percussion techniques being offered as an alternative should circumstances so require. Initially 10 such boreholes are proposed. Up to 20 diamond drill holes are suggested to recover core samples in support of laboratory analysis. Laboratory will proceed concurrently with drilling. All drilling shall be undertaken to a maximum depth of 500 meters.
- There won't be any excavation, and pitting.
- No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial resource and not from the farm property(ies) at this stage.

The proposed prospecting area is a natural area. The planned activity for the proposed site's is detailed below.

All activities will be contained within the boundaries of the site.

Site Alternative 1 (S1) (Preferred and Only Site Alternative): Site Alternative 1 entails the prospecting area for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore within the GPS coordinates as listed in the table below. Refer to figure 1.

Table 6: GPS Coordinates of Site Alternative 1 (preferred and only site alternative)

Name	DEC DEGREES	
	LAT	LONG
A	-28.93635	18.96683
B	-28.93465	18.99153
C	-28.94143	18.99518
D	-28.94943	19.00578
E	-28.96824	19.00167
F	-28.98312	19.00348
G	-28.98774	18.99197
H	-28.97577	18.9767
A	-28.93635	18.96683

Layout Alternative

During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan (see Figure 3 or refer to Appendix C) and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved away from/to various area depending on sensitivity and accessibility.

No-go Alternative: The no-go alternative entails no change to the status quo and is therefore a real alternative that must be considered.

- The applicant will not be able to prospect for any possible Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore resources;
- The application, if approved, would allow the applicant to determine the available minerals as well as provide employment opportunities to local employees.
- Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees; and the applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be prospected, and that this opportunity will be lost.

In light of this, the no-go alternative was not deemed to be the preferred alternative.

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

During this public participation process the relevant stakeholders and I&APs were informed of the project by means of an advertisement in the Die Plattelander Newspaper on 31 May 2024, Site notices were placed in Afrikaans and English at the Nie Moller Centre in Pofadder and at the security gate at the farm boundary fence of Klein Pella.

A notification letter inviting comments on the DBAR over a 30-days commenting period (3 June 2024 to 4 July 2024) will be send to the landowners, neighbouring landowners, stakeholders, and other I&AP that may be interested in the project. The comments received on the DBAR will be incorporated into the final Basic Assessment Report (FBAR) to be submitted to the DMRE for consideration. The following I&APs and stakeholders will be informed of the project:

Table 7: List of the I&AP's and stakeholders that were notified of the proposed prospecting right project.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
• Rheon Trust- Portion 3 Aroams 57	• Department of Agriculture, Environmental Affairs, Rural Development and Land Reform - Kimberley

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
• Karsten Boerdery- Portion 0 Kambreek 38 • Khai-Ma Local Municipality – Portion 1 Klein Pella 40 • Department of Agriculture, Land Reform & Rural Development - Kimberley – Portion 0 Pella Mission 39 • Sophia Dorothea Luyt (Laraine Rauch van Rauch Gertenbach Attorneys) – Portion 1, Rozynbosch 41 • Northern Cape Provincial Government - Rozynbosch 41 Portion 2 • Pella Khai-Ma Local Municipality - Hoogoor 37 Portion 0	• Department of Agriculture, Environmental Affairs, Rural Development and Land Reform – Kimberley • Department of Agriculture, Environmental Affairs • Rural Development and Land Reform - Springbok • Department of Economic Development and • Tourism - Kimberley • (DEDAT) Department of Economic Development and Tourism - Upington • Department of Roads and Public Works - Upington • Department of Roads and Public Works - Springbok • Department of Water and Sanitation (DWS) • Department of Water and Sanitation - Upington • Department of Labour (DLCC) Northern Cape Provincial Office • Department of Labour - Springbok • Namakwa District Municipality • Khai-Ma Local Municipality • Khai-Ma Local Municipality Ward 3 • Sanral • Regional Land Claims Commission Northern Cape • Eskom • South African Heritage Resources Agency

In accordance with the timeframes stipulated in the EIA Regulations of December 2014 (as amended) the Draft Basic Assessment Report (DBAR) was compiled and will be distributed for comment and perusal to the I&AP's and stakeholders listed above. A 30-day commenting period, ending 4 July 2024, will be allowed for perusal of the documentation and submission of comments. The comments received on the Draft Basic Assessment Report (DBAR), as part of this process, will be incorporated into the Final Basic Assessment Report (FBAR), the FBAR will be submitted to the competent authority for final decision making. Proof of such consultation, which proof includes personal information of Interested & Affected Party ("participants"), will be limited to departmental documentation only, which information shall not be distributed as part of the public documentation in terms of the Prospecting Right application process. The above is implemented to ensure the protection of personal information of participants, in line with the Protection of Personal Information Act 4 of 2013 ("POPIA"), including the lawful processing of said personal information by Greenmined Environmental (Pty) Ltd ("Greenmined"), to which processing of personal information all participants consented to upon registration as participant. Participants that would like to inquire regarding specific information can do so by contacting Greenmined and by providing the necessary consent that authorises such an individual to obtain said specific information.

Refer to the following table for an explanation on how the public participation process of this project took the methods stipulated in Regulation 41 of the NEMA Regulations into account. Proof of the public participation process that was followed is attached as Appendix E to this document.

Table 8: Table comparing the required methods with the public participation process of this project.

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
• Regulation 41(2)(a): *Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of-* *(i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and* (ii) *Any alternative site.* • Regulation 41(3): *A notice, notice board or advertisement referred to in sub regulation (2) must—* *(a) give details of the application or proposed application which is subjected to public participation; and* *(b) state—* *(i) whether basic assessment or S&EIR procedures are being applied to the application.* *(ii) the nature and location of the activity to which the application relates.* *(iii) where further information on the application or proposed application can be obtained; and* (iv) *the manner in which and the person to whom representations in respect of the application or proposed application may be made.* • Regulation 41(4): *A notice board referred to in sub regulation (2) must—* *(a) be of a size of at least 60cm by 42cm; and* (b) *display the required information in lettering and in a format as may be determined by the competent authority.*	Notice boards in both English and Afrikaans were fixed at the following conspicuous and public accessible areas: • Entrance to the farm/site. • Nie Moller Centre in Pofadder. All the notice boards that were placed complied with the requirements of Regulation 41(3) as presented in Appendix E2 attached to this document. The notices were printed on boards of 60 x 42 cm in Arial font of sufficient size.

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
▪ Regulation 41(2)(b): *giving written notice, in any of the manners provided for in section 47D of the Act, to-* (i) *the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken.* (ii) *owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken.* (iii) *the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area.* *(iv) the municipality which has jurisdiction in the area.* *(v) any organ of state having jurisdiction in respect of any aspect of the activity.* *(vi) any other party as required by the competent authority;*	(i) The Landowner (and Applicant) signed an agreement regarding this project and is kept apprised of the EIA (BA) process. To date, no additional comments were received. (ii) The surrounding landowner will be invited to comment on the project and the DBAR. (iii) The Ward Councillor of Ward 3 will be invited to comment on the project and DBAR. (iv) Both the Khai-Ma Local Municipality and the Namakwa District Municipality will be invited to comment on the project and DBAR. (i) As listed in Table 7 the relevant state departments and entities will be invited to comment on the project and DBAR.
▪ Regulation 41(2)(c): *Placing an advertisement in-* *(i) One local newspaper; or* *(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations.*	▪ The project and availability of the DBAR was advertised in the Plattelander in both English and Afrikaans.
▪ Regulation 41(2)(d): *Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken…*	Not applicable, as the proposed activity will not extend beyond the boundaries of the metropolitan or district municipality in which it will be undertaken.
▪ Regulation 41(2)(e): *Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—* *(i) illiteracy.* *(ii) disability; or* (iii) *any other disadvantage.*	▪ The ward councillor was informed of the project and availability of the DBAR, ▪ A hard copy of the DBAR will be placed at the Nie Moller Centre in Pofadder for ease of perusal by the public that does not have access to the internet. The availability of the DBAR at the centre was advertised in all the public participation documents that were distributed.

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
▪ Regulation 41(5): *Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d) …*	▪ Not applicable to this application.
▪ Regulation 41(6): *When complying with this regulation, the person conducting the public participation process must ensure that—* *(a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and* (b) *participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.*	▪ The DBAR containing all relevant facts in respect of the application will be made available to potential I&APs for perusal and commenting over a 30-days commenting period. The DBAR will be available on the company (Greenmined) website as well as in hard copy in the application area. I&AP's will be invited to contact the EAP should additional information be required.
▪ Regulation 41(7): *Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.*	▪ Not applicable to this project.

iii) Summary of issues raised by I&APs

(Compile the table summarising comments and issues raised, and reaction to those responses)

Tables 9: Summary of issues raised by IAPs.

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES	**X**				
Landowner/s					
• Karsten Boerdery Pty Ltd – Landowner of Portion 0, Klein Pella 40	X	The landowners are aware of the prospecting right application and any comments received on the draft BAR will be incorporated into the final BAR.			
• Karsten Boerdery- Portion 1 Kambreek 38					
• Karsten Boerdery- Portion 2 Kambreek 38					
• Karsten Boerdery- Portion 3 Kambreek 38					
Landowners or lawful occupiers on adjacent properties	**X**				
• Rheon Trust- Portion 3 Aroams 57	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
• Karsten Boerdery- Portion 0 Kambreek 38		Any comments received on the draft BAR will be incorporated into the final BAR.			
• Khai-Ma Local Municipality – Portion 1 Klein Pella 40	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
• Department of Agriculture, Land Reform & Rural Development -	X	Any comments received on the draft BAR will be incorporated into the final BAR.			

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Kimberley – Portion 0 Pella Mission 39					
• Sophia Dorothea Luyt (Laraine Rauch van Rauch Gertenbach Attorneys) – Portion 1, Rozynbosch 41		Any comments received on the draft BAR will be incorporated into the final BAR.			
• Northern Cape Provincial Government - Rozynbosch 41 Portion 2		Any comments received on the draft BAR will be incorporated into the final BAR.			
• Pella Khai-Ma Local Municipality - Hoogoor 37 Portion 0		Any comments received on the draft BAR will be incorporated into the final BAR.			
Municipal councillor					
Cllr. Cacilia Ancilwa Waterboer – Ward 3	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Municipality					
Namakwa District Municipality	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Khai-Ma Local Municipality	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Department of Transport and Public Works - Upington	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Transport and Public Works - Kimberley					
Eskom	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
SANRAL	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Communities	N/A	No community were identified within the study area.			
Dept. Land Affairs					
Department of Agriculture, Environmental Affairs Rural Development and Land Reform - Kimberley	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Agriculture, Environmental Affairs Rural Development and Land Reform - Springbok					

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Traditional Leaders	N/A	No community were identified within the study area.			
Dept. Environmental Affairs					
Department of Agriculture Environmental Affairs and Rural Development and Land Reform		Any comments received on the draft BAR will be incorporated into the final BAR.			
Other Competent Authorities affected					
Department of Labour – Northern cape Provincial	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Water and Sanitation	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
South African Heritage Resources Agency	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Economic Development and Tourism; Kimberley	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Economic Development and Tourism; Upington		Any comments received on the draft BAR will be incorporated into the final BAR.			
Regional Land Claims Commission Northern Cape		Any comments received on the draft BAR will be incorporated into the final BAR.			
OTHER AFFECTED PARTIES					
N/A		Any comments received on the draft BAR will be incorporated into the final BAR.			
INTERESTED PARTIES					
N/A		Any comments received on the draft BAR will be incorporated into the final BAR.			

iv) The Environmental attributes associated with the alternatives.

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

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

(Its current geographical, physical, biological, socio-economic, and cultural character)

This section describes the biophysical, cultural and socio-economic environment that may be affected and the baseline conditions, which are likely to be affected by the proposed prospecting activity.

PHYSICAL ENVIRONMENT

CLIMATE

According to the meteoblue website, Aggeneys area normally receives about 46 mm of rain per year, with most rainfall occurring mainly during autumn. The chart below shows the average rainfall values for the area per month. It receives the lowest rainfall in July / August and the in February / March. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for the area range from 3.0°C in July to 33°C in February. The region is the coldest during July when the mercury drops to 3°C on average during the night. Consult the chart below for an indication of the monthly variation of average minimum daily temperatures.

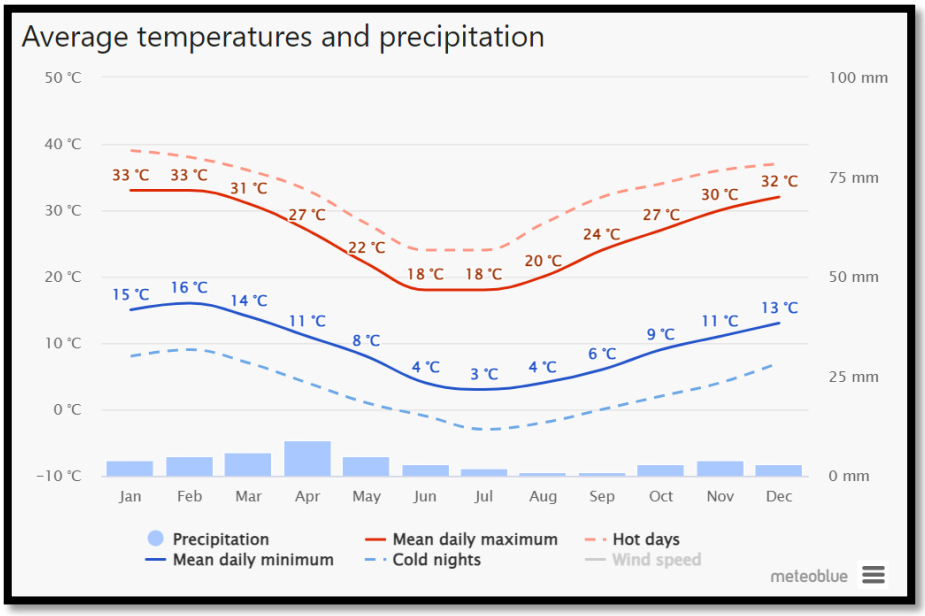

Figure 4: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the region (Chart obtained from meteoblue).

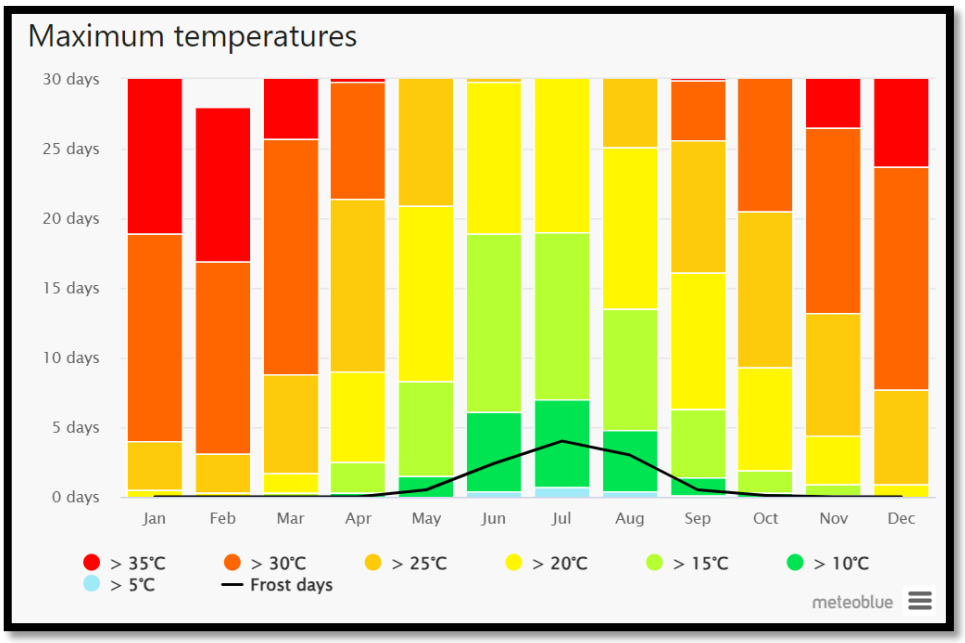

Figure 5: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the region (Chart obtained from meteoblue).

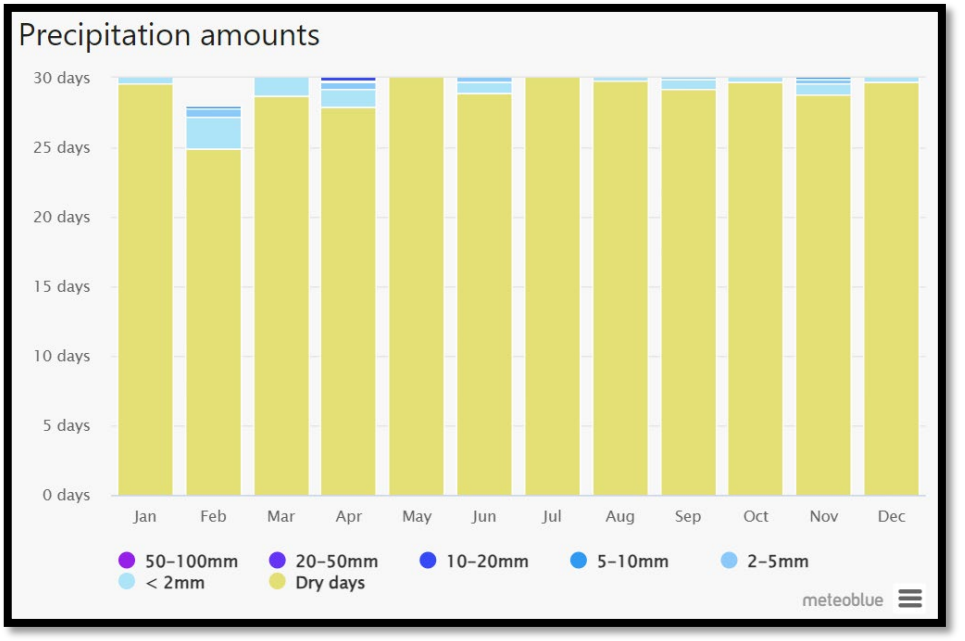

Figure 6: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the region (Chart obtained from meteoblue).

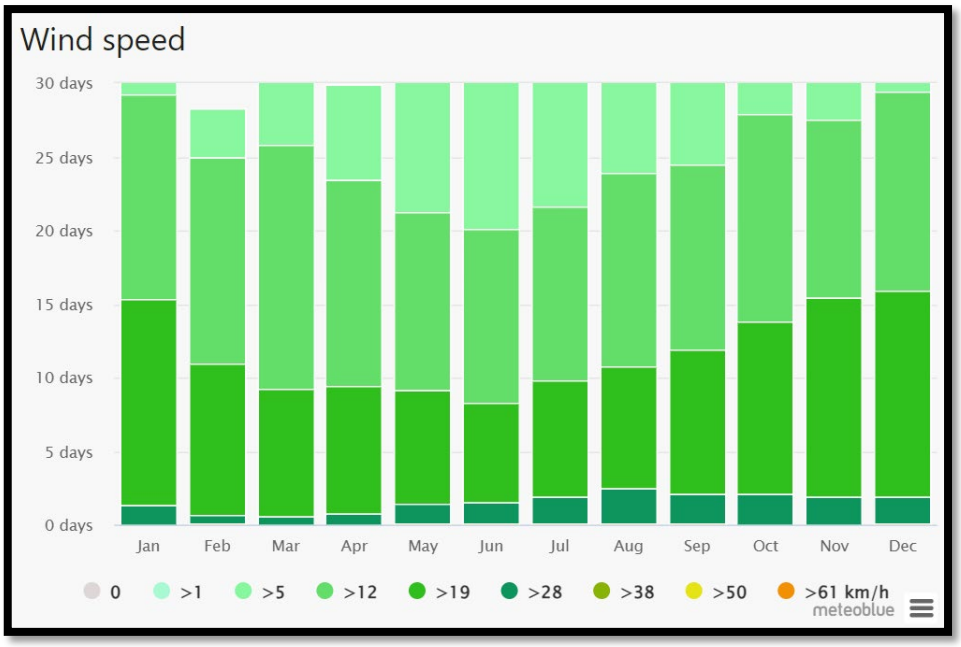

Figure 7: Statistical representation of the average rainfall, maximum temperatures, and wind speed for the region (Chart obtained from meteoblue).

The dominant wind direction of Aggeneys is constant ranging from south to a south easterly direction. The figure below presents the wind direction distribution in % for the greater Aggeneys area.

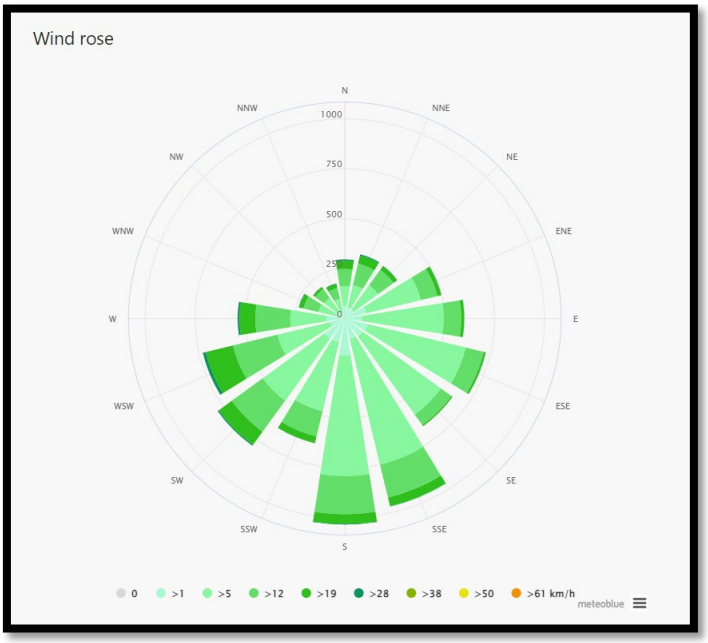

Figure 8: Annual wind direction distribution in % for the Aggeneys area, (Image obtained from www.meteoblue.com)

TOPOGRAPHY

The topography of the study area consists of sloping plains, sharply contrasting with the surrounding rocky hills and mountains. The altitude varies between 420–640m.

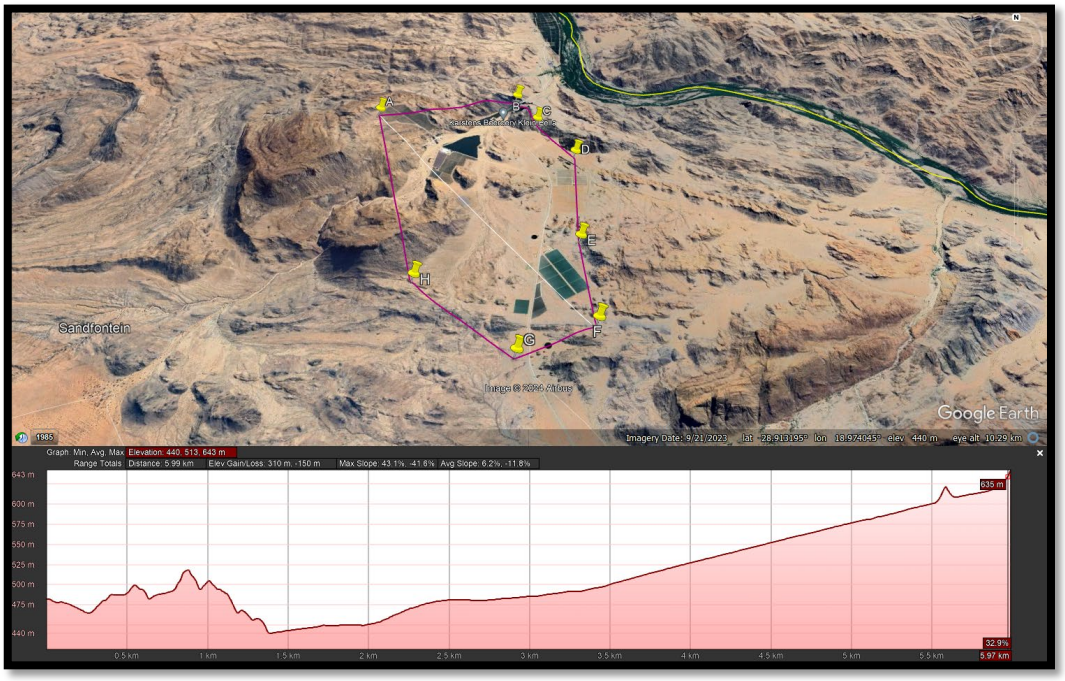

Figure 9: Elevation profile of the proposed prospecting footprint (Image obtained from Google Earth).

VISUAL CHARACTERISTICS

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

AIR AND NOISE QUALITY

The air quality of the study area is generally very good given the area's predominant agricultural use and rural character. Likewise, the noise ambiance is very low (classified as ambient rural / pastoral) with noise levels mainly affected by traffic along roads in the vicinity, and the farming equipment operational in the area.

GEOLOGY AND SOIL

The proposed area is characterized by pegmatite and sulphide minerals hosting geological formations The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist.

Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

The proposed area is characterized by quaternary sheet-wash alluvial deposits, sands, deep in places; in south, red-yellow apedal, freely drained soils with a high base status. Land types Ag and Ae.

HYDROLOGY

The site falls within quaternary catchment D82A which forms part of the Orange Water Management Area (WMA). The collecting Rivers occur within the catchment namely the Orange River. The proposed application area will fall parallel to the Orange River.

As per the Aquatic Biodiversity Specialist Assessment the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class

B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by *Ziziphus mucronate, Euclea psuedebenus* and *Tamariz ueneoides*). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

Table 10: Aquatic characteristics of the greater study area

Water Management Area	Orange Water Management Area
Quaternary Catchment	D82A.
National Wetland Map	As per the Wetland assessement report (appendix K5) the National Wetland Map 5 provides strategic spatial priority areas for conserving freshwater ecosystems and supporting sustainable use of water resources in South Africa (Nel *et al*., 2011). The project strives to conserve a sample of freshwater ecosystems and diversity of species as well as the ecosystem processes which generate and maintain diversity. According to Figure below the main Orange River has been classified as a massive Channel Valley Bottom (CVB) wetland whilst a small portion of the Fontein Tributary has been classified as a river system. The field survey confirmed that the Orange River does have small islands of wetland that exist within the channel, however, does not have wetland features on its floodplain or banks. The Fontein system towards the south had already dried out as a consequence of the seasonal fluctuation.

Figure 10: Map showing the proposed prospecting footprint and wetlands. (Image obtained from Wetland Assessment Report Appendix K5)

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

(Information extracted from the Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector, Department of Environmental Affairs, Department of Mineral Resources and Energy, Chamber of Mines, 2013)

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the prospecting footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, overlaps areas of biodiversity importance (purple area) with a corresponding rating of highest risk for mining (dark brown area), brown – high biodiversity importance, high risk for mining. Light brown – moderate biodiversity importance, moderate risk for mining. See table below for description according to The Mining and Biodiversity Guideline's The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

BIODIVERSITY CONSERVATION AREAS

The prospecting activities does not require the removal of any large trees or vegetation of significance. According to the CBA dataset, the proposed prospecting areas intercept with a Critical Biodiversity Areas 1 and 2 along with an Ecological Support Area in the southern portion of the proposed site.

The management objectives of Critical Biodiversity Areas (CBAs) 1 and 2 aim to reduce biodiversity loss and protect important ecosystems outside of protected areas.

The management objectives of an Ecological Support Area (ESA) involve maintaining the ecological functioning of a Conservation Biodiversity Area (CBA) or protected area, generating or delivering key ecosystem services, and meeting biodiversity targets for ecosystem types or species when it is not feasible to achieve them in natural or near natural areas .Although the proposed prosecting area does indeed fall in sections within an Ecological Support Area, however it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the small geophytesIn light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of low significance. According to the Terrestrial Impact Assessment (Appendix K2), the area according to the Red List of Ecosystems dataset (Skowno & Monyeki, 2021) overlaps with a Least Concern (LC) ecosystem. As for the indicator of the extent to which ecosystems are adequately protected or under-protected the proposed area overlaps with a Poorly Protected (PP) and Not Protected (NP) ecosystem. The Northern Cape Department of Environment and Nature Conservation has developed the Northern Cape CBA Map which identifies biodiversity priority areas for the province for which the area overlaps with a Critical Biodiversity Area 1, a Critical Biodiversity Area 2 and an Ecological Support Area. According to the latest National Protetced Areas Expansion Strategy (NPAES) dataset, the application area is located within a Priority Focus Area and is included in expansion plans for the Augrabies National Park. The application area and its 500 m Regulated Area overlap with LC rivers and a CR wetland. The application area and its 500 m Regulated Area overlap with a Freshwater Ecosystem Priority Areas (FEPA) river and a FEPA wetland. Considering the location of the proposed development in a CBA area as well

as the area currently being managed for conservation as well as being part of the planned expansion for the Augrabies National Park.

GROUNDCOVER

According to Mucina & Rutherford (2006) The Project Area is situated in the Bushmanland Arid Grassland (NKb 3), Eastern Gariep Plains Desert (Dg 9), Eastern Gariep Rocky Desert (Dg 10) and Lower Gariep Alluvial Vegetation (Aza 3) vegetation types according to SANBI (2018). Descriptions of the vegetation types are taken directly from Mucina & Rutherford (2006). The majority of the area consists of Often sloping plains, sharply contrasting with the surrounding rocky hills and mountains. Typical wash vegetation in the breaks between the mountains to the Orange River. Grassland dominated by 'white grasses', some spinescent (*Stipagrostis* species), on many of the flats with additional shrubs and herbs in the drainage lines or on more gravelly or loamy soil next to the mountains. The area has a conservation target of 34%. None conserved in statutory conservation areas. Few intact examples of this vegetation remain. Heavy grazing and arid climate combined with the ease of accessibility of the vegetation to stock mean that pastoral activities in the past have significantly altered the structure and composition of vegetation of this unit. In some areas Prosopis shows potential to become a serious problem, especially around natural springs or aquifers. Some very restricted areas are cultivated, mainly with date palms and grape vines.

FAUNA

Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases of 3 areas consisting of 20 -100 drilling prospecting boreholes comprising an area of less than 40 square meters per site with a total of less than 0.4 ha disturbed at any given time. These sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that

safety of animals and workers. Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

HUMAN ENVIRONMENT:

CULTURAL AND HERITAGE ENVIRONMENT

As per the screening report, the area has a low heritage impact but has a medium palaeontology sensitivity which only requires a desktop study. However, the Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase.

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening paleontologically sensitive areas at the onset of a project. When the footprint of the earmarked prospecting area is placed on the PSM, it shows the study area to extend over an area of insignificant/zero (grey) concern as presented in the figure below. Please refer to Part A(1)(h)(iv)(c) for more specific information of the area.

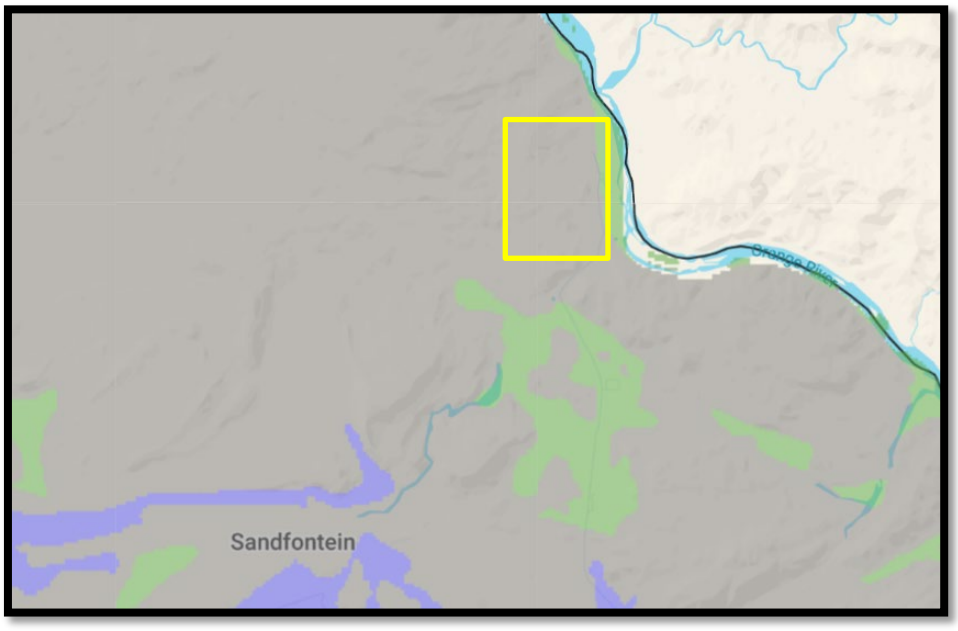

Figure 11: Screenshot from the SAHRIS palaeo-sensitivity map showing the location of the proposed prospecting area (yellow polygon) falls in an area of insignificant/zero (grey) concern (Source: https://sahris.sahra.org.za/map/palaeo).

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

The Municipal Systems Act 2000 requires each municipality to prepare an Integrated Development Plan (IDP) for its jurisdiction area for a five-year period when a new Council are elected. The legislation stipulates further that the IDP must be revised annually to determine progress and to make amendments accordingly to satisfy Council's strategic objectives. This is the IDP of Namakwa District Municipality for the period 2022-2027 and will be revised annually. The IDP process is guided by different legislations, policies and guidelines.

The Khai-Ma Local Municipality is a Category B municipality and accounts for 12% of the district geographical area. Farming settlements in the municipality are Dwagga Soutpan, Vrugbaar, Raap- en-Skraap and Klein Pella. The municipality is characterized by vast tracts of land, pristine natural environment and unique mountains. Its limited cell phone reception can be regarded as a unique attraction by some urban dwellers who wish to escape the rush of the cities. This inherent potential for eco-tourism needs to be exploited and managed in a sustainable manner in order to retain this unique setting. Gamsberg zinc mine, one of the world's biggest zinc deposits are located in the Khai- Ma Municipal Area. Gamsberg is situated about 30km from Black Mountain Mining (BMM) in Aggeneys. Gamsberg comprises an open pit mine and a dedicated processing plant. This municipality forms part of a proposed SEZ (Special Economic Zone) in the Northern Cape, with an anchor project in the Vedanta Zinc smelter in the Aggeneys (Gamsberg) area, with further downstream activities including possible agro processing. The Orange River, which is the northern border of the municipality, is an economic stimulus for the area with several irrigation projects at Onseepkans, Witbank, and the lower Orange River.

Population and Gender Profile

With 141 000 people, the Namakwa District Municipality housed 0.2% of South Africa's total population in 2020. Between 2010 and 2020 the population growth averaged 1.19% per annum which is slightly lower than the growth rate of South Africa as a whole (1.59%). Compared to Northern Cape's average annual growth rate (1.98%), the growth rate in Namakwa's population at 1.19% was close to half than that of the province.

The population projection of Namakwa District Municipality shows an estimated average annual growth rate of 1.1% between 2020 and 2025. The average annual growth rate in the population over the forecasted period for Northern Cape Province and South Africa is 1.6% and 1.3% respectively. The Northern Cape Province is estimated to have average growth rate of 1.6% which is higher than the Namakwa District Municipality. The South Africa as a whole is estimated to have an average annual growth rate of 1.3% which is higher than that of Namakwa's growth rate. The total population of a region is the total number of people within that region measured in the middle of the year. Total population can be categorised according to the population group, as well as the sub-categories of age and gender. The population groups include African, White, Coloured and Asian, where the Asian group includes all people originating from Asia, India and China. The age subcategory divides the population into 5-year cohorts, e.g. 0-4, 5-9, 10-13, etc.

	Male	Female	Total
Namakwa	70,461	70,541	141,002
Pixley ka Seme	110,547	113,378	223,924
ZF Mgcawu	147,097	141,414	288,511
Frances Baard	216,842	230,497	447,340
John Taolo Gaetsewe	130,246	136,552	266,798
Northern Cape	**675,194**	**692,382**	**1,367,576**

Figure 12: Population by gender – (extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

Namakwa District Municipality's male/female split in population was 99.9 males per 100 females in 2020. The Namakwa District Municipality has significantly more males (49.97%) relative to South Africa (48.97%), and what is typically seen in a stable population. This is usually because of physical labour-intensive industries such as mining. In total there were 70 500 (50.03%) females and 70 500 (49.97%) males. This is different from the Northern Cape

Table 11: Population percentage of each ethnic group – extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	African		White		Coloured		Asian	
	Female	Male	Female	Male	Female	Male	Female	Male
00-04	343	321	202	178	3,960	4,360	39	44
05-09	280	297	229	266	3,900	4,350	48	76
10-14	275	312	229	230	4,280	4,380	66	58
15-19	335	355	198	223	4,400	4,890	67	31
20-24	454	465	236	242	4,370	4,340	48	26
25-29	565	672	284	305	4,560	4,300	69	36
30-34	543	923	288	313	4,320	4,150	26	24
35-39	423	1,100	314	290	4,210	4,090	66	49
40-44	279	740	327	338	4,290	4,100	25	50
45-49	291	464	450	448	4,170	4,260	28	80
50-54	205	303	474	460	3,950	3,610	12	73
55-59	143	172	582	555	3,290	3,120	23	11
60-64	103	105	584	508	2,850	2,500	12	12
65-69	125	110	628	571	2,660	2,030	21	8
70-74	152	198	449	490	1,730	1,380	6	7
75+	102	99	987	544	1,940	1,390	12	6
Total	**4,620**	**6,630**	**6,460**	**5,960**	**58,900**	**57,300**	**567**	**592**

In 2020, the Namakwa District Municipality's population consisted of 7.98% African (11 200), 8.81% White (12 400), 82.39% Coloured (116 000) and 0.82% Asian (1 160) people. The largest share of population is within the young working age (25-44 years) age category with a total number of 42 100 or 29.8% of the total population. The age category with the second largest number of people is the older working age (45-64 years) age category with a total share of 24.0%, followed by the babies and kids (0-14 years) age category with 28 700 people. The age category with the least number of people is the retired / old age (65 years and older) age category with only 15 700 people.

Education

Within Namakwa District Municipality, the number of people without any schooling decreased from 2010 to 2020 with an average annual rate of -3.73%, while the number of people within the 'matric only' category, increased from 15,800 to 24,100. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 4.33%, with the number of people with a 'matric and a Bachelor's' degree increasing with an average annual rate of 2.14%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

Table 12: Educational level – (extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	Namakwa	Northern Cape	National Total	Namakwa as % of province	Namakwa as % of national
No schooling	3,820	56,600	1,810,000	*6.7%*	*0.21%*
Grade 0-2	917	11,600	551,000	*7.9%*	*0.17%*
Grade 3-6	10,600	93,700	2,900,000	*11.3%*	*0.36%*
Grade 7-9	30,600	187,000	6,020,000	*16.4%*	*0.51%*
Grade 10-11	20,100	205,000	9,480,000	*9.8%*	*0.21%*
Certificate / diploma without matric	432	3,580	197,000	*12.1%*	*0.22%*
Matric only	24,100	246,000	12,100,000	*9.8%*	*0.20%*
Matric certificate / diploma	6,560	46,500	2,570,000	*14.1%*	*0.26%*
Matric Bachelors degree	2,230	22,200	1,720,000	*10.0%*	*0.13%*
Matric Postgrad degree	884	9,830	848,000	*9.0%*	*0.10%*

Households

Namakwa District Municipality had a total number of 26 000 (62.23% of total households) very formal dwelling units, a total of 13 600 (32.60% of total households) formal dwelling units and a total number of 1 120 (2.68% of total households) informal dwelling units.

Household dynamics

The region within the Namakwa District Municipality with the highest number of very formal dwelling units is the Nama Khoi Local Municipality with 11 900 or a share of 45.65% of the total very formal dwelling units within Namakwa District Municipality. The region with the lowest number of very formal dwelling units is the Kamiesberg Local Municipality with a total of 1 200 or a share of 4.62% of the total very formal dwelling units within Namakwa District Municipality.

Table 13: Household dynamics – (extracted from the extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	Very Formal	Formal	Informal	Traditional	Other dwelling type	Total
Richtersveld	3,078	1,288	121	83	68	4,638
Nama Khoi	11,857	3,409	714	158	150	16,288
Kamiesberg	1,201	2,320	30	20	50	3,620
Hantam	5,035	2,699	75	126	37	7,972
Karoo Hoogland	2,766	1,970	47	15	15	4,813
Khai-Ma	2,036	1,919	131	292	28	4,406
Total Namakwa	**25,973**	**13,605**	**1,118**	**692**	**347**	**41,736**

Household services

Namakwa District Municipality had a total number of 31 300 flush toilets (74.92% of total households), 7 390 Ventilation Improved Pit (VIP) (17.71% of total households) and 1 490 (3.58%) of total household's pit toilets. The region within Namakwa with the highest number of flush toilets is Nama Khoi Local Municipality with 12 600 or a share of 40.31% of the flush toilets within Namakwa. The region with the lowest number of flush toilets is Kamiesberg Local Municipality with a total of 1 520 or a share of 4.85% of the total flush toilets within Namakwa District Municipality.

Table 14: Household services – (extracted from the extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	Flush toilet	Ventilation Improved Pit (VIP)	Pit toilet	Bucket system	No toilet	Total
Richtersveld	3,863	497	162	15	100	4,638
Nama Khoi	12,603	2,375	802	111	396	16,288
Kamiesberg	1,518	1,812	77	117	97	3,620
Hantam	6,787	801	101	78	205	7,972
Karoo Hoogland	3,109	1,303	205	48	147	4,813
Khai-Ma	3,386	602	145	21	252	4,406
Total Namakwa	**31,266**	**7,390**	**1,493**	**390**	**1,197**	**41,736**

Table 15: Households by type of water access – (extracted from the extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	Piped water inside dwelling	Piped water in yard	Communal piped water: less than 200m from dwelling (At RDP-level)	Communal piped water: more than 200m from dwelling (Below RDP)	No formal piped water	Total
Richtersveld	3,364	1,152	56	8	58	4,638
Nama Khoi	13,503	2,544	127	20	93	16,288
Kamiesberg	1,482	2,110	8	2	19	3,620
Hantam	5,236	2,595	92	11	38	7,972
Karoo Hoogland	3,433	1,355	10	1	15	4,813
Khai-Ma	2,589	1,719	11	1	85	4,406
Total Namakwa	**29,607**	**11,475**	**303**	**42**	**308**	**41,736**

The regions within Namakwa District Municipality with the highest number of households with piped water inside the dwelling is Nama Khoi Local Municipality with 13 500 or a share of 45.61% of the households with piped water inside the dwelling within Namakwa District Municipality. The region with the lowest number of households with piped water inside the dwelling is Kamiesberg Local Municipality with a total of 1 480 or a share of 5.00% of the

total households with piped water inside the dwelling within Namakwa District Municipality.

Table 16: Households by type of electrical connection – (extracted from the extracted from the Namakwa District Municipality Amended Integrated Development Plan 2022/27)

	Electricity for lighting only	Electricity for lighting and other purposes	Not using electricity	Total
Richtersveld	74	4,428	136	4,638
Nama Khoi	319	15,450	519	16,288
Kamiesberg	365	3,112	142	3,620
Hantam	1,156	5,759	1,056	7,972
Karoo Hoogland	1,232	2,636	945	4,813
Khai-Ma	286	3,907	212	4,406
Total Namakwa	**3,432**	**35,293**	**3,011**	**41,736**

Namakwa District Municipality had a total number of 3 430 (8.22%) households with electricity for lighting only, a total of 35 300 (84.56%) households had electricity for lighting and other purposes and a total number of 3 010 (7.21%) households did not use electricity.

The region within Namakwa with the highest number of households with electricity for lighting and other purposes is Nama Khoi Local Municipality with 15 400 or a share of 43.78% of the households with electricity for lighting and other purposes within Namakwa District Municipality. The Region with the lowest number of households with electricity for lighting and other purposes is Karoo Hoogland Local Municipality with a total of 2 640 or a share of 7.47% of the total households with electricity for lighting and other purposes within Namakwa District Municipality.

(b) Description of the current land uses

The Karstens Boerdery on Klein Pella Date Farm has various facilities for their workers which include accommodation, schooling as well as a solar power facility is located on the farm. The Orange River borders the farm to the Northeast. Klein Pella Date Farm is also known to be the largest date farm in the Southern Hemisphere.

Table 17: Land uses and/or prominent features that occur within 500m radius of S1.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	**YES**	-	The study area is surrounded by natural areas used for agricultural purposes.
Low density residential	-	**NO**	
Medium density residential	-	**NO**	
High density residential	-	**NO**	
Informal residential	-	**NO**	
Retail commercial & warehousing	-	**NO**	
Light industrial	-	**NO**	
Medium industrial	-	**NO**	
Heavy industrial	-	**NO**	
Power station	-	**NO**	
High voltage power line	-	**NO**	
Office/consulting room	-	**NO**	
Military or police base / station / compound	-	**NO**	
Spoil heap or slimes dam	-	**NO**	
Quarry, sand or borrow pit		**NO**	
Dam or reservoir		**NO**	
Hospital/medical centre	-	**NO**	
School/ crèche	Yes		The Karstens Boerdery on Klein Pella Date Farm has various facilities for their workers.
Tertiary education facility	-	**NO**	
Church	-	**NO**	
Old age home	-	**NO**	
Sewage treatment plant	-	**NO**	
Train station or shunting yard	-	**NO**	
Railway line	-	**NO**	
Major road (4 lanes or more)	-	**NO**	
Airport	-	**NO**	
Harbour	-	**NO**	
Sport facilities	-	**NO**	
Golf course	-	**NO**	
Polo fields	-	**NO**	
Filling station	-	**NO**	
Landfill or waste treatment site	-	**NO**	
Plantation	**YES**		The proposed footprint forms part of areas of which Klein Pella Date Farm is the largest date farm in the Southern Hemisphere.
Agriculture	**YES**	-	
River, stream or wetland	**YES**	**NO**	The Orange River borders the farm to the Northeast.
Nature conservation area	-	**NO**	
Mountain, hill or ridge	**YES**	**NO**	
Museum	-	**NO**	
Historical building	-	**NO**	
Protected Area	-	**NO**	
Graveyard	-	**NO**	
Archaeological site	-	**NO**	
Other land uses (describe)	-	**NO**	

(c) Description of specific environmental features and infrastructure on the site.

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The topography of the study area consists of sloping plains, sharply contrasting with the surrounding rocky hills and mountains. The altitude varies between 420–640m.

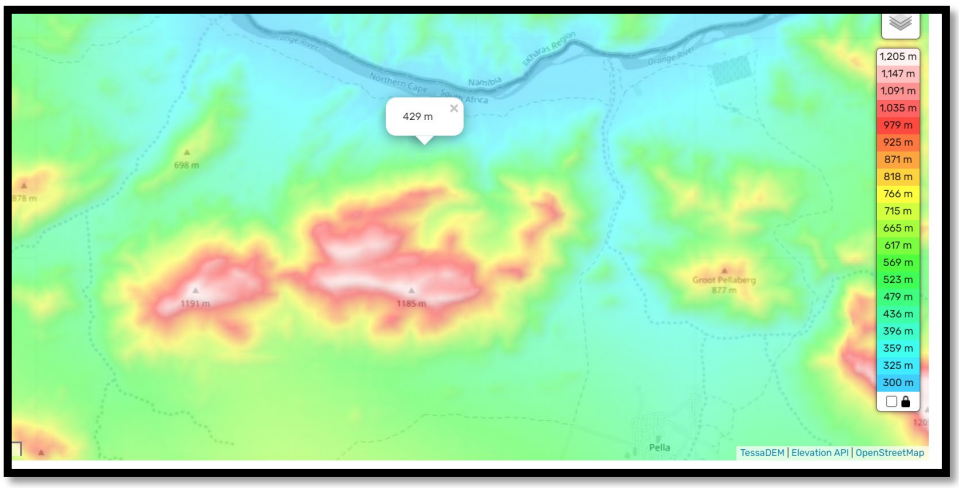

Figure 13: Map showing the topography of the prospecting area (image obtained from www.en-za.topographic-map.com/maps/gwpq/South-Afica/.

SITE SPECIFIC VISUAL CHARACTERISTICS

The figure below shows the viewshed analysis for the footprint within a ±10 km radius. The green shaded areas show the positions from where the prospecting area will be visible. From this analysis it is proposed that the visual impact of the proposed prospecting right operation will be of low significance, especially as no permanent structures. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

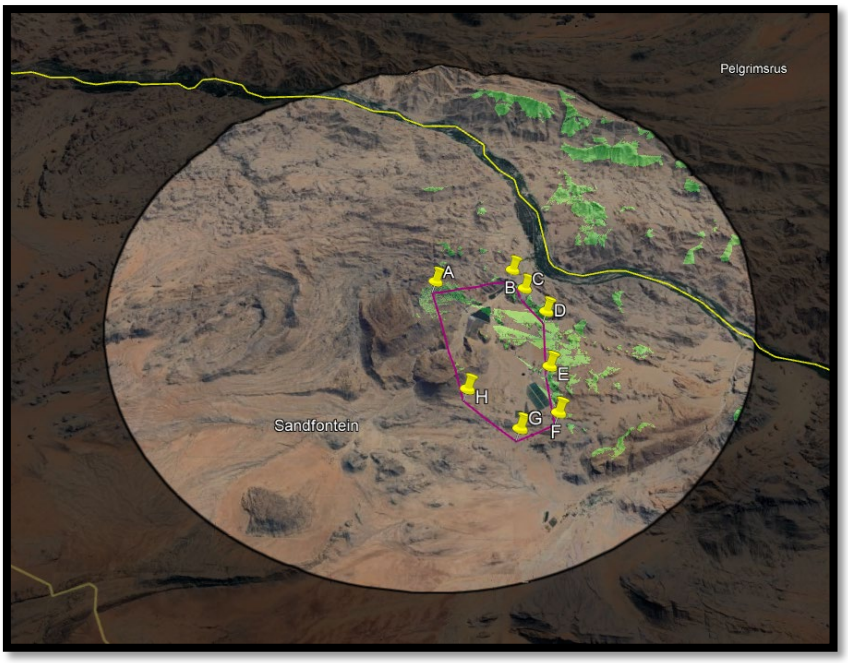

Figure 14: Viewshed of the proposed prospecting footprint where the green shaded areas show the positions from where the prospecting area (purple polygon) will be visible. (Image obtained from Google Earth).

SITE SPECIFIC AIR AND NOISE QUALITY

The proposed activity will contribute the emissions of drilling equipment and field vehicles the receiving environment for the duration of the operational phase. Should the prospecting right holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed prospecting activity does not trigger an application in terms of the said act. Should the prospecting right holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

SITE SPECIFIC GEOLOGY AND SOIL

(Information extracted from the Prospecting Work Programme (PWP) for the proposed prospecting right)

The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist.

Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

SITE SPECIFIC HYDROLOGY

The site falls within quaternary catchment D82A which forms part of the Orange Water Management Area (WMA). The collecting Rivers occur within the catchment namely the Orange River. The proposed application area will fall parallel to the Orange River.

As per the Aquatic Biodiversity Specialist Assessment (Appendix K1) the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by *Ziziphus mucronate, Euclea psuedebenus* and *Tamariz ueneoides*). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the applicable waters uses.

SITE SPECIFIC MINING AND BIODIVERSITY CONSERVATION AREAS

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the prospecting footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, overlaps areas of biodiversity importance (purple area) with a corresponding rating of highest risk for mining (dark brown area), brown – high biodiversity importance, high risk for mining. Light brown – moderate biodiversity importance, moderate risk for mining. See table below for description according to The Mining and Biodiversity Guideline's The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

Table 18: Four categories of biodiversity priority areas in relation to their biodiversity importance and implications for mining. (table obtained from The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF))

Category	Biodiversity priority areas	Risk for mining	Implications for mining
A. Legally protected	• Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected Environments, Nature Reserves) Areas declared under Section 49 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002)	**Mining prohibited**	Mining projects cannot commence as mining is legally prohibited. Although mining is prohibited in Protected Areas, it may be allowed in Protected Environments if both the Minister of Mineral Resources and Minister of Environmental Affairs approve it. In cases where mining activities were conducted lawfully in protected areas before Section 48 of the Protected Areas Act (No. 57 of 2003) came into effect, the Minister of Environmental Affairs may, after consulting with the Minister of Mineral Resources, allow such mining activities to continue, subject to prescribed conditions that reduce environmental impacts.
B. ighest biodiversity importance	• Critically endangered and endangered ecosystems • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites	**ighest risk for mining**	Environmental screening, environmental impact assessment (EIA) and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licences, and enviromental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An EIA should include the strategic assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. This assessment should fully take into account the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts, and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.
C. igh biodiversity importance	• Protected area buffers (including buffers around National Parks, World Heritage Sites and Nature Reserves) • Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) • Other identified priorities from provincial spatial biodiversity plans • High water yield areas • Coastal Protection Zone • Estuarine functional zone Note that the status of buffer areas of World Heritage Sites is subject to a current intra-governmental process.	**igh risk for mining**	These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, and for maintaining important ecosystem services for particular communities or the country as a whole. An EIA should include an assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. Mining options may be limited in these areas, and limitations for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.
D. Moderate biodiversity importance	• Ecological support areas • Vulnerable ecosystems • Focus areas for protected area expansion (land-based and offshore protection)	**Moderate risk for mining**	These areas are of moderate biodiversity value. EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (e.g. threatened species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.

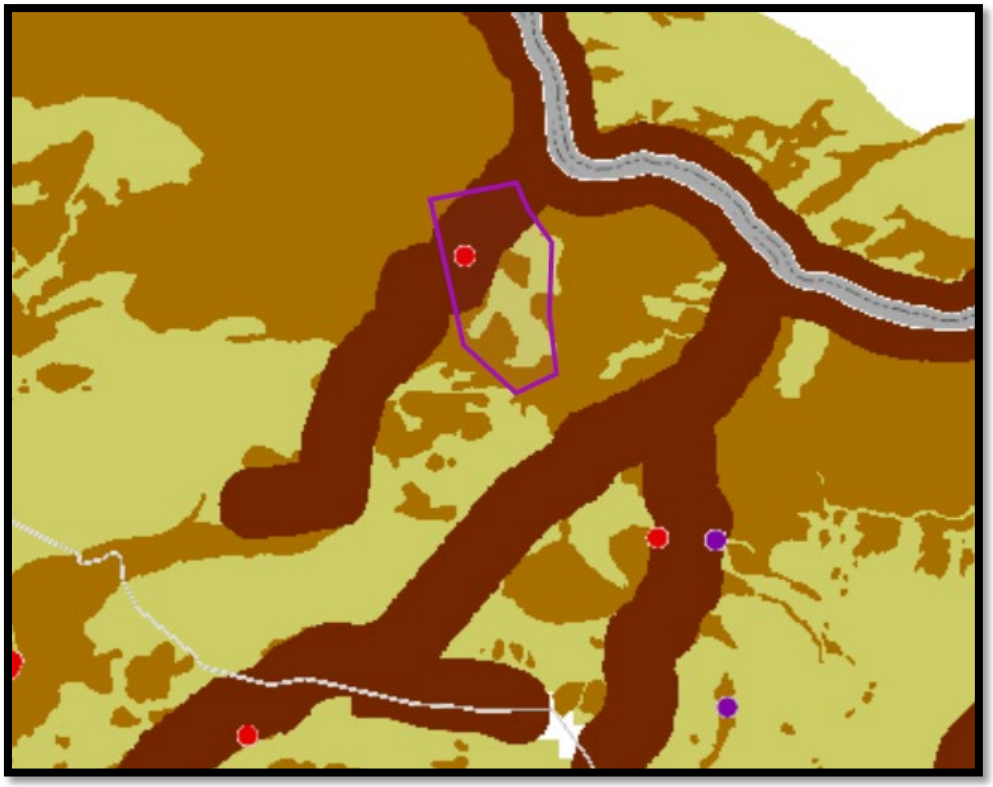

Figure 15: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the purple polygon. overlaps areas of biodiversity importance (purple area) with a corresponding rating of highest risk for mining (dark brown area), brown – high biodiversity importance, high risk for mining. Light brown – moderate biodiversity importance, moderate risk for mining, (image obtained from the BGIS Map Viewer – Mining Guidelines)

The prospecting activities do not require the removal of any large trees or vegetation of significance. The proposed prosecting area falls in small sections of an Ecological Support area which correlates with the Aquatic sensitivity of the area. However, it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the trees to prevent any impacts. In light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of Low significance.

(Information extracted from the Terrestrial Biodiversity Impact Assessment attached as Appendix K2)

SITE SPECIFIC ECOLOGICAL IMPORTANCE

As per the Terrestrial Impact Assessment (Appendix K2) based on the criteria provided in Appendix B of the said report, all habitats within the Project Area were assigned a sensitivity category, i.e., a SEI category. The Project Area was categorised as possessing habitats with areas ranging from 'Very Low' to 'Very High' SEI. This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial, Plant and Animal Species Theme sensitivity. The SEI of the Project Area is illustrated in the figure below.

Table 19: Summary of habitat types delineated within field assessment area. (table obtained from Terrestrial Impact Assessment (Appendix K2)

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Alluvial Vegetation	**Low**	**Very High**	**Medium**	**Low**	**High**
	< 50% of receptor contains natural habitat with limited potential to support SCC.	High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.		Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Plains Desert	**Medium**	**High**	**Medium**	**Low**	**High**
	> 50% of receptor contains natural habitat with potential to support SCC.	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type		Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Rocky Desert	**High**	**High**	**High**	**Very Low**	**Very High**
	Confirmed or highly likely occurrence of CR, EN, VU species that have a global	Large (> 20 ha but < 100 ha) intact area for any conservation status of		Habitat that is unable to recover from major impacts, or species that are unlikely to remain	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
	EOO of > 10 km^2	ecosystem type		at a site even when a disturbance or impact is occurring	species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
	Very Low	**Very Low**		**Very High**	**Very Low**
Modified	No natural habitat remaining.	Several major current negative ecological impacts.	**Very Low**	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

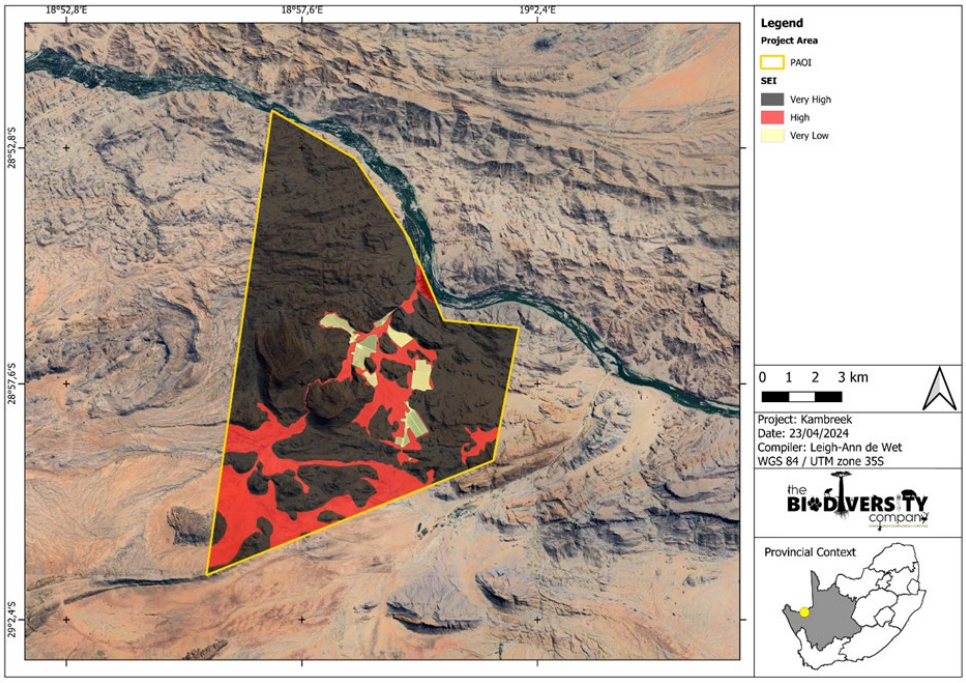

Figure 16: Site Ecological Importance of the Project Area. (image obtained from the Terrestrial Biodiversity Impact Assessment attached as Appendix K2)

SITE SPECIFIC GROUNDCOVER

(Information extracted from the Terrestrial Biodiversity Impact Assessment attached as Appendix K2)

As per the Terrestrial Impact Assessment (Appendix K2) the PAOI falls within the Nama Karroo Biome as well as the Desert Biome and also includes a small portion of Azonal vegetation.

The Nama Karoo biome is found in the central plateau of the western half of South Africa. The geology underlying the biome is varied, as the distribution of this biome is determined primarily by rainfall. The rain falls in summer and varies between 100 and 520 mm per year. This also determines the predominant soil type - over 80% of the area is covered by a lime-rich, weakly developed soil over rock. Although less than 5% of rain reaches the rivers, the high erodibility of soils poses a major problem where overgrazing occurs (SANBI, 2019).

The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events (SANBI, 2019).

The Desert Biome presents incredibly harsh environmental conditions, surpassing even those of the Succulent Karoo and Nama-Karoo Biomes (SANBI 2019). Its climate is marked by summer rainfall but experiences high levels of aridity during the summer months. Annual rainfall varies widely, ranging from around 10 mm in the west to 70 or 80 mm towards the desert's inland boundaries, with significant year-to-year variability. Most of southern Africa's true desert lies in Namibia, though a small portion extends into South Africa, notably in the Springbokvlakte area of the Richtersveld within the lower Orange River valley (SANBI, 2019).

Vegetation in the Desert Biome is characterized by the prevalence of annual plants, particularly annual grasses (SANBI 2019). Following seasons of sporadic abundant rains, the desert plains can be blanketed by a profusion of short-lived annual grasses. In typical years, however, the plains may appear barren, with annual plants enduring in the form of seeds. Perennial plants are usually found in specialized habitats linked to localized water concentrations, such as broad drainage lines or washes. Examples include the well-known shrub Welwitschia mirabilis in the Namib Desert and the perennial grass *Stipagrostis sabulicola*, which sporadically grows on large dunes with

significant water reserves. Along the Namibian coast, coastal fog influences the distribution of certain species commonly associated with the desert (SANBI 2019).

Azonal vegetation is formed in and around flowing and stagnant freshwater bodies. Habitats with high levels of salt concentration form a highly stressed environment for most plants and often markedly affect the composition of plant communities. Invariably, both waterlogged and salt-laden habitats appear as 'special', deviating strongly from the typical surrounding zonal vegetation. They are considered to be of azonal character.

The Project Area is situated in the Bushmanland Arid Grassland (NKb 3), Eastern Gariep Plains Desert (Dg 9), Eastern Gariep Rocky Desert (Dg 10) and Lower Gariep Alluvial Vegetation (Aza 3) vegetation types according to SANBI (2018). Descriptions of the vegetation types are taken directly from Mucina & Rutherford (2006).

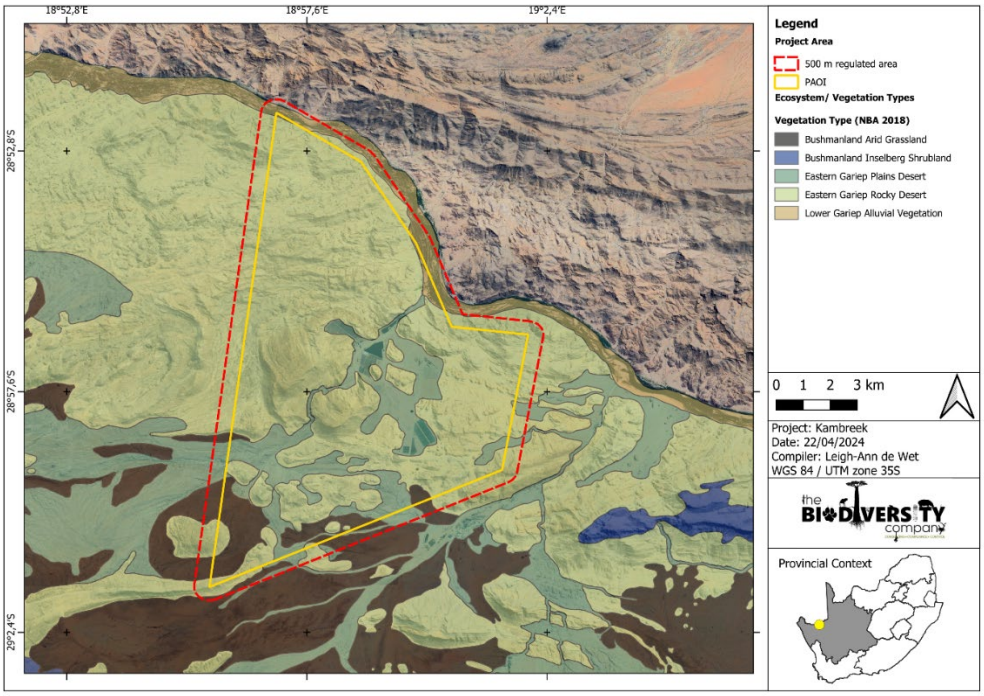

Figure 17: Map illustrating the vegetation types associated with the Project Area, (image obtained from Terrestrial Impact Assessment (Appendix K2)

Bushmanland Arid Grassland (Nkb 3)

Bushmanland Arid Grassland occurs in the Northern Cape Province from around Aggeneys in the west to Prieska in the east (Mucina & Rutherford 2006).

It occurs on extentsive to irregular plains on a slightly sloping plateau sparsly vegetated by grassland dominated by white grasses (Stipagrostis species) giving this vegetation type the character of semidesert 'steppe'. In places low shrubs of Salsola change the vegetation structure. In years of abundant rainfall rich displayes of annual herbs can be expected (Mucina & Rutherford 2016).

Eastern Gariep Plains Desert (Dg 9)

Eastern Gariep Plains Desert occurs on often sloping plains, sharply contrasting with the surrounding rocky hills and mountains (Mucina & Rutherford 2006). Typical wash vegetation in the breaks between the mountains to the Orange River. Grassland dominated by 'white grasses', some spinescent (*Stipagrostis* species), on much of the flats with additional shrubs and herbs in the drainage lines or on more gravelly or loamy soil next to the mountain (Mucina & Rutherford 2006).

Eastern Gariep Rocky Desert (Dg 10)

Eastern Gariep Rocky Desert occurs on hills and mountains (up to 650 m of relative altitude from their base), mostly with bare rock outcrops and covered with very sparse shrubby vegetation in crevices (Mucina & Rutheroford 2006). Separated by broad sheet-wash plains (Dg 9 Eastern Gariep Plains Desert). Habitats are mainly controlled by topography, aspect, local climate and lithology. On the Groot Pellaberg, for example, there is a sparse shrubland on the southern foothills (with, for example, *Aloe dichotoma*, *Rhigozum trichotomum* and *Petalidium setosum*) and a higher cover of plants in the southern ravines and rocky drainage lines (e.g. *Abutilon pycnodon, Asparagus suaveolens, Ficus cordata, Searsia populifolia* and *S. viminalis*). On the higher southern slopes *Justicia orchioides* is often dominant, with localised grassland directly below steep cliffs (*Enneapogon scaber, Triraphis ramosissima* and *Danthoniopsis ramosa*). The south-facing quartzite cliffs and steep slopes support chasmophytes (cremnophytes) such as *Ficus ilicina, Aloe dabenorisana* and *Bowiea gariepensis*. On the summits and higher northern slopes there is a much higher preponderance of succulent plants including *Euphorbia avasmontana, Aloe dichotoma, A. microstigma* subsp. *microstigma, Pelargonium aridum* and *Kleinia longiflora*. Succulent plants are also important on the northern foothills and also include *Aloe dichotoma, Euphorbia*

avasmontana, Sarcostemma viminale and the diminutive *Lapidaria margarethae* (Mucina & Rutheroford 2006).

Lower Gariep Alluvial Vegetation (AZa 3)

Lower Gariep Alluvial Vegetation occurs in the Northern Cape Province as broad alluvium of the Oranger (Gariep) River between Groblershoop and the mouth into the Atlantic Ocean at Oranjemund (Namibia) (Mucina & Rutherford 2006). It occurs in fat alluvial terrraces and riverine islands supporting a complex of riparian thickets (dominated by *Ziziphus mucronata, Euclea pseudebenus* and *Tamaris useoides*), reed beds with *Phragmites australis* as well as flooded grasslands and herbalnds populating sand banks and terraces within and along the river (Mucina & Rutherford 2006).

According to the Terrestrial Impact Assessment (Appendix K2), the vegetation is moderately diverse in its structure and consists of grasses, low bushes, some small trees, and also bare or stony ground with a few small grass tufts. There is considerable evidence of grazing by either livestock or by ungulates such as Springbok. The plant species which were seen, and which could be identified, are listed in Tables 19 to 21. Undoubtedly more species would be found during an optimal sampling season.

Table 20: List of flora Species of Conservation Concern that may occur in the Project Area. DD = Data Deficient, EN = Endangered, CR = Critically Endangered, VU = Vulnerable.

Scientific name	Screening Tool Designation	Redlist	Habitat	Likelihood of Occurrence
Acanthopsis hoffmannseggiana		DD	It occurs in the Nama Karoo and Succulent Karoo in sandy plains, stony hillsides and ridges, usually associated with weathered quartzite and granite, but also occurs on mudstone and limestone, usually at an elevation between 650 and 1000 m	Recorded
Adromischus diabolicus		DD	It occurs in the desert and Nama Karoo on quartzite inselbergs on south-facing aspects of steep, inaccessible cliff faces.	Medium
Anacampseros quinaria alstonii		EN	It occurs in the Nama Karoo and Succulent Karoo on rock outcrops	Medium
Hoodia gordonii		DD	It occurs in a variety of vegetation types in a wide variety of arid habitats and may occur on gentle to steep shale ridges, found from dry, rocky places to sandy spots in riverbeds.	HIgh
Nemesia fleckii		DD	It occurs in Eastern Gariep Plains Desert in reddish-brown sand with quartz pebbles.	Medium
Oxalis extensa		DD	It occurs in Nama Karoo with specific habitat details unknown.	Low
Pachypodium namaquanum		CR	It occurs in a wide variety of vegetation types on rocky and arid slopes.	Medium
Sensitive Species 1070	Medium	Rare		High

Scientific name	Screening Tool Designation	Redlist	Habitat	Likelihood of Occurrence
Sensitive Species 122	Medium	Rare		Medium
Sensitive Species 144	Medium	VU		Recorded
Sensitive Species 622	Medium	Rare		High
Sensitive Species 772	Medium	Rare		High
Sensitive Species 901	Medium	EN		High

Table 21: List of Protected Species recorded from the PAOI including both provincially protected species as well as trees listed on the National List of Protected Trees.

Family	Scientific name	Common name	Red List	Provincial	Protected Trees
Aizoaceae	*Mesembryanthemum subnodosum*	Gariep Asbush	LC	Sch2	
Aizoaceae	*Schwantesia ruedebuschii*		LC	Sch2	
Aizoaceae	*Sesuvium sesuvioides*	Oukraal Seapurslane	LC	Sch2	
Apocynaceae	*Microloma incanum*	Grey Minimouth	LC	Sch2	
Apocynaceae	*Pergularia daemia garipensis*		LC	Sch2	
Capparaceae	*Boscia albitrunca*	Shepherds tree	LC	Sch2	Protected
Capparaceae	*Boscia foetida*	Stink Shepherdstree	LC	Sch2	
Capparaceae	*Boscia foetida foetida*	Foetid Bush	LC	Sch2	
Ebenaceae	*Euclea pseudebenus*	Black Guarri	LC		Protected
Euphorbiaceae	*Euphorbia avasmontana*	Slender Candelabra Naboom	LC	Sch2	
Euphorbiaceae	*Euphorbia glanduligera*	Namib Milkweed	LC	Sch2	
Euphorbiaceae	*Euphorbia gregaria*	Karas Milkbush	LC	Sch2	
Euphorbiaceae	*Euphorbia guerichiana*	Paperbark Woody-euphorbia	LC	Sch2	
Euphorbiaceae	*Euphorbia mauritanica*	Yellow Milkbush	LC	Sch2	
Euphorbiaceae	*Euphorbia virosa*	Namib Candelabra Naboom	LC	Sch2	
Fabaceae	*Vachellia erioloba*	Camel Thorn	LC		Protected
Scrophulariaceae	*Jamesbrittenia maxii*	Painted Jaybee	LC	Sch2	
Scrophulariaceae	*Jamesbrittenia ramosissima*	Desert Jaybee	LC	Sch2	

Table 22: Table presenting the Alien Invasive Species and weeds recorded for the Project Area.

Family	Scientific name	Common name	NEM:BA
Casuarinaceae	*Casuarina cunninghamiana*	Beefwood	**2**
Fabaceae	*Neltumia glandulosa (Prosopis glandulosa)*	Honey Mesquite	3
Solanaceae	*Datura ferox*	Large thorn apple	1b
Solanaceae	*Datura innoxia*	Downy thorn apple	1b
Solanaceae	*Nicotiana glauca*	Tree tobacco	1b

It is important to note that all indigenous flora is protected in the Northern Cape under Schedule 2: protected species. Sixteen (16) species that are specifically

listed under Schedule 2 of the Provincial Conservation Ordinance were recorded from the site, and three (3) tree species listed under the National List of Protected Trees governed by the National Forests Act (Tables 18 - 21). Permits will be required from the Northern Cape to damage, cut or destroy these species.

A walkdown of the site in flowering season is recommended in order to record these plants and provide the information required for permits for their removal or cutting, if and where required.

Five (5) alien invasive species and weeds were recorded from the application area and surrounds (and therefore likely to invade as a result of disturbance). Three (3) NEMBA category 1b AIP species were recorded from the Project Area.

Considering that the application area includes desert habitats which likely support a variety of sensitive indigenous species, it is recommended that any AIP species that may colonise the area in the future be controlled by implementing an AIP Management Programme in compliance of section 75 of the Act as stated above. This is also pertinent to the development as invasive species are linked to enhanced fire effects and risk (Aslan & Dickson, 2020). The AIP Management Programme must implement the following monitoring framework must be implemented to ensure that AIPs are continually monitored, and progress pertaining to their control is recorded. The monitoring of the application area throughout the process is crucial in order to prevent AIPs growing and spreading out of control, thereby threatening the wellbeing of indigenous flora and fauna. It is also important to note that while herbicide application has been recommended for control, herbicides should not be applied adjacent to the aquatic ecosystems within the site area and herbicide application should not be used during windy days to prevent drift.

SITE SPECIFIC FAUNA

(Information extracted from the Terrestrial Biodiversity Impact Assessment attached as Appendix K2)

According to the Terrestrial Impact Assessment (Appendix K2), a total of fifteen (15) mammal species were recorded across the project area during the survey period and observed on the farm (Table below). It is considered highly likely

that additional small mammal species would be recorded from the project area with extensive sampling.

Table 23: Mammal species recorded within the general PAOI and surrounds.

Family	Scientific name	Common name	Red List (Child et al 2016)
Bovidae	*Oreotragus oreotragus oreotragus*	Cape Klipspringer	LC
Bovidae	*Tragelaphus strepsiceros*	Greater Kudu*	LC
Canidae	*Canis mesomelas*	Black-backed Jackal*	LC
Canidae	*Otocyon megalotis*	Bat-eared Fox*	LC
Canidae	*Vulpes chama*	Cape Fox*	LC
Cercopithecidae	*Chlorocebus pygerythrus*	Vervet Monkey	LC
Cercopithecidae	*Papio ursinus*	Chacma Baboon	LC
Felidae	*Panthera pardus*	Leopard*	VU
Herpestidae	*Herpestes sanguineus*	Common Slender Mongoose	LC
Hyaenidae	*Proteles cristata*	Aardwolf*	LC
Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	LC
Leporidae	*Lepus capensis*	Cape Hare	LC
Nycteridae	*Nycteris thebaica*	Egyptian Slit-faced Bat	LC
Procaviidae	*Procavia capensis capensis*	Cape Rock Hyrax*	LC
Sciuridae	*Xerus inauris*	South African Ground Squirrel	LC

Table 24: List of mammal Species of Conservation Concern that may occur in the Project Area. VU = Vulnerable

Species	Common Name	Conservation Status		
		Regional (SANBI, 2016)	IUCN (2021)	Likelihood of Occurrence
Panthera pardus	Leopard	VU	VU	Recorded

Sixteen (16) reptile species, representing three families were recorded within the project area during the survey periods as well as within the farm boundaries during iNaturalist observations (Table below). The lack of species richness was likely due to the combination of the inherent secretive nature of reptile species, and limited time available for fieldwork (a true representative sample requires an extensive sampling period over several surveys). The presence of suitable habitat suggests that the project area supports a diverse reptile community but as per the screening tool, no SCC are likely to occur within the project area.

Table 25: Reptile species recorded within the general PAOI and surrounds.

Family	Scientific Name	Common Name	Red List (Bates *et al* 2014)
Gekkonidae	Pachydactylus latirostris	Quartz Gecko	LC

Gekkonidae	Ptenopus garrulus maculatus	Spotted Barking Gecko	LC
Scincidae	Trachylepis variegata	Variegated Skink	LC
Scincidae	Acontias lineatus	Striped Legless Skink	LC
Scincidae	Trachylepis sulcata	Western Rock Skink	LC
Viperidae	Bitis xeropaga	Desert Mountain Adder	LC
Agamidae	Agama anchietae	Western Rock Agama	LC
Agamidae	Agama atra	Southern Rock Agama	LC
Scincidae	Trachylepis occidentalis	Western three-striped skink	LC
Viperidae	Bitis caudalis	Horned Adder	LC
Prosymnidae	Prosymna frontalis	South-western African Shovel-snout	LC
Gekkonidae	Chondrodactylus angulifer	Namib Giant Ground Gecko	LC
Gekkonidae	Pachydactylus montanus	Montane Thick-toed Gecko	LC
Lamprophiidae	Boaedon mentalis	Bug-Eyed House Snake	NE
Lacertidae	Pedioplanis inornata	Plain Sand Lizard	LC
Gekkonidae	Chondrodactylus laevigatus	Fischer's Thick-toed Gecko	NE

Table 26: List of herpatofauna Species of Conservation Concern that may occur in the Project Area. VU = Vulnerabe, NT = Near Threatened

Species	**Common Name**	**Conservation Status**		**Likelihood of occurrence**
		Regional (SANBI, 2016)	**IUCN (2017)**	
		Reptile		
Psammophis leightoni	Cape Sand Snake	VU	LC	Moderate

One amphibian species were recorded during the survey period. The lack of species richness was attributed to the dry nature of the project area with most water bodies and perennial drainage lines being dry at the time of the site visit. The species expected to occur within the project area are provided in Appendix D of the Terrestrial Biodiversity Report Appendix K2.

Table 27: Amphibian species recorded within the general PAOI and surrounds.

Family	**Scientific Name**	**Common Name**	**Red List (Minter et al 2004)**
Pyxicephalidae	*Amietia delalandii*	Delalande's River Frog	LC

Forty-one (41) avifauna species have been recorded from the PAOI as well as the Kelin Pella farm boundary during this study as well as taking into account other observations. One of the avifauna species is an SCC: Aquila verreauxii (Verreaux's Eagle), which has been recorded breeding in the PAOI (Ehlers Gagiano, pers. Comm.). The species expected to occur within the project area are provided in Appendix D of the Terrestrial Biodiversity Report Appendix K2.

Table 28: Avifauna species recorded within the general PAOI and surrounds.

Family	Scientific name	Common name	Red List regional (Bird Life SA 2019)	Red List Global (Birdlife SA 2019)
Accipitridae	*Aquila verreauxii*	African Black Eagle	NE	VU
Accipitridae	*Buteo rufofuscus*	Jackal Buzzard		
Accipitridae	*Hieraaetus pennatus*	Booted Eagle		
Accipitridae	*Icthyophaga vocifer*	African Fish-Eagle		
Alaudidae	*Certhilauda subcoronata*	Karoo Long-billed Lark		
Alcedinidae	*Megaceryle maxima*	Giant Kingfisher		
Anatidae	*Plectropterus gambensis*	Spur-winged Goose		
Charadriidae	*Charadrius tricollaris tricollaris*	African Three-banded Plover		
Charadriidae	*Vanellus armatus*	Blacksmith Lapwing		
Cisticolidae	*Euryptila subcinnamomea*	Cinnamon-breasted Warbler		
Columbidae	*Oena capensis capensis*	Namaqua Dove		
Emberizidae	*Emberiza capensis*	Cape Bunting		
Emberizidae	*Emberiza impetuani*	Lark-like Bunting		
Estrildidae	*Estrilda astrild astrild*	Cape Common Waxbill		
Fringillidae	*Crithagra albogularis albogularis*	White-throated Canary		
Hirundinidae	*Ptyonoprogne fuligula*	Rock Martin		
Laniidae	*Lanius collaris*	Southern Fiscal		
Laniidae	*Lanius collaris collaris*	Common Fiscal Shrike		
Lybiidae	*Tricholaema leucomelas centralis*	Common Pied Barbet		
Malaconotidae	*Telophorus zeylonus*	Bokmakierie		
Meropidae	*Merops hirundineus*	Swallow-tailed Bee-eater		
Motacillidae	*Motacilla capensis capensis*	Common Cape Wagtail		
Muscicapidae	*Cercotrichas coryphoeus*	Karoo Scrub-Robin		
Muscicapidae	*Cossypha caffra*	Cape Robin-Chat		
Muscicapidae	*Emarginata sinuata*	Sickle-winged Chat		
Muscicapidae	*Monticola brevipes*	Short-toed Rock-Thrush		
Muscicapidae	*Myrmecocichla monticola*	Mountain Wheatear		
Muscicapidae	*Myrmecocichla monticola monticola*	Southern Mountain Chat		
Muscicapidae	*Oenanthe familiaris*	Familiar Chat		
Muscicapidae	*Oenanthe familiaris galtoni*	Kalahari Familiar Chat		
Numididae	*Numida meleagris*	Helmeted Guineafowl		
Passeridae	*Passer domesticus*	House Sparrow		
Passeridae	*Passer melanurus*	Cape Sparrow		
Passeridae	*Passer melanurus damarensis*	Arid Cape Sparrow		
Ploceidae	*Philetairus socius*	Sociable Weaver		
Ploceidae	*Ploceus velatus*	Southern Masked Weaver		
Pteroclidae	*Pterocles bicinctus*	Double-banded Sandgrouse		
Pycnonotidae	*Pycnonotus nigricans nigricans*	Red-eye Bulbul		

Family	Scientific name	Common name	Red List regional (Bird Life SA 2019)	Red List Global (Birdlife SA 2019)
Sturnidae	*Onychognathus nabouroup*	Pale-winged Starling		
Turdidae	*Turdus smithi*	Karoo Thrush		
Zosteropidae	*Zosterops pallidus*	Orange River White-eye		

SITE SPECIFIC CULTURAL, HERITAGE AND PALAEONTOLOGICAL ENVIRONMENT

The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

(d) Environmental and current land use map.

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix B.

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

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.)

The following potential impacts were identified of each main activity in each phase of the proposed project. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

PLANNING AND SURFACE SAMPLING PHASE

Visual intrusion as a result of surface sampling phase

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
2	3	1	2	2	2	2	**4**				

Potential hydrocarbon contamination from leaks or spills

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None - full**				
5	3	2	3.3	3	4	3.5	**11.55**				

Potential impact on fauna within the footprint area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
5	3	2	3.3	4	3	3.5	**11.55**				

Dust nuisance as a result of surface sampling.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25

Rating: Low			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None
1	1	1	1	1	5	3	**3**

Noise nuisance as a result of surface sampling

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None- Partial**				
1	1	1	1	1	5	3	**3**				

Potential impact on the Safety of the area due to increased human concentration.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
2	3	1	2	2	2	2	**4**				

Impact of the natural vegetation of the footprint.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
3	4	1	2.6	3	2	2.5	**6.5**				

Deterioration of the access road to the prospecting area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
2	4	2	2.6	3	2	2.5	**6.5**				

Impact on CBA and ESA area of biodiversity concern

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
2	4	2	2.6	3	2	2.5	**6.5**				

Potential impact on areas/infrastructure of heritage or cultural concern.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25

Rating: Low - Medium			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None
3	4	1	2.6	3	2	2	**5.2**

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA

Uncapped boreholes left by the contractor.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None				
3	5	1	3	3	1	2	**6**				

Erosion after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None				
2	3	1	2	2	2	2	**4**				

Impact of the natural vegetation of the footprint during decommissioning phase

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low Medium			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None				
2	5	1	2.6	2	2	2	**5.2**				

Potential impact associated with litter/hydrocarbon spills left due to decommissioning activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low Medium			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None				
3	4	1	2.6	3	2	2.5	**6.5**				

Return of the prospecting area to agricultural use upon closure **(Positive Impact)**

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium-high			Site Alternative 1 & Layout Alternative				Degree of Mitigation: None				
1	5	5	3.7	5	5	5	**18.5**				

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

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

Methodology for the assessment of the potential environmental, social and cultural impacts

DEFINITIONS AND CONCEPTS:

Environmental significance:

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement.
- The degree of environmental significance depends on the nature of the impact.
- The importance is rated in terms of both biophysical and socio-economic values.
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

Impact

The positive or negative effects on human well-being and / or the environment.

Consequence

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

Likelihood

A qualitative term covering both probability and frequency.

Frequency

The number of occurrences of a defined event in a given time or rate.

Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

Methodology that will be used

The environmental significance assessment methodology is based on the following determination:

Environmental Significance = Overall Consequence X Overall Likelihood

Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information, and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: ***Severity/Intensity, Duration and Extent/Spatial Scale***. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

The table below will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 29: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact. Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g., remedial action takes place.

Table 30: Criteria for the rating of duration.

Rating	Description
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

Determination of Extent/Spatial Scale

Extent or spatial scale is the area affected by the event, aspect or impact.

Table 31: Criteria for the rating of extent / spatial scale.

Rating	Description
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighbouring farm area
5	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

Table 32: Example of calculating overall consequence.

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	**10**
TOTAL CONSEQUENCE: (Subtotal divided by 3)	**3.3**

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Table 33: Criteria for the rating of frequency.

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

Determination of Probability

Probability refers to how often the activity or aspect has an impact on the environment.

Table 34: Criteria for the rating of probability.

Rating	Description
1	Almost never / almost impossible
2	Very seldom / highly unlikely
3	Infrequent / unlikely / seldom
4	Often / regularly / likely / possible
5	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 35: Example of calculating overall likelihood.

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	**6**
TOTAL LIKELIHOOD (Subtotal divided by 2)	**3**

Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW**, **LOW-MEDIUM**, **MEDIUM**, **MEDIUM-HIGH** or **HIGH**, as shown in the table below.

Table 36: Determination of overall environmental significance.

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1 – 4.9	5 – 9.9	10 – 14.9	15 – 19.9	20 – 25

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision-making process associated with this event, aspect or impact.

Table 37: Description of environmental significance and related action required.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Based on the above, the significance rating scale has been determined as follows:

High	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.
Medium-High	Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Medium	Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, in case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.
Low-Medium	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved of little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit.
Insignificant	There would be a no impact at all – not even a very low impact on the system or any of its parts.

vii) 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.

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

The prospecting area in which drilling sites can be moved to various positions in consultation with the landowners depending on sensitivity. However, the proposed

prospecting area was identified as the preferred and only viable site alternative. In light of this, S1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team due to the following:

- The mineral deposits being applied for are within Pella Domain Geology of the Namaqualand Metamorphic Province and predominately associated with pegmatite hosting zones; also, bright-red banded iron-formation bed (varying from massive to fine-grained specularite and/or euhedral magnetite crystals) exist.

- Pegmatites are associated with lithium-bearing minerals, including rare earth metals. Further, a large portion of the minerals in the area are silicates with varying amounts of sulphides, carbonates and borates. Minerals such as sphalerite (ZnS), galena (PbS), etc. are some of the common components of the sulphide minerals. Moreover, there are known mines and reported mineral occurrences of the minerals being applied for in the vicinity of the proposed area.

PROJECT ASSOCIATED POSITIVE IMPACTS:

- Work opportunities to local residents should prospecting be successful contributing to the socio-economic status of the area.
- Easy movement of equipment as processing progress
- Complete removal of equipment at closure of the prospecting area.
- Return of the prospecting area to landscape feature upon closure; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:

PLANNING AND SURFACE SAMPLING PHASE

- Visual intrusion as a result of planning and surface sampling phase.
- Potential hydrocarbon contamination from leaks or spills;
- Potential impact on fauna within the footprint area.
- Dust nuisance as a result of the surface sampling.
- Noise nuisance as a result of surface sampling.
- Potential impact on the Safety of the area due to increased human concentration.
- Impact of the natural vegetation of the footprint.
- Deterioration of the access road to the prospecting area.
- Impact on CBA and ESA area of biodiversity concern; and
- Potential impact on areas/infrastructure of heritage or cultural concern.

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA.

- Uncapped boreholes left by the contractor.
- Erosion after rehabilitation.
- Impact of the natural vegetation of the footprint during decommissioning phase; and
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities.

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

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigation or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

The following mitigation measures are proposed to address/minimize the impact of the proposed activity on the surrounding environment:

VISUAL CHARACTERISTICS

Visual Mitigation:

The risk of the proposed prospecting activities having a negative impact on the aesthetic quality of the surrounding environment can be reduced a lower risk through the implementation of the mitigation measures listed below.

- The applicant should however ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the prospecting activities.
- Upon closure the site will be rehabilitated to ensure that the visual impact on the aesthetic value of the area is kept to a minimum.
- The site will have a neat appearance and be kept in good condition at all times.

AIR AND NOISE QUALITY

Fugitive Dust Emission Mitigation:

The risk of dust, generated from the proposed prospecting activities, having a negative impact on the surrounding environment can be reduced to a lower risk through the implementation of the following mitigation measures:

- The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- The site manager must ensure continuous assessment of the dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust.
- Areas devoid of vegetation, which could act as a dust source, must be minimized.
- Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- Best practice measures shall be implemented during the stripping of topsoil (if required), drilling, and decommissioning and landscaping to minimize potential dust impacts.

Noise Handling:

The risk of noise, generated as a result of the proposed prospecting activity, having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- The prospecting right holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- No loud music may be permitted at the prospecting area.
- All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).

- Best practice measures shall be implemented in order to minimize potential noise impacts.
- Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013.

MINING AND BIODIVERSITY & GROUNDCOVER

Management of Invasive Plant Species:

The risk of weeds or invader plants invading the disturbed area can be reduced to being Low through the implementation of the mitigation measures listed below:

- An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities.
- The project footprint and surroundings should be monitored during the initial construction period for alien invasive species, and annually for the lifetime of the fence and road and managed according to each species during the operational phase.
- Care should be taken to remove any biological material from equipment, personnel clothing,
- and gear before entering and when leaving the work site to prevent the spread and establishment of alien invasive species.
- Topsoil must be monitored bi-weekly by the designated Environmental Officer on site to detect the emergence of any alien invasive species.
- All topsoil stockpiles (if applicable) must be kept free of invasive plant species.
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
  - The plants can be uprooted, felled, or cut off and can be destroyed completely.

FAUNA

Protection of Fauna:

The risk resulting from the proposed prospecting activity on terrestrial fauna of the footprint area as well as the surrounding environment, can be reduced to Low through the implementation of the mitigation measures listed below:

- The site manager must ensure no fauna is caught, killed, harmed, sold or played with.
- Workers must be instructed to report any animals that may be trapped in the working area.
- No snares may be set, or nests raided for eggs or young.
- All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.
- Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.

BIODIVERSITY AND ECOSYSTEMS ASSOCIATED WITH THE PROPOSED DEVELOPMENT

- It is not known for how long the drilling rig will remain at each site, but it is recommended that an ECO should visit each at least twice during its operation. Ideally one such visit will be done when the site is first being established since that will also allow opportunity for the person to also check on the site which has just been left.
- Habitat types delineated within field assessment area indicated as very high with avoidance mitigation should be avoided and no destructive development activities should be considered.
- Habitat types delineated within field assessment area indicated as high with avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
- Prevent the further loss and fragmentation of vegetation communities, the CBA 1, CBA 2, ESA, and NPAES Focus Areas within and in the vicinity of the PAOI.

- Reduce soil erosion.
- Reduce the negative fragmentation effects of the development; and
- Prevent the direct and indirect loss and disturbance of flora species and communities (including any potentially protected or Species of Conservation Concern).
- All activities must make use of existing roads and tracks as far as practically and feasibly possible. No new roads are to be constructed under any circumstance. Parking of vehicles may only occur in already modified areas.
- A protected tree and a protected plant survey must be conducted by a suitably qualified ecologist and an estimate made of the number of protected trees which were lost during vegetation clearing. The replacement of the trees must be discussed with the department.
- A habitat rehabilitation plan must be compiled and implemented for all developed areas.
- Areas that have been disturbed but will not undergo development must be revegetated with indigenous vegetation.
- A fire management plan needs to be compiled and implemented to restrict the impact fire would have on the surrounding areas.
- Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.

HYDROLOGY

- Ideally no drilling should be undertaken at times when rain has fallen, and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise disturbance of the important bird populations around the pans.
- The access to the site must be planned together with the relevant landowner and be approved by the landowner.
- The landowner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed.
- Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO).

- To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive areas. Such areas could include known home ranges of species of especial biodiversity conservation concern.
- Preparation of the drilling site must avoid damage to the vegetation as far as is possible.
- The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. An extent of 20 m x 25 m is suggested but may be changed after discussion between the drilling contractor and the landowner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shadecloth.
- If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated.
- Since the drill operators may live on the site while working there, provision must be made for ablution and toilet facilities. Grey water may be disposed of onsite but chemical toilets must be provided and be properly serviced. Pit latrines may not be used.
- Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the landowner.

GENERAL

Waste Management:

The risk of uncontrolled waste generation having a negative impact on the surrounding environment can be reduced to being Low through the implementation of the mitigation measures listed below:

- Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site.
- Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use.
- Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays.

- Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times.
- On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site.
- When and if applicable the maintenance/service of the drill rig will be performed on site within the drilling area and in line with approved impact management measures (i.e., hydrocarbon spill management, etc.).
- Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100-year floodline of any open water source and must be serviced at least once every two weeks for the duration of the prospecting activities.
- The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder.
- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site.
- A spill kit must be available on-site which can be operated by trained employees for the *adhoc* remediation of minor chemical and hydrocarbon spillages.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.
- Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed.
- No waste may be buried or burned on the site.
- No chemicals or hazardous materials may be stored at the prospecting area.
- It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities.

- All machinery must be parked at the stockpile area with drip trays placed underneath stationary vehicles.
- Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.

Management of heritage/paleontological finds

- Once the drill sites have been confirmed these areas have to be subjected to a heritage walk through, this should be conducted prior to the commencement of prospecting activities.
- Drill sites must be kept as close as possible to existing roads in order to minimise the impact on the landscape.
- Focal points on the landscape like rocky outcrops or pans must be avoided as far as possible as these areas could be sensitive from a heritage point of view.
- Monitoring of the project area by the ECO during the exploration phase for heritage chance finds, and if chance finds are encountered to implement the Chance Find Procedure for the project.

Management of Health and Safety Risks:

The following mitigation measures are proposed to minimise the potential health and safety impacts:

- Adequate ablution facilities and water for human consumption must daily be available on site.
- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).
- No trespassing on private property outside the approved area will be allowed.

ix) Motivation where no alternative sites were considered.

Identified Alternatives:

The property on which, or location where, it is proposed to undertake the activity - Site Alternative 1 (Preferred and Only Site Alternative):

Site Alternative 1 was identified as the preferred and only viable site alternative based on the following: The Prospecting area with a footprint of approximately 1 546.52 ha

on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province (hereafter referred to as the application property).

As mentioned in the prospecting work programme at this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code. Should there be a need to conduct an extra exploration work, which is not indicated herein, in order to clearly define Mineral Resource Category, Department of Mineral Resources and Energy will be provided with an addendum in respect to the Prospecting Work Programme.

Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

Type of activity to be undertaken

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Design and layout of the activity.

Layout Alternative: Site 1

Final Layout Alternative (FLA) (Preferred Layout): During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Therefore, no additional design/layout alternatives were deemed viable for this project.

Technology to be used in the activity.

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe

will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The process does not require highly specialised technology and no secondary processing will be required. Therefore, no technology alternatives were deemed viable for this project.

No-go Alternative:

The no-go alternative was not deemed to be the preferred alternative as:

The applicant will not be able to prospect for any possible mineral resource.

The application, if approved, would allow the applicant to determine the available mineral as well as provide employment opportunities to local employees. Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees and clients; and

The applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be mined, and that this opportunity will be lost.

x) Statement motivating the alternative development location within the overall site.

(Provide a statement motivating the final site layout that is proposed)

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment as the preferred and only site alternative. Prospecting sites will be moved away from/to various area depending on sensitivity and accessibility. The following matters contributed to the identification of the preferred development footprint:

1. **Topography –** The prospecting activities will not affect the topography of the receiving environmental, nor will prospecting have any residual affects should all areas be rehabilitated.

2. **Visual Characteristics** – The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the

Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

3. **Air and Noise Quality** – The proposed activity will contribute the emissions of drilling rigs and a field vehicle to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation measures proposed in the BAR and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance.

4. **Geology and Soil –** The prospecting activities will entail core samples and testing; no bulk sampling will be done.

5. **Hydrology –** The site falls within quaternary catchment D82A which forms part of the Orange Water Management Area (WMA). The collecting Rivers occur within the catchment namely the Orange River. The proposed application area will fall parallel to the Orange River. As per the Aquatic Biodiversity Specialist Assessment the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

   The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

   The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by *Ziziphus mucronate, Euclea psuedebenus* and *Tamariz ueneoides*). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

   It was concluded that the impact assessment conducted as part of the report indicates that the proposed prospecting activities could lead to low impacts on the Orange River. During the prospecting phase of a mine, specifically drilling for metal ore, the impact on the Orange River is generally expected to be low. This is due to the fact that drilling activities are conducted at specific target locations that are

determined through geological surveys and assessments. These target locations are away from major water bodies like the Orange River, reducing the direct impact on the river itself. It is of the most outmost importance that it is noted that none of the drilling positions are within 500 m of the Orange River.

However, it is essential to implement recommended mitigation measures to address potential risks. It is recommended that a GA be applied for. This will ensure proper management and regulation of water usage, mitigating potential adverse impacts on water resources.

6. **Mining, Biodiversity and Groundcover –** The prospecting activities does not require the removal of any large trees or vegetation of significance. According to the CBA dataset, the proposed prospecting areas intercept with a Critical Biodiversity Areas 1 and 2 along with an Ecological Support Area in the southern portion of the proposed site.

   The management objectives of Critical Biodiversity Areas (CBAs) 1 and 2 aim to reduce biodiversity loss and protect important ecosystems outside of protected areas.

   The management objectives of an Ecological Support Area (ESA) involve maintaining the ecological functioning of a Conservation Biodiversity Area (CBA) or protected area, generating or delivering key ecosystem services, and meeting biodiversity targets for ecosystem types or species when it is not feasible to achieve them in natural or near natural areas .Although the proposed prosecting area does indeed fall in sections within an Ecological Support Area, however it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the small geophytesIn light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of low significance. According to the Terrestrial Impact Assessment (Appendix K2), the area according to the Red List of Ecosystems dataset (Skowno & Monyeki, 2021) overlaps with a Least Concern (LC) ecosystem. As for the indicator of the extent to which ecosystems are adequately protected or under-protected the proposed area overlaps with a Poorly Protected (PP) and Not Protected (NP) ecosystem. The Northern Cape Department of Environment and Nature Conservation has developed the Northern Cape CBA Map which identifies biodiversity priority areas for the province for which the area overlaps with a Critical Biodiversity Area 1, a Critical Biodiversity Area 2 and an Ecological Support Area.

According to the latest National Protetced Areas Expansion Strategy (NPAES) dataset, the application area is located within a Priority Focus Area and is included in expansion plans for the Augrabies National Park. The application area and its 500 m Regulated Area overlap with LC rivers and a CR wetland. The application area and its 500 m Regulated Area overlap with a Freshwater Ecosystem Priority Areas (FEPA) river and a FEPA wetland. Considering the location of the proposed development in a CBA area as well as the area currently being managed for conservation as well as being part of the planned expansion for the Augrabies National Park, the proposed development is considered possible only is all mitigation measures provided in this and other specialist reports are implemented, no fatal flaws could be identified that prevents the activity continuing.

7. **Fauna -** Various small mammals and reptiles occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. As per the screening report, a few species had been identified with a high to medium sensitivity. According to the Terrestrial Impact Assessment (Appendix K2), the Ludwig's Bustard (*Neotis ludwigii*) has indeed been listed as being of High and medium sensitivity which is recorded from the area as it is listed in the SABAP observation lists. It was not seen during the course of the site visit while the Northern Black Korhaan (*Afrotis afraoides*) was commonly seen. Since the major threat to the species is documented as collisions with power and telephone lines, the proposed drilling of six boreholes is unlikely to pose any new level of threat in the project area other than for some temporary disturbance from the drilling sites.

   Furthermore, the fauna of the area will be disturbed by the human presence and drilling activity. While this will not be of relevance to the more common species such as Springbok, other species and especially smaller burrowing species which will not move very freely due to either specialised habitat requirements or to territorial restrictions, could be affected. Activity near pans during the wet season could have significant impacts on the birds which utilise them.

   With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

8. Cultural and Heritage Environment -As per the screening report, the area has a low heritage impact and a medium palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area extend over an area of insignificant/zero (grey) concern.

The Heritage Impact Assessment (Appendix K3) states that There have been no previous heritage studies within the study area, thus the type of heritage sites is currently unknown. The desktop study did note that there are several structures from the 1962 aerial photographs and 1971 topographical maps. These built structures would be protected if they still existed, even if as ruins.

The heritage surveys from nearby properties noted that the general area varies from low to high significance. Most of the low significance sites are open stone tool scatters or turn of the century copper smelting sites. One KhoeKhoe campsite was noted, and this was of high significance. Graves have also been associated with the open sites.

The sites of medium to high significance tend to be found on small hills and in the mountains themselves. The small hills have overhangs and stone walling and represent nuclear family domestic areas. Rock art has been associated with these sites. Large shelters and overhangs occur in the larger hills/mountains. One of these shelters was related to a mass killing of San hunter-gatherers 25km to the south. The historical records referred to in the previous surveys also noted that many of the valleys were used as hideouts in the 19th century, by the San and KhoeKhoe.

The study area for the proposed prospecting areas occurs mostly in the valley, but some occur on hills/mountains. There are two significant mountains that appear to have ideal locales for overhangs at various altitudes. Drill 10, 7, 5 and 4 occur on hills or knolls and these could affect potential sites. Drill point 10 specifically, is above a potential rock art site.

The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. The study area requires a Phase 1 HIA before prospecting. The client will need to provide details of access roads to each point as the access roads themselves may affect sites.

No further PIA management is required.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified, the boreholes will move accordingly.

i) 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.

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

During the impact assessment process, the following potential impacts were identified of each main activity in each phase. An initial significance rating (listed under *v) Impacts and Risks Identified*) was determined for each potential impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed prospecting activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact ratings listed below was determined for each impact **after** bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

PLANNING AND SURFACE SAMPLING PHASE

Visual intrusion as a result of surface sampling phase

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: None**				
2	3	1	2	2	2	2	**4**				

Potential hydrocarbon contamination from leaks or spills

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	2	1	1.6	2	3	2.5	**4**				

Potential impact on fauna within the footprint area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	2	1	1.6	2	3	2.5	**4**				

Dust nuisance as a result of surface sampling.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	1	1	1	1	2	1.5	**1.5**				

Noise nuisance as a result of surface sampling

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Partial**				
1	3	1	1.6	1	2	1.5	**2.4**				

Potential impact on the Safety of the area due to increased human concentration.

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	3	1	2	2	2	2	**4**				

Impact of the natural vegetation of the footprint.

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	3	1	1.6	1	2	1.5	**2.4**				

Deterioration of the access road to the prospecting area

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	3	1	2	2	2	2	**4**				

Impact on CBA and ESA area of biodiversity concern

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	3	1	2	2	2	2	**4**				

Potential impact on areas/infrastructure of heritage or cultural concern.

							Significance				
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	4	1	2.3	3	2	2	**4.6**				

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA

Uncapped boreholes left by the contractor.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	4	1	2	2	1	1.5	**3**				

Erosion after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	3	1	1.6	1	2	1.5	**2.4**				

Impact of the natural vegetation of the footprint during decommissioning phase

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	4	1	2	2	1	1.5	**3**				

Potential impact associated with litter/hydrocarbon spills left due to decommissioning activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low Medium			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
2	4	1	2.3	3	2	2	**4.6**				

Return of the prospecting area to agricultural use upon closure **(Positive Impact)**

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium-high			**Site Alternative 1 & Layout Alternative**				**Degree of Mitigation: Full**				
1	5	5	3.7	5	5	5	**18.5**				

j) Assessment of each identified potentially significant impact and risk.

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons and not only those that were raised by registered interested and affected parties).

Table 38: Assessment of each identified potentially significant impact and risk.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, etc…etc…etc.)	(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc…etc…etc.)		In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	If not mitigated.	(modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.	If mitigated.
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area.	N/A	Planning and surface sampling phase	N/A	Control through management and monitoring.	N/A
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Visual intrusion as a result of planning and surface sampling phase • Uncapped boreholes left by the contractor	The visual impact may affect the aesthetics of the landscape.	Planning and surface sampling, Operational and Decommissioning Phase	• Low • Low Medium	<u>Control:</u> Implementing proper housekeeping.	• Low • Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Potential impact on fauna within the footprint area • Impact of the natural vegetation of the footprint. • Impact on CBA and ESA area of biodiversity concern • Impact of the natural vegetation of the footprint during decommissioning phase • Uncapped boreholes left by the contractor	This will impact on the biodiversity of the receiving environment.	Operational and Planning and surface sampling, Operational and Decommissioning Phase	• Medium • Low Medium • Low Medium • Low Medium • Low Medium	Control: Implementing good management practices.	• Low • Low • Low • Low • Low
• Planning and surface sampling phase	• Dust nuisance as a result of the planning and surface sampling phase.	Increased dust generation will impact on the air quality of the receiving environment.	Planning and surface sampling, Operational and Decommissioning Phase	• Low	Control: Dust suppression methods and proper housekeeping.	• Low
• Planning and surface sampling phase	• Noise nuisance as a result of surface sampling;.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Planning and surface sampling, Operational and Decommissioning Phase	• Low	Control: Noise suppression methods and proper housekeeping.	• Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Potential hydrocarbon contamination from leaks or spills • Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the prospecting right holder.	Planning and surface sampling, Operational and Decommissioning Phase	• Medium • Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low • Low
• Planning and surface sampling phase	• Deterioration of the access road to the prospecting area.	Collapse of the road infrastructure will affect the landowner.	Operational and Decommissioning Phase	• Low Medium	Control & Remedy: Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to prospecting.	• Low
• Planning and surface sampling phase	• Potential impact on the Safety of the area due to increased human concentration	Trespassing will negatively affect the landowner due to possible loss of fauna.	Planning and surface sampling, Operational and Decommissioning Phase	• Low Medium	Control: Proper site management.	• Low
• Planning and surface sampling phase	• Potential impact on areas/infrastructure of heritage or cultural concern	This could impact on the cultural and heritage legacy of the receiving environment.	Operational /Drilling Phase	• Low - Medium	Control & Stop: Implementing good management practices	• Low
• Closing of drill holes and landscaping upon closure of the prospecting area.	• Erosion after rehabilitation	Erosion will have an impact on aquatic systems in the area as well as borrowing fauna.	Operational and Decommissioning Phase	• Low	Control & Remedy: Proper housekeeping.	• Low

The supporting Impact Assessment conducted by the EAP must be attached as an appendix, marked Appendix F

k) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):

Table 39: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
The screening report identified the following list of specialist assessment for inclusion in the assessment report: • Agricultural Impact Assessment. • Archaeological and Cultural Heritage Impact Assessment. • Palaeontology Impact Assessment. • Terrestrial Biodiversity Impact Assessment. • Aquatic Biodiversity Impact Assessment. • Hydrology Assessment. • Noise Impact Assessment. • Radioactivity Impact Assessment. • Traffic Impact Assessment. • Geotechnical Assessment. • Socio-economic Assessment. • Plant Species Assessment; and • Animal Species Assessment.			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED

- Agricultural Impact Assessment (AIA):

An agricultural impact is a temporary or permanent change to the future agricultural production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential, which is a function of:

1. the length of time for which the change in production potential lasts
2. the total footprint of land whose production potential will be changed.
3. the baseline production potential (particularly cropping potential) of that land

The prospecting activities will be done by drilling prospecting boreholes using circulation drilling which the most cost-effective method for the testing and assessing the deposit with Percussion techniques being offered as an alternative should circumstances so require. Initially 10 such boreholes are proposed. to recover core samples in support of laboratory analysis. Laboratory will proceed concurrently with drilling.
All drilling shall be undertaken to a maximum depth of 500 meters.

- There will not be any excavation, and pitting.
- No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) comprising and area of less than 10 square meters per site with a total of less than 0.1 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED

The temporary loss of small, widely distributed patches of drilling sites, represents very minimal loss of agricultural production potential, both for the affected farmer and in terms of national food security. Due to the fact that all three significance factors are low, the agricultural impact of the proposed prospecting is assessed here as being of low significance.

Although the prospecting will impact land that is currently zoned for agriculture, it will lead to minimal loss of both current production and of future agricultural production potential. The agricultural impact of the proposed development is assessed as being of low significance from an agricultural impact point of view, it is recommended that the proposed prospecting be approved as per the Agricultural Assessment Report attached as Appendix K4. The economic output of the land parcel will be increased as it will provide income-earning opportunities in an area where unemployment, particularly of young people, is virtually non-existent. If the outcome of the prospecting right application is positive it will not only provide long term employment but also make available minerals that are important to the economy. There will also be downstream employment in the form of transport that will be required to deliver the mined product to the processing plant and from there to the market.

The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions, other than recommended mitigation measures in this report.

- Archaeological and Cultural Heritage Impact Assessment (HIA) & Paleontology Impact Assessment (PIA):

As per the screening report, the area has a low heritage impact and medium palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
A desktop heritage survey was undertaken for the proposed prospecting at Kambreek by African Mining Explorations. The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. There are potential heritage sites of medium to high significance within the study area. The study area requires a Phase 1 HIA before prospecting. They type of prospecting to be used and the location of these points need to be given. This is important in that graves could occur. If prospecting occurs on an archaeological site, the client will require a permit from SAHRA. The Heritage Impact Assessment (Appendix K3) states that There have been no previous heritage studies within the study area, thus the type of heritage sites is currently unknown. The desktop study did note that there are several structures from the 1962 aerial photographs and 1971 topographical maps. These built structures would be protected if they still existed, even if as ruins. The heritage surveys from nearby properties noted that the general area varies from low to high significance. Most of the low significance sites are open stone tool scatters or turn of the century copper smelting sites. One KhoeKhoe campsite was noted, and this was of high significance. Graves have also been associated with the open sites. The sites of medium to high significance tend to be found on small hills and in the mountains themselves. The small hills have overhangs and stone walling and represent nuclear family domestic areas. Rock art has been associated with these sites. Large shelters and overhangs occur in the larger hills/mountains. One of these shelters was related to a mass killing of San hunter-gatherers 25km to the south. The historical records referred to in the previous surveys also noted that many of the valleys were used as hideouts in the 19th century, by the San and KhoeKhoe.			

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The study area for the proposed prospecting areas occurs mostly in the valley, but some occur on hills/mountains. There are two significant mountains that appear to have ideal locales for overhangs at various altitudes. Drill 10, 7, 5 and 4 occur on hills or knolls and these could affect potential sites. Drill point 10 specifically, is above a potential rock art site.

The screening tool was incorrect as previous surveys indicate there are a whole range of heritage sites that could be found within the study area. The study area requires a Phase 1 HIA before prospecting. The client will need to provide details of access roads to each point as the access roads themselves may affect sites.

No further PIA management is required.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk through, which should be conducted prior to the commencement of prospecting activities. The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

- Terrestrial Biodiversity Impact Assessment (TBIA) & Plant Species Assessment (PSA) & Animal Species Assessment (ASA):

The completion of a comprehensive desktop study, in conjunction with the results from the field survey, suggest there is medium-high confidence in the information provided. The survey ensured that there was suitable ground-truth coverage of the open-spaces and natural habitats, and ecosystems were

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assessed to obtain a general species (fauna and flora) overview and the major current impacts were observed. Additional valuable data on fauna and flora must be gathered in an appropriate seasonal survey (ideally spring: September or October).

The majority of the Project Area is made up of natural habitats which remain intact and in good condition, with the only notable impact being some isolated 4x4 trails. The majority of the site (except for agricultural areas) is currently managed for conservation. CBA and ESA areas are considered to be intact with little to no current impacts. Flora and fauna SCC were confirmed for the Project Area during the assessment, and additional records are expected due to suitable habitat present on site.

The Project Area was identified with the screening tool as possessing a 'Very High' sensitivity within a Terrestrial Biodiversity context, with the Project Area made up of CBA 1, CBA 2, ESA and NPAES Focus Areas. This is largely supported: the outcome of the SEI assessment suggests that the Rocky Desert features should be assigned a 'Very High' sensitivity. The following aspects support this classification:

- Intact portions of natural habitat that function as CBA 1 and CBA 2 as per the Northern Cape Biodiversity Areas spatial dataset.
- Low resilience of the habitat.
- Connectivity to natural areas within the landscape; and
- Protected flora species present, and fauna and flora SCC occurring with additional species expected.

The ecological integrity, importance and functioning of these areas play a crucial role and an important habitat for various fauna and flora. The preservation of these systems is the most important aspect to consider for the proposed project, even more so due to the sensitivity of the areas. These habitats need to be protected and improved due to the role of this crucial and limited habitat. It is of vital importance that a search a rescue along with permit applications be done prior to the commencement of the development for any red listed and provincially protected species. Moreover, areas of 'Very High' and 'High' SEI should be avoided wherever possible and these drilling locations relocated (Figure 5 1 as per TBIA appendix K2). If that is not possible, it should be noted that any development within CBA areas require an offset as per the National Offset Guidelines.

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Development within confirmed; 'Very High' and 'High' sensitivity areas is not considered favourably by the regulating authorities, and implementation of the mitigation hierarchy must be demonstrated.

With this said, the drilling sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. Should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

- Aquatic Biodiversity Impact Assessment (ABIA) & Hydrology Assessment (HA):

As per the Aquatic Biodiversity Specialist Assessment the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by Ziziphus mucronate, Euclea psuedebenus and Tamariz ueneoides). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED

It was concluded that the impact assessment conducted as part of the report indicates that the proposed prospecting activities could lead to low impacts on the Orange River. During the prospecting phase of a mine, specifically drilling for metal ore, the impact on the Orange River is generally expected to be low. This is due to the fact that drilling activities are conducted at specific target locations that are determined through geological surveys and assessments. These target locations are away from major water bodies like the Orange River, reducing the direct impact on the river itself. It is of the most outmost importance that it is noted that none of the drilling positions are within 500 m of the Orange River.

However, it is essential to implement recommended mitigation measures to address potential risks. It is recommended that a GA be applied for. This will ensure proper management and regulation of water usage, mitigating potential adverse impacts on water resources.

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the applicable waters uses.

- Wetland delineation and functional assessment

  As per the Wetland delineation and functional assessment (Appendix K5) wetland assessment was undertaken to identify the location and extent of wetlands within the regulated 500m buffer of the study site; determine the functionality and health status of the “at risk’ wetlands and identify the impacts of the proposed activity on the surrounding wetlands. A comprehensive field survey was conducted to further assist in delineating the wetland boundaries and other sensitive areas which could be impacted from the Kambreek prospecting right application (associated proposed boreholes). An individual wetland was identified within along the north-eastern edge of the prospecting right footprint. HGM1 is situated >900m away from the proposed borehole sites and

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therefore, this system was deemed not at risk to the proposed activities, due to the nature of the project, and position of the wetland in relation to the study area. In conclusion, it is the opinion of the specialist that the Kambreek prospecting right application project will not require authorisation.

- Noise Impact Assessment (NIA):

  The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the vehicles already operational at the property. Due to the small scale of the operation a NIA is not deemed applicable.

- Radioactivity Impact Assessment

  A Radioactivity Impact assessment is not deemed necessary for the proposed prospecting operation that will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature.

- Traffic Impact Assessment (TIA):

  The Applicant will use the existing road to access the prospecting area. No upgrading of the road is needed prior to commencement. In light of the small scale of the proposed operation a TIA is not deemed necessary, should the Applicant implement the mitigation measures to be proposed in the EMPR.

- Geotechnical Assessment:

  No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established at the proposed prospecting area.

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• Socio-economic Assessment (SEA): The application is for a prospecting right as the aim of the exploration activity is to verify the geology, historical data and any and all site data for the project, as well as to produce a most up-to-date current surface geological and geotechnical map of the mineralised zone. Results of this will determine of future mining activities will be feasible. In light of this a SEA is not deemed applicable to this project.			

I) Environmental impact statement

i) Summary of the key findings of the environmental impact assessment.

The key findings of the environmental impact assessment entail the following:

Project Description

The proposed prospecting footprint applied for is 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 for Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore in the Namaqualand Magisterial District in the Northern Cape Province.

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done.

Non-Invasive Activities will consist of the following:

Database compilation

Upon granting of the Prospecting Right, the initial activity will be to source additional public domain data from agencies such as the Council for Geoscience and Department of Mineral Resources and Energy. In particular, historical exploration work such as sample data, geophysics, and diamond drill information is particularly relevant to inform the ongoing exploration programme.

Preliminary project logistical activities

Prior to engaging in exploration of any new area it is necessary to contact and obtain the permission of the surface rights holders to engage in exploration activities on their land. Initially, the site exploration works will be the low-key activities mentioned below; therefore, accommodation will be at a suitable local commercial facility. Should the project progress, certain, logistical activities such as identification of a suitable site office/accommodation will require completion prior to commencing Phase 3 activities.

Remote sensing/Field mapping/Geochemical survey/Geophysical survey

These activities will be conducted to outline potential deposits of the metals being applied for. Remotely sensed data such as ASTER and Sentinel multispectral data will be processed using GIS software to locate features diagnostic to these deposits. As

for field mapping, it will be conducted by walking over the prospecting licence area and take field observations and samples of the rocks that outcrop; Geochemical survey will be conducted preferably through hand-held XRF techniques.

With regards to Geophysics, public and private domain geophysical data that exists over the project area will be procured and utilised to facilitate and inform the ongoing exploration. At any stage of the project, it may be decided that additional, more detailed geophysical surveys may be required for various technical reasons. These surveys may comprise magnetic and electromagnetic surveys although other techniques may also be considered. The decision to utilise additional geophysical methods will be taken by the Competent Person, in consultation with the companies consulting geophysicists, at the appropriate stage of the project. All of the above work will be continually compiled and interpreted within the GIS environment. This will enable the focus of ongoing activities on the areas of potential.

Invasive Activities will consist of the following:

Drilling/Trenching

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The number of drill holes to be dug and their depths to the top will depend on the results of Phase 1 and initial part of Phase 2.

At this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code. Should there be a need to conduct an extra exploration work, which is not indicated herein, in order to clearly define Mineral Resource Category, Department of Mineral Resources and Energy will be provided with an addendum in respect to the Prospecting Work Programme.

Topography:

The topography of the study area consists of sloping plains, sharply contrasting with the surrounding rocky hills and mountains. The altitude varies between 250–900 m.

Visual Characteristics:

The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

Air and Noise Quality:

The proposed activity will contribute the emissions of a drilling rig and a field vehicle to the receiving environment for the duration of the operational phase. Should the prospecting holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property.

Geology and Soil:

The proposed prospecting area consists of Cenozoic Kalahari Group sands and small patches also on calcrete outcrops and screes on scarps of intermittent rivers (mekgacha). In places Dwyka Group tillites outcrop. The soils are deep (>300 mm), red-yellow, apedal, freely drained, with a high base status, typical of Ae land type. The area also consists of Aeolian sand underlain by superficial silcretes and calcretes of the Cenozoic Kalahari Group. Fixed parallel sand dunes, with Af land type almost exclusively.

Hydrology:

The site falls within quaternary catchment D82A which forms part of the Orange Water Management Area (WMA). The collecting Rivers occur within the catchment namely the Orange River. The proposed application area will fall parallel to the Orange River.

As per the Aquatic Biodiversity Specialist Assessment the site is located within sub-quaternary reach SQR D82A-03607 (Fontein se) flowing into D82A-03675 (Orange River). The SQR is considered to be in a Largely Natural state (Class B), whilst the ecological importance (EI) and ecological sensitivity (ES) are rated as High and High (DWS, 2021).

The site falls within an area in close proximity to the Orange River and it is Least Threatened, the project is unlikely to impact the river. However, mitigation measures should therefore be adhered to.

The Orange River has been identified as an Endangered National catchment. This is due to the Lower Gariep Alluvial Vegetation which is Endangered due to it supporting a complex riparian thicket (dominated by *Ziziphus mucronate*, *Euclea psuedebenus* and *Tamariz ueneoides*). The Endangered vegetation would be affected by prospecting. Therefore, mitigation measures should be adhered to minimise the impact.

It was concluded that the impact assessment conducted as part of the report indicates that the proposed prospecting activities could lead to low impacts on the Orange River. During the prospecting phase of a mine, specifically drilling for metal ore, the impact on the Orange River is generally expected to be low. This is due to the fact that drilling activities are conducted at specific target locations that are determined through geological surveys and assessments. These target locations are away from major water bodies like the Orange River, reducing the direct impact on the river itself. It is of the most outmost importance that it is noted that none of the drilling positions are within 500 m of the Orange River.

However, it is essential to implement recommended mitigation measures to address potential risks. It is recommended that a GA be applied for. This will ensure proper management and regulation of water usage, mitigating potential adverse impacts on water resources.

Mining, Biodiversity and Groundcover:

The prospecting activities does not require the removal of any large trees or vegetation of significance. According to the CBA dataset, the proposed prospecting areas intercept with a Critical Biodiversity Areas 1 and 2 along with an Ecological Support Area in the southern portion of the proposed site.

The management objectives of Critical Biodiversity Areas (CBAs) 1 and 2 aim to reduce biodiversity loss and protect important ecosystems outside of protected areas.

The management objectives of an Ecological Support Area (ESA) involve maintaining the ecological functioning of a Conservation Biodiversity Area (CBA) or protected area, generating or delivering key ecosystem services, and meeting biodiversity targets for

ecosystem types or species when it is not feasible to achieve them in natural or near natural areas .Although the proposed prosecting area does indeed fall in sections within an Ecological Support Area, however it can be considered that due to the small footprint of a borehole, the drill position can be manipulated to drill between the small geophytesIn light of this, the impact of the prospecting operation on the vegetation cover of the receiving environment is deemed to be of low significance. According to the Terrestrial Impact Assessment (Appendix K2), the area according to the Red List of Ecosystems dataset (Skowno & Monyeki, 2021) overlaps with a Least Concern (LC) ecosystem. As for the indicator of the extent to which ecosystems are adequately protected or under-protected the proposed area overlaps with a Poorly Protected (PP) and Not Protected (NP) ecosystem. The Northern Cape Department of Environment and Nature Conservation has developed the Northern Cape CBA Map which identifies biodiversity priority areas for the province for which the area overlaps with a Critical Biodiversity Area 1, a Critical Biodiversity Area 2, and an Ecological Support Area. According to the latest National Protetced Areas Expansion Strategy (NPAES) dataset, the application area is located within a Priority Focus Area and is included in expansion plans for the Augrabies National Park. The application area and its 500 m Regulated Area overlap with LC rivers and a CR wetland. The application area and its 500 m Regulated Area overlap with a Freshwater Ecosystem Priority Areas (FEPA) river and a FEPA wetland. Considering the location of the proposed development in a CBA area as well as the area currently being managed for conservation as well as being part of the planned expansion for the Augrabies National Park, the proposed development is considered possible only is all mitigation measures provided in this and other specialist reports are implemented, no fatal flaws could be identified that prevents the activity continuing.

Fauna:

Various mammals and reptiles are likely to occur on the property. The fauna at the site will not be impacted by the proposed prospecting activity as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. The project is expected to have a negligible impact in this regard as prospecting activities will be done by drilling prospecting boreholes in phases over the duration of the prospecting period. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners. The study area falls over properties that is noted to be

operational farms, should this prospecting right be granted farm owners will be consulted prior to commencement of any activities to ensure that safety of animals and workers.

Cultural, Heritage and Palaeontological Environment:

As per the screening report, the area has a low heritage impact but has a very high palaeontology sensitivity and according to the SAHRA Paleontological sensitivity map the study area is of moderate sensitivity and a desktop study is required for this aspect. The Heritage Impact Assessment (Appendix K3) states that due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. Several large-scale heritage surveys were conducted for renewable energy and mining projects in the area and the archaeological character of the area is now well described. This provides the opportunity to establish potential heritage resources that could be affected in the area. It is clear from the studies conducted that the general area has a wealth of heritage sites and a cultural layering dating back to the Stone Age with scatters and sites dating to the ESA, MSA and LSA. Sites and artefacts dating to these periods are scattered over the landscape with MSA and LSA sites centred on rocky outcrops, pans and watercourses and similar sites are expected to occur in the project area.

No intrusive activities will occur at this point of the application and the potential impact on heritage resources is expected to be very low.

However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly.

i) Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structure and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as Appendix A.

See the map indicating prospecting site activities attached as Appendix C.

ii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

PROJECT ASSOCIATED POSITIVE IMPACTS:

- Work opportunities to local residents should prospecting be successful contributing to the socio-economic status of the area;
- Easy movement of equipment as processing progress;
- Complete removal of equipment at closure of the prospecting area;
- Return of the prospecting area to landscape feature upon closure ; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:

PLANNING AND SURFACE SAMPLING PHASE

- Visual intrusion as a result of planning and surface sampling phase;
- Potential hydrocarbon contamination from leaks or spills ;
- Potential impact on fauna within the footprint area;
- Dust nuisance as a result of the surface sampling;
- Noise nuisance as a result of surface sampling;
- Potential impact on the Safety of the area due to increased human concentration;
- Impact of the natural vegetation of the footprint;
- Deterioration of the access road to the prospecting area;
- Impact on CBA and ESA area of biodiversity concern; and
- Potential impact on areas/infrastructure of heritage or cultural concern.

CLOSING OF DRILL HOLES AND LANDSCAPING UPON CLOSURE OF THE PROSPECTING AREA.

- Uncapped boreholes left by the contractor;
- Erosion after rehabilitation;
- Impact of the natural vegetation of the footprint during decommissioning phase; and
- Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;

The negative impacts associated with the project that was deemed to have a Low-Medium or higher significance includes:

No negative impacts, after mitigations measures, were identified to have a Low-Medium or higher significance.

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

Table 40: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
VISUAL CHARACTERISTICS Mitigating the visual impact.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Contain prospecting to the boundaries of the authorised area. • Ensure that the site have a neat appearance and is kept in good condition at all times. • Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. • Rehabilitate and landscape every borehole site to address any residual impact.	• Minimise the impact of the proposed project on the visual characteristics of the receiving environment during the operational phase, and ensure no residual impact remains after closure.
AIR QUALITY Dust management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Limit speed on the access roads to 40 km/h to prevent the generation of excess dust. • Minimise areas devoid of vegetation. • Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012).	• Dust prevention measures are applied to minimise the generation of dust.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Implement best practice measures during the operation to minimize potential dust impacts.	
NOISE AMBIANCE Noise mitigation.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the prospecting area. • Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. • Implement best practice measures to minimise potential noise impacts. • Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013	• Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.
GEOLOGY AND SOIL Topsoil Management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	**<u>Topsoil Management:</u>** As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil: • Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. • Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. • Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site.	• Wastes are appropriately handled and safely disposed of at a recognised waste facility.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.	
HYDROLOGY Storm water management.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Conduct activity in terms of the Best Practice Guidelines for prospecting as developed by DWS. • No drilling should be undertaken at times when rain has fallen, and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise disturbance of the important bird populations around the pans. • The access to the site must be planned together with the relevant landowner and be approved by the landowner. • The landowner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive areas. Such areas could include known home ranges of species of especial biodiversity conservation concern. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. An extent of 20 m x 25 m is suggested but may be	• Impact to the environment caused by storm water discharge is avoided.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		changed after discussion between the drilling contractor and the landowner. Once decided, the boundary of the site must be demarcated with a temporary fence which may consist of poles and hazard tape, plastic mesh, or shadecloth. • If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated. • Since the drill operators may live on the site while working there, provision must be made for ablution and toilet facilities. Grey water may be disposed of onsite but chemical toilets must be provided and be properly serviced. Pit latrines may not be used. • Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the landowner.	
GROUNDCOVER Mitigating invader plants.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Implement an invasive plant species management plan (Appendix J) to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. • Keep all topsoil (if applicable) free of invasive plant species. • Control declared invader or exotic species on the rehabilitated areas. • Construction activities, movement of personnel and vehicles must be restricted to the informal pathways, areas already transformed, and the development footprint. • Waste management mitigation measures must be strictly adhered to.	• Prospecting area is kept free of invasive plant species.
FAUNA Mitigating the fauna component.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure no fauna is caught, killed, harmed, sold, or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young.	• Disturbance to fauna is minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.	
CULTURE/HERITAGE Mitigating cultural/heritage aspects.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Confine all prospecting to the approved footprint area. • Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • • Implement the following chance find procedure when discoveries are made on site: ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. ▪ Work may only continue once the go-ahead was issued by SAHRA.	• Impact to cultural/heritage resources is avoided or at least minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
EXISTING INFRASTRUCTURE Control of access road.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Divert storm water around the access road to prevent erosion. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • Repair rutting and erosion of the access road caused as a direct result of the prospecting activities.	• The access road remains accessible to the road users during the operational phase, and upon closure the road is returned in a better, or at least the same state as received by the prospecting right holder.
GENERAL Waste management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. • Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. • Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100-year flood line of any open water source. Ensure the toilet is serviced at least once every two weeks for the duration of the prospecting activities.	• Wastes are appropriately stored, handled, and safely disposed of at a recognised waste facility.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM:WA. • Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the prospecting area to a recognised general waste landfill site. • Prevent the burning or burying of waste on site. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities to the Department of Water and Sanitation and other relevant authorities. • Park the drill machinery at the prospecting area with drip trays placed underneath stationary vehicles.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
GENERAL Health and safety aspects.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure adequate ablution facilities and water for human consumption is daily available on site. • Ensure that workers have access to the correct PPE as required by law. • No trespassing on private property outside the approved area will be allowed. • Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	• Employees work in a healthy and safe environment.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* above should be considered for inclusion in the environmental authorisation.

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

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from site inspections, desktop studies as well as the specialist study. No uncertainty regarding the proposed project or the receiving environment could be identified.

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

i) Reasons why the activity should be authorised or not.

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

ii) Conditions that must be included in the authorisation.

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* should be considered for inclusion in the environmental authorisation.

q) Period for which the Environmental Authorisation is required.

The Applicant requests the Environmental Authorisation to be valid for a five-year period to correspond with the validity of the prospecting right.

r) Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The undertaking required to meet the requirements of this section is provided at the end of the EMPR and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.

s) Financial Provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

i) Explain how the aforesaid amount was derived.

The prospecting activities will include surface sampling, drilling over 1 546.52 ha area. The calculation of the quantum for financial provision was according to Section B of the working manual. The calculation was based on prospecting activity phases areas consisting of a total of 10 drilling prospecting boreholes comprising an area of approximately 10 square meters per site with a total of no more than 0.1 ha disturbed at any given time. Prior to moving to the next drill block these sites will have to be fully rehabilitated as per the mitigation measures set out in this document as well as in consultation with the landowner / landowners., thereby keeping the impact on the receiving environment as low as possible. If the applicant would not comply with the progressive rehabilitation procedure. In light of the above, the amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and to manage and rehabilitate the environment at final, planned closure gives a sum total of R 80 269,09.

ii) Confirm that this amount can be provided from operating expenditure.

(Confirm that the amount is anticipated to be an operating cost and is provided for as such in the Mining Work Programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

African Exploration Mining and Finance Corporation SOC Ltd will be responsible for the financial and technical aspects of the proposed prospecting project. The operating expenditure is provided for as such in the Prospecting Work Programme as presented in the PWP.

t) Specific Information required by the competent Authority.

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

(1) Impact on the socio-economic conditions of any directly affected person.

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

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

- **Visual intrusion associated with the proposed prospecting activities:**

  The viewshed analysis showed that the visual impact of the proposed prospecting operation will be of low significance. The small scale of the proposed operation contributes to the low visual significance. Should the Applicant successfully rehabilitate the prospecting areas (upon closure), no residual visual impact is expected upon closure of the prospecting activities.

- **Dust nuisance caused as a result of the proposed prospecting activities:**

  The proposed activity will contribute the emissions of a drilling rig during the operational phase. Should the prospecting right holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

- **Noise nuisance as a result of prospecting activities:**

  The prospecting activity will contribute the emissions of one drill rig and two site vehicles at a time for the duration of the invasive operational phase. Dust generated as result of the prospecting will also stem from the movement of these vehicles. Should the PR Holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

- **Employment opportunities and socio-economic impact:**

  The operation will provide employment opportunities to local employees. The operation will contribute to the local economy in the area, both directly and through the multiplier effect that its continued presence will create.

  Equipment and supplies will be purchased locally, and wages are spent at local businesses, generating both jobs and income in the area. Although the employees are not resident on the site, they will be from the surrounding community.

- **Prospecting affecting surface water or aggravating the scarcity of water:**

  The prospecting activity requires ±1 000 l of water/day that is bought in a controlled manner from the landowners.

- **Access control and management of existing infrastructure:**

  Site management will at all times be responsible for the movement of their employees. No prospecting personnel will be allowed to wander outside the approved footprint. The contractor will sign an agreement to this affect upon appointment and will be held responsible for damages to fences or gates left ajar by prospecting personnel.

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

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12 herein).

Due to the geographical size of the exploration application and the fact that no intrusive activities will occur at this point of the application, it was deemed not feasible to conduct fieldwork at this point. However, once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, which should be conducted prior to the commencement of prospecting activities. A paleontological desktop study should be conducted once the impact areas are confirmed The Applicant will implement a chance-find protocol on site for the duration of the site establishment, operational- and decommissioning phase. Should sensitive areas be identified the boreholes will move accordingly. Please refer to Appendix K3 – Heritage Impact Assessment.

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

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

Identified Alternatives:

- **The property on which, or location where, it is proposed to undertake the activity - Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1 was identified as the preferred and only viable site alternative based on the following: The Prospecting area with a footprint of approximately 1 546.52 ha on portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 within the Namaqualand Magisterial District in the Northern Cape Province (hereafter referred to as the application property).

- As mentioned in the prospecting work programme at this stage of the project, it is impossible to define the exact locations of drill sites or number of drillholes to be dug. However, the detailed drilling spacing will be planned to allow the defining of an Inferred Mineral Resources as per the SAMREC code. Should there be a need to conduct an extra exploration work, which is not indicated herein, in order to clearly define Mineral Resource Category, Department of Mineral Resources and Energy will be provided with an addendum in respect to the Prospecting Work Programme.

Availability of the mineral resource will only be determined should prospecting the prospecting right be granted and drilling can take place.

- **Type of activity to be undertaken**

The proposed activity will make use of non-invasive as well as invasive prospecting activities that will include borehole drilling to retrieve geological core samples. No bulk sampling will be done. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

- **Design and layout of the activity.**

Layout Alternative: Site 1

Final Layout Alternative (FLA) (Preferred Layout): During the EIA phase, the potential impact of the proposed activities on the receiving environmental were assessed by, amongst others, the wetland, ecologist specialists. The specialists considered the initial layout based on the drilling plan and accordingly submitted their respective recommendations. Following receipt of the specialist reports, the initial layout of the project was refined to accommodate their findings. Prospecting sites will be moved to various area depending on sensitivity and accessibility.

Therefore, no additional design/layout alternatives were deemed viable for this project.

- **Technology to be used in the activity.**

Drilling/Trenching will be carried out to provide sample material from intersections of the targeted strata or geological features. A small excavator or tractor-loader-backhoe will be used for trenching. On the other hand, the preferred method to employ for drilling is Reverse Circulation (RC) and/or

diamond drill techniques. The objective of drilling/trenching programme is to assess the presence of potentially economic mineralisation. The process does not require highly specialised technology and no secondary processing will be required. Therefore, no technology alternatives were deemed viable for this project.

No-go Alternative:

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to prospect for any possible mineral resource;
- The application, if approved, would allow the applicant to determine the available mineral as well as provide employment opportunities to local employees. Should the no-go alternative be followed, these opportunities will be lost to the applicant, potential employees, and clients; and
- The applicant will not be able to diversify the income of the property.

Not proceeding with the proposed operation will entail that a mineral which if found will contribute towards the local and provincial social and economic structures of the area, will not be mined, and that this opportunity will be lost.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) Details of the EAP,

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

The details and expertise of Sonette Smit of Greenmined Environmental that acts as EAP on this project has been included in Part A Section 1(a) as well as Appendix I as required.

b) Description of the Aspects of the Activity

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

The aspects of the activity that are covered by the draft environmental management programme has been described and included in Part A, section (1)(h).

c) Composite Map

(Provide a map (Attached as an Appendix) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

As mentioned under Part A, section (1)(l)(ii) this map has been compiled and is attached as Appendix C to this document.

d) Description of impact management objectives including management statements

i) Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

The end objective is for the prospecting area to return to agricultural use. No buildings/infrastructure, other than the chemical toilet and drill rig, need to be removed and the access roads/tracks will remain intact to be used by the landowners.

The decommissioning activities will consist of the following:

- Removal of all prospecting machinery from the prospecting area;
- Removal of the chemical toilet from the prospecting area;
- Landscaping and replacing the topsoil (if removed); and
- Controlling the invasive plant species.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

- Rehabilitation of the Prospecting Area:

  Upon closure of the prospecting activities the Applicant will remove the drilling machinery from the area. The entrance into the river will remain, but should any signs of erosion occur, these will be reinstated and landscaped by the prospecting right holder.

- Final Rehabilitation:

  Final rehabilitation of the surface area shall entail landscaping, levelling, maintenance, and clearing of invasive plant species. All equipment, plant and other items used during the prospecting period will be removed from site (section 44 of the MPRDA, 2002). Waste material of any description will be removed entirely from the prospecting area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site. The management of invasive plant species will be done in a sporadic manner during the life of the prospecting activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site. Final rehabilitation shall be completed within a period specified by the Regional Manager.

ii) Volume and rate of water use required for the operation.

The drilling operation requires ±1 000 l of water per day. Potable water will be brought to site daily by the employees. No extensive trenching will be done, only for the water reticulation and sump during drilling (no more than 1m X 1m area per drilling site) water will be brought to site from a commercial source and not from the farm property(ies).

iii) Has a water use licence has been applied for?

The applicant is in the process of applying for a water uses authorisation to the Department of Water and Sanitation, in terms of the National Water Act, 1998 (Act No 36 of 1998) which will be submitted for the applicable waters uses. An Aquatic Biodiversity Impact Assessment (Appendix K1) and Wetland Delineation

and functional Assessment with Risk Matrix Assessment is included (Appendix K5).

iv) Impacts to be mitigated in their respective phases.

Table 41: Impact to be mitigated in their respective phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	(volumes, tonnages, and hectares or m^2)	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Demarcation of site with visible beacons.	Planning and surface sampling phase / Site establishment & Operational Phase	0.01 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the prospecting area, and that work stay within the approved area.	Prospecting of coal is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998	Beacons need to be in place throughout the life of the activity.
• Planning and surface sampling phase.	Planning and surface sampling phase / Site establishment & Operational Phase	0.01 ha	**Visual Mitigation** • Prospecting must be contained to the boundaries of the authorised area. • Every borehole site must have a neat appearance and be kept in good condition at all times.	Management closure of prospecting area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998	Throughout the Planning and surface sampling phase / Site establishment phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Upon closure every borehole site must be rehabilitated and landscaped to address any residual impact. • The site must have a neat appearance and be kept in good condition at all times.		
• Planning and surface sampling phase	Planning and surface sampling phase / Site establishment	0.01 ha	**Impact on Vegetation:** • The prospecting boundaries must be clearly demarcated, and all operations must be contained to the approved prospecting area. • The area outside the prospecting boundaries must be declared a no-go area, and all employees must be educated accordingly. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. • The invasive plant species management plan attached as Appendix J must be implement on site to control weeds and invasive plants on denuded areas, topsoil heaps and reinstated areas.	Natural vegetated areas must be managed in accordance with the: • NEM:BA 2004 • Northern Cape Biodiversity Plan	Throughout the Planning and surface sampling phase / Site establishment phase.
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	Planning and surface sampling phase / Site establishment	0.01 ha	**Topsoil Management:** As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil:	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008	Throughout the Planning and surface sampling phase / Site establishment -, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. • Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. • Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.		
• Planning and surface sampling phase. • Closing of drill holes and landscaping upon closure of	Planning and surface sampling phase -, Operational- and Decommissioning phase	0.01 ha	**<u>Management of Invader Plant Species:</u>** • An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix J)	Throughout the planning and surface sampling phase -, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION

the prospecting area			ongoing basis throughout the life of the prospecting activities.
			• All topsoil (if applicable) must be kept free of invasive plant species.
			• Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
			  • The plants can be uprooted, felled, or cut off and can be destroyed completely.
			  • The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.		

• Planning and surface sampling phase	Planning and surface sampling phase / Site establishment - and Operational phase	0.01 ha	**<u>Protection of Fauna:</u>** • The site manager must ensure no fauna is caught, killed, harmed, sold, or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set, or nests raided for eggs or young. • Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife.	Fauna must be managed in accordance with the: • NEM:BA 2004	Throughout the Planning and surface sampling phase / site establishment -, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			Speed limits must still be enforced to ensure that road killings and erosion is limited.		
• Planning and surface sampling phase	Planning and surface sampling phase / Site establishment - and Operational phase	0.01ha	**<u>Protection of biodiversity and ecosystems</u>** • Habitat types delineated within field assessment area indicated as very high with avoidance mitigation should be avoided and no destructive development activities should be considered. • Habitat types delineated within field assessment area indicated as high with avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities. • Prevent the further loss and fragmentation of vegetation communities, the CBA 1, CBA 2, ESA, and NPAES Focus Areas within and in the vicinity of the PAOI; • Reduce soil erosion; • Reduce the negative fragmentation effects of the development; and • Prevent the direct and indirect loss and disturbance of flora species and communities (including any potentially protected or Species of Conservation Concern). • All activities must make use of existing roads and tracks as far as practically and feasibly	Biodiversity and ecosystems must be managed in accordance with the: NEM:BA 2004	Throughout the Planning and surface sampling phase / site establishment -, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			possible. No new roads are to be constructed under any circumstance. Parking of vehicles may only occur in already modified areas. • A protected tree and a protected plant survey must be conducted by a suitably qualified ecologist and an estimate made of the number of protected trees which were lost during vegetation clearing. The replacement of the trees must be discussed with the department. • A habitat rehabilitation plan must be compiled and implemented for all developed areas. • Areas that have been disturbed but will not undergo development must be revegetated with indigenous vegetation. • A fire management plan needs to be compiled and implemented to restrict the impact fire would have on the surrounding areas. • Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.		
• Planning and surface sampling phase.	Site Establishment-, Operational Phase	0.01 ha	**Fugitive Dust Emission Mitigation:** • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)	Throughout the planning and surface sampling phase -, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			to confirm its effectiveness in addressing dust suppression. • Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to prospecting. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).		
• Planning and surface sampling phase	Site Establishment-, Operational-, and Decommissioning Phase	0.01 ha	**Noise Handling:** • The prospecting right holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the prospecting area. • All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts. • Noise generated on-site from all the proposed activities must comply with the Northern Cape	Noise generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • NRTA, 1996	Throughout the Planning and surface sampling phase / site establishment -, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			Noise Control Regulations Provincial Notice 200/2013.		
• Planning and surface sampling phase. • Closing of drill holes and landscaping upon closure of the prospecting area.	Site Establishment-, Operational-, and Decommissioning Phase	0.01 ha	**Waste Management:** • Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. • Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. • Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. • Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. • On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100-year floodline of	Prospecting related waste must be managed in accordance with the: • NWA, 1998 • NEM: WA, 2008 • NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)	Throughout the Planning and surface sampling phase / site establishment -, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			any open water source and must be serviced at least once every two weeks for the duration of the prospecting activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM: WA.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site. • No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the prospecting area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities. • To lower the risk of accidental hydrocarbon spillages all machinery must be parked at the prospecting area with drip trays placed underneath stationary vehicles. • Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up, and remediation must commence immediately in the case of NEMA section 30 incidents, and the necessary documentation must be completed and submitted within the prescribed timeframes.		
• Planning and surface sampling phase	Operational Phase	0.01 ha	**<u>Archaeological, Heritage and Palaeontological Aspects:</u>** • All prospecting must be confined to the development footprint area. • A Phase 1 HIA needs to be conducted before prospecting.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • Personnel involved in the shallow pit sampling must be instructed to be alert for the occurrence of fossil bones. Fossil bones may also be noticed weathering out in the sides of old prospecting excavations or exposed in the adjacent spoil heaps of excavated material. In the event of such discoveries the Fossil Finds Procedure. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify SAHRA. • Work may only continue once the go-ahead was issued by SAHRA.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• It is recommended that fossil material extracted from the boreholes, or later separated during sample analysis, be kept and bagged for identification by a palaeontologist. For preliminary analysis, quality images of the fossil material should be forwarded by email for examination by a specialist, in order to identify specimens of importance for stratigraphic diagnosis, and specimens requiring further examination and diagnosis.		
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	Planning and surface sampling phase / Site establishment -, Operational-, and Decommissioning phase	0.01ha	**Management of Health and Safety Risks:** • Adequate ablution facilities and water for human consumption must daily be available on site. • Workers must have access to the correct personal protection equipment (PPE) as required by law. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001	Throughout the Planning and surface sampling phase / site establishment -, operational and decommissioning phase.

e) Impact Management Outcomes

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

Table 42: Impact Management Outcomes

ACTIVITY whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) E.g. • Modify through alternative method. • Control through noise control. • Control through management and monitoring. Remedy through rehabilitation.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area.	N/A	Planning and surface sampling phase phase	Control through management and monitoring.	Prospecting of coal is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Visual intrusion as a result of planning and surface sampling phase • Uncapped boreholes left by the contractor	The visual impact may affect the aesthetics of the landscape.	Planning and surface sampling phase & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	Management closure of prospecting area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Potential impact on fauna within the footprint area • Impact of the natural vegetation of the footprint. • Impact on CBA and ESA area of biodiversity concern • Impact of the natural vegetation of the footprint during decommissioning phase • Uncapped boreholes left by the contractor	This will impact on the biodiversity of the receiving environment.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	Control: Implementing soil- and storm water management.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix J)
• Planning and surface sampling phase	• Dust nuisance as a result of the planning and surface sampling phase.	Increased dust generation will impact on the air quality of the receiving environment.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	Control: Dust suppression methods and proper housekeeping.	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
• Planning and surface sampling phase	• Noise nuisance as a result of surface sampling.	Should noise levels become excessive it may have an impact on the noise ambiance of the	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	Control: Noise suppression methods and proper housekeeping.	Noise generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		receiving environment.			
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Potential hydrocarbon contamination from leaks or spills • Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the prospecting right holder.	Planning and surface sampling phase & Operational Phase - and Decommissioning phase	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Prospecting related waste must be managed in accordance with the: • NWA, 1998 • NEM: WA, 2008 • NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)
• Prospecting activities / drilling.	• Potential impact on area/infrastructure of heritage or cultural concern.	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	Control & Stop: Implementing good management practices, as well as the chance-find protocol.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999
• Prospecting activities / drilling.	• Deterioration of the access road to the prospecting area.	Collapse of the road infrastructure will affect the landowner.	Operational Phase	Control & Remedy: Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to prospecting.	The access road must be managed in accordance with the: • NRTA, 1996

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes in paragraph (c) and (d) will be achieved)

Table 43: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.) E.g. • Modify through alternative method. • Control through noise control. • Control through management and monitoring. Remedy through rehabilitation.	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
▪ Demarcation of site with visible beacons.	▪ No impact could be identified other than the beacons being outside the boundaries of the approved prospecting area.	Demarcation of the site will ensure that all employees are aware of the boundaries of the prospecting area, and that work stay within the approved area.	Beacons need to be in place throughout the life of the activity.	Prospecting of the mineral resource is only allowed within the boundaries of the approved area. ▪ MPRDA, 2008 ▪ NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Visual intrusion as a result of planning and surface sampling phase • Uncapped boreholes left by the contractor	• Prospecting must be contained to the boundaries of the authorised area. • The site must have a neat appearance and be kept in good condition at all times. • The prospecting right holder must limit vegetation removal (if applicable) and stripping of topsoil may only be done immediately prior to the use of a specific area. • Upon closure the stockpile area must be rehabilitated and levelled to remove the visual impact on the aesthetic value of the area.	Throughout the site establishment-, operational, and decommissioning phase.	Management closure of prospecting area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998
• Closing of drill holes and landscaping upon closure of the prospecting area.	• Erosion after rehabilitation	As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil: • Carefully manage and conserve the topsoil throughout the prospecting and rehabilitation process. • Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. • Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion.	Throughout the operational and decommissioning phase.	Topsoil & erosion must be managed in accordance with the: • MPRDA, 2008 • NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.		
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Impact of the natural vegetation of the footprint. • Impact on CBA and ESA area of biodiversity concern • Impact of the natural vegetation of the footprint during decommissioning phase • Uncapped boreholes left by the contractor	• The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set, or nests raided for eggs or young. • Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited. • The prospecting boundaries must be clearly demarcated, and all operations must be contained to the approved prospecting area.	Throughout the operational, and decommissioning phase.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Northern Cape Biodiversity Plan • Invasive Plant Species Management Plan (Appendix J)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• The area outside the prospecting boundaries must be declared a no-go area, and all employees must be educated accordingly. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. Once decided, the boundary of the site must be demarcated with a temporary fence. • An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities. • All stockpiles (topsoil) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: • The plants can be uprooted, felled or cut off and can be destroyed completely. • The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Planning and surface sampling phase	• Potential impact on fauna within the footprint area	• The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set, or nests raided for eggs or young. • Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. • Search and Rescue operation should occur before the construction works begin to ensure that any slow moving or burrowing species (such as moles, chameleons, snakes or tortoises) would be moved to adjacent suitable habitats by a qualified Faunal Specialist. Should any protected species need to be translocated, a permit must be obtained from the relevant authority. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.	Throughout the site establishment-, operational-, and decommissioning phase.	Fauna must be managed in accordance with the: • NEM:BA 2004
• Planning and surface sampling phase • Closing of drill holes and landscaping upon closure of the prospecting area	• Impact of the natural vegetation of the footprint. • Impact on CBA and ESA area of biodiversity concern	**<u>Protection of biodiversity and ecosystems</u>** • Habitat types delineated within field assessment area indicated as very high with avoidance mitigation should be avoided and no destructive development activities should be considered.	Throughout the site establishment-, operational-, and decommissioning phase.	Biodiversity and ecosystems must be managed in accordance with the: NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Habitat types delineated within field assessment area indicated as high with avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities. • Prevent the further loss and fragmentation of vegetation communities, the CBA 1, CBA 2, ESA, and NPAES Focus Areas within and in the vicinity of the PAOI. • Reduce soil erosion; • Reduce the negative fragmentation effects of the development; and • Prevent the direct and indirect loss and disturbance of flora species and communities (including any potentially protected or Species of Conservation Concern). • All activities must make use of existing roads and tracks as far as practically and feasibly possible. No new roads are to be constructed under any circumstance. Parking of vehicles may only occur in already modified areas. • A protected tree and a protected plant survey must be conducted by a suitably		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		qualified ecologist and an estimate made of the number of protected trees which were lost during vegetation clearing. The replacement of the trees must be discussed with the department. • A habitat rehabilitation plan must be compiled and implemented for all developed areas. • Areas that have been disturbed but will not undergo development must be revegetated with indigenous vegetation. • A fire management plan needs to be compiled and implemented to restrict the impact fire would have on the surrounding areas. • Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.		
• Planning and surface sampling phase	• Dust nuisance as a result of the planning and surface sampling phase.	• The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression	Throughout the site establishment-, operational-, and decommissioning phase.	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to prospecting. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).		
• Planning and surface sampling phase	• Noise nuisance as a result of surface sampling.	• The prospecting right holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the prospecting area. • All prospecting vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts. • Noise generated on-site from all the proposed activities must comply with the	Throughout the site establishment-, operational and decommissioning phase.	Noise generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • NRTA, 1996 • Northern Cape Noise Control Regulations Provincial Notice 200/2013.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Northern Cape Noise Control Regulations Provincial Notice 200/2013.		
▪ Planning and surface sampling phase ▪ Closing of drill holes and landscaping upon closure of the prospecting area	▪ Potential hydrocarbon contamination from leaks or spills ▪ Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities;	▪ Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. ▪ Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. ▪ Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. ▪ Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. ▪ On completion of drilling operations at each site, all materials, including wastes or litter, must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. ▪ Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100-year floodline of any open water source and must be serviced at least once every two weeks for the duration of the prospecting activities.	Throughout the site establishment-, operational and decommissioning phase.	Prospecting related waste must be managed in accordance with the: ▪ NWA, 1998 ▪ NEM: WA, 2008 ▪ NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) ▪ NEMA, 1998 (Section 30)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the prospecting right holder. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM: WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the prospecting area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities is reported to the Department of Water and Sanitation and other relevant authorities. • To lower the risk of accidental hydrocarbon spillages all machinery must be parked at the prospecting area with drip trays placed underneath stationary vehicles. • Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources, must be reported within the prescribed timeframes to all relevant authorities, including the Directorate: Pollution and Chemicals Management. Containment, clean-up and remediation must commence immediately in the case of NEMA section 30 incidents, and the necessary documentation must be completed and submitted within the prescribed timeframes.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Planning and surface sampling phase	• Potential impact on areas/infrastructure of heritage or cultural concern.	• All prospecting must be confined to the development footprint area. • A Phase 1 HIA needs to be conducted before prospecting. • Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • Personnel involved in the shallow pit sampling must be instructed to be alert for the occurrence of fossil bones. Fossil bones may also be noticed weathering out in the sides of old prospecting excavations or exposed in the adjacent spoil heaps of excavated material. In the event of such discoveries the Fossil Finds Procedure. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then	Throughout the operational phase.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		contact a professional archaeologist for an assessment of the finds who must notify SAHRA. • Work may only continue once the go-ahead was issued by SAHRA. • It is recommended that fossil material extracted from the boreholes, or later separated during sample analysis, be kept and bagged for identification by a palaeontologist. For preliminary analysis, quality images of the fossil material should be forwarded by email for examination by a specialist, in order to identify specimens of importance for stratigraphic diagnosis, and specimens requiring further examination and diagnosis.		
• Planning and surface sampling phase	• Deterioration of the access road to the prospecting area.	• Storm water must be diverted around the access road to prevent erosion. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • Rutting and erosion of the access road caused as a direct result of the prospecting activities must be repaired by the permit holder.	Throughout the operational phase and decommissioning phase.	The access road must be managed in accordance with the: • NRTA, 1996
• Planning and surface sampling phase	• Potential impact on the Safety of the area due to increased human concentration	• Adequate ablution facilities and water for human consumption must daily be available on site. • Workers must have access to the correct personal protection equipment (PPE) as required by law.	Throughout the site establishment-, operational and decommissioning phase.	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).		

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

The primary objective is to obtain a closure certificate at the end of the life of the prospecting right at minimum cost and in as short a time period as possible whilst still complying with the requirements of the Minerals and Petroleum Resources Development Act. To realise this, the following objectives must be achieved:

- Remove all temporary infrastructure and waste from the site as per the requirements of this EMPR and of the Provincial Department of Mineral Regulation.
- Demolish / rehabilitate all roads with no post -prospecting use potential.
- Remove all waste from site.
- No wetland in the area may be compromised or destructed.
- Future public health and safety are not compromised.
- Ensure that no threat to surface and underground water quality remains.
- Ensure that all permanent changes in topography are sustainable and do not cause erosion or the damming up of runoff.
- Shape and contour all disturbed areas in compliance with the EMPR.
- The stockpiled topsoil (if any) will be spread over the disturbed area to a depth of at least 500 mm.
- Ensure that all rehabilitated areas are safe, stable and self-sustaining in terms of vegetation.
- Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been done in an area.
- The applicant will comply with the minimum closure objectives as prescribed by DMRE.
- Any adverse socio-economic impacts are minimised; and
- All socio-economic benefits are maximised.

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

This report, the Draft Basic Assessment Report, includes all the environmental objectives in relation to closure and will be made available for perusal by the

landowner, registered I&APs and stakeholders over a 30-days commenting period.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main prospecting activities, including the anticipated prospecting area at the time of closure.

The requested rehabilitation plan is attached as Appendix D.

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

The decommissioning phase will entail the final rehabilitation of the prospecting site. Final landscaping, levelling and top dressing will be done. The rehabilitation of the prospecting area as indicated on the rehabilitation plan attached as Appendix D will comply with the minimum closure objectives as prescribed by DMRE and detailed below, and therefore is deemed to be compatible:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding and maintenance, and weed / alien clearing.
- All Temporary Infrastructures, equipment, plant, temporary housing and other items used during the prospecting period will be removed from the site.
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the prospecting area and disposed of at a recognized landfill facility, proof of this removal will be kept on file at the applicant's office. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the prospecting activities. Species regarded as the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as needing to be eradicated from the site on final closure.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

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

The calculation of the quantum for financial provision was according to Section B of the working manual.

Mine type and saleable mineral by-product

According to Tables B.12, B.13 and B.14

Mine type	Copper ore, Iron ore, Lead, Lithium ore, Rare Earths and Zinc ore
Saleable mineral by-product	None

Risk ranking.

According to Tables B.12, B.13 and B.14

Primary risk ranking (either Table B.12 or B.13)	C (Low risk).
Revised risk ranking (B.14)	N/A

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low

Level of information

According to Step 4.2:

Level of information available	Limited

Identify closure components.

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	**NO**
2(A)	Demolition of steel buildings and structures	-	**NO**
2(B)	Demolition of reinforced concrete buildings and structures	-	**NO**
3	Rehabilitation of access roads	-	**NO**

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
4(A)	Demolition and rehabilitation of electrified railway lines	-	NO
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	NO
5	Demolition of housing and facilities	-	NO
6	Opencast rehabilitation including final voids and ramps	-	NO
7	Sealing of shafts, adits and inclines	-	NO
8(A)	Rehabilitation of overburden and spoils	-	NO
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	NO
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	NO
9	Rehabilitation of subsided areas	-	NO
10	General surface rehabilitation, including grassing of all denuded areas	YES	-
11	River diversions	-	NO
12	Fencing	-	NO
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	NO
14	2 to 3 years of maintenance and aftercare	YES	NO

Unit rates for closure components

According to Table B.6 master rates and multiplication factors for applicable closure components.

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	-	-
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	-	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	159147	1.0
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	21179	1.0

Determine weighting factors.

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.1 (Undulating)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 44: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Portions 1, 2 and 3 of the farm Kambreek no 38 and Klein Pella no 40 - African Exploration Mining and Finance Corporation SOC Ltd			**Location:**	Namaqualand Magisterial District		
Evaluators:	Sonette Smit			**Date:**	May 2024		
No	**Description**	**Unit**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A *B*C*D Amount (Rand)**
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m^2	0	22	1.0	1.1	R 0.00
2(A)	Demolition of steel buildings and structures	m^2	0	305	1.0	1.1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m^2	0	449	1.0	1.1	R 0.00
3	Rehabilitation of access roads	m^2	0	55	1.0	1.1	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	529	1.0	1.1	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	289	1.0	1.1	R 0.00
5	Demolition of housing and/or administration facilities	m^2	0	609	1.0	1.1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	319431	0.01	1.1	R 0.00
7	Sealing of shaft, audits and inclines	m^3	0	164	1.0	1.1	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	212954	1.0	1.1	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	265230	1.0	1.1	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	770354	0.51	1.1	R 0.00
9	Rehabilitation of subsided areas	ha	0	178317	1.0	1.1	R 0.00

10	General surface rehabilitation	ha	0.1	168695	1.0	1.1	R 18 556,45
11	River diversions	ha	0	168695	1.0	1.1	R 0.00
12	Fencing	m	0	192	1.0	1.1	R 0.00
13	Water Management	ha	0	64143	0.6	1.1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	1	22450	1.0	1.1	R 24 695,00
15(A)	Specialists study	Sum	0				R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R 57 306,41
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		R2 865,32		1.05		**Sub Total 1**	R 60 171,73

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 3 610,30
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	R0.00
2	Contingency	10.0% of Subtotal 1	R 6 017,17
		Sub Total 2 (Subtotal 1 plus management and contingency)	R 69 799,21
		Vat (15%)	R 10 469,88
		GRAND TOTAL (Subtotal 3 plus VAT)	**R 80 269,09**

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R 80 269,09**

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

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

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

g) Monitoring of Impact Management Actions

h) Monitoring and reporting frequency.

i) Responsible persons

j) Time period for implementing impact management actions.

k) Mechanisms for monitoring compliance

Table 45: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
• Demarcation of site with visible beacons	Maintenance of beacons	• Visible beacons need to be placed at the corners of the prospecting area.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Ensure beacons are in place throughout the life of the prospecting activities.	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Planning and surface sampling phase	**Visual Characteristics:** • Visual intrusion as a result of site establishment.	• Minimize the visual impact of the activity on the surrounding environment through proper site management and implementing good housekeeping practices.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			Responsibility: • Contain prospecting to the boundaries of the authorised area. • Ensure that the site have a neat appearance and is kept in good condition at all times. • Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. • Rehabilitate and level the site upon closure to ensure that the visual impact on the aesthetic value of the area is kept to a minimum.	• Annual compliance monitoring of site by an Environmental Control Officer.
• Closing of drill holes and landscaping upon closure of the prospecting area.	**Geology and Soil:** • Erosion after rehabilitation	• Erosion control infrastructure (if necessary)	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • As mentioned earlier, the applicant will not remove any topsoil due to the fast mobility of the drill rig. The boreholes will be capped with sand material from around the boreholes, and the area rehabilitated as they move to the next borehole. The following standard mitigation measure will be adhered to in the event of any possible removal of topsoil: • Strip and stockpile the upper 300 mm of the soil. • Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. • Ensure topsoil stripping, stockpiling and re-spreading is done in a systematic way. Plan prospecting in such a way that topsoil is stockpiled for the minimum possible time.	Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			▪ Place topsoil heaps on a levelled area within the prospecting footprint area. Do not stockpile topsoil in undisturbed areas. ▪ Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. ▪ Ensure that topsoil heaps do not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. ▪ Keep temporary stockpiles free of invasive plant species. ▪ Divert storm- and runoff water around the stockpile area to prevent erosion. ▪ Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. ▪ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. ▪ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.	
▪ Planning and surface sampling phase ▪ Closing of drill holes and landscaping upon closure of the prospecting area	**<u>Groundcover:</u>** ▪ Impact of the natural vegetation of the footprint. ▪ Impact on CBA and ESA area of biodiversity concern	▪ Stay within the demarcated area. ▪ Declare sensitive areas as no-go areas. ▪ Designated team to cut or pull-out invasive plant	<u>Role:</u> ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u>	Applicable throughout Planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	▪ Impact of the natural vegetation of the footprint during decommissioning phase ▪ Loss of habitat within the footprint	species that germinated on site. ▪ Herbicide application equipment.	▪ Preparation of the drilling site must avoid damage to the vegetation as far as is possible. ▪ The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. Once decided, the boundary of the site must be demarcated with a temporary fence. ▪ An invasive plant species management plan (Appendix J) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the prospecting activities. ▪ All stockpiles (topsoil) must be kept free of invasive plant species. ▪ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.	
▪ Planning and surface sampling phase	**<u>Fauna:</u>** ▪ Potential impact on fauna (terrestrial) within the footprint area.	▪ Toolbox talks to educate employees how to handle fauna that enter the work areas.	<u>Role:</u> ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout planning and surface sampling phase -, and operational phases. • Daily compliance monitoring by site management.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
		▪ Minimal staff should be considered at the prospecting site to minimise additional noise disturbance. ▪ Implement an avifauna monitoring program during the prospecting	<u>Responsibility:</u> ▪ Ensure no fauna is caught, killed, harmed, sold or played with. ▪ Instruct workers to report any animals that may be trapped in the working area. ▪ Ensure no snares are set or nests raided for eggs or young. ▪ Prospecting areas should be done in consultation with the landowner in order to ensure the safety and security of animals that might occur in the prospecting areas. ▪ All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.	• Annual compliance monitoring of site by an Environmental Control Officer.
▪ Planning and surface sampling phase	**<u>Air Quality:</u>** ▪ Dust nuisance as a result of the prospecting activities.	▪ Dust suppression equipment such as a water car. ▪ Signage that clearly reduce the speed on the access roads.	<u>Role:</u> ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> ▪ Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). ▪ Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			▪ Limit speed on the haul roads to 40 km/h to prevent the generation of excess dust. ▪ Minimise areas devoid of vegetation. ▪ Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. ▪ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA, 2004 and ASTM D1739 (SANS 1137:2012). ▪ Implement best practice measures during the stripping of topsoil, loading, and transporting of material from site to minimize potential dust impacts.	
▪ Planning and surface sampling phase	**<u>Noise Ambiance:</u>** ▪ Noise nuisance as a result of surface sampling.	• Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996.	<u>Role:</u> ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> ▪ Ensure that employees and staff conduct themselves in an acceptable manner while on site. ▪ No loud music may be permitted at the prospecting area. ▪ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. ▪ Implement best practice measures to minimise potential noise impacts.	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			▪ Noise generated on-site from all the proposed activities must comply with the Northern Cape Noise Control Regulations Provincial Notice 200/2013	
▪ Planning and surface sampling phase ▪ Closing of drill holes and landscaping upon closure of the prospecting area	**Waste Management:** ▪ Potential hydrocarbon contamination from leaks or spills ▪ Potential impact associated with litter/hydrocarbon spills left at the decommissioning activities.	▪ Oil spill kit. ▪ Sealed drip trays. ▪ Formal waste disposal system with waste registers.	Role: ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: ▪ Provision must be made for proper retention of all garbage, domestic wastes, and drilling wastes. Bins with lids or skips must be provided and these must be emptied at an approved disposal site. No refuse of any sort may be buried or burned at the site. ▪ Fuels and oils must be held in leak-free containers and must be kept on drip trays when not in use. ▪ Waste oils and the like, including items such as used oil filters and oil-soaked paper or rags, must be retained in sealed containers and be kept on drip trays. ▪ Vehicles and machines must be refuelled or serviced over drip trays. Any soil contaminated by fuel or oil spills must be collected and be held in a suitable sealed contained prior to removal to an approved disposal site. A hazmat kit of appropriate capacity must be kept on the site at all times. ▪ On completion of drilling operations at each site, all materials, including wastes or litter,	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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			must be removed for re-use at another site or for disposal as may be relevant. The site must be cleaned and tidied and its condition must be approved by the landowner before the contractor may leave the site. • Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100-year flood line of any open water source. Ensure the toilet is serviced at least once every two weeks for the duration of the prospecting activities. • Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof.	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			▪ Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM: WA. ▪ Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the prospecting area to a recognised general waste landfill site. ▪ Prevent the burning or burying of waste on site. ▪ Report any significant spillage of chemicals, fuels etc. during the lifespan of the prospecting activities to the Department of Water and Sanitation and other relevant authorities. ▪ Park the drill machinery at the prospecting area with drip trays placed underneath stationary vehicles.	
▪ Planning and surface sampling phase	▪ Potential impact on areas/infrastructure of heritage or cultural concern.	▪ Contact number of an archaeologist that can be contacted when a discovery is made on site.	<u>Role:</u> ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> ▪ Confine all prospecting to the development footprint area. ▪ Once the drill sites have been confirmed these areas have to be subjected to a heritage walk down, this should be conducted prior to the commencement of prospecting activities. ▪ Implement the following change find procedure when discoveries are made on site: ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries,	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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			contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. ▪ Work may only continue once the go-ahead was issued by SAHRA.	
Planning and surface sampling phase	**Hydrology:** Storm water management	Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area (when and if applicable).	Role: Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWSJ. No drilling should be undertaken at times when rain has fallen, and the pans are holding water. This measure is recommended to both minimise the possibility of contamination of the surface and ground water, and to minimise	Applicable throughout planning and surface sampling phase -, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			disturbance of the important bird populations around the pans. • The access to the site must be planned together with the relevant landowner and be approved by the landowner. • The landowner may stop operations at any site if the conditions of the approval are ignored or otherwise bypassed. • Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). • To the greatest possible extent, the access roads and tracks must avoid passing through watercourses or pans or other environmentally sensitive areas. Such areas could include known home ranges of species of especial biodiversity conservation concern. • Preparation of the drilling site must avoid damage to the vegetation as far as is possible. • The size of the drilling sites must be restricted to a practical minimum and must be approved by the landowner and ECO. Once decided, the boundary of the site must be demarcated with a temporary fence. hazard tape, plastic mesh, or shadecloth. • If needed, a lay-down area for pipes may be established close by the drilling site but its boundary must also be demarcated. • Any roads or tracks that were prepared or used for access to the site must be returned to their prior state and their condition must be approved by the landowner.	

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▪ Planning and surface sampling phase	**Existing Infrastructure:** ▪ Deterioration of the access road to the prospecting area.	▪ Grader to restore the road surface when and if applicable.	Role: ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: ▪ Divert storm water around the access road to prevent erosion. ▪ Access roads and tracks must make use as far as is possible of existing farm roads and tracks. Ideally, the routes will be approved and documented by an Environmental Control Officer (ECO). ▪ Repair rutting and erosion of the access road caused as a direct result of the prospecting activities.	Applicable throughout operational phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
▪ Planning and surface sampling phase	▪ Potential impact on the Safety of the area due to increased human concentration	▪ Enhance security at the entrance ▪ Stocked first aid box. ▪ Level 1 certified first aider. ▪ All appointments in terms of the Mine Health and Safety Act, 1996.	Role: ▪ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ▪ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: ▪ Ensure adequate ablution facilities and water for human consumption is daily available on site. ▪ Ensure that workers have access to the correct PPE as required by law. ▪ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	Applicable throughout planning and surface sampling phase, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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

The Environmental Audit Report in accordance with Appendix 7 as prescribed in Regulation 34 of the EIA Regulations, 2014 (as amended) will annually be submitted to DMRE for compliance monitoring purposes or in accordance with the time period stipulated by the Environmental Authorisation.

m) Environmental Awareness Plan

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

Once the Applicant received the prospecting right and may commence with the proposed activity, a copy of the Environmental Management Programme will be handed to the site manager for his perusal. Issues such as the prospecting boundaries, fire principals and waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct with regard to the environment.

ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.

The operations manager must ensure that he/she understands the EMPR document and its requirement and commitments before any prospecting takes place. An Environmental Control Officer needs to check compliance of the prospecting activity to the management programmes described in the EMPR.

The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks.

- **Site Management:**
  - Stay within boundaries of site – do not enter adjacent properties.
  - Keep tools and material properly stored.
  - Smoke only in designated areas.
  - Use toilets provided – report full or leaking toilets.

- **Water Management and Erosion:**
  - Check that rainwater flows around work areas and are not contaminated.
  - Report any erosion.
  - Check that dirty water is kept from clean water.

- **Waste Management:**
  - Take care of your own waste
  - Keep waste separate into labelled containers – report full bins.
  - Place waste in containers and always close lid.
  - Don't burn waste.
  - Pick-up any litter laying around.

- **Hazardous Waste Management (Petrol, Oil, Diesel, Grease)**
  - Never mix general waste with hazardous waste.
  - Use only sealed, non-leaking containers.
  - Keep all containers closed and store only in approved areas.
  - Always put drip trays under vehicles and machinery.
  - Empty drip trays after rain.
  - Stop leaks and spills, if safe:
    - ✓ Keep spilled liquids moving away.
    - ✓ Immediately report the spill to the site manager/supervision.
    - ✓ Locate spill kit/supplies and use to clean-up, if safe.
    - ✓ Place spill clean-up wastes in proper containers.
    - ✓ Label containers and move to approved storage area.

- **Discoveries:**
  - Stop work immediately.
  - Notify site manager/supervisor.
  - Includes – archaeological finds, cultural artefacts, contaminated water, pipes, containers, tanks and drums, any buried structures.

- **Air Quality:**
  - Wear protection when working in very dusty areas.
  - Implement dust control measures:
    - ✓ Water all roads and work areas.

- ✓ Minimize handling of material.
- ✓ Obey speed limit and cover trucks.

- **Driving and Noise:**

  - Use only approved access roads.
  - Respect speed limits.
  - Only use turn-around areas – no crisscrossing through undisturbed areas.
  - Avoid unnecessary loud noises.
  - Report or repair noisy vehicles.

- **Vegetation and Animal life:**

  - Do not remove any plants or trees without approval of the site manager.
  - Do not collect firewood.
  - Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site.
  - Report any animal trapped in the work area.
  - Do not set snares or raid nests for eggs or young.

- **Fire Management:**

  - Do not light any fires on site, unless contained in a drum at demarcated area.
  - Put cigarette butts in a rubbish bin.
  - Do not smoke near gas, paints or petrol.
  - Know the position of firefighting equipment.
  - Report all fires.
  - Don't burn waste or vegetation.

n) Specific information required by the Competent Authority

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

The Applicant undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMRE for review and approved as being sufficient to cover the environmental liability at the time and for closure of the mine at that time.

2. UNDERTAKING

The EAP herewith confirms.

a) the correctness of the information provided in the reports. X
b) the inclusion of comments and inputs from stakeholders and I&AP's X
c) the inclusion of inputs and recommendations from the specialist reports where relevant, and X
d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein X

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

28 May 2024

Date:

-END-

APPENDIX A

REGULATION 2(2) MINE MAP

APPENDIX B
LOCALITY AND LANDUSE MAP

APPENDIX C
PROSPECTING ACTIVITIES PLAN

APPENDIX C1 – PROPOSED DRILLING PLAN

APPENDIX D

REHABILITATION CLOSURE MAP

APPENDIX E
PROOF OF PUBLIC PARTICIPATION

APPENDIX F
SUPPORTING IMPACT ASSESSMENT

APPENDIX G
PHOTOGRAPHS OF THE SITE

APPENDIX H

DMRE ACCEPTANCE AND ACKNOWLEDGEMENT LETTERS

APPENDIX I

CV AND EXPERIENCE RECORD OF EAP

APPENDIX J
INVASIVE PLANT SPECIES MANAGEMENT PLAN

APPENDIX K1
AQUATIC BIODIVERSITY IMPACT ASSESSMENT

APPENDIX K2
TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

APPENDIX K3
HERITAGE IMPACT ASSESSMENT

APPENDIX K4
AGRICULTURAL IMPACT ASSESSMENT

APPENDIX K5
WETLAND DELINEATION AND FUNCTIONALITY ASSESSMENT

APPENDIX L
CLOSURE REHABILITATION PLAN