ENVIRONMENTAL & ENGINEERING

REPORT

LIMESTONE MINING (PTY) LTD

ENVIRONMENTAL AUTHORISATION APPLICATION IN SUPPORT OF A PROSPECTING RIGHT APPLICATION

DMRE REF: FS 30/5/1/1/2/10679 PR

DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

REPORT REF: 23-2387-AUTH (LIMESTONE PR - 10679)

PROSPECTING RIGHT APPLICATION FOR DOLOMITIC LIMESTONE AND LIMESTONE IN RESPECT OF PORTION 1 AND 3 OF THE FARM WITKRAAL 878 AND THE FARM STANDARD SALT PAN 1959, SITUATED IN THE LETSEMENG LOCAL MUNICIPALITY, FREE STATE PROVINCE.

Version 2.0

Date:30/10/2023

Document and Quality Control:

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AA – draft	29/09/2021	Kelebone Sekonyela		First draft for review / comments
BB– draft	30/09/2021	Leoni le Roux		Quality review
CC – draft	30/09/2021	Vernon Siemelink		Technical review
DD - Final	16/08/2023	Marungwane Ramashapa		Report review and update
Approved for Distribution:				
0.0	01/11/2021	Vernon Siemelink		Final report
1.0	16/08/2023	Marungwane Ramashapa		Update of Final Report
2.0	30/10/2023	Marungwane Ramashapa		Update of Final Report to include additional specialist studies.

Quality Control By:

Nature of Signoff:	Responsible Person:	Role / Responsibility	Qualification
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Quality Reviewer	Leoni le Roux	Project Administration	Professional Secretary and Personal Assistant

DISCLAIMER:

EXECUTIVE SUMMARY

The applicant, Limestone Mining (Pty) Ltd (hereinafter Limestone Mining), applied for a Prospecting Right (PR) for dolomitic limestone and limestone to the Regional Department of Mineral Resources and Energy (DMRE Free State Region) in respect of Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959, situated in the Xhariep District Municipality within the Letsemeng Local Municipality, Free State Province, South Africa. This PR application covers approximately 693.43 hectares (Ha). The full extent of the drill site will be demarcated, and no drilling will be done outside of the boundary. Petrusburg is located roughly 18 km to the southwest of the proposed prospecting area, while Boshof is located 57 km to the north-northwest and Bloemfontein approximately 70 km east-southeast of the area. The N8 national road runs east-west approximately 16 km to the south, while the R64 primary road runs 40 km north of the site.

For the prospecting phase several sites will be selected for geotechnical drilling. These boreholes and their associated activities will impact a surface area of between 250 and 625 m². The full extent of the drill site will also be demarcated, and no drilling will be done outside of the boundary.

The proposed project aims to determine if economically viable mineral deposits exist within the application area. In order to undertake prospecting activities Limestone Mining requires a PR in terms of the Mineral and Petroleum Resources Development Act (Act No.28 of 2002) (MPRDA). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) which involves the submission of a Basic Assessment Report (BAR). Eco Elementum (Pty) Ltd (hereinafter EcoE) has been appointed by Limestone Mining to compile the BAR in support of the PR application.

Table 1-1: Basic Assessment Timeline followed.

Date	Basic Assessment timeline
04/07/2023	Prospecting Right (PR) Application on SAMRAD.
25/07/2023	Acceptance received from DMRE.
15/09/2023	Draft BAR for Public Review
19/10/2023	Request for Extension
26/10/2023	Acceptance of Extension Request
30/10/2023	Update of BAR to include Palaeontologic and Archaeological specialist studies
03/11/2023	Updated Draft BAR for Public Review
08/12/2023	Final BAR Submission to DMRE

The obtaining of a PR from DMRE is governed by the MPRDA. The MPRDA requires compliance with related legislation, specifically the NEMA. This BAR includes, amongst others, the following information as required in terms of the MPRDA:

- A description of the environment likely to be affected by the proposed prospecting activities;
- An assessment of potential impacts on the environment, socio-economic conditions, and cultural and heritage aspects;
- A summary of the potential significance of identified impacts;
- Proposed mitigation and management measures to minimise adverse impacts and to optimise benefits; and
- Planned monitoring and performance assessment of the EMP and Rehabilitation measures of areas disturbed during prospecting.

PROJECT SCHEDULE

A BA process should be undertaken for project activities that are included under Listing Notices 1 and 3. Impacts of these activities are more generally known and can often be mitigated or easily managed. The BA process is generally shorter (197 days) and less onerous than the S&EIR process. The BA process must follow the procedure as prescribed in Regulations 19 and 20 of the NEMA Environmental

Impact Assessment (EIA) Regulations (as amended). The below diagram outlines the steps that should be followed in undertaking a BA process. Once approved as based on the BA process timeline, the prospecting can take one to five years. Then, after prospecting the Mining Right (MR) application process is another 300 days before the MR application is approved or not approved.

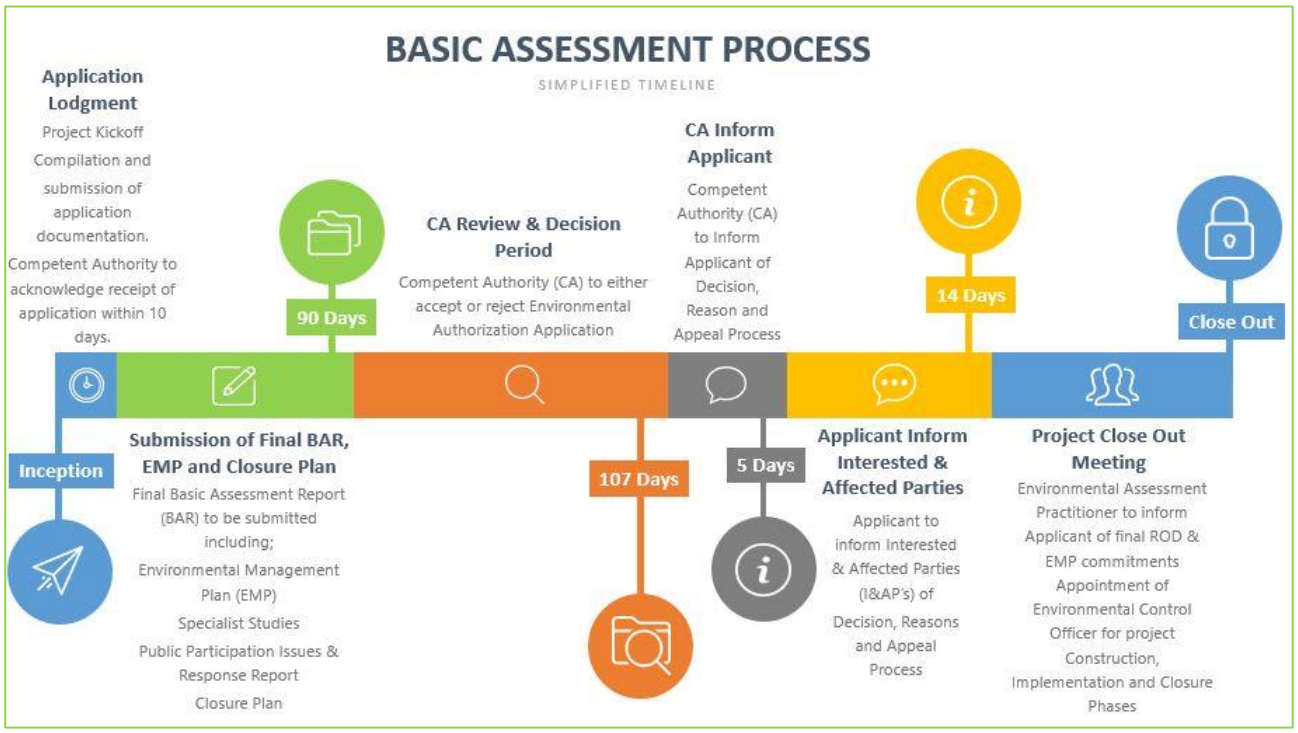

Figure 1-1: Basic Assessment Process

The following specialist studies were undertaken, and findings and recommendations included:

Table 1-2: List of Studies, Findings and Recommendations

List of Studies Undertaken	Findings and Recommendations of Specialist Reports

Archaeological Desktop study	- The assessment concludes that the proposed prospecting area is situated in a region with a high presence of archaeology resources.
	- The graves discovered within the cemeteries hold significant heritage value.
	  - The site must be recommended clearly demarcated, and a protective fence should be erected around the graves, designating it as a No-Go-Zone.
	  - Given that the graves at LIME-CEM-01 fall within the area designated for prospecting activities, the cemetery's boundaries should be clearly marked, signifying that it is an area to be completely avoided.
	  - A buffer zone of at least 100 meters should be maintained around the graves.
	  - The identified gravesites must be enclosed with a protective fence to safeguard them from potential harm caused by machinery and human activities during the prospecting operations.
	  - This fenced area should be treated as a No-Go-Zone, prohibiting any entry.
	  - Provisions should also be made to allow access to the communities and descendant families for respectful and appropriate visitation.
	  - In the event that future prospecting activities are planned for the vicinity of the cemetery, with the potential for direct impact on the graves, it is essential to apply for a permit to exhume and relocate the graves, ensuring that this process is conducted with the utmost care and respect for the heritage significance of the site.
	- Contemporary built environment structures have been identified in the area. It is determined that these sites hold low significance and lack any archaeological value.
	- Possible weathered MSA stone tools were observed at the pan on site. Stone artefact scatters are usually located in areas with fluvial gravels along drainage lines, pans and rocky outcrops. The stone artifacts are of low heritage value due to temporally mixed contexts and the absence of faunal, organic and other

	cultural remains. The Stone Age localities are not conservation-worthy and even though the resources may be destroyed during construction, the impact is minor and thus, deemed acceptable. - Water sources, such as drainage lines, and pans, have historically been attractive locations for human activity. These areas should be considered as sensitive areas and designated it as a No-Go-Zone in terms of the potential existence of subsurface deposits. - It should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey. In the case where the proposed development activities bring these materials to the surface, they should be treated as **Chance Finds**. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be contacted to conduct a site visit and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds. - **The proposed prospecting activities on the proposed project area will not have impact on the heritage and archaeological resources in the broader area.** - **It is recommended that FS-PHRA and SAHRA grant the project a Positive Review Comment and allow the proposed prospecting activities to occur on as planned on condition that all the above-mentioned recommendations be adhered to.**
Desktop Palaeontological study	The following findings and recommendations were made: - The geological structures suggest that the rocks are either the wrong type to contain fossils (dolerite) or might only trap fossils in palaeo-pans, palaeo-dunes or palaeo-springs. - The potential impact to fossil heritage resources is extremely low for the whole study site and there are no no-go areas. - Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the Tierberg Formation or the sands and calcrete of the Quaternary. - There is a very small chance that fossils may occur in the below ground shales of the early Permian Tierberg Formation or trapped in pans but the pans in the region are being avoided for other reasons. - A Fossil Chance Find Protocol should be added to the EMPr. - If fossils are found by the environmental officer, or other responsible person once excavations or drilling have commenced then they should be rescued, and a palaeontologist called to assess and collect a representative sample. **The impact on the palaeontological heritage would be low, so as far as the palaeontology is concerned, the project should be authorised.**
Ecological Desktop Study	The following findings and recommendations were made: - Although some of the study areas have been modified by cultivation, all remaining primary vegetation outside the pans should be considered as medium sensitivity due to the original vegetation type being listed as Vulnerable, and the potential for provincially and nationally protected plants being present. This should be verified and investigated further with on-site studies during the growing season (January to March). o At the very least, a protected species walkthrough survey should be conducted of all prospecting footprints prior to disturbance, to ensure all protected plants or sensitive animals are relocated prior to groundworks taking place. - A wetland delineation and aquatic habitat study is highly recommended to be undertaken. - An avifaunal survey during the wet season is highly recommended. - It is anticipated that due to historical disturbance levels, alien invasive plant species will be present on all sites. The client should familiarise themselves with alien invasives (or have the provisional list provided verified/complemented by a field survey) and ensure control and no further spread. **From an ecological perspective, prospecting could proceed, but not on remaining primary vegetation until the above specialist studies have been carried out or at least a pre-prospecting walk-through survey of protected plants has been conducted.**

REGISTERED LANDOWNER

The registered owners of the farms were listed as follows:

Table 1-3: Directly affected landowners

	Farm Portion	Landowner
1.	PORTION 1 OF THE FARM WITKRAAL 878	WITKRAAL TRUST
2.	PORTION 3 OF THE FARM WITKRAAL 878	NO TITLE DEED INFO AVAILABLE
3.	FARM STANDARD SALT PAN 1959	WITKRAAL FARMING (PTY) LTD

PUBLIC PARTICIPATION PROCESS FOLLOWED & OUTCOME OF CONSULTATION

Section 41 of NEMA Regulation 326 (as amended) sets out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and Interested and Affected Parties (I&APs) in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and will be followed at all times and is based on reciprocal dissemination of information. The following was undertaken during the PPP:

1. Identification of I&APs.
2. Notification of I&APs regarding the proposed project via newspaper advert (Bloemfontein Courant); the placing of 4 x site notices at conspicuous places and the sending of notifications to affected parties via email and SMS'.
3. Distribution of BA Reports on the website (http://ecoelementum.co.za/downloads/) and per download link (upon request) providing I&APs with the opportunity to review and comment on the reports.
4. A public information meeting (open day) with I&APs was scheduled Monday, 2nd of October 2023 from 15:00 – 19:00 at Karibu Guest House, 53 Fountain St, Petrusburg. The I&APs were provided an opportunity to collect the Background Information Document (BID) and provide comment and issues related to the proposed project.
5. Gathering of public comments, issues and concerns from I&APs.
6. Responding to I&AP comments, issues and concerns.
7. Compilation and submission of results of consultation report; and
8. Providing I&APs with the opportunity to review and comment on the BAR.
9. Submission of Draft and Final BARs (with I&AP comments) to the DMRE.

PROSPECTING PROCESS

The mineral distribution in the prospecting area will be determined following the mineral exploration methods as outlined below. At the end of each phase, a decision will be taken to determine the feasibility of the project.

Non-invasive prospecting

- The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a geological map showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.
- No geochemical survey is planned.
- Geophysical survey might be conducted, or geophysical data will be procured from commercial sources and organizations that collect them. The information that will be acquired will be magnetic information of the area which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the use of a contractor.

Invasive Prospecting

- Drilling will be conducted using a RC drill rig. The chip samples from the borehole will be collected at a 1-meter interval. The samples will be logged and sampled on-site. The samples will then be transported off0site to a laboratory. Resource modelling will be undertaken using the geological data determined from the data collected.
    - Some trenching and surface sampling will be conducted. The dimensions of the trenches will be 10 meters long by 2 meter wide, the depth will be 2 meters (depending on overburden depth).
    - No other excavations, bulk sampling or pitting is planned.

ALTERNATIVES AND PROJECT MOTIVATION

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

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Definition of Terms

Audit	a systematic, independent and documented review of operations and practises to ensure that relevant requirements are met. Qualified professionals with relevant auditing experience should conduct audits and, where possible, independent external auditors should also be used.
Borehole	is a narrow shaft bored in the ground, either vertically or horizontally. A borehole may be constructed for many different purposes, including the extraction of water or other liquid (such as petroleum) or gases (such as natural gas), as part of a geotechnical investigation, environmental site assessment, mineral exploration, temperature measurement, as a pilot hole for installing piers or underground utilities, for geothermal installations, or for underground storage of unwanted substances, e.g. in Carbon capture and storage.
Clean Water	clean water is any water that has maintained the chemical, physical, and biological integrity of the waters by preventing point and nonpoint pollution sources.
Compliant	a full achievement of the performance requirement of a particular condition of the license or programme
Conservation	in relation to a water resource means the efficient use and saving of water, achieved through measures such as water saving devices, water-efficient processes, water demand management and water rationing;
Construction	the time period that corresponds to any event, process, or activity that occurs during the Construction phase (e.g., building of site, buildings, and processing units) of the proposed project. This phase terminates when the project goes into full operation or use.
Corrective Action Plan	an action plan developed by the proponent, contractor, or facility owner and approved by the external auditor that describes how the contractor or facility owner intends to resolve the non-conforming item. The Corrective Action Plan should be specific, measurable, achievable, realistic, and timely.
Director-General	means the Director-General of the Department;
Effluent	is defined by the United States Environmental Protection Agency as "wastewater - treated or untreated - that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters". The Compact Oxford English Dictionary defines effluent as "liquid waste or sewage discharged into a river or the sea". Effluent in the artificial sense is in general considered to be water pollution.
Environmental Audit Report	a summary report prepared after an environmental audit that describes the attributes of the audit and the audit findings and conclusions.
Environmental Authorisation	is an environmental authorisation issued by a state department.
Environmental Component	an attribute or constituent of the environment (i.e., air quality; marine water; waste management; geology, seismicity, soil, and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.
Environmental Impact	a positive or negative condition that occurs to an environmental component as a result of the activity of a project or facility. This impact can be directly or indirectly caused by the project's different phases (i.e., Construction, Operation, and Decommissioning).
Groundwater	is the water located beneath the earth's surface in soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table. Groundwater is recharged from, and eventually flows to, the surface naturally; natural discharge often occurs at springs and seeps, and can form oases or wetlands
Non-conformance	constitutes a non-compliance or an action plan or initial actions taken without tangible deliverables. Non-conformance may also be associated with activities breaching legislation. Non-Conformance findings therefore have a high priority and mitigation measures are mandatory.
Operation	the time period that corresponds to any event, process, or activity that occurs during the Operation (i.e., fully functioning) phase of the proposed project or development. (The Operation phase follows the Construction phase, and then terminates when the project or development goes into the Decommissioning phase.)
Partially Compliant	achievement with shortcomings (such as documented proof and or work in progress) and achievement where there is an obvious shortcoming in the delivery of the performance requirement.
Pollution	is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. Pollution is often classed as point source or nonpoint source pollution.
Protection	in relation to a water resource, means - (a) Maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way; (b) Prevention of the degradation of the water resource; and (c) the rehabilitation of the water resource;
Proponent	the person, company, or agency that is the primary responsible party for a development project and that is the permit applicant/holder for the project.
Rehabilitation	is the act of restoring something to its original state;
Responsible Authority	in relation to a specific power or duty in respect of water uses, means - (a) if that power or duty has been assigned by the Minister to a catchment management agency, that catchment management agency; or (b) if that power or duty has not been so assigned, the Minister;
Water Resource	includes a watercourse, surface water, estuary, or aquifer;
Wetland	means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Abbreviations

CARA:	Conservation of Agricultural Resources Act, 43 of 1983
DEA:	Department of Environmental Affairs (The former Department of Environmental Affairs and Tourism)
DMR:	The Department of Mineral Resources (The former Department of Minerals and Energy)
DWA:	Department of Water Affairs (Is now referred to the Department of Water and Sanitation – DWS)
EA:	Environmental Authorisation
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
ELCA:	Environmental Legal Compliance Assessment
EMP:	Environmental Management Plan
EMPPA:	Environmental Management Programme Performance Assessment
EMPR:	Environmental Management Programme
EMS:	Environmental Management System
GM:	General Manager
GN:	Government Notice
I&AP:	Interested & Affected Parties
IEM:	Integrated Environmental Management Series
ISO:	International Standards Organisation
IWULA:	Integrated Water Use Licence Application
IWUL:	Integrated Water Use License
IWWMP:	Integrated Water and Waste Management Plan
KG:	Knowledge Gap
MOC:	Management of Change
MPRDA:	Mineral and Petroleum Resources Development Act, 28 of 2002
MR:	Mining Right
N/R:	Applicable, but not required at the time of the audit
NEMA:	National Environmental Management Act, 107 of 1998
NEMAQA:	National Environmental Management: Air Quality Act, 39 of 2004
NEMBA:	National Environmental Management: Biodiversity Act, 10 of 2004
NEMWA:	National Environmental Management: Waste Act, 59 of 2008
NC:	Non-conformance
NHRA:	National Heritage Resources Act, 25 of 1999
NWA:	National Water Act, 36 of 1998
RWD:	Return Water Dam
ROM:	Run of Mine
SAHRA:	South African Heritage Resources Authority
SHEQ:	Safety, Health, Environment and Quality
SLP:	Social and Labour Plan
SOP:	Standard Operating Procedure
SWMP:	Strategic Water Management Plan
WSA:	Water Services Act, 108 of 1997
WUL:	Water Use Licence

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT

AND

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: **Limestone Mining (Pty) Ltd**

TEL NO.: **0765608809 / 0828683785**

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SANDTON
GAUTENG
2196

FILE REFERENCE NUMBER SAMRAD: **FS 30/5/1/1/2/10679 PR**

1. IMPORTANT NOTICE

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

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

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

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

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

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

a. determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
b. identify the alternatives considered, including the activity, location, and technology alternatives;
c. describe the need and desirability of the proposed alternatives,
d. through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

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

ii. the degree to which these impacts—

aa. can be reversed;
bb. may cause irreplaceable loss of resources; and
cc. can be managed, avoided or mitigated;

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND DRAFT BASIC ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

3.a DETAILS OF

3.a.i DETAILS OF THE EAP

Name of the author	Ms. Kelebone Sekonyela
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3.a.ii EXPERTISE OF THE EAP

3.a.ii.1 The qualifications of the EAP

The author, Kelebone Sekonyela obtained her Master's Degree at University of Johannesburg in Johannesburg and was an EAP at Eco Elementum (Pty) Ltd. She has been involved in the field of environmental science and environmental management for 3 years. Kelebone Sekonyela has been an environmental consultant since 2018, focusing on the fields of Environmental Impact Assessments and Authorisations, including Water use and Waste license applications, Environmental Monitoring and Control, Environmental Compliance and Audits. During this time, she has provided quality, environmental, and auditing services in nearly every industry sector.

The report updater and reviewer, Marungwane Ramashapa is an EAPASA Registered EAP and SACNASP Pri.Sci.Nat with a MSc Geography degree. She has over 6 years' experience in the consulting industry. Refer to Appendix A for the CV of the EAP.

3.a.ii.2 Summary of the EAP's past experience.

Refer to Appendix A for CV of the EAP.

3.b LOCATION OF THE OVERALL ACTIVITY

Table 3-1: Location of the activity

Farm Name:	- Portion 1 of the farm Witkraal 878. - Portion 3 of the farm Witkraal 878. - Farm Standard Salt Pan 1959.
Application area (Ha)	Approx. 693.43 Hectares (Ha).
Magisterial districts:	Letsemeng Local Municipality and the Xhariep District Municipality.
Distance and direction from nearest town	Petrusburg is located roughly 18 km to the southwest of the proposed prospecting area, while Boshof is located 57 km to the north-northwest and Bloemfontein approximately 70 km east-southeast of the area.
21-digit Surveyor General Code for each farm portion	- F00300000000087800001 - F00300000000195900000 - Portion 3 of the farm Witkraal 878: 25°31'18.76"E 28°57'8.64"S
Locality map	Refer to Section 3.c below.
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	Prospecting Right (PR) for dolomitic limestone and limestone to the Regional Department of Mineral Resources and Energy ("DMRE" Free State Region) in respect of Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959, situated in the Xhariep District Municipality within the Letsemeng Local Municipality, Free State Province, South Africa. The PR activity triggers a Basic Assessment (BA) in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) 2014 Environmental Impact Assessment (EIA) Regulations (as amended), which will be undertaken as part of the Environmental Authorisation (EA) Application process.

3.c LOCALITY MAP

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

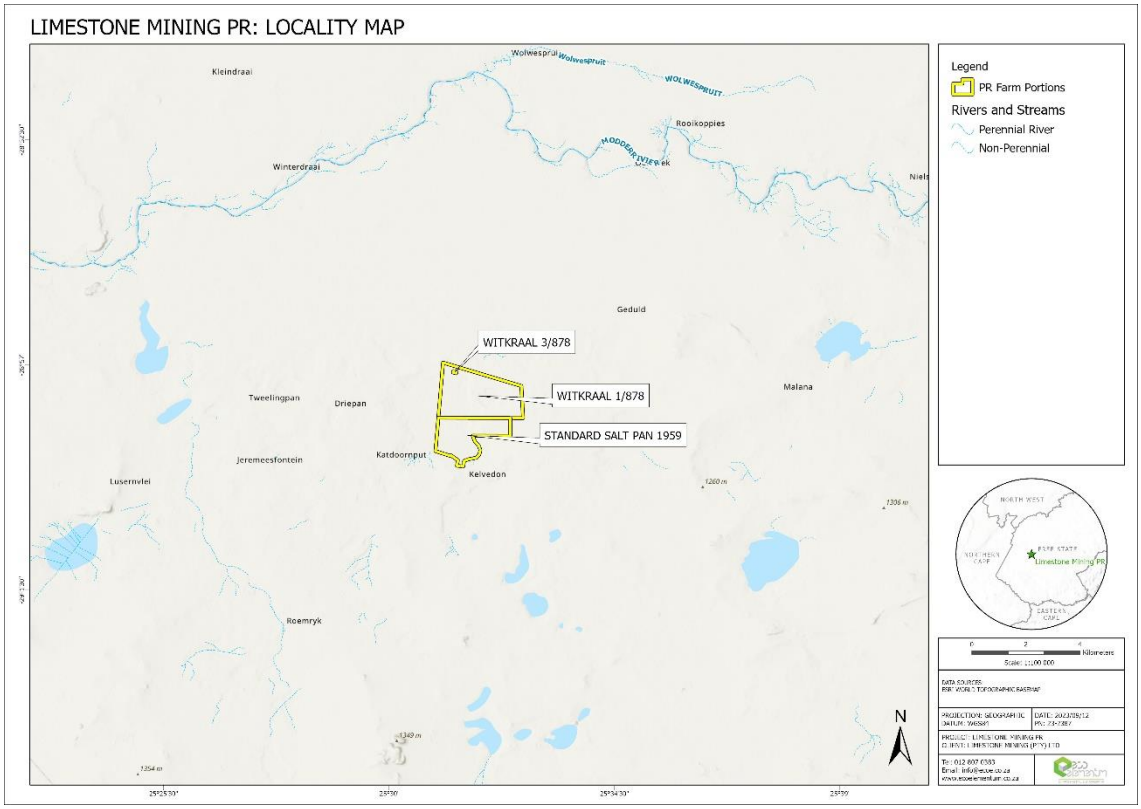

Figure 3-1: Locality Map

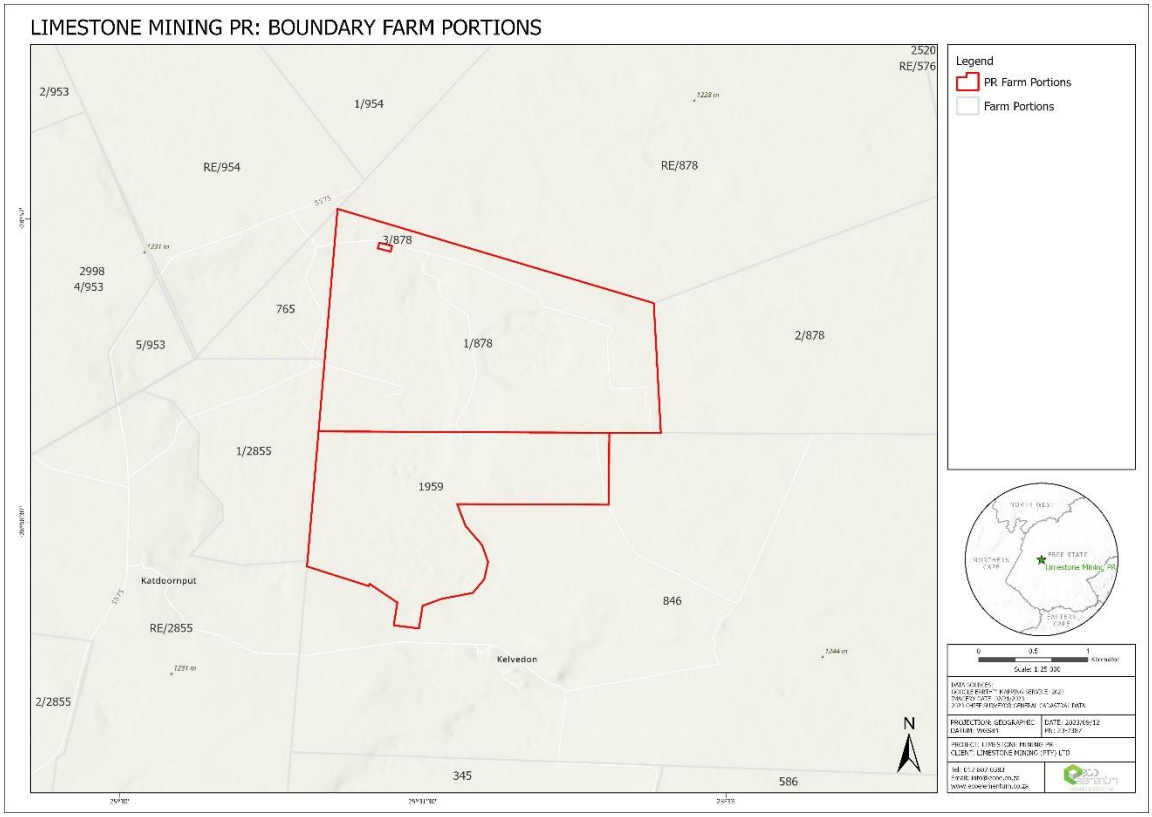

Figure 3-2: Farm boundaries for the study area

3.d DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY

3.d.i LISTED AND SPECIFIED ACTIVITIES

Section 16 of the MPRDA requires, upon request by the Minister that an Environmental Management Plan (EMP) be submitted and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that activities, which may impact on the environment must obtain environmental authorisation from a relevant authority before commencing with the activities. Such activities are listed under NEMA Listing Notices in which the proposed prospecting activity triggers.

Please refer to the table below for the details in terms of the listed activities.

Table 3-2: Listed and specific activities

NAME OF ACTIVITY **(E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route 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**
For: Prospecting. Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays. Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining, or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	960 m^2	X	GNR327 – Listing Notice 1, Activity 20
For: Site Clearance The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	960 m^2 Less than 20 ha	X	GNR 327 – Listing Notice 1, Activity 27

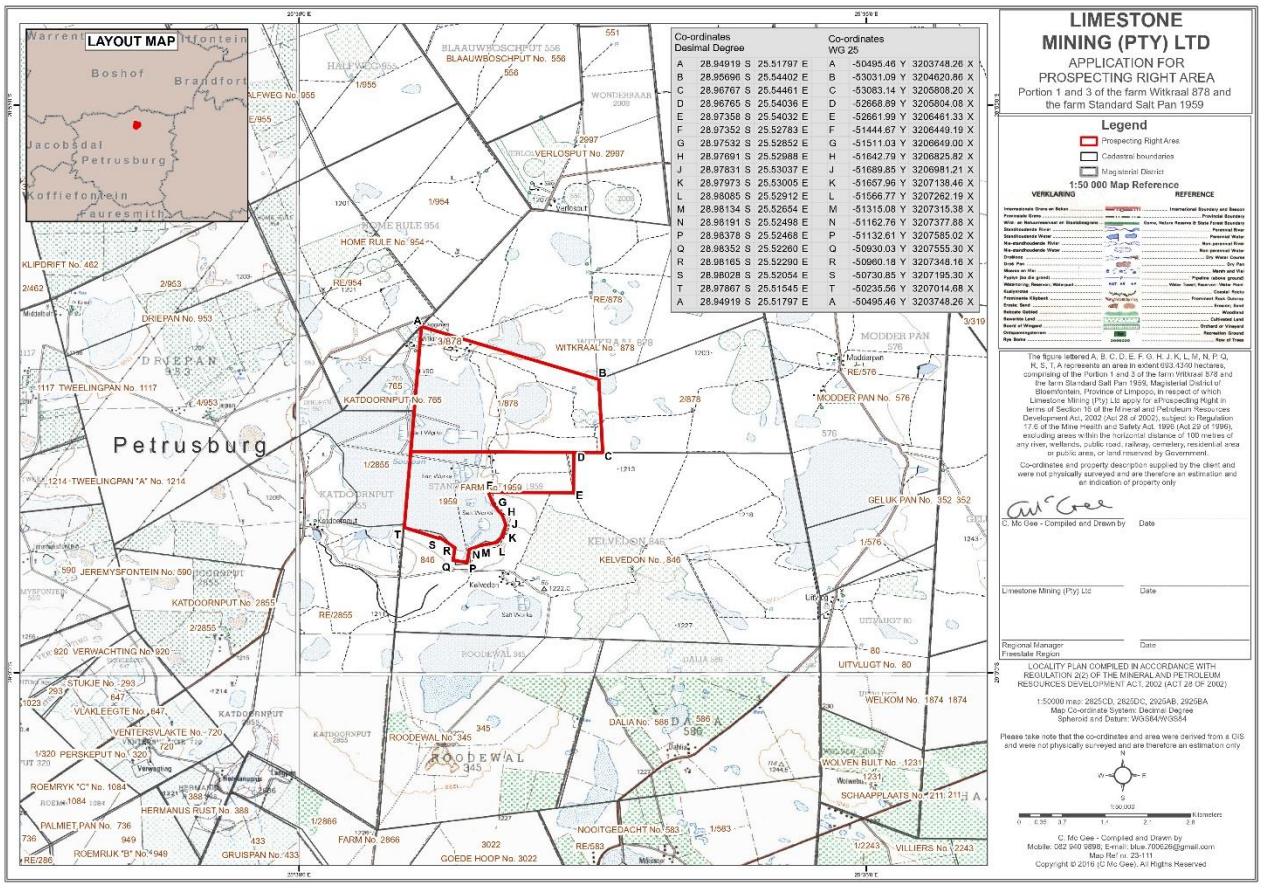

Figure 3-3: Regulation 2 (2) showing the proposed area for prospecting

3.d.ii DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

The mineral distribution in the portions of the area will be determined following the mineral exploration methods which are outlined in the following text. These mineral exploration methods are planned to follow the mineral exploration value chain where a systematic, phased, and cost-effective approach of determining the minerals distribution is followed. At the end of each phase, a decision will be taken to determine the feasibility of the project.

Non-invasive prospecting

- The first phase will be information gathering which includes detailed desktop studies and geological mapping. This will result in a plan showing outcrops and any geological information that will be useful during the subsequent phases of exploration. Feasibility studies will also be conducted at the end of the exploration phases.
- No geochemical survey is planned.
- Geophysical might be conducted, or geophysical data will be procured from commercial sources and organizations that collect them. The information that will be acquired will be magnetic information of the area which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the use of a contractor.

Invasive prospecting

- Drilling will be conducted using a RC drill rig. The chip samples from the borehole will be collected at a 1-meter interval. The samples will be logged and sampled on-site. The samples will then be transported off site to a laboratory. Resource modelling will be undertaken using the geological data determined from the data collected.
- Ten trenches are planned along the salt pan and sub outcrops of possible limestone during several phases. The dimensions of the trenches will be 10 meters long by 2 meter wide, the depth will be 2 meters (depending on overburden depth).
- No other excavations, bulk sampling or pitting is planned.

At the end of each phase there will be a brief period of compiling and evaluating results. The results will not only determine whether prospecting proceeds, but also the manner in which it will go forward. The applicant will only action the next phase of prospecting, once satisfied with the results obtained in the previous phases. In addition, smaller, non-core parts of the prospecting work program will be undertaken, if warranted.

Figure 3-2 above depicts the farm portions of the proposed PR area. The proposed areas of interest within the application area will be defined within the course of prospecting activities. It is anticipated that the invasive prospecting program will consist of drilling 15 boreholes using a RC drill rig. Vegetation will be cleared at the borehole locations within the application area. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes.

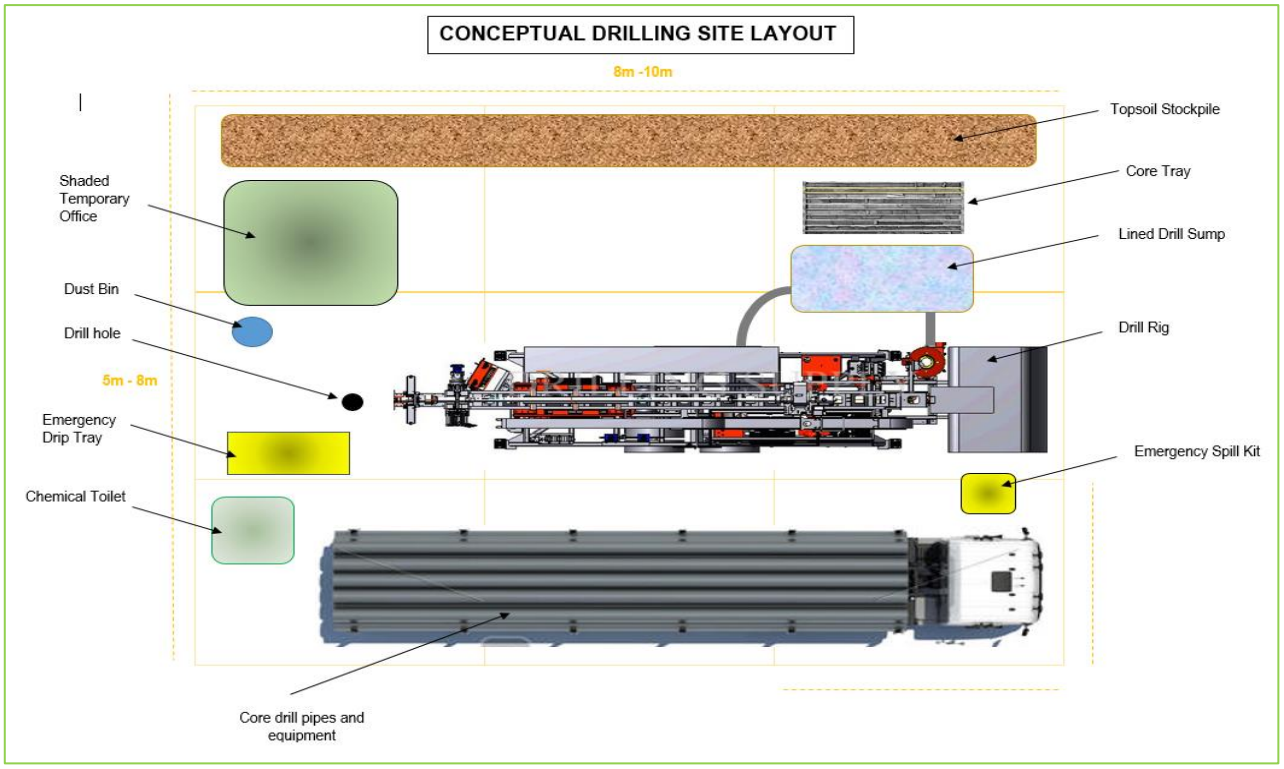

Figure 3-4: Conceptual drilling site layout

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.)

The non-invasive methods which will be used during the exploration program span all four phases in different time frames. They are outlined in the following text.

Literature Study – During this stage information pertaining to the geological, geographical, environmental and geomorphological including the topographical and infrastructural systems of the area will be studied with the aim of designing the prospecting program and also the impact that the programs will have on the environment and the ecosystem of the area. Information will be gathered from relevant areas including the Council of the Geoscience and other commercial areas where it may be available. Sources of information will include geological reports, general geological textbooks and geological maps, topographical maps, agricultural and land use maps. Visits to the area will also be conducted to acquire information that might not be available in the literature. Detailed geological information will then be gathered which will be used in planning further prospecting and exploration strategy.

Geological Mapping – This stage will include the field traverse in the farm collecting geological information. Lithological contacts, outcrops, faults, dykes, folds will be mapped including their attitude and characteristics like dip and strikes, thickness etc. This information will be correlated with the literature study information in order to correlate with the correct stratigraphy and lithological units.

Geophysical Survey – A decision will be taken to conduct geophysical observation or procure geophysical data from commercial sources and organizations that collect them. The information that will be acquired will be chiefly magnetic which will be aimed at delineating structures of higher or lower magnetic susceptibility than the surrounding country rocks. If the company conducts the observations, it will be airborne surveys conducted with the auspices of a contractor.

Interpretation of Information and decision making – This item appears in all the phases towards the end of the data gathering sub-programs. In Phase 1, this will mean that maps will be drawn depicting the data which is of the geological nature of the area. Using all the other information, a decision will be taken to determine the feasibility of the project.

Sampling and resource modelling - This stage entails sampling the core from drilling as well as data manipulation to produce drilling results information. Resource modelling is conducted which will result in tonnages and grade distribution. However, this is still in low geological confidence. From the results, a decision will be taken if prospecting will be continued.

During the non-invasive methods, additional information is gathered in the form of pre-feasibility studies. This includes the determination of the suitable mining method and its costs. Other information that is gathered includes the macro and the microeconomics that will determine the feasibility of the project. If necessary, an additional, smaller, non-core part of the prospecting work program will be undertaken, if warranted.

Table 3-3: Prospecting Phases

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)	Sign off by (e.g. geologist, mining engineer, surveyor, economist, etc.)
Phase 1	Geological Desktop Study and Geophysical survey	Geologist, Mineral economist	Month 1 to 4	Detailed geology regarding external diamond occurrence, Geophysical map delineating structures (faults, dykes)	4th Month	Project geologist
Phase 2	Reconnaissance Drilling/ and interpretation of results and decision making	Geologist	Month 5 to 12	Detailed Borehole logs and sampling information, Reconnaissance resource model and decision to proceed with project.	12th Month	Project Geologist
Phase 3	Resource drilling and interpretation of results and decision making	Geologist	Month 13 to 18	Detailed Borehole logs and sampling information, Location of diamond bearing bodies/ gravel. Ore body resource model.	18th Month	Chief Geologist
Phase 4	Prefeasibility Studies and feasibility drilling	Geologist, Economist, Metallurgist	Month 19 to 24	Ore body Characterization study for metallurgical purposes, Grade feasibility study report.	24th Month	Chief Geologist

Description of planned invasive activities:

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

Planned invasive prospecting methods entail conducting drilling to ascertain the existence of the expected minerals, their thickness and distribution. Samples will be taken and analysed. The number of boreholes planned is 15:

- Reconnaissance drilling: 3.
- Resource drilling: 7.
- Feasibility drilling: 5.

The depths will be to a depth of approximately 20 meters. The exact depths of the boreholes will be determined while the drilling program is underway as influenced by the depths and dips measured in the previous boreholes.

Water Supply

Currently, it is not known whether there are any water boreholes located on the site and whether access and supply will be granted by the landowner. Continuous water supply will be required during drilling, and on-site water storage tanks with a capacity of 15,000 ℓ for water supply to the drill, will be used.

When core drilling will be undertaken, a number of settling sumps will be excavated and lined with impervious plastic sheets. The purpose of these sumps is to recycle water and drilling fluids by means of gravity which leads to heavier materials (e.g. drill cuttings) to settle and clean water being produced for re-use. The drill cuttings form a sludge which will be collected in the sumps. These sumps will be fenced, where required, to prevent public access and prevent livestock from wandering onto the site. The plastic sheets will be removed and sumps will be backfilled on completion of drilling. If required, the remaining sludge in sumps is to be treated with a suitable bio-remediation product prior to backfilling or disposal.

Additional water requirements relate to the potable water supply for employees and workers. A temporary 260 ℓ on-site vertical water storage tank for drinking water and generalise by persons will be provided at the drill site. During core drilling, a laydown area for the extracted core samples will be established within the footprint of the drill site. This area is usually 5m x 2m (10 m^2) and is used to place the extracted core in sequence (according to depth) for later analysis by an appointed geologist. Core trays will be used to contain the core samples.

Access Roads

Access to the drill sites in the proposed PR application area will be required during the mapping and drilling activities of Phase 2 (Table 3-3). Access requirements can only be determined after Phase 1 has been concluded. A number of existing roads and tracks already traverse the proposed PR application area and where practicable, these roads will be used.

All access on farms will be conducted in terms of a written agreement with the landowner. In instances where no access roads are available to the drill site location, a single track will be selected as the best alternative on the basis of least environmental impact with natural habitat considered the last option. Agricultural sensitivities will also be taken into account, avoiding areas of agricultural significance as best as reasonably possible.

During mapping activities, vehicle access will be gained to site through the veld and the establishment of a track to gain repeated access to a mapping site will not be required.

Once the drill sites have been identified, temporary access roads may be established for repeated access to the prospecting site if the identified drill site cannot be accessed via existing roads and tracks.

Vegetation and topsoil stockpile areas (if required)

Vegetation and topsoil will only be stockpiled in instances where settling sumps are required i.e., core drilling. During the drilling process the topsoil and available vegetation will be placed adjacent to the sumps. This will also serve as a storm water diversion berm. The excavated material will be placed back into the rehabilitated sumps on completion of the drilling process.

Footprint

For the prospecting phase, several sites will be selected for geotechnical drilling. These boreholes and its associated activities will impact on a surface area of between 25m^2 and 64 m^2 per drill site. The full extent of the drill site will also be demarcated, and no drilling will be done outside of the boundary.

Ablution facilities

Ablution facilities at the drill site will involve the hiring of drum or tank type portable toilets that will be maintained by a contractor.

Drill rig

In most cases, the drill rig will be a self-contained, truck-mounted unit that will be accompanied by a compressor and a generator. The drill rig will be driven to site and mobilised in the desired location, positioned over the hole site, and will be stabilised.

Plastic sheets and drip trays will be placed underneath the rig for the duration of the drilling process at each site in order to avoid hydrocarbon spills and contamination. The full extent of the drill sites will be staked out and the drill crew will not operate beyond these boundaries. Depending on the locality, this perimeter may be fenced, marked with bunting or barricading.

3.e POLICY AND LEGISLATIVE CONTEXT

Table 3-4: Policy and legislative table

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 COMPLIY WITH 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)
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002). To make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources; and to provide for matters connected therewith.	The project requires a PR authorisation from the Department of Mineral Resources and Energy (DMRE).	A PR was lodged with the DMRE on the South African Mineral Resources Administration System (SAMRAD). The application was accepted by DMRE on 25/07/2023..
NEMA Environmental Impact Assessment (EIA) Regulations, as amended.	This Basic Assessment (BA) and Environmental Management Plan (EMP) to be conducted. Baseline environmental information of the project area will be assessed. Mitigation measures and recommendations were provided according to best practice standards.	An Application for Environmental Authorisation will be submitted to the Free State DMRE with the PR application lodgement on SAMRAD. In terms of the listed activities, an BA process is required. The process will be followed in terms of the "one environmental system". Specialist studies of the project area will be undertaken. Mitigation measures and recommendations were provided according to best practice standards. This report represents the BA and EMP which will be submitted in support of the application.
The South African Constitution In terms of Section 24 of the Constitution of the Republic of South Africa (108 of 1996) everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development	This is applied by identifying potential impacts and presenting mitigation measures for the proposed development. Additionally applied through the Public Participation Process (PPP) followed during the Scoping & EIA (S&EIR) Process.	A PR application was submitted and accepted by the competent authority 25/07/2023. A BA Process will be followed to assess impacts. An EMP and awareness plan will be designed according to the issues raised during this process. A Public Participation Process (PPP) will be followed and consultations will be done regarding the proposed project. An open and participatory PPP will be followed. Refer to Section 3.h.ii of this report

and use of natural resources while prompting justifiable economic and social development.		
National Environmental Management: Biodiversity Act , 2004. The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA) provides for listing of threatened or protected species.	A review of the biodiversity on the site. Presence of critically endangered species, if permit is required. To be determined by ecologist prior to prospecting activities.	The fauna and flora prevailing in the proposed project site will be handled in terms of this Act. Specialists have been appointed to undertake studies to determine if the application area falls within any CBAs & ESAs and recommend mitigation measures where applicable.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999).	Heritage Impact Study. A field-based AIA must be conducted that complies with section 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA) and the report (must) comply with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports. The proposed development area is located mostly within an area of high and moderate sensitivity in terms of palaeontological resources as per the SAHRIS PalaeoSensitivity map. As such, a desktop Palaeontological Impact Assessment (PIA) must be undertaken by a qualified palaeontologist.	A Phase 1 Heritage Impact Study was initiated to identify and assess the project in terms of heritage resource. The Heritage Report will be uploaded on the SAHRIS website for comment and development guided by any findings of the Report. This is mandatory in terms of Section 38 of the NHRA. A desktop PIA was initiated for the project.
National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004).	Dust monitoring on site during the operation.	As part of the EMPr dust suppression methods will be used.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996).	Health and Safety Policy.	Risk Impact Assessment to be conducted.

3.f NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

The mining sector has been described as the "Continuous Sunrise Sector" by President Cyril Ramaphosa at the 'Investing in African Mining Indaba' in Cape Town during May 2022, this due to the significant contribution which the sector continues to have on the country's economy. Despite the many challenges created by the Covid-19 Pandemic, the mining sector continues to contribute substantially to export earnings, is a critical source of foreign direct investment and provides employment for a considerable number of people.

As the economic effects of the Covid-19 Pandemic begin to subside, the mining sector has significantly contributed to the recuperation of South Africa's economy. In 2021, the mining sector registered a growth of 11.8%, the largest growth seen across all the industries in the economy. The sector was able to recover production close to pre-covid conditions.

In 2019 StatSA provided a report detailing the mineral production, finances, employment, exports and imports statistics for South Africa. The results of the census conducted confirmed that the South African Mining Industry is a critical pillar of our economy, with R527,5 billion in total sales generated in 2019. Of this R527,5 billion, 61% (R323,8 billion) was sourced from outside the country through exports. Coal dominates production in South African, covering about 75% of the total mass of all minerals produced. In 2019, 306 million metric tons of coal was produced. Almost two-thirds of mining sales are from abroad, with 39% of coal produced being exported.

The extracting and processing of minerals requires a great deal of machinery and workforce. The South African mining industry employed 514 859 individuals in 2019, with 39% employed in the platinum group metals sector, 21% in the coal sector and 20% employed in the gold sector. Recent statistics note that mining in South Africa still directly employs over half a million people post-covid. At the 4th South African Investment Conference in 2022, investments of approximately R46 billion was pledged towards mining and mineral beneficiation, showing investor confidence in South Africa's mining potential and operations.

The mining industry is identified as one of the key components toward Rapid Economic Growth in order to reduce poverty and minimise unemployment Growth (State of the Nation Address, 2019). The key issues include:

- The need for a strong capable state;
- Cost reduction for businesses and consumers;
- The need for reindustrialisation and a revitalised mining sector;
- Faster growth in tourism;
- Improved infrastructure;
- Better support for small businesses; and
- Marked reduction in unemployment.

Mining's contribution to provincial GDP (2020) is 25.9% and the sector employs 53 000 people. The activity of mining has numerous social and economic benefits in local, regional and national context. These include:

- Job creation.
- Skills development.
- SMME development & local economic development.
- Contribution to local and national tax income (royalties, companies' tax etc.).
- Contribution to the national gross domestic product, and
- Future business opportunities.

The production of goods, supply of services or construction of infrastructure results in expenditure within a regional economy which has knock-on effects and results in additional expenditure which contributes to the regional economy.

Provincial strategic growth and development have been identified in the Free State Province Spatial Development Framework (2014) as an important goal to achieve. This goal is supported by a number of pillars, one of which deals with inclusive economic growth and sustainable job creation. The second driver for this pillar aims to minimise the impact of the declining mining sector and ensure that existing mining potential is harnessed. In order to achieve this the FSPSDF (2014) recommended that the mining sector be supported

and allowed to extend the life of existing mines in the Free State and market new mining opportunities. The proposed activities being applied for on behalf of Limestone Mining is one of possible new mining opportunities initiatives.

Prospecting is a precursor to successful sustainable mining within an area, which in the long term can have positive economical inputs into the local area. Without successful prospecting, accurate profitable mining is less likely to be implemented.

3.g MOTIVATION FOR THE PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE

A large salt pan is found within the PR boundary, over Portion 1 of farm Witkraal 878 (owned by Witkraal Trust) and Standard Salt Pan 1959 (owned by Witkraal Farming (Pty) Ltd). The locality is clearly associated with the mineral halite (salt), the depositional environment and the arid climate also suggests that related carbonate deposits that could be found near or around the salt pan. This restricts the location of the project.

Some of the techniques employed in the non-invasive prospecting activities will include a literature survey, field reconnaissance/mapping, and geophysical survey of the geology, outcrops. While the invasive prospective activities will include prospecting boreholes, which are boreholes to confirm continuity of mineralization and potential deposit size and resource definition drilling.

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

Consultation with affected landowners and adjacent landowners was conducted in order to keep them informed about the proposed prospecting activities as well as to capture any comments and concerns they may have regarding the prospecting activity.

It should be noted that the exact location of the boreholes has not been identified at this stage. The location of these boreholes will be dependent on the findings of the non-invasive prospecting activities. Once the proposed target areas for the boreholes have been identified during the phases as set out in Table 3-3, these areas will be investigated and will be subject to the conditions of this document.

3.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.

3.h.i DETAILS OF ALL THE ALTERNATIVES CONSIDERED.

With reference to the site plan provided as Appendix 3 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;

The applicant, Limestone Mining (Pty) Ltd (hereinafter Limestone Mining), applied for PR for dolomitic limestone and limestone to the Regional DMRE: Free State Region in respect of Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959, situated in the Xhariep District Municipality within the Letsemeng Local Municipality, Free State Province, South Africa. This PR application covers approximately 693.43 ha. The full extent of the drill site will also be demarcated, and no drilling will be done outside of the boundary. Petrusburg is located roughly 18 km to the southwest of the proposed prospecting area, while Boshof is located 57 km to the north-northwest and Bloemfontein approximately 70 km east-southeast of the area. The N8 national road runs east-west approximately 16 km to the south, while the R64 primary road runs 40 km north of the site.

There are no alternative locations proposed for the project as the project area is located on a large salt pan over Portion 1 of farm Witkraal 878 (owned by Witkraal Trust) and Standard Salt Pan 1959 (owned by Witkraal Farming (Pty) Ltd). As this is a prospecting application the site location is also limited to the approved prospecting area and the location of activities will be determined based on

the location of the resource, which will only be determined during Phase 1 of the PWP. Final borehole sites will consider sensitive areas that need to be avoided.

b) the type of activity to be undertaken;

The mineral distribution in the portions of the area will be determined following the mineral exploration methods. These mineral exploration methods are planned to follow the mineral exploration value chain where a systematic, phased and cost-effective approach of determining the distribution of the mineral is followed. At the end of each phase, a decision will be taken to determine the feasibility of the project.

Invasive prospecting can be done via drilling or bulk sampling. Drilling was chosen as the preferred option due to the cost of deeper drilling being more feasible, rehabilitation is easier and less costly, and the impact to the environment is less. Therefore, no bulk sampling will take place as part of this PR application.

c) The design or layout of the activity

The location of the invasive activities will only be determined following the results from Phase 1 of the PWP. Environmental sensitive areas will be avoided as far as possible.

d) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long-term success of the company in terms of their prospecting history and the most economically viable technology. The prospecting activities proposed in the PWP is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques. No feasible alternative technologies are available to conduct the prospecting due to the basic nature of the processes. Alternative technologies may be considered as mitigation measures used for management of water, dust, and noise.

Airborne Surveys/Geophysical Surveys will be conducted upon issue of the PR, to give an overview of the geophysical properties of the prospecting area. Once the areas of target are identified, drilling will be strategically correlated with target areas. Deep ore bodies are most commonly evaluated by diamond drilling techniques. The essential part of exploratory drilling is that material broken out of the borehole must be recovered for analysis.

e) the operational aspects of the activity;

As per (d), above.

f) the option of not implementing the activity.

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

3.h.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.)

Chapter 6 of the NEMA Regulation 326 (as amended) (Section 41 specifically) set out the Legal and Regulatory Requirement for Public Participation. The PPP aims to involve the authorities and IAPs in the project process. It further determines the stakeholder's needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process will be followed at all times and will be based on reciprocal dissemination of information. The following will be undertaken during the PPP:

- Identification of I&APs.
- Notification of I&APs regarding the proposed project via newspaper advert (Bloemfontein Courant); the placing of 4 x site notices at conspicuous places and the sending of notifications to affected parties via email and SMS'.

- Distribution of BA Reports on the website (http://ecoelementum.co.za/downloads/) and per download link (upon request) providing I&APs with the opportunity to review and comment on the reports.
- A public information meeting (open day) with I&APs was scheduled Monday, 2nd of October 2023 from 15:00 – 19:00 at Karibu Guest House, 53 Fountain St, Petrusburg. The I&APs were provided an opportunity to collect the Background Information Document (BID) and provide comment and issues related to the proposed project.
- Gathering of public comments, issues and concerns from I&APs.
- Responding to I&AP comments, issues and concerns.
- Compilation and submission of results of consultation report; and
- Providing I&APs with the opportunity to review and comment on the BAR.
- Submission of Draft and Final BARs (with I&AP comments) to the DMRE.

3.h.iii SUMMARY OF ISSUES RAISED BY I&APS

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

An issues and comments table will be compiled and presented in the **final** BAR., after an additional 30-day PPP consultation period running from 3 November to December 4th 2023.

3.h.iv THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES. (THE ENVIRONMENTAL ATTRIBUTED DESCRIBED MUST INCLUDE SOCIO-ECONOMIC, SOCIAL, HERITAGE, CULTURAL, GEOGRAPHICAL, PHYSICAL AND BIOLOGICAL ASPECTS)

3.h.iv.1 Baseline Environment

3.h.iv.1.a Type of environment affected by the proposed activity.

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

CLIMATE

The study area falls within the summer rainfall region and the average annual rainfall is roughly 496 mm per year. The average maximum temperature for the study area is recorded during January when an average of 24.7 ºC is reached. On average, July is the coldest month with a temperature of 9.9 ºC (Climate-data.org 23/09/2021).

In Petrusburg, it is raining for 7.6 days, with typically 19mm (0.75") of accumulated precipitation. In Petrusburg, during the entire year, the rain falls for 65.5 days and collects up to 183mm (7.2") of precipitation.

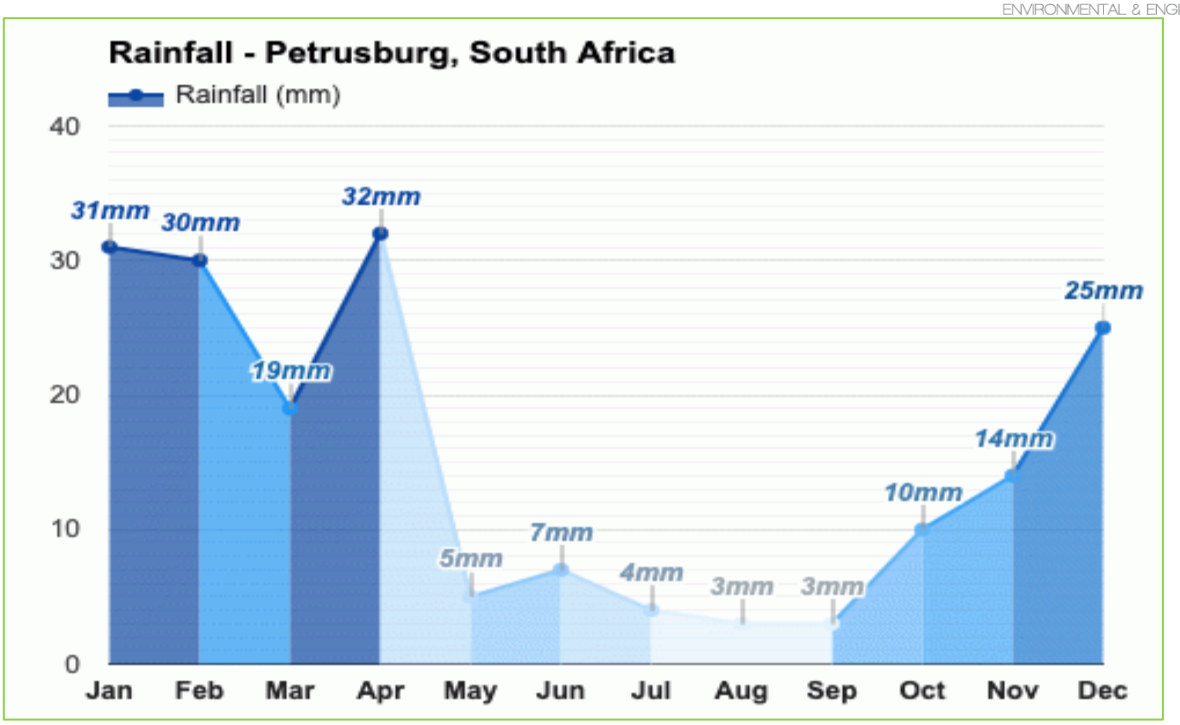

Figure 3-5: Average rainfall in March Petrusburg

In March, the average high-temperature is essentially the same as in February - a moderately hot 29.8°C. March, the average low temperature is 18.8°C.

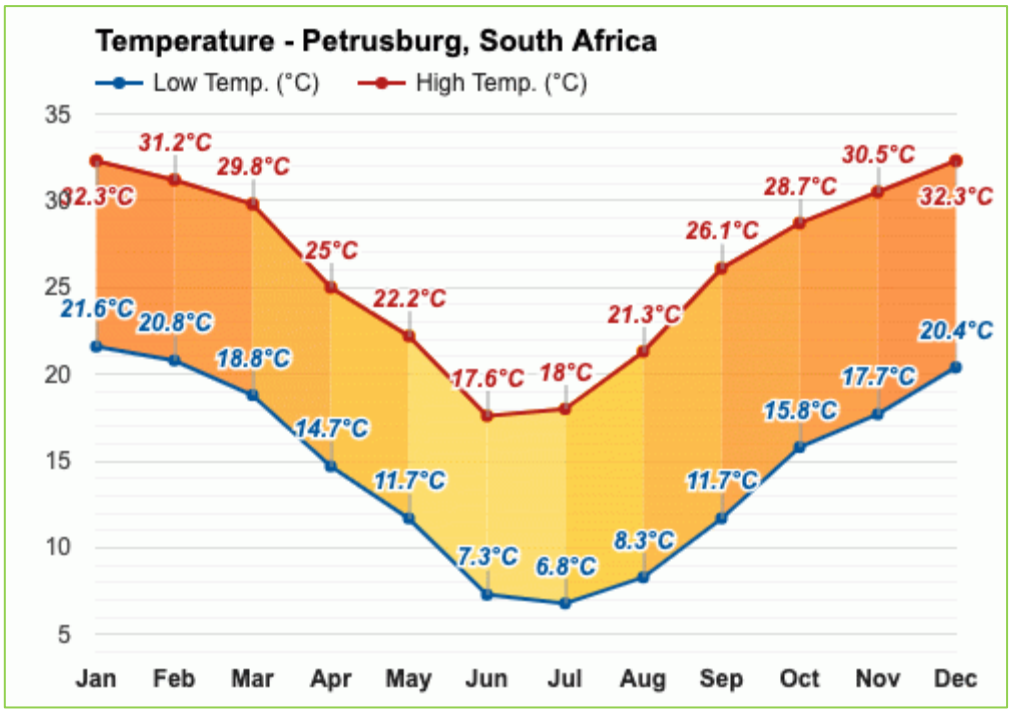

Figure 3-6: Average temperature for Petrusburg

TOPOGRAPHY

The topography of the region is gently undulating to the moderately undulating landscape of the Highveld plateau. According to Mucina & Rutherfords (2006), the average elevation for Bloemfontein Dry Grassland varies between 1200 and 1480 masl (metres above sea level). The average elevation for the study area is roughly 1200 masl and slopes from the slightly more elevated eastern section to the lower western section.

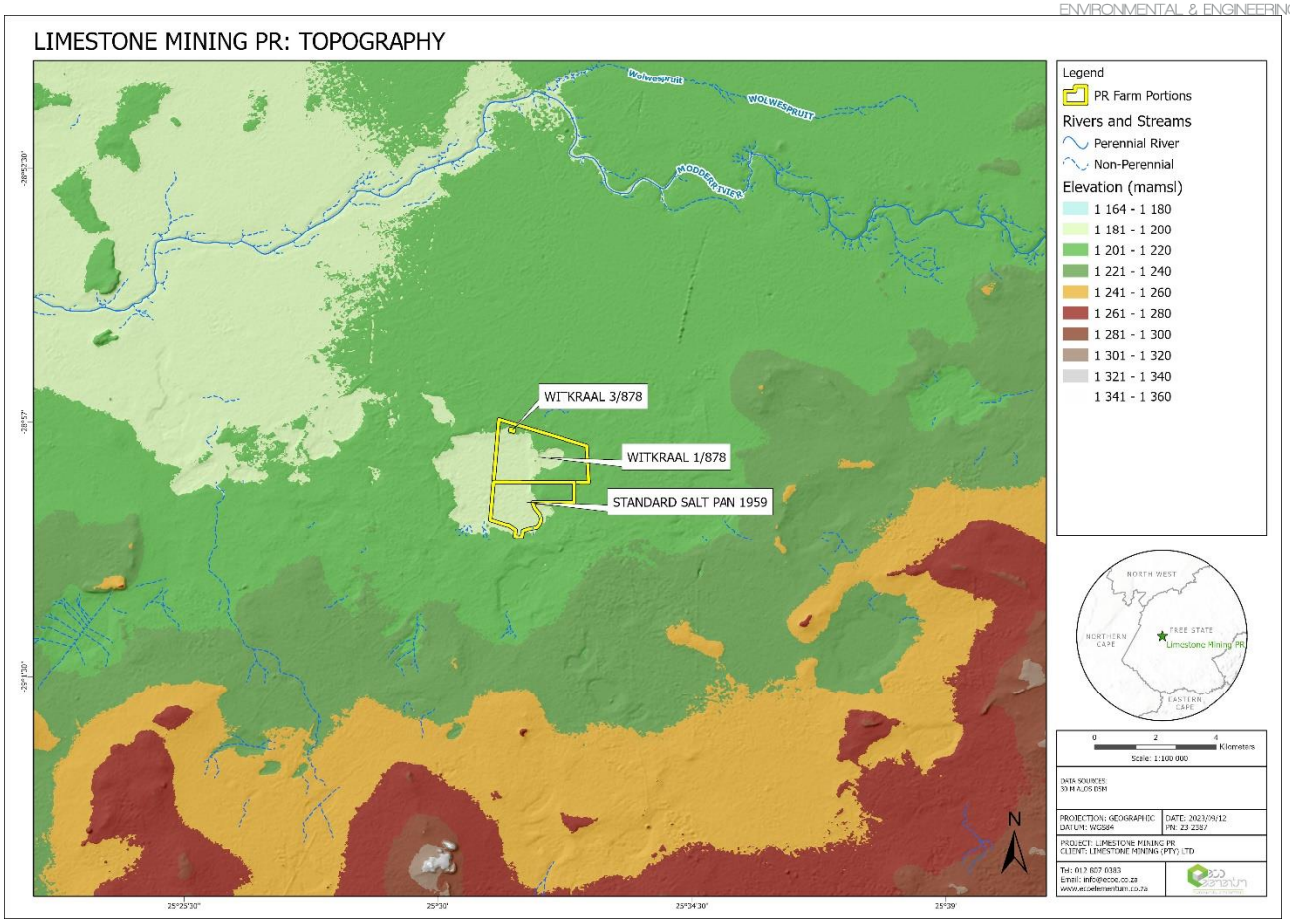

Figure 3-7: Topographical map for the PR

GEOLOGY

Limestone and dolomite have been known to be deposited outside extensive carbonate-bearing formations in South Africa. Calcrete and dolocrete have formed in arid parts of the country. These include in several pans, in the North West and Free State Provinces. These deposits are usually low grade although they can occasionally reach 85% carbonates. For example, in the Delareyville-Schweizer-Reinecke area north-northeast of Delareyville, limestone has accumulated in dunes on the southern margin of several pans. It is derived from the floors of the pans where it has been deposited and then exposed to a northerly wind in spring when the pans dry up. The combined resources for such deposits are large but the material is mixed with aeolian sands thus have limited economic value. Occasionally being exploited for agricultural use.

Calcrete forms when there is an accumulation of calcium carbonate in the soil which forms when groundwater is drawn to the surface during long dry spells in arid to semi-arid areas. This water evaporates and precipitates its salts and minerals. These deposits or accumulations are generally known as duricrusts and may be loose, nodular, or powdery in calcareous sands and clays. They may also form hard, massive concretionary layers called hardpan. Calcretes are low to medium-grade limestones (Martini & Wilson, 1998).

The most commonly associated salts found in saltpans are sodium chloride, sodium carbonate, sodium sulphate, calcium sulphate and, occasionally, magnesium sulphate (Wellington, 1955; Seaman et al., 1991). The bulk of salt pans in South Africa are underlain by Dwyka and Ecca shales, which are known sources of chlorides and sulphates of sodium, calcium, and magnesium (Hugo, 1974; Seaman et al., 1991).

In Southern Africa, salt pans tend to be shallow and non-perennial and occur within the major areas identified for pans (Seaman et al., 1991). These salt deposits usually form when evaporation exceeds precipitation and results in these closed basins becoming progressively more saline over time, especially if they receive inflows that are sufficient to maintain a standing body of water. When the receiving waters contain high solute loads, the process is accelerated, and when the salt concentrations become high enough, salt crystallization and deposition occur (Ashton and Schoeman, 1983).

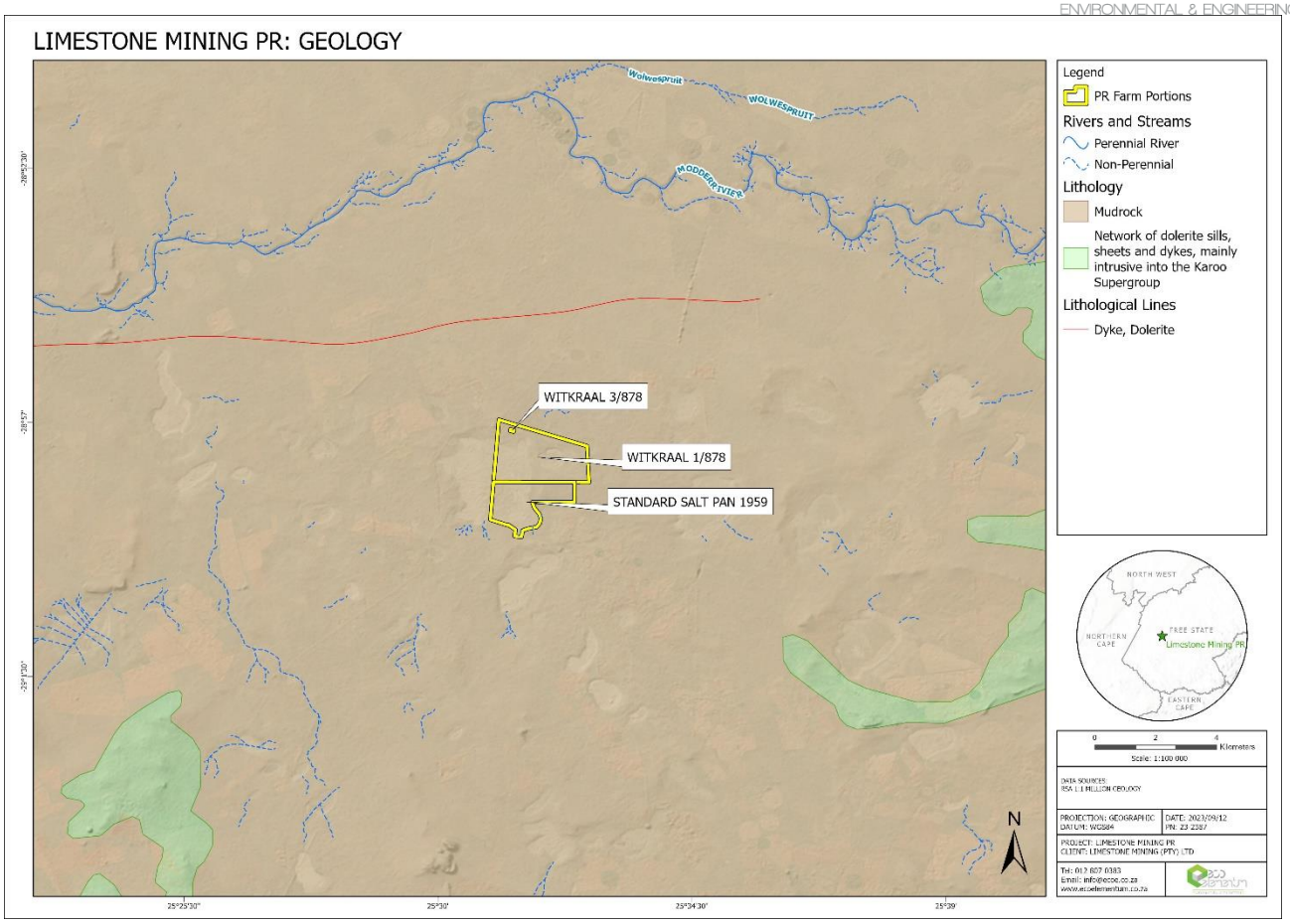

Figure 3-8: Geology of the study area

SURFACE DRAINAGE FEATURES

The study area falls within the C52K Quaternary Catchment of the Orange Water Management Area. The closest perennial river to the study area is the Modder River that flows approximately 9 km to the north. The Krugersdrift Dam is located 45 km to the east.

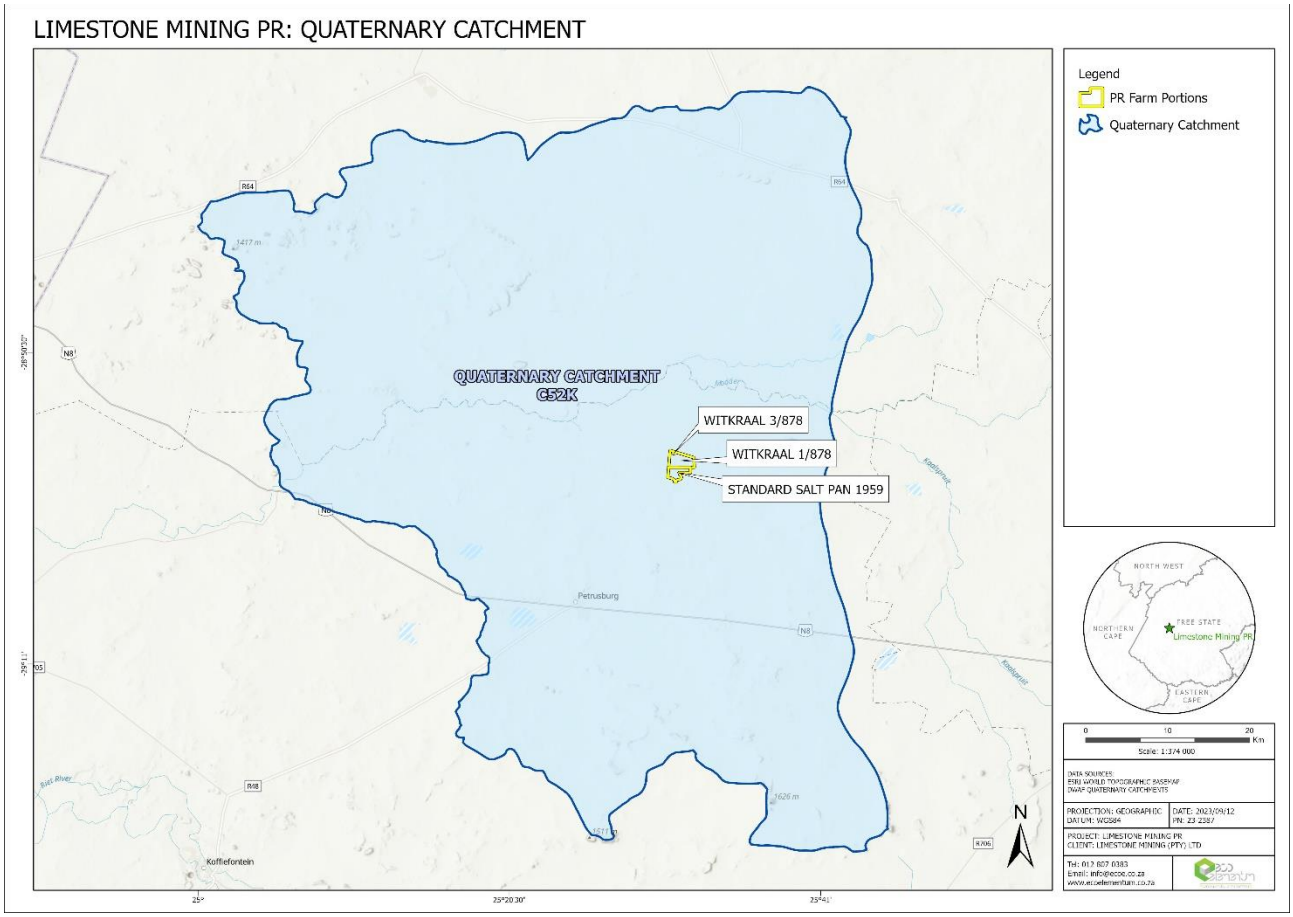

Figure 3-9: Proposed PR area's Quaternary Catchment.

FLORA

In terms of vegetation, the study area falls within the Grassland Biome which is typically associated with summer rainfall regions. This Biome covers approximately 28% of South Africa. Locally, the study area falls within the Bloemfontein Dry Grassland vegetation unit, while two areas consist of salt pans. Bloemfontein Dry Grassland is found in the Free State Province and is associated with the south-central part of the province. The unit extends from Petrusburg in the west to the Rustfontein Dam in the east and from Reddersburg in the south to the Soetdoring Nature Reserve in the north. This vegetation type is considered endangered with a conservation target of 24%. Only a small portion is statutorily conserved in the Soetdoring Nature Reserve and more than 40% has already been transformed, mainly by crop cultivation and urban development. Erosion characteristics vary between very low, low and moderate (Mucina & Rutherfords 2006).

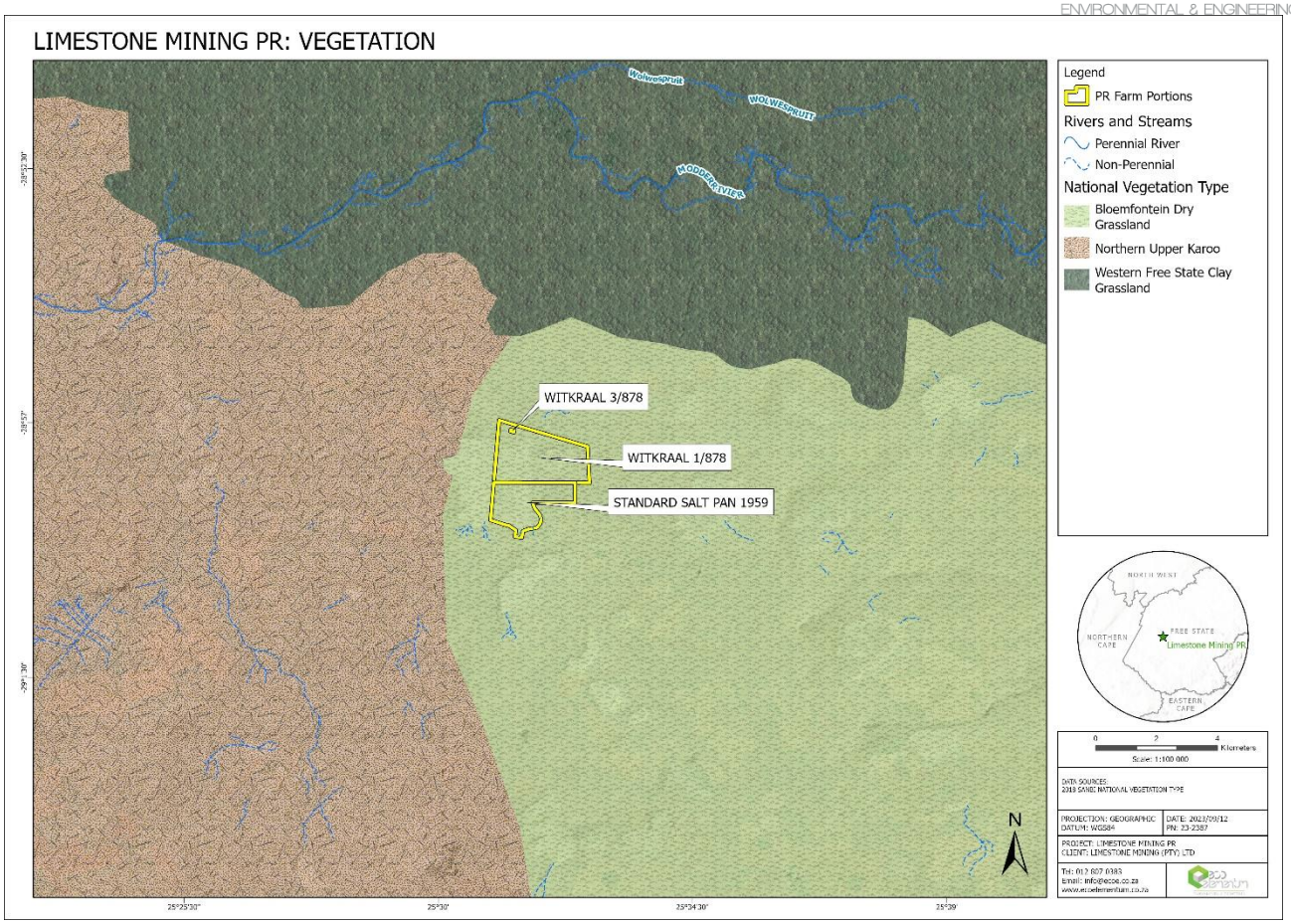

Figure 3-10: Proposed PR area's Vegetaion .

HERITAGE IMPACT ASSESSMENT

The background information yielded information about known archaeological and heritage resources located in the Free State Province, particularly the general Petrusburg region. The broader Free State Province has a long history with Sotho-Tswana speaking people migrating and settling in the area during the Iron Age.

The physical survey focused on the area proposed for prospecting activities on Portion 1 and 3 of the Farm Witkraal 878 and the Farm Standard Salt Pan 1959, in Petrusburg, situated in the Free State Province. The survey identified two cemeteries, one within where prospecting activities will occur and one outside the prospecting area. Possible stone tools were observed on the pan which is outside the area of prospecting activities, Furthermore, farm houses were located in various parts of the farm, however there were contemporary in nature.

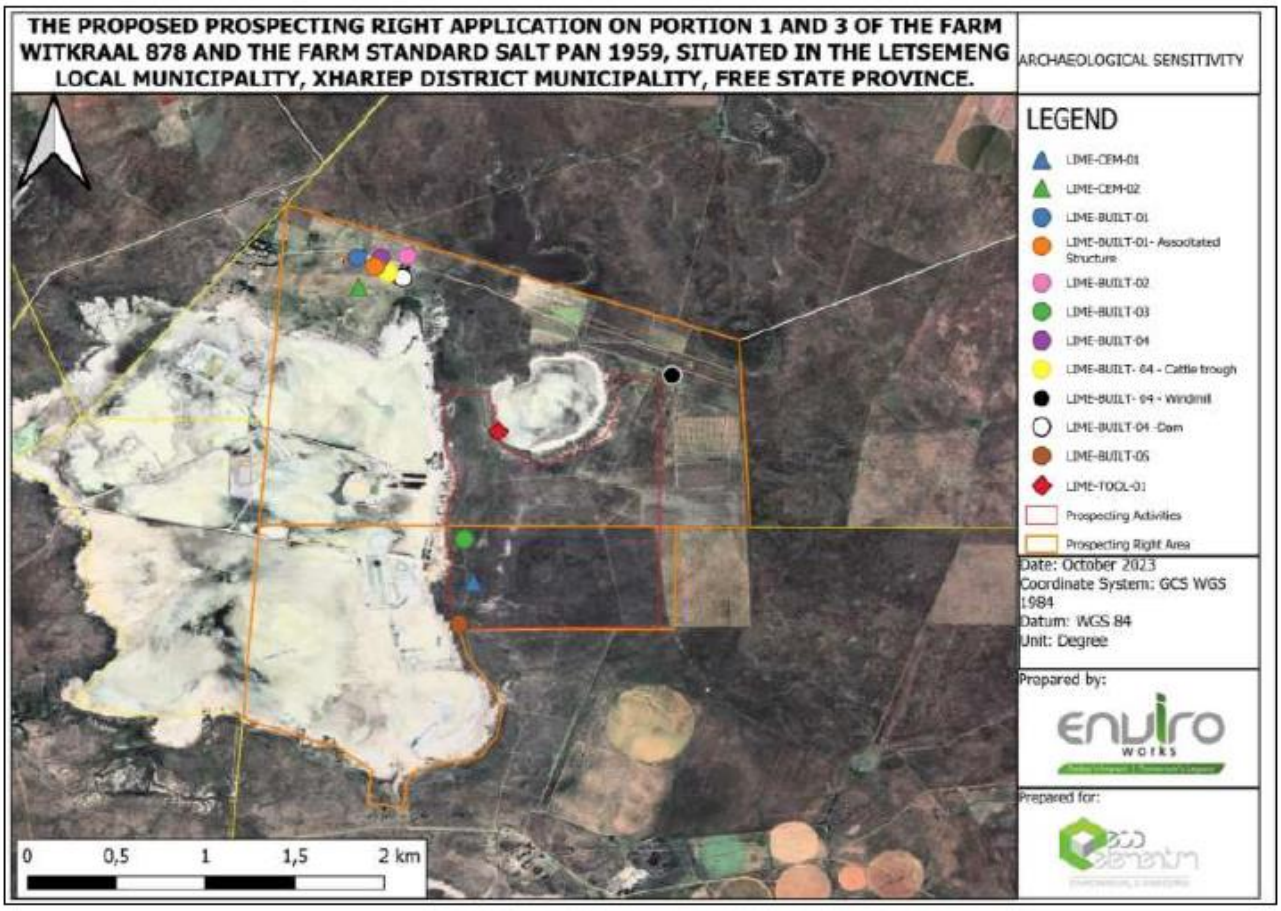

Figure 3-11: Heritage sensitivity map indicating possible sensitive areas around and within the prospecting activities area.

Fieldwork findings

1. Site Number: LIME-CEM-01

A cemetery was located in the south west within the area where prospecting activities will occur during survey. The cemetery contains 20 graves; 1 grave had a tombstone, 19 were unmarked and were characterized by packed stones. The area where the cemetery is located characterised by an overgrown vegetation thus making the visibility of the graves difficult.

2. Site Number: LIME-CEM-02

A cemetery is located on Farm Witkraal No. 978, outside where prospecting activities will occur. The cemetery appears to contain graves with cement headstones, and the visible headstones indicate that individuals were buried between 1960 and 1962. Moreover, there are unmarked graves in the cemetery, which are identified by packed stones. It's worth noting that the cemetery area is currently covered by overgrown vegetation, making it challenging to see some of the graves.

Burial grounds and graves are protected under Section 36 of the NHRA 25 of 1999. All graves hold significant emotional, religious and, in some cases, historical value. It is also crucial to acknowledge that the identified graves.

3. Site Number: LIME-BUILT-01

During the survey a building which was formally known as the Lawrence Primary School was observed. The building is currently utilised as a house for the Farm Manager and his family. The farm Manager stated that the school has been relocated to the township. The building structures are made with brick and painted with white paint. The roof is of corrugated iron. A small veranda is also observed on the building. It appears that the building in question, as indicated on the 1986 topographical map from Coetzee 2023, has been visible on historical maps since 1986. Consequently, it can be deduced that the building is less than 60 years old. Therefore, the building does not fall under the protection of Section 34 of the NHRA, No. 25 of 1999.

4. Site Number: LIME-BUILT-02

During the survey, several farm worker houses were recorded. The building structures are made with brick and painted with white paint. The roof is of corrugated iron. The structures identified during the survey are of contemporary design and does not have any heritage significance. As far has been determined, the houses do not have a special relationship between the community and the surrounding environment. Thus, the site it no research potential or is it of other cultural significance.

It must be noted that according to the historical topography map by Coetzee (2023), building structures appear at the same location. It may be possible that the buildings were demolished and replaced by contemporary buildings.

5. Site Number: LIME-BUILT-03

During the survey several ruin farm worker houses were recorded. The building structures are made with brick and plastered with clay. The roof is of corrugated iron. The structures identified during the survey are of contemporary design and does not have any heritage significance. As far has been determined, the houses do not have a special relationship between the community and the surrounding environment. Thus, the site it no research potential or is it of other cultural significance**.**

6. Site Number: LIME-BUILT-04

During the survey a building structure that was used as a shower was identified. According to the farm Manager, the building structure is presently used as a pump. The site is reasonably well preserved but its exact age is not known. A dam, pump and foundation structure were found on Portion 1 of Farm Witkraal No. 878. The dam is currently being used to pump water for farm activities. However, according to the farm Manager, the pump gives them operational challenges. A contemporary cattle trough was observed during the survey. The trough is associated with current farming activities. A windmill, dam and trough were observed on site. The dam and windmill are reasonably well preserved their exact age is not known. However, although the trough is likely to be older than 60 years and generally protected under Section 34 of the NHRA 25 of 1999, it does not represent any unique features that should be preserved. Thus, the site is provisionally rated as low as it has **no research potential or of other cultural significance.** All these structures were observed outside the area where prospecting activities will occur.

7. Site Number: LIME-BUILT-05

During the survey the ruins of an Old Farmhouse were identified in the south-western section of the site. In several areas around area building rubble has been dumped. The Built Environment found is of low significance and have no heritage value as it has been already destroyed.

8. Site Number: LIME-TOOL-O1

Possible weathered MSA stone tools were observed at the pan on site. Stone artefact scatters are usually located in areas with fluvial gravels along drainage lines, pans and rocky outcrops. The stone artifacts are of low heritage value due to temporally mixed contexts and the absence of faunal, organic and other cultural remains. The Stone Age localities are not conservation-worthy and even though the resources may be destroyed during construction, the impact is minor.

PALEONTOLOGICAL IMPACT ASSESSMENT

Geological context

The project is located in the north central part of the Karoo Basin where Karoo Supergroup rocks cover a very large proportion of South Africa and have preserved a diversity of fossil plants, insects, vertebrates and invertebrates. During the Carboniferous Period South Africa was part of the huge continental landmass known as Gondwanaland and it was positioned over the South Pole. As a result, there were several ice sheets that formed and melted, and covered most of South Africa. Gradual melting of the ice as the continental mass moved northwards and the earth warmed, formed fine-grained sediments in the large inland sea. These are the oldest rocks in the system and are exposed around the outer part of the ancient Karoo Basin and are known as the Dwyka Group. They comprise

tillites, diamictites, mudstones, siltstones and sandstones that were deposited as the basin filled (Johnson et al., 2006). Figure 3-12 provides the geology of the PR area.

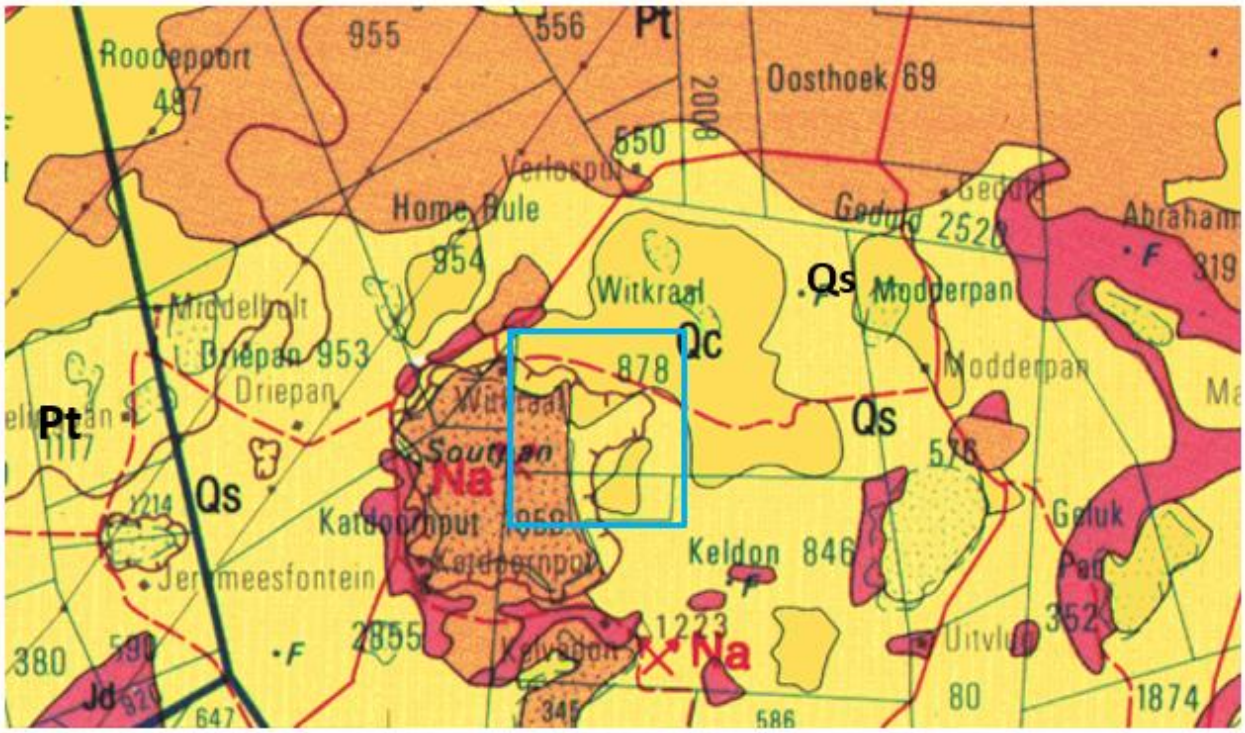

Figure 3-12: Geological map of the area around the Farms Witkraal and Standard with the PR area within the blue outline. Abbreviations of the rock types are explained in the table below. Map enlarged from the Geological Survey 1: 250 000 map 2824 Kimberley

Symbol	Group Formation	Lithology	Approximate Age
Qs	Quaternary	Alluvium, sand,	Quaternary, ca 1.2 – 1.0 Ma
Qc	Kalahari sands	Calcrete. Calcified pan dune	Quaternary, ca 1.2 – 1.0 Ma
Jd	Jurassic dykes	Dolerite dykes, intrusive	Jurassic, approx. 180 Ma
Pt	Tierberg Fm, Ecca Group, Karoo SG	Shales, siltstones, sandstone,	Early Permian, ca 290 Ma

Overlying the Dwyka Group rocks are rocks of the Ecca Group that are Early Permian in age. There are eleven formations recognised in this group but they do not all extend throughout the Karoo Basin. In the west and central part are the following formations, from base upwards: Prince Albert Formation, Whitehill Formation, Collingham Formation, Laingsburg / Ripon Formations, Tierberg / Fort Brown Formations, and Waterford Formation. In the eastern Free State and KwaZulu Natal, from the base upwards are the Pietermaritzburg Formation, Vryheid Formation and the Volksrust Formation. All of these sediments have varying proportions of sandstones, mudstones, shales and siltstones and represent shallow to deep water settings, deltas, rivers, streams and overbank depositional environments.

Overlying the Ecca Group are the rocks of the Beaufort Group that have been divided into the lower Adelaide Subgroup for the Upper Permian strata, and the Tarkastad Subgroup for the Early to Middle Triassic strata. As with the older Karoo sediments, the formations vary across the Karoo Basin.

Large exposures of Jurassic dolerite dykes occur throughout the area. These intruded through the Karoo sediments around 183 million years ago at about the same time as the Drakensberg basaltic eruption.

The Quaternary Kalahari sands form an extensive cover of much younger deposits over much of Botswana, the Northern Cape Province and the Free State Province. Haddon and McCarthy (2005) proposed that the Kalahari basin formed as a response to down-warp of the interior of the southern Africa, probably in the Late Cretaceous. This, along with possible uplift along epeirogenic axes, back-tilted rivers into the newly formed Kalahari basin and deposition of the Kalahari Group sediments began. Sediments included basal gravels in river channels, sand and finer sediments. A period of relative tectonic stability during the mid-Miocene saw the

silcretisation and calcretisation of older Kalahari Group lithologies, and this was followed in the Late Miocene by relatively minor uplift of the eastern side of southern Africa and along certain epeirogenic axes in the interior. More uplift during the Pliocene caused erosion of the sand that was then reworked and redeposited by aeolian processes during drier periods, resulting in the extensive dune fields that are preserved today.

There are numerous pans in the Kalahari Group sediments, generally 3–4 km in diameter (Haddon and McCarthy, 2005). According to Goudie and Wells (1995) there are two conditions required for the formation of pans. Firstly, the fluvial processes must not be integrated, and second, there must be no accumulation of aeolian material that would fill the irregularities or depressions in the land surface. Favoured materials or substrates for the formation of pans in South Africa are Dwyka and Ecca shales and sandstones (ibid).

New cosmogenic burial ages obtained from a 55 m section of Kalahari Group sediments (Matmon et al., 2015) indicate that in the southern Kalahari, the majority of deposition occurred rapidly at 1.0–1.2 Ma. All earlier sediments in this region were eroded during previous sedimentary cycles. In summary, they showed that the stratigraphy, sedimentology, and cosmogenic nuclide data indicate:

- the existence of a stable, shallow and low-energy water body over the southern Kalahari for at least 450 ka prior to 1–1.2 Ma;
- rapid sediment accumulation that filled up the basin at 1–1.2 Ma; and
- the establishment of the Kalahari sand cover shortly thereafter.

The authors acknowledge that this timeframe is far younger than expected from the conventional estimates for the Kalahari Group sediments (Haddon and McCarthy, 2005). The significant hiatus between the Pleistocene sequence and the underlying Archaean basement implies that evidence of earlier cycles of deposition and erosion are no longer preserved in the sedimentary record.

Paleontological context

The palaeontological sensitivity of the area under consideration is presented in Figure 3-13. The site for development is in the Tierberg Formation, Jurassic dolerite, Quaternary calcrete and Quaternary sands. Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero. From the SAHRIS map below the area is indicated as highly sensitive (orange) for the Tierberg Formation and Quaternary sands, moderately sensitive (green) for the Quaternary calcrete and on no sensitivity (grey) for the Jurassic dolerite.

In the westernmost part of the basin the Tierberg Formation is predominantly argillaceous. In the northwest of its occurrence where it is in contact with the Collingham or Whitehill Formations, it grades up into the arenaceous overlying Waterford Formation (Johnson *et al.*, 2006). Trace fossils of Nereites, Planolites and Zoophycus can be found in the fine mudstones (Johnson et al., 2006).

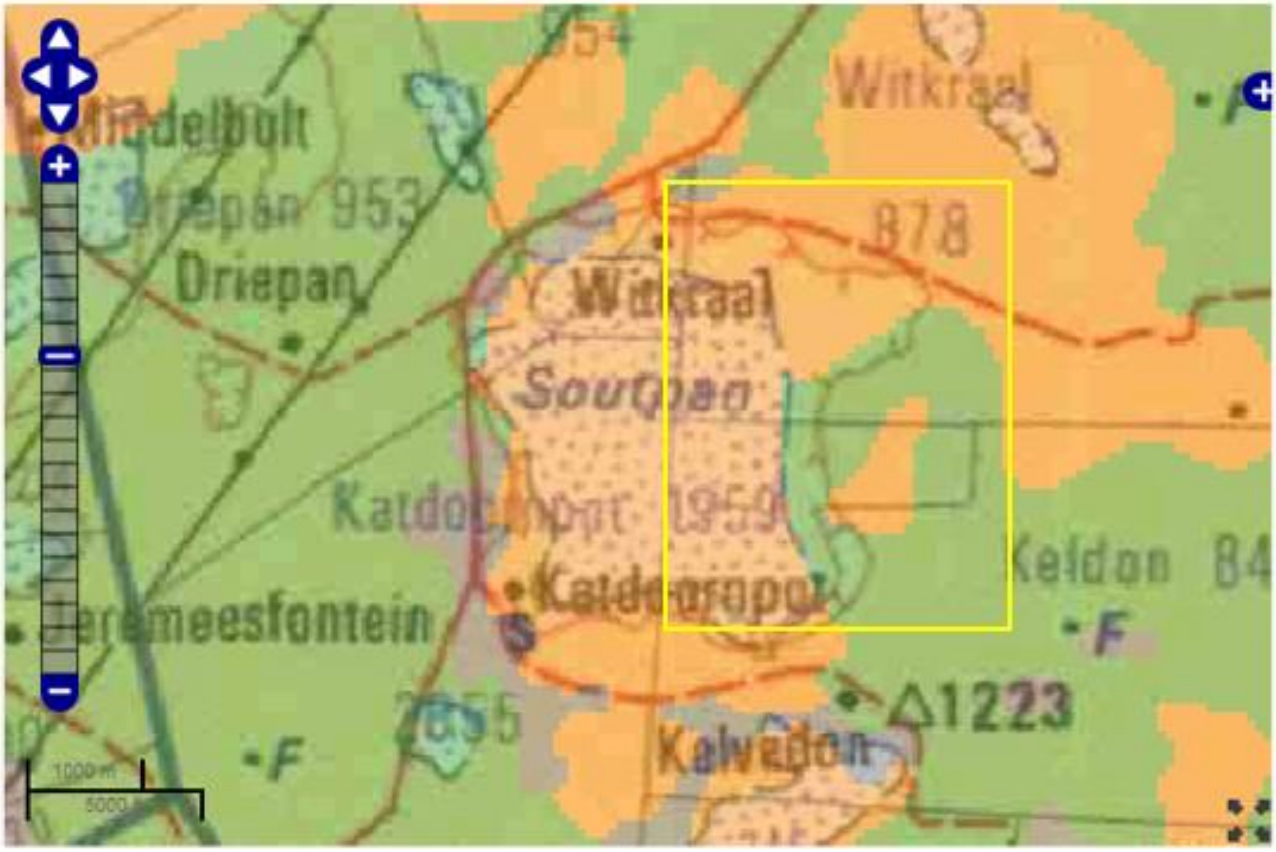

Figure 3-13: SAHRIS palaeosensitivity map for the site for the proposed PR application on Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959

The Tertiary calcretes can trap fossils and artefacts when associated with palaeo-pans and dunes or palaeo-springs (Partridge *et al.,* 2006). Where deflation has occurred, for example along the west coast of South Africa, any trapped materials in the different levels can be concentrated in the depo-centre of the pan or dune and thus it can be challenging to interpret the deposit (Felix-Henningsen *et al.,* 2003; Netterberg, 1969).

The aeolian sands of the Gordonia Formation do not preserve fossils because they have been transported and reworked, but in some regions, these too may have covered pan or spring deposits and these can trap fossils, and more frequently archaeological artefacts. This pan has already been mined extensively.

NOISE ASSESSMENT

The congestion of different types of vehicles and associated increased noise-levels take place along these roads during the day and to a lesser degree during the night. There are noise sensitive areas such as guest houses, houses, schools, entertainment areas along with the road network.

The Noise Receiving Environment

The prevailing ambient noise-levels along this proposed road vary between built-up areas with high prevailing ambient noise levels to areas where there are low prevailing ambient noise levels because of the rural type of district of the area. Certain areas with high levels of ambient noise are located in close proximity to existing roads. The prevailing ambient noise levels are made up out of traffic noise, domestic noise, built-up area noise, industrial type noises and residential type noises. The proposed PR is not a linear type noise source with only high noise levels during work hours and low noise levels at night.

SOCIAL

The proposed Project is located in Letsemeng Local Municipality and the Xhariep District Municipality in the Free State Province of South Africa. The socio-economic characteristics of the population within each of the aforementioned areas are listed below. The Letsemeng

Local Municipality is a Category B municipality situated in the south-western Free State Province within the Xhariep District. It is bordered in the north by the Lejweleputswa District, in the south by Kopanong, in the east by the Mangaung Metro, and in the west by the Northern Cape Province. It is one of three municipalities in the district, making up almost a third of its geographical area. The socio-economic growth of the municipality is centred on agriculture. The municipal area also has mining activities, with diamond minerals being the major natural resource that helps with employment creation.

Figure 3-14: Xhariep District municipalities

Population and Demographics

The district has a median age of 26 years. By comparing the population pyramid of the Xhariep District Municipality with the national age structure, the most significant differences are:

There is a significant smaller share of young working age people aged 20 to 34 (25.6%) in Xhariep, compared to the national picture (28.0%).

- The area seems to be a migrant sending area, with many people leaving the area to find work in the bigger cities.
- Fertility in Xhariep is slightly higher compared to South Africa as a whole.
- Spatial policies changed since 1994.

The share of children between the ages of 0-14 years is slightly larger (29.8%) in Xhariep compared to South Africa (29.1%). Demand for expenditure on schooling as percentage of total budget within Xhariep District Municipality will therefore be higher than that of South Africa.

The population structure for Xhariep, 60 742 (49.9%) of the population are males and 60 945 (50.1%) are females. The African population had the largest group at 76%, followed by the Coloured (14%) and White (10%) population group. 44% of the population speak the Sesotho language at home, followed by Afrikaans at 38% and isiXhosa at 12%.

According to Census 2011, Letsemeng Local Municipality has a total population of 38 628, of whom67,8% are black African, 23,4% are coloured and 8,1% are white, with the other population groups making up the remaining 0,7%.

Educational Status

An investigation of the level of education identified the following specific geographic areas (district and local municipalities) with the highest need, indicated in relation with Xhariep District Municipality and its local municipalities.

The number of persons aged 20 and above that have completed grade 7 in Xhariep in 2010 was 68 887, representing a percentage of 58.33% of residents and had less number in relation with other district and metro municipalities of the province.

Locally, Kopanong topped the other three local municipalities (Letsemeng, Mohokare and Naledi) with a total number of functionally literate people of 26 017 (61.29 % of LM residents). Letsemeng was the second highest with 18 683 (55.42 %), followed by Mohokare with 13 323 (55.07 %) and Naledi with 10 863 (61.22 %) functional literate people.

Accounting for people with no schooling and limited education, the district had 14 707 (10.81%) people aged 15 or more with no schooling and 22 523 (16.56%) people with limited) education in 2010. It had less number in relation with other district and metro municipalities with people that have no schooling and limited education.

Employment and Labour

According to the Letsemeng Local Municipality IDP, 2012-2013, 9 510 of the people are informal employment in the Letsemeng Local Municipality, the remaining 27 563 need to be brought into the mainstream of the development and economy of the area. The balance of the population which is 27 563 derives their livelihoods from the informal sector including pensions, disability grants as well as seasonal work. The number of unemployment has most absolutely decreased during the past 11 years according to census statistics. The unemployment figures pose a mammoth challenge to Letsemeng Local Municipality which enforces upon us the need to develop more social support programmes and job creation initiatives that will reduce the unemployment rate significantly. The other endeavour will be to create a business-enabling environment in the area to attract more private investors to the area to bring more sustainable economic growth to the municipal area. Self-employment initiatives and SMME development programmes will increase through the Local Economic Development Unit of Letsemeng Municipality, which has put a budget aside for Local Economic Development projects.

Social Infrastructure and Services

The Letsemeng LM has the second-lowest number of formal dwellings within the municipality, with the highest number of informal dwellings still being occupied. This clearly indicates the need for the development of formalised dwellings in the Letsemeng LM. Letsemeng LM has the second-lowest overall grant and aid dependants in the Xhariep DM, while Kopanong has the highest number of grant and aid dependants in the Xhariep DM.

Health Services

The Letsemeng has the second-highest number of clinics operating in the municipality, however, no hospitals are located within the boundaries of the LM. Residents have to travel to Jagersfontein, Trompsburg, Smithfield or Zastron to access hospital services.

3.h.iv.1.b Description of the current land uses.

Access to the site appears to be through local roads turning from the N8 national road. The majority of the study area appears to consist of salt pans while smaller sections are cultivated. Buildings are evident on the farm Standard Salt Pan 1959, as well as on Portions 1 and 3 of the farm Witkraal 878 Portions. These buildings are likely to be associated with current salt mining activities in the demarcated study area over Portion 1 of farm Witkraal 878 (owned by Witkraal Trust) and Standard Salt Pan 1959 (owned by Witkraal Farming (Pty) Ltd)..

3.h.iv.1.c Description of specific environmental features and infrastructure on the site

Please refer to Section 3.h.iv.1.a and b, above.

3.h.iv.1.d Environmental and current land use map.

(Show all environmental and current land use features)

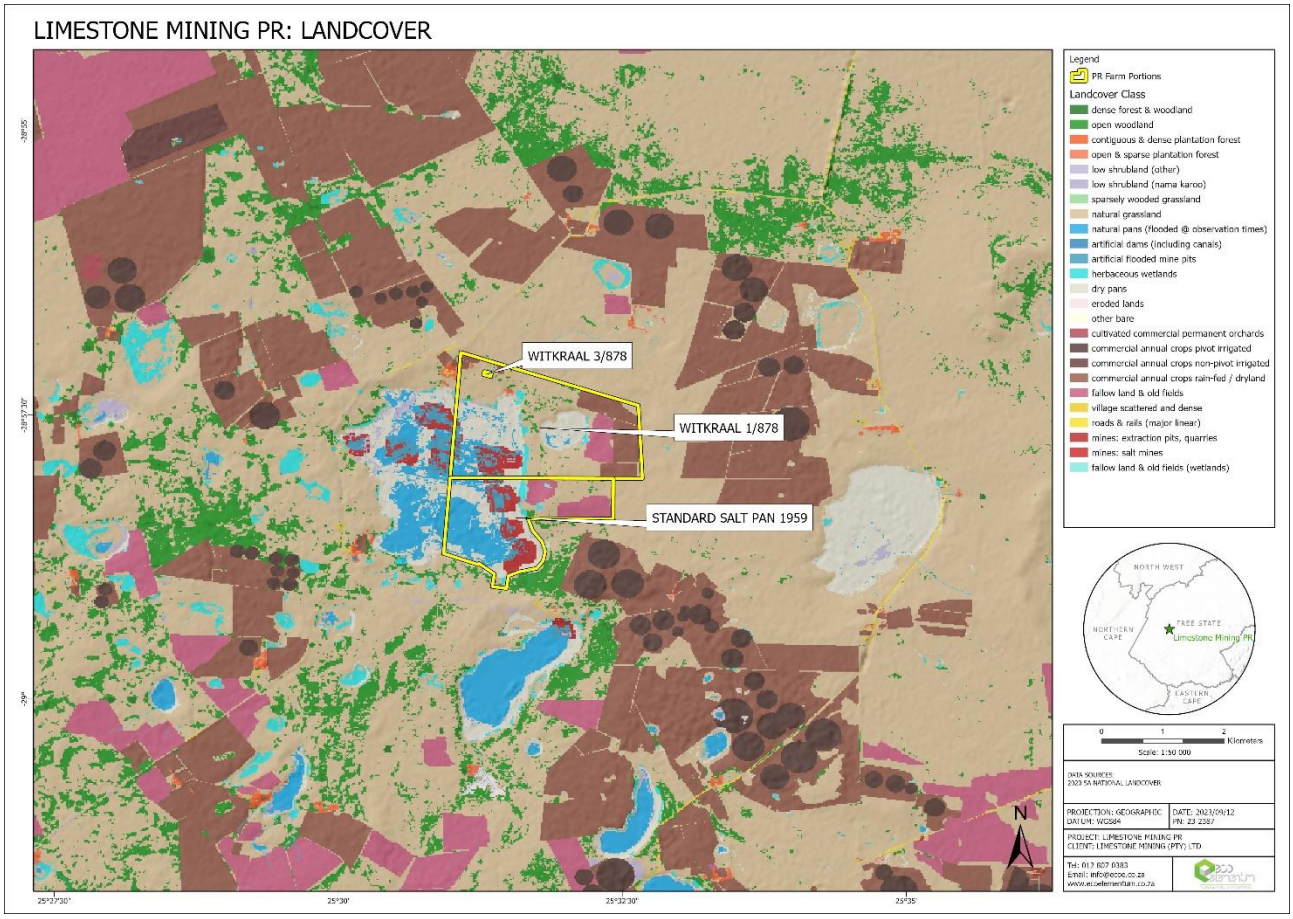

Figure 3-15: Land cover map for the project

3.h.v IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACT.

Table 3-5: Impact Assessment Table with Mitigation measures

ACTIVITY	ASPECT	IMPACT	PHASE	+I	SU[1]		+I	SM[2]		MITIGATION MEASURES	ACTION PLAN
Heritage											
Subsurface activity.	Subsurface culturally significant material.	Destruction of subsurface culturally significant material.	Construction Operational Closure	Negative	4	Low	Negative	1,6	Low	Monitor material unearthed.	Monitor subsurface material during development and construction phases and contact a qualified archaeologist should culturally significant material be observed.
Site establishment.	Clearance of the site	Destruction of culturally significant material.	Construction Operational Closure	Negative	10	Low	Negative	6	Low	Avoid heritage sites of potential sensitivity and sensitivity when encountered. Adhere to the 50m buffer around sites of heritage significance (graves, burial sites, historical buildings, etc)	Monitor subsurface material during development and construction phases and contact a qualified archaeologist should culturally significant material be observed. Apply for permits to demolish or move sites of cultural significance.
Palaeontological											
Subsurface activity.	Subsurface culturally significant material.	Destruction of subsurface culturally significant material.	Construction Operational Closure	Negative	4	Low	Negative	1,6	Low	Monitor unearthed material & adhere to the Fossil Chance Find Protocol when material of palaeontological significance is found.	It is extremely unlikely that any fossils would be found in the loose soils and sands that cover the area. There might be fossils more than 5m below ground that will be disturbed if mining commences. Therefore, a Fossil Chance Find Protocol should be added to the EMPr.
Noise											
Invasive prospecting activities	Machinery and drilling operations. Movement of vehicles.	Increased Noise levels	Construction Operational Closure	Negative	10	Low	Negative	6	Low	Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households. Drilling to take place during daylight hours.	Switching off equipment when not in use. Borehole site and access route selection to give cognisance to the location of noise receptors and efforts must be taken to minimise such disturbance.
Wetland & Ecological											
Invasive prospecting activities	Establishment of drilling sites and access routes.	Removal / damage of natural vegetation.	Construction Operational Closure	Negative	48	Med	Negative	9,6	Low	Rehabilitation of the disturbed areas. Limiting instream sedimentation. Minimising pollutants entering the watercourse. Erosion control measures must be employed where required. Keep the footprint of disturbance as small as practicably possible. Vegetation to be left in place to protect soils where possible. Where vegetation clearance cannot be avoided, storm water management measures to be put in place if there is a risk of soil erosion. Erosion protection where cut and fill and levelling of the drill site occurred.	A 32 m buffer implemented for the wetland system. A topsoil stripping and stockpiling guideline must be completed to ensure rehabilitation success. Vegetation clearing must be undertaken as and when necessary, in phases. Exposed soils must be rehabilitated as soon as practically possible to limit the risk of erosion. Demarcate wetland areas to avoid unauthorised access. No releases of any substances that could be toxic to fauna or faunal habitats within the channels or any watercourses is permitted. Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities. Portable toilets must be placed on impervious level surfaces that are lipped to prevent spillage. The general consensus is that they should be within 30 m to 50 m of a work face. Re-instate indigenous vegetation (grasses and indigenous trees) in disturbed areas. Utilise existing access roads as far as possible. Keep the footprint of disturbance as small as practicably possible. Access roads to follow slope contours where possible. Vegetation to be left in place at sides of the road to protect the soils
Invasive prospecting activities	Establishment of drilling sites and access routes.	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened species.	Construction Operational Closure	Negative	24	Low-Med	Negative	9,6	Low	The extent of the buffer zone that will be maintained varies according to factors including rainfall, nature of lateral flows and inputs, surrounding slope and soil characteristics, and will be determined by a wetland specialist prior to any prospecting taking place. A protected/threatened fauna and flora species search and rescue operation on the prospecting footprint prior to commencement of activities, to be conducted during the growing season. Alternatively, restrict prospecting to modified land only.	A protected/threatened fauna and flora species search and rescue operation on the prospecting footprint prior to commencement of activities, to be conducted during the growing season. Alternatively, restrict prospecting to modified land only.
Geology											

[1] Significance unmitigated
[2] Significance mitigated

ACTIVITY	ASPECT	IMPACT	PHASE	+I	SU[1]		+I	SM[2]		MITIGATION MEASURES	ACTION PLAN
Invasive prospecting activities (drilling cores)	Removal of geological core	Creation of conduits between geological strata	Operation Closure	Negative	24	Low-Med	Negative	9,6	Low	Boreholes to be sealed with concrete.	Boreholes to be sealed with concrete. Keep a record of the backfilled boreholes that were cemented and sealed including all the attributes of the logging therein.
Groundwater & Surface water											
Invasive prospecting activities (drilling cores)	Seepage of fuels, oils and lubricants.	Contamination of groundwater.	Construction, Operation and Closure.	Negative	24	Low-Med	Negative	9,6	Low	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Consult the delineated wetland map or flood line determination for this project to determine the locations of the watercourses and where prospecting should be avoided/restricted.
Invasive prospecting activities (drilling cores)	Cross contamination of aquifers due to borehole construction.	Contamination of groundwater.	Construction, Operation and Closure.	Negative	24	Low-Med	Negative	9,6	Low	Boreholes that will not be used again will be backfilled with cement and sealed.	Keep a record of the backfilled boreholes that were cemented and sealed including all the attributes of the logging therein.
Hydrocarbon spills.	Water and soil contamination.	Spills from mining vehicles and machinery can pollute surface, groundwater and soil.	Construction Operation Closure	Negative	14	Low	Negative	2,8	Low	Impermeable liners or surfaces to be provided in areas where hydrocarbons are managed. Diesel storage areas to be bunded and regularly checked. Drip trays to be used when any vehicle maintenance is undertaken. Spill kits to be available at drill sites.	Report any hydrocarbon spillage.
Invasive prospecting activities (drilling cores)	Vegetation clearance and site establishment	Contamination of surface water.	Construction Operation Closure	Negative	33	Low-Med	Negative	13,2	Low	Implement measures to protect soils from pollution. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Keep a record of the backfilled boreholes that were cemented and sealed including all the attributes of the logging therein. Consult the delineated wetland map or flood line determination for this project to determine the locations of the watercourses and where prospecting should be avoided/restricted.
Invasive prospecting activities (drilling cores)	Hydrocarbon spills Dirty Water release Sediment runoff.	Contamination of surface water.	Construction Operation Closure	Negative	33	Low-Med	Negative	13,2	Low	Implement measures for soil erosion control in accordance with risk assessment. Boreholes to be outside of the 1 in 50-year flood line or 100 m from the edge of a watercourse, whichever is greater.	Keep a record of the backfilled boreholes that were cemented and sealed including all the attributes of the logging therein. Consult the delineated wetland map or flood line determination for this project to determine the locations of the watercourses and where prospecting should be avoided/restricted.
Ablution	General and Human Waste	Contamination of surface water.	Construction Operation Closure	Negative	14	Low	Negative	2,8	Low	Contractors may only use designated toilets and waste disposal facilities.	Contract an ablution service provider for the short time during drilling activities.
Air Quality											
Exhaust fumes from vehicles and machinery related to prospecting activities.	Release of gaseous emissions.	Exhaust fumes from vehicles and machinery related to prospecting activities.	Construction Operational Closure	Negative	33	Low-Med	Negative	13.2	Low	No unnecessary revving of vehicles should take place. No vehicles must stand idling when not in use.	Switch off any vehicle or machine not in use. Ensure machinery is maintained and in good working condition.
Vehicles travelling on gravel roads	Dust fallout and fine matter emissions	Vehicles travelling on gravel roads	Construction Operational Closure	Negative	33	Low-Med	Negative	13.2	Low	Area of disturbance to be kept to a minimum and no unnecessary clearing of vegetation to occur. Reduce exposure areas avoid dust creation	Demarcate areas of movement, and avoid areas where movement is not permitted. When using vehicles, minimise travel speed and distance and volume of traffic on the roads. Cleared areas should be revegetated during closure phase. Dust supresses drill sites.
Land use and Land Capability											
Invasive prospecting activities	Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.	Land use conflict	Construction Operational Closure	Negative	33	Low-Med	Negative	13.2	Low	Ensure landowner access agreements are in place and that conditions met in this BAR and any contractual specifics between the drill contractor and the landowner are met.	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with landowners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.
Invasive prospecting activities.	Land clearing and transformation.	Reduction in land capability	Construction Operational Closure	Negative	33	Low-Med	Negative	13.2	Low	Rehabilitate drill sites. Where vegetation was cleared revegetation should follow in the closure phase. Water used during drilling should be kept in a sump and re-used where possible. Boreholes must be refilled (capped) after drilling and core logging. Drill sites should be restored as far as reasonably possible to pre prosecting activities.	Drilling sites must be selected to minimise disturbance of current land use. Relevant agreements must be in place with landowners to define location and extent of drilling sites and rehabilitation measures that will be undertaken at the end of drilling.
Socio-economic Development											

ACTIVITY	ASPECT	IMPACT	PHASE	+I	SU[1]		+I	SM[2]		MITIGATION MEASURES	ACTION PLAN
Prospecting activities	Employment and use of contractors and purchasing goods.	Contribution to the economy.	Construction Operational Closure	Positive	40	Med	Positive	75	Med-High	Preference to be given to the use of local employment, contractors and local suppliers.	A screening of trustworthy local suppliers must be undertaken and if an applicable contractor exists determine whether to appoint or make use of local employment. Where no such option exists, then the applicant may outsource this to whomever can fulfil the need for employment.
Prospecting activities	Dust and noise from prospecting activities	Creation of nuisance and disturbance to surrounding industries (agricultural and agro processing)	Construction Operational Closure	Negative	24	Low-Med	Negative	9,6	Low	Implement measures to minimise air quality and noise impacts. Surrounding neighbours and land owners must be allowed to raise issues and complaints associated with prospecting activities through means of an incident and complaints register. From there, their issues must be addressed promptly.	Implement an incident and complaints register on the prospecting site. Any complaints must be addressed and communicated to the relevant authority (municipality) by the contractor and applicant.
Prospecting activities	Movement of drilling contractors	Increase safety and security risk	Construction Operational Closure	Negative	24	Low-Med	Negative	9,6	Low	Drilling contractors not allowed moving outside of designated areas Access of personnel related to the prospecting operations will only be allowed on approval by the project manager.	All personnel that have access to the property will be provided with access cards. All personnel that have access to the property needs to be made visible.
Prospecting activities	Overnight accommodation of drilling contractors	Increase safety and security risk	Construction Operational Closure	Negative	24	Low-Med	Negative	9,6	Low	Drilling contractors to be housed off the drilling property.	Of-site accommodation must be procured by the drilling contractors and may be communicated to the relevant stakeholders when conducting invasive prospecting.
Prospecting activities	Prospecting activities is a predecessor to mining.	Prospecting on private property.	Post closure	Negative	40	Med	Negative	24	Low-Med	Comply with the MPRDA & NEMA Implement and Comply with the EMP.	Keep an updated I&AP database with which any future applications can be remedied. Appoint an independent EAP to conduct an EIA/BAR on any activities that may arise as a result of the decision made on the back of the prospecting activities/results.
Prospecting activities	Prospecting activities is a predecessor to mining.	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Post closure	Negative	48	Med	Negative	38,4	Low-Med	An application for a mining right will require a separate public participation process and IAP's will be provided with the opportunity to raise their concerns	Keep an updated I&AP database with which any future applications can be remedied. Appoint an independent EAP to conduct an EIA/BAR on any activities that may arise as a result of the decision made on the back of the prospecting activities/results.

3.h.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).

The identification and assessment of environmental impacts is a multi-faceted process, using a combination of quantitative and qualitative descriptions and evaluations. It involves applying scientific measurements and professional judgement to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of, inter alia: the purpose and need for the project; views and concerns of interested and affected parties; social and political norms, and general public interest.

The methodology used for assessing impacts associated with the proposed project follows the philosophy of environmental impact assessments, as described in the booklet Impact Significance, Integrated Environmental Management Information Series 5 (DEAT, 2002b). The philosophy is summarised by the following extracts:

a. The impact magnitude [or intensity] and significance should as far as possible be determined by reference to legal requirements, accepted scientific standards or social acceptability. If no legislation or scientific standards are available, the EIA practitioner can evaluate impact magnitude based on clearly described criteria. Except for the exceeding of standards set by law or scientific knowledge, the description of significance is largely judgemental, subjective and variable. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts (DEAT, 2002b).
b. Determining significance [of impacts] is ultimately a judgement call. Judgemental factors can be applied rigorously and consistently by displaying information related to an issue in a standard worksheet format (Haug et al., 1984 taken from DEAT, 2002b).

The criteria and systematic approach to identify, describe, and assess impacts are outlined below.

Impact Ranking Criteria

The criteria used for assessing the significance of the impacts are given in the tables below. Cognisance was given to both positive and negative impacts that could result from prospecting.

Although the criteria used for the assessment of impacts attempts to quantify the significance, it is important to note that the assessment is generally a qualitative process and therefore the application of these criteria is open to interpretation. The assessment thus largely relies on the experience of the EAP and the information provided by specialists appointed to undertake studies for the EIA.

Where the consequence of an event is not known or cannot be determined, the precautionary principle is adhered to and the worst-case scenario is assumed. Where possible, mitigation measures to reduce the significance of negative impacts and to enhance positive impacts are recommended. The detailed actions, which are required to ensure that mitigation is successful, will be given in the EMPr which will form part of the BA report.

Consideration will be given to the phase of the project during which the impact occurs. This identification of the phase is provided to assist with the schedule for the implementation of the management measure.

Mitigation Measures

Mitigation measures were identified for significant impacts. The impacts were ranked before and after the implementation of the mitigation measures. Mitigation potential (risk of mitigation failure) was ranked as per the criteria found in Table 3-8 and Table 3-9 below.

Table 3-6: Rating Criteria

Intensity (Magnitude)		ASSIGNED QUANTITATIVE SCORE
The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it has a significant, moderate or insignificant		
(L)OW	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	**1**
(M)EDIUM	The affected environment is altered, but functions and processes continue, albeit in a modified way.	**3**
(H)IGH	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	**5**
Duration		
The lifetime of the impact, that is measure in relation to the lifetime of the proposed development.		
(S)HORT TERM	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.	**1**
(SM) SHORT MEDIUM TERM	The impact will be relevant through to the end of a construction phase.	**2**
(M)MEDIUM	The impact will last up to the end of the development phases, where after it will be entirely negated.	**3**
(L)ONG TERM	The impact will continue or last for the entire operational lifetime (i.e. exceed 20 years) of the development, but will be mitigated by direct human action or by natural processes thereafter.	**4**
(P)ERMANENT	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact is transient.	**2**
Spatial Scale/Extent		
Classification of the physical and spatial aspect of the impact		
(F)OOTPRINT	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.	**1**
(S)ITE	The impact could affect the whole, or a significant portion of the site.	**2**
(R)EGIONAL	The impact could affect the area including the neighbouring Farms, the transport routes and the adjoining towns.	**3**
(N)ATIONAL	The impact could have an effect that expands throughout the country (South Africa).	**4**
(I)NTERNATIONAL	Where the impact has international ramifications that extend beyond the boundaries of South Africa.	**5**
Probability		
This describes the likelihood of the impact actually occurring. The impact may occur for any length of time during the life cycle of the activity. The classes are rated as follows:		

(I)MPROBABLE	The possibility of the Impact occurring is none, due to the circumstances or design. The chance of this Impact occurring is zero (0%)	**1**
(P)OSSIBLE	The possibility of the Impact occurring is very low, due either to the circumstances or design. The chance of this Impact occurring is defined as 25% or less	**2**
(L)IKELY	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of Impact occurring is defined as 50%	**3**
(H)IGHLY LIKELY	It is most likely that the Impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75 %.	**4**
(D)EFINITE	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100 %.	**5**

Weighting Factor	
Subjective score assigned by Impact Assessor to give the relative importance of a particular environmental component based on project knowledge and previous experience. Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance	
(L)OW	**1**
LOW- MEDIUM	**2**
MEDIUM (M)	**3**
MEDIUM-HIGH	**4**
HIGH (H)	5

Mitigation Measures and Mitigation Efficiency

Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures

Mitigation measures were recommended to enhance benefits and minimise negative impacts and address the following:

Mitigation objectives: what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make "educated guesses" based on professional experience;

Recommended mitigation measures: For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;

Effectiveness of mitigation measures: The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and

Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented.

The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

HIGH	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.	**1.0**
MEDIUM-HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.	**0.8**
MEDIUM	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.	**0.6**
LOW -MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.	**0.4**
LOW	The impact will be mitigated to the point where it is of limited importance.	**0.2**

Table 3-7: Description of bio-physical assessment parameters with its respective weighting

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2		Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4		Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Table 3-8: Significant Rating Scale Without Mitigation

Potential Impacts Without Mitigation Measures (WOM) Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).		
SIGNIFICANT RATING EQUATION Significant Rating (SR) = (Extent + Intensity + Duration) x Probability		
S=0	**INSIGNIFICANT**	The impact will be mitigated to the point where it is regarded as insubstantial.
SR < 30	**LOW (L)**	The impact will be mitigated to the point where it is of limited importance.
20<SR<39	**LOW- MEDIUM**	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
40<SR<59	**MEDIUM (M)**	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance.

		However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
60<SR<79	**MEDIUM-HIGH**	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
80<SR<100	**HIGH (H)**	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Table 3-9: Significant Rating Scale with Mitigation

Potential Impacts with Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.		
SIGNIFICANT RATING WITH MITIGATION EQUATION Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency. Or WM = WOM x ME		
S=0	**INSIGNIFICANT**	The impact will be mitigated to the point where it is regarded as insubstantial.
SR < 30	**LOW (L)**	The impact will be mitigated to the point where it is of limited importance.
20<SR<39	**LOW- MEDIUM**	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
40<SR<59	**MEDIUM (M)**	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
60<SR<79	**MEDIUM-HIGH**	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
80<SR<100	**HIGH (H)**	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

3.h.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.

Please refer to Table 3-5 in Section 3.h.v which identifies all positive and negative impacts of the proposed activity. Additionally, following key concerns have been identified:

- It is expected that primary vegetation will be present in the study area, with habitat assumed suitable for several red-data species.
- Further, the overall ecological state of all areas currently delineated as CBA or ESA, in addition to that of primary vegetation, will need to be verified. Even modified areas, currently seen as ESAs, may be very important as habitat itself or to maintain downstream CBA habitat and species therein.

3.h.viii POSSIBLE MITIGATION MEASURE THAT COULD BE APPLIED AND THE LEVEL OF RISK

Refer to Section 3.h.v and Table 3-5 for the mitigation measures which may be implemented for sections of the proposed properties falling within the important areas. The following additional environmental management / mitigation plans may be followed:

- Drill site selection must be aimed at minimising disturbance to natural vegetation.
- The site selection should be overseen by environmental scientists. Due to the sensitivity of the area detailed avifaunal surveys as well as detailed sensitive habitat mapping should be conducted before any potential development in the region occurs.
- No-go areas are to be identified where habits are considered to be sensitive.
- Environmental awareness training is to be given to all employees responsible for drilling.
- In order to minimise the impact of drilling activities on surface water a 100-meter buffer was allocated for each stream, river and wetlands.
- The drill sites are still located within the community land but agreement or compensation will need to be sought should the specific site be developed.
- The drilling sites themselves will be provided with safety netting, fencing and signage to ensure no person or animal can access these sites.
- Workers and operators will not be housed on-site.
- In addition, rehabilitation objectives will include ensuring that the site is safe.

3.h.ix MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED.

The project location was however bound to the current location due to the underlying geology. The PR is dependent on the area chosen being susceptible to possible mineral deposits and therefore no alternative site could be considered. Thus, no alternative drill site locations were considered for the study.

3.h.x STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

The final layout for the drilling can only be completed once the non-invasive aerial geological surveys have been completed. Invasive prospecting (drilling) will avoid servitudes, suitable habitat for the Globally threatened Red Data avifaunal species, wetlands and 100 m buffer zones, rivers and 100 m buffer zones / 1:100-year flood lines (whichever is greatest), and 50 m buffer zones from potential historical sites, graves and identified protected plants. A detailed terrestrial ecological assessment will be required when the drilling locations are identified and before any construction or operations may occur. Drill site locations are not fixed and need approval by an environmental control officer before drilling. The ECO will, as a minimum, consider:

- The Protected Environment.
- Plant and animal (avifaunal) sensitivity.
- Current land use.
- Servitudes.
- Sensitive features such as households.
- Heritage sites (including graveyards).

3.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 are 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.)

The same impact ranking criteria and methodology was employed as discussed in Section 3.h.vi of this report.

3.j ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

Please refer to Section 3.h.v, Table 3-5.

3.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 3-10: Summary of Specialist Reports

List of Studies Undertaken	Recommendations of Specialist Reports	Recommendations that Have Been Included in the BA Report	Reference to Applicable Section of Report

Phase 1 Archaeological study	- The assessment concludes that the proposed prospecting area is situated in a region with a high presence of archaeology resources.
	- The graves discovered within the cemeteries hold significant heritage value.
	  - The site must be recommended clearly demarcated, and a protective fence should be erected around the graves, designating it as a No-Go-Zone.
	  - Given that the graves at LIME-CEM-01 fall within the area designated for prospecting activities, the cemetery's boundaries should be clearly marked, signifying that it is an area to be completely avoided.
	  - A buffer zone of at least 100 meters should be maintained around the graves.
	  - The identified gravesites must be enclosed with a protective fence to safeguard them from potential harm caused by machinery and human activities during the prospecting operations.
	  - This fenced area should be treated as a No-Go-Zone, prohibiting any entry.
	  - Provisions should also be made to allow access to the communities and descendant families for respectful and appropriate visitation.
	  - In the event that future prospecting activities are planned for the vicinity of the cemetery, with the potential for direct impact on the graves, it is essential to apply for a permit to exhume and relocate the graves, ensuring that this process is conducted with the utmost care and respect for the heritage significance of the site.
		X	This table, Section 3.h.iv and Section 3.h.v

List of Studies Undertaken	Recommendations of Specialist Reports	Recommendations that Have Been Included in the BA Report	Reference to Applicable Section of Report
	- Contemporary built environment structures have been identified in the area. It is determined that these sites hold low significance and lack any archaeological value. - Possible weathered MSA stone tools were observed at the pan on site. Stone artefact scatters are usually located in areas with fluvial gravels along drainage lines, pans and rocky outcrops. The stone artifacts are of low heritage value due to temporally mixed contexts and the absence of faunal, organic and other cultural remains. The Stone Age localities are not conservation-worthy and even though the resources may be destroyed during construction, the impact is minor and thus, deemed acceptable. - Water sources, such as drainage lines, and pans, have historically been attractive locations for human activity. These areas should be considered as sensitive areas and designated it as a No-Go-Zone in terms of the potential existence of subsurface deposits. - It should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey. In the case where the proposed development activities bring these materials to the surface, they should be treated as **Chance Finds**. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be contacted to conduct a site visit and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds. - **The proposed prospecting activities on the proposed project area will not have impact on the heritage and archaeological resources in the broader area.** **It is recommended that FS-PHRA and SAHRA grant the project a Positive Review Comment and allow the proposed prospecting activities to occur on as planned on condition that all the above-mentioned recommendations be adhered to.**		
Desktop Paleontological study	The following findings and recommendations were made: The geological structures suggest that the rocks are either the wrong type to contain fossils (dolerite) or might only trap fossils in palaeo-pans, palaeo-dunes or palaeo-springs. The potential impact to fossil heritage resources is extremely low for the whole study site and there are no no-go areas. Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the Tierberg Formation or the sands and calcrete of the Quaternary. There is a very small chance that fossils may occur in the below ground shales of the early Permian Tierberg Formation or trapped in pans but the pans in the region are being avoided for other reasons. A Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the environmental officer, or other responsible person once excavations or drilling have	X	This table, Section 3.h.iv and Section 3.h.v

List of Studies Undertaken	Recommendations of Specialist Reports	Recommendations that Have Been Included in the BA Report	Reference to Applicable Section of Report
	commenced then they should be rescued, and a palaeontologist called to assess and collect a representative sample. - **The impact on the palaeontological heritage would be low, so as far as the palaeontology is concerned, the project should be authorised.**		
Ecological Desktop Study	The following findings and recommendations can be made: - Although some of the study area has been modified by cultivation, all remaining primary vegetation outside the pans should be considered of at least medium sensitivity due to the original vegetation type being listed as Vulnerable, and the potential for provincially and nationally protected plants being present. This should be verified and investigated further with on-site studies during the growing season (January to March). o At the very least, a protected species walkthrough survey should be conducted of all prospecting footprints prior to disturbance, to ensure all protected plants or sensitive animals are relocated prior to groundworks taking place. - A wetland delineation and aquatic habitat study is highly recommended to be undertaken. - An avifaunal survey during the wet season is highly recommended. - It is anticipated that due to historical disturbance levels, alien invasive plant species will be present on all sites. The client should familiarise themselves with alien invasives (or have the provisional list provided verified/complemented by a field survey) and ensure control and no further spread. **From an ecological perspective, prospecting could proceed, but not on remaining primary vegetation until the above specialist studies have been carried out or at least a pre-prospecting walk-through survey of protected plants has been conducted.**	X	This table, Section 3.h.iv and Section 3.h.v

3.I ENVIRONMENTAL IMPACT STATEMENT

3.I.i SUMMARY OF THE KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT;

The table below depicts the key significant impacts identified in the project area. It further provides the changes in significance rating before and after mitigation.

Table 3-11: Summary of key findings

Activity	Aspect	Impact	Phase	+/-	SU	+/-	SM
Socio-economic development							
Prospecting activities	Employment and use of contractors and purchasing goods.	Contribution to the economy.	Construction Operational Closure	Positive	Med	Positive	Med - High
Prospecting activities	Prospecting activities is a predecessor to mining.	Prospecting on private property.	Post closure	Negative	Med	Negative	Low - Med
Prospecting activities	Prospecting activities is a predecessor to mining.	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Post closure	Negative	Med	Negative	Low - Med
Land use & Land Capability							
Invasive prospecting activities	Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.	Land use conflict	Construction Operational Closure	Negative	Med	Negative	Low - Med
Heritage							
Site establishment.	Clearance of the site	Destruction of culturally significant material.	Construction Operational Closure	Negative	Med	Negative	Low - Med
Wetland and Ecology							
Invasive prospecting activities	Establishment of drilling sites and access routes.	Removal / damage of natural vegetation.	Construction Operational Closure	Negative	Med	Negative	Low

The nature of prospecting involves invasive drilling of sites not exceeding 64 m^2. The drill sites are not fixed and can be relocated by 1-50 meters. Due to the flexibility of the drill sites and small size the key mitigation is to approve each site on environmental factors by a competent environmental officer. Each active site will be rehabilitated to its natural status before sampling. The success of the proposed mitigation is high.

3.I.ii FINAL SITE MAP

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as Appendix 3.

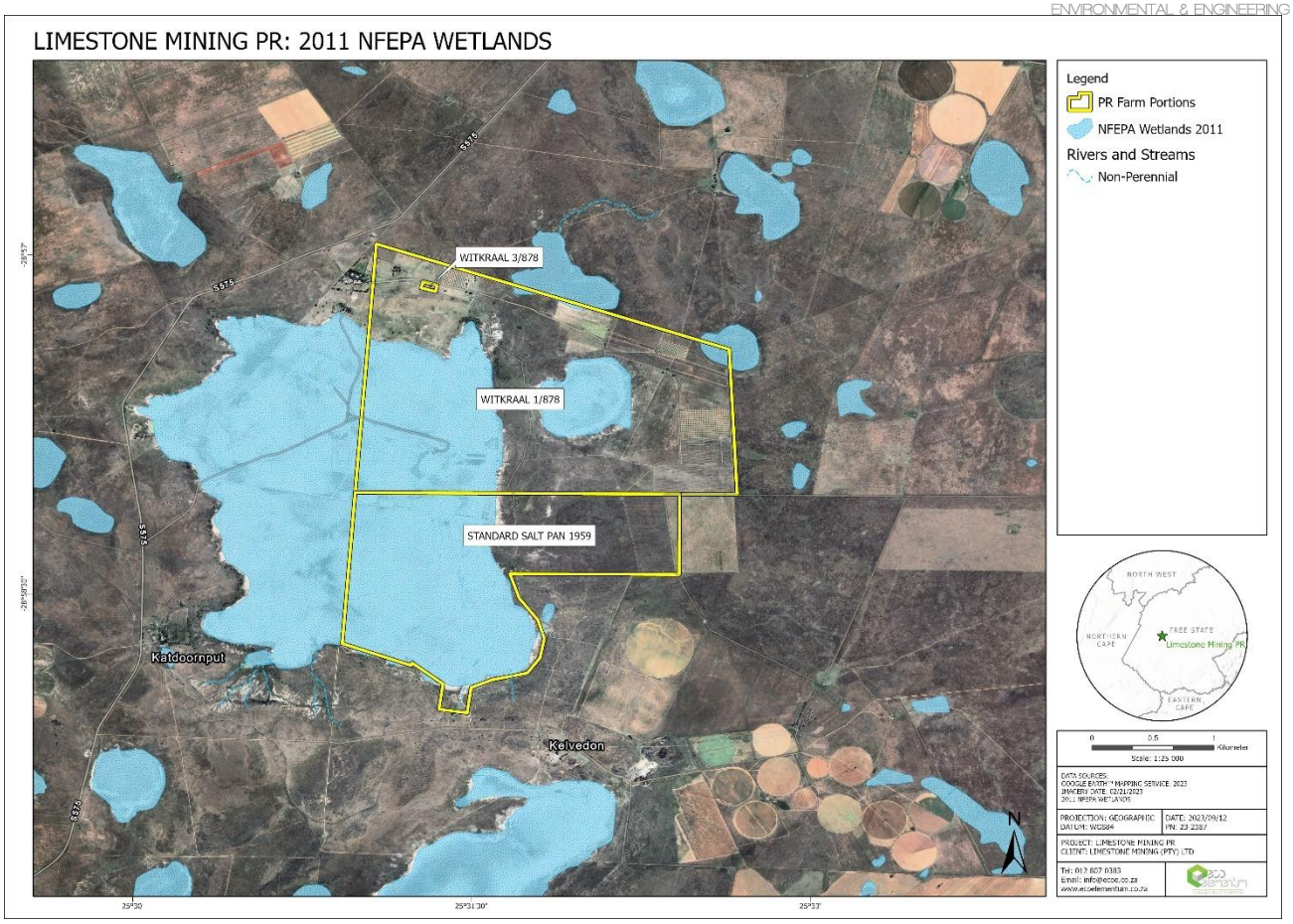

Figure 3-16: Site sensitivities.

3.I.iii SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES.

Table 3-12: Positive and Negative Impacts / Risks of Proposed Activity

Description	Advantages	Disadvantages
Prospecting drilling	- Drilling sites will be selected to minimise disturbance of current land use.	- Vegetation and topsoil excavated during the drilling - Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.
No-go alternative	- No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA. - Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.	- These boreholes and its associated activities will impact on a surface area of between 250 and 960 m².

The risks of the project have potentially negative impacts on the ecological support area and increased urban sprawl into rural areas. Positive impact is associated with the brief creation of jobs and is considered of moderate to low significance. This has been assessed

in terms of the prospecting operation on its own; however, should this PR be converted into an MR then the social benefits will be of moderate to high significance.

3.m PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR;

Below are the proposed impact management objectives and outcomes for the development which will be included into the EMPr. These objectives and outcomes are based on the assessment and recommendations from specialist reports and are to be considered for inclusion as conditions of the authorisation.

The objectives of impact mitigation and management are to:

- Prevention - Primarily pre-empt impacts and prevent the realisation of these impacts.
- Modify and/or Control - To ensure activities that are expected to impact on the environment are undertaken and controlled in such a way so as to minimise their impacts.
- Remedy – To ensure a system is in place for treating and/or rectifying any significant impacts that will occur due to the proposed activity.
- Implement an adequate monitoring programme to:
  - Ensure that mitigation and management measures are effective.
  - Allow quick detection of potential impacts, which in turn will allow for quick response to issue/impacts.
  - Reduce duration of any potential negative impacts.

Environmental impact management outcomes are:

- Conduct prospecting activities responsibly and ensure the operation is compliant with legislative requirements.
- Protect the biophysical environment as far as possible, specifically wetlands and riverine areas and any protected species observed on site.
- Protect the water resources in the area as far as possible.
- Ensure atmospheric pollution is kept to a minimum.
- Ensure adequate rehabilitation to allow continued grazing land use.
- Ensure socially responsible activities.
- Protect historical and cultural sites if they are observed on site.

3.n ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

- Adhere to all recommendation and management measures contained in the EMPr.
- All relevant permits and authorisation must be obtained prior to construction commencing.
- Adhere to all monitoring requirements.
- A water use license must be obtained prior to any water uses undertaken on site (in terms of Section 21 of the National Water Act).
- The Heritage Free State NID process must be followed prior to any development. Following the NID process, the Provincial Heritage Authority will request the required heritage studies.
- As archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended, and the relevant heritage resources authority contacted.
- Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.
- From a palaeontological perspective – the possibility exists that fossiliferous significant material (plants, insects, bone, coal) may be exposed during the development (construction & operational phase). These materials generally occur below the surface and is of palaeontologic significance. In cases where such material is found, all activities must be suspended pending further palaeontological investigations by a qualified palaeontological scientist.
- No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA.
- Prospecting activities must remain outside all wetland areas until authorisation has been obtained under NEMA and NWA.
- Dust suppression on the drill sites should be implemented to reduce dust generation and fallout.

- Rehabilitation must be applied on an ongoing basis and no sites must be left exposed for more time than necessary to obtain the necessary data. All areas disturbed during the drilling process must be rehabilitated to previous land use capability.

3.o DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

At this stage, the exact locations of the invasive prospecting are unknown due to the fact that the locations will be dependent on the findings of the non-invasive techniques. This is not seen as a major gap as the lack of this knowledge has been worked into the EMP as well as the proposed conditions stipulated above. In general, the approach will be as follows for invasive prospecting:

Palaeontologic Impact Assessment Report Limitations

Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some contain fossil plant, insect, invertebrate and vertebrate material. The sands of the Quaternary period would not preserve fossils.

Phase 1 Heritage Report Limitations

Although a comprehensiveness physical survey was undertaken, it should be noted that some of the archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visit. Due to time restrictions and the large extent of the proposed project area the survey was limited to the proposed area where prospecting activities will occur and priority areas, that most likely contained heritage resources. The vegetation in the project area was largely made up of grassland, with intermittent trees and mixed grasslands. In some sections of the project area, visibility posed a minor hindrance. In the case where the proposed development activities bring these materials to the surface, they should be treated as Chance Finds. Should such resources be unearthed, it is recommended that the development activities be stopped immediately, and an archaeologist be contacted to conduct a site visit and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds. In this case, no archaeological material of graves should be moved from the site until the archaeological specialist has been able to make an assessment regarding the significance of the site and archaeological material, which is also subject to SAHRA approval.

Ecological Screening Report Limitations

In order to obtain a comprehensive understanding of the dynamics and diversity of the biota on a site, including species of conservation concern, physical studies need to be conducted as well, and such studies should include monitoring through the different seasons of the year, over a number of years. Information contained within this report is based on available information only. An overview of potential sensitivities within 5 km of the proposed prospecting area was obtained from the Department of Environment, Forestry and Fisheries (DEFF) screening tool, and further refined by more detailed analysis of available data. Ecological Screening Report cannot replace a formal field verification study related to biodiversity and aquatics, nor does it serve as a compliance report.

3.p REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

3.p.i REASONS WHY THE ACTIVITY SHOULD BE AUTHORIZED OR NOT.

The EAP believes that the authorisation for the proposed prospecting activities over the application area should be granted. The risks of the proposed prospecting activity are minimal and can be mitigated by following the mitigation measures stipulated in the EMPr, which will reduce impacts significantly to acceptable levels.

3.p.ii CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

- Adhere to all recommendation and management measures contained in the EMPr.
- All relevant permits and authorisation must be obtained prior to construction commencing.
- Adhere to all monitoring requirements.
- A water use license must be obtained prior to any water uses undertaken on site (in terms of Section 21 of the National Water Act).

- The Heritage Free State NID process must be followed prior to any development. Following the NID process, the Provincial Heritage Authority will request the required heritage studies.
- As archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended, and the relevant heritage resources authority contacted.
- Heritage sites and 50 m buffer zones will be preserved at all times unless the necessary permits are obtained under SAHRA.
- From a palaeontological perspective – the possibility exists that fossiliferous significant material (plants, insects, bone, coal) may be exposed during the development (construction & operational phase). These materials generally occur below the surface and is of palaeontologic significance. In cases where such material is found, all activities must be suspended pending further palaeontological investigations by a qualified palaeontological scientist.
- No activity is to occur within 100 m of any road servitude, wetlands and their 100 m buffer zones, within rivers and their 100 m buffer zone / 1:100-year flood line without the necessary authorisation under NEMA and NWA.
- Prospecting activities must remain outside all wetland areas until authorisation has been obtained under NEMA and NWA.
- Dust suppression on the drill sites should be implemented to reduce dust generation and fallout.
- Rehabilitation must be applied on an ongoing basis and no sites must be left exposed for more time than necessary to obtain the necessary data. All areas disturbed during the drilling process must be rehabilitated to previous land use capability.

3.q PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

8 Years.

3.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.

For the undertaking refer to Part B: EMPr.

3.s FINANCIAL PROVISION

Table 3-13: Financial Provision

CALCULATION OF THE CLOSURE QUANTUM - PROSPECTING RIGHT								
Operation: FS 30/5/1/1/2/10679 PR - 23-2387-AUTH (Limestone PR Resubmission)				Province: Free State			Version 1.0: Annual Closure Quantum Update for 2023	
Evaluators: Eco Elementum (Pty) Ltd				Date: September 2023				
General Information	Risk Class	High (A)	PROPOSED PROSPECTING APPLICATION AREA					
	Environmental Sensitivity	Medium						
	WF 1: Nature of Terrain Weighting Factor	Flat 1.00						
	WF 2: Proximity to Urban Area Weighting Factor	Peri-Urban 1.05						
Component No	Main Activities Itemized Descriptions	[B] CPI Adjusted Master Rate STEP 4.3	[A] Quantity STEP 4.5	Units	[C] Multiplication Factor STEP 4.3	[D] Weighting Factor 1: Nature of Terrain STEP 4.4	Sub Totals [E = A*B*C*D]	NOTES & SUPPORTING EXPLANATIONS
1	Dismantling of processing plant and structures	R 17,91	0,00	m³	1,00	1,00	R 0,00	No processing plant and structures.
2(A)	Demolition of steel buildings and structures	R 249,45	0,00	m²	1,00	1,00	R 0,00	No steel buildings and structures. Temporary camp site.
2(B)	Demolition of reinforced concrete buildings and structures	R 367,62	0,00	m²	1,00	1,00	R 0,00	No reinforced concrete buildings and structures. Temporary camp site.
3	Rehabilitation of access roads	R 44,64	850,00	m²	1,00	1,00	R 37 943,34	Existing roads will be used as far as possible. Where this is not possible, new access roads will be identified at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. **A budget of 850m² for new access roads are included.** The drill operators can allocate this to access drill sites accordingly. For example: If all 10 drill sites require a new access road of 30m x 2.83m from an existing road, then there is budget for it. (30m x 2.83m = 85m²) (85m² x 10 drill sites = 850m²). Distances are subject to change but should remain within the allocated budget.
4(A)	Demolition and rehabilitation of electrified railway lines	R 433,26	0,00	m	1,00	1,00	R 0,00	n/a
4(B)	Demolition and rehabilitation of non-electrified railway lines	R 236,33	0,00	m	1,00	1,00	R 0,00	n/a
5	Demolition of housing and facilities	R 498,91	0,00	m²	1,00	1,00	R 0,00	No other infrastructure, offices, or housing will be present within the prospecting site areas
6	Opencast rehabilitation including final voids and ramps	R 253 918,43	0,00	ha	0,52	1,00	R 0,00	n/a
7	Sealing of shafts, adits, and inclines	R 133,92	0,00	m³	1,00	1,00	R 0,00	n/a
8(A)	Rehabilitation of overburden and spoils	R 174 355,57	0,00	ha	1,00	1,00	R 0,00	n/a
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	R 217 156,72	0,00	ha	1,00	1,00	R 0,00	n/a
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	R 630 726,04	0,00	ha	0,80	1,00	R 0,00	n/a
9	Rehabilitation of subsided areas	R 145 996,53	0,00	ha	1,00	1,00	R 0,00	n/a
10	General surface rehabilitation, including grassing of denuded areas	R 138 119,02	0,040	ha	1,00	1,00	R 5 524,76	Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays. 64m² drill site = 8m x 10m. 5 sites = 400m²
11	River diversions	R 138 119,02	0,00	ha	1,00	1,00	R 0,00	n/a
12	Fencing	R 157,55	0,00	m	1,00	1,00	R 0,00	n/a
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater, including treatment, when required)	R 52 516,74	0,040	ha	0,67	1,00	R 1 407,45	Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays. 64m² drill site = 8m x 10m. 5 sites = 400m² Water abstraction for drilling purposes.
14	2 to 3 years of maintenance and after care	R 18 380,86	0,000	ha	1,00	1,00	R 0,00	Entire disturbed footprint
15	Specialist study	n/a	1,00	report	1,00	1,00	R 0,00	n/a
						Subtotal (1 to 15 above)	R 44 875,55	
	Subtotal 1		Weighting Factor 2			1,05	R 47 119,33	
1	Preliminary and General		12% of Subtotal 1 if less than R100mil 6% of Sub Total 1 if more than R100mil				R 5 654,32	
2	Contingency		10% of Sub Total 1				R 4 711,93	
			Subtotal 2 (Subtotal 1 plus sum of management and contingency)				R 10 366,25	
			Subtotal 3				R 57 485,58	
			GRAND TOTAL (Subtotal 3 plus 15% VAT)				R 66 108,42	

3.s.i EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED.

Rates were provided by the DMR for calculation of the financial provision. A bill of quantity was determined for each of the units and applied to the rates to determine a closure cost per unit. The unit costs determined the category costs and the category costs resulted in a preliminary closure cost also called Sub-Total 1. A contingency of 10% was included on Subtotal 2 to obtain a Financial Liability Cost in Subtotal 3. Finally, a 15% VAT was added to Subtotal 3 to obtain a subtotal 4. Subtotal 3 is regarded as the Final closure liability of the mine.

The quantum has been aligned with the rehabilitation and allows for the site to be rehabilitated back to the original status of the site. This will include:

- Ensuring all pollution-generating activities are eliminated.
- Ensuring all infrastructure is removed from the site.
- Ensuring that the existing land use can continue.
- Ensuring that the site is safe for humans and animals.

The rehabilitation sites will have a footprint of 64 m^2 for 15 sites as this is the area determined that needs to be cleared for drilling from previous experience. The maps and illustrations attached therefore indicate the site layout and sizes associated in order to do prospecting drilling.

Application for PR in respect of Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959, situated in the Xhariep District Municipality within the Letsemeng Local Municipality, Free State Province, South Africa with a maximum of 15 drill boreholes are required to determine the available resource. Only one prospecting site will be active at a time as there is only one drill rig that will be used. This therefore allows minimum exposure and impact as concurrent rehabilitation can be carried out. Once drilling is complete at one site (usually within one day) the rehabilitation can be done immediately and soils and vegetation replaced.

Existing roads will be used as far as possible and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. Vegetation establishment is monitored after the first rain to ensure sustainability in the rehabilitation efforts.

3.s.ii CONFIRM THAT THIS AMOUNT CAN BE PROVIDED FOR FROM OPERATING EXPENDITURE.

The applicant confirms that this amount will be provided for. The provision forms part of the capital expense of the project and is not included in the operational budget allocated in the PWP. Allowance has been made for environmental reporting in the operational budget.

3.t SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

3.t.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:-

3.t.i.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, alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim.

The proposed prospecting activities are expected to be limited and thus opportunities for employment will be low. However, consideration will be given to local procurement of goods and services where practicable.

There may be concern that the introduction of the prospecting workforce into the farm communities can result in disputes. The prospecting workforce is not to interfere with any farm labourers or communities. No persons are to reside on the properties during prospecting activities.

3.t.i.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, alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as Appendix 4 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Section 3(2) of the National Heritage Resources Act, No. 25 of 1999 provides a description of all items that is classified as national estate. A specialist has evaluated the list in comparison with the project site and total of eight sites consisting of buildings and structures were noted on historical topographical maps and aerial imagery.

Based on contemporary satellite imagery, three of these sites are associated with surface remains, while five appear to have been demolished as no surface remains are visible on satellite imagery. Although no surface remains are evident, subsurface culturally significant material might still be present. The demarcated sites should be avoided by the proposed prospecting activities. No streams or steep gradients that might indicate a potentially sensitive archaeological environment were noted on the available data sources. A full Phase 1 AIA (Archaeological Impact Assessment) must be done should any development that triggers an AIA result from the prospecting project, including if the cumulative impact of the proposed prospecting exceeds 0.5 ha.

3.u OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT.

Section 24(4) (b) (i) of the Act specifies "investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity".

The alternatives assessed and the impacts associated with the alternatives assessed have been fully presented in Section 3.h and Section 3.l.iii.

PART B

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

4. ENVIRONMENTAL MANAGEMENT PROGRAMME

4.a DETAILS OF THE EAP

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

Please refer to Part A of this report, Section 3.a for the contacts details and expertise of the author and EAP and Appendix A for CV of the EAP.

4.b DETAILED DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

Please refer to Part A of this report, Section 3.d.ii.

4.c COMPOSITE MAP

(Provide a map **(Attached as an Appendix 3**) 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).

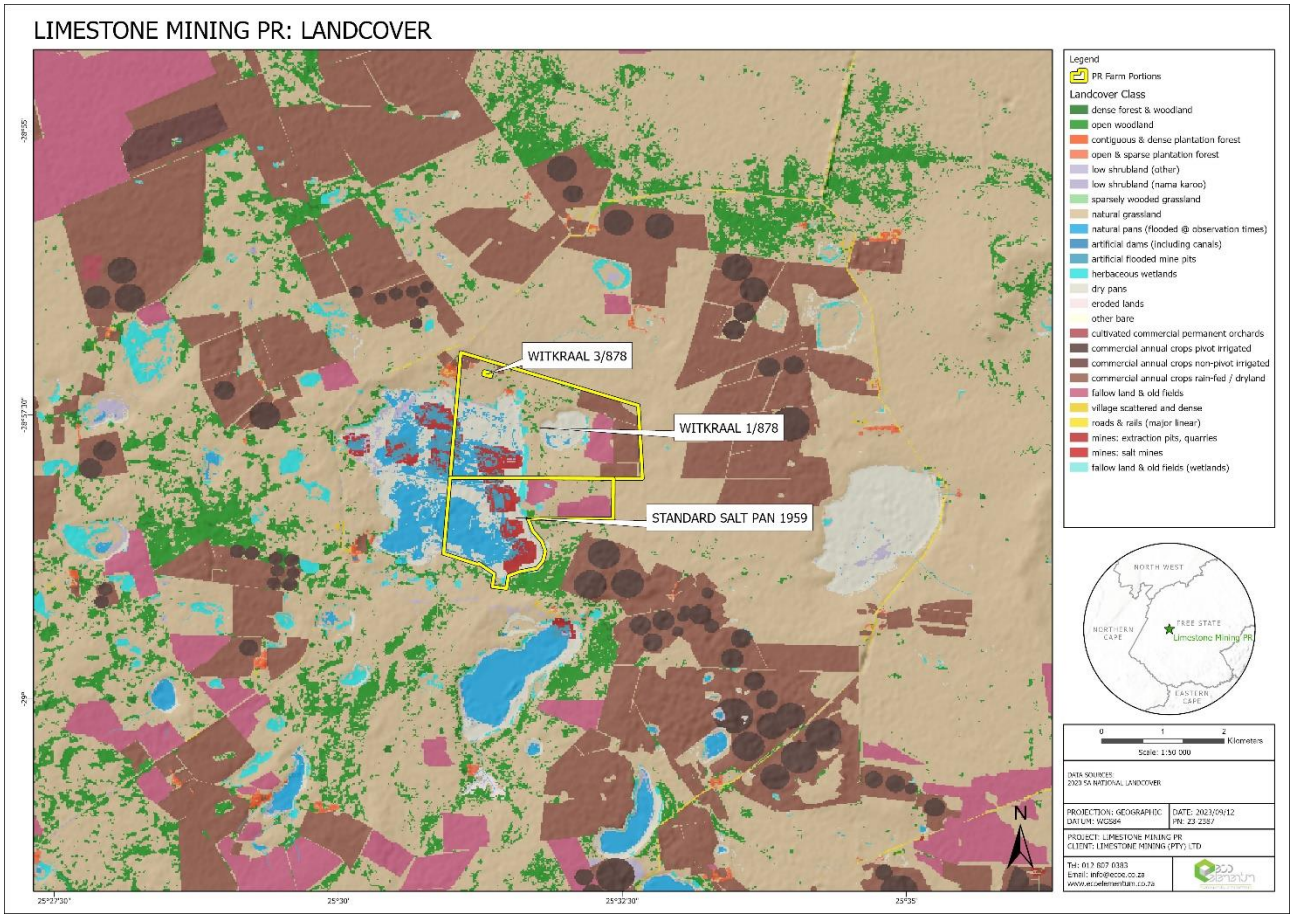

Figure 4-1: Landcover associated with the proposed PR site

4.d A DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

4.d.i DETERMINATION OF CLOSURE OBJECTIVES

The closure vision is supported by the objectives as listed below;

- Create a safe, physically stable rehabilitated landscape that limits long-term erosion potential and environmental degradation.
- Rehabilitation to minimise contamination of surface water resources (the philosophy of dilution and dispersion).
- Ensure interconnectivity between the rehabilitated landscapes with surrounding regionally biologically diverse areas.
- Encourage, if and where required, the re-instatement of terrestrial and aquatic wetland biodiversity over time.
- Meet with prevailing environmental legal requirements outlined in this report.
- Prevent / Minimise negative impacts and risks as identified in this report.

4.d.ii VOLUMES AND RATE OF WATER USE REQUIRED FOR THE OPERATION

A small continuous water supply will be required during drilling, and on-site water storage tanks with a capacity of 15,000 ℓ for water supply to the drill, will be used for prospecting activities. Water will also be brought onto site for potable use, this is estimated at 5 litres per person/day.

4.d.iii HAS A WATER USE LICENSE BEEN APPLIED FOR?

No water use licence will be applied for. No activities trigger a NWA Section 21 Water Use.

4.d.iv IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Table 4-1: Impacts to be mitigated in their respective phases, Impact Management outcomes, Impact Management Action

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, 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.)	**PHASE** (Of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²).	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants).	**COMPLIANCE WITH STANDARDS** (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).	**TIME PERIOD FOR IMPLEMENTATION** 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.
Prospecting (drill) site clearance	Construction	960 m²	The prospecting is aimed at minimising disturbance to natural vegetation once the positions have been finalised. No-go areas to be identified. Environmental awareness training of all employees responsible for drilling. A heritage assessment and paleontological impact assessment need to be undertaken prior to any invasive site activities. ECO to approve drill site location considering biodiversity, water resources, heritage and land use, Consult with landowner on drill site location , demarcates drill site for safety, Create an upstream berm to divert, clean stormwater around the site, Create a downstream berm to contain any dirty water.	NEM: BA SANBI Resources Act Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate. Compliance to GN704 of the National Water Act	Prior to construction.
Establish water recycling sumps	Construction	2 m²	Remove topsoil where sumps will be placed for rehabilitation. Line drill sumps with plastic to limit groundwater seepage.	- to meet rehabilitation Standards. - to limit groundwater contamination.	During construction.
Clearance of access roads	Construction	800 m²	ECO to approve access road Route. Limit clearance to two lane tracks.	Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate.	During construction.
Establish prospecting site	Construction	25 – 64 m²	- Chemical toilets need to be placed in close proximity to the drill site. - All chemicals and fuels need to be stored in a bunded area. - bins for general waste need to be provided. - signage indicating hazards need to be placed at the entrance of the site. - drill rig operators and labourers need to be provided with identification cards. - no labourers are to be housed on site.	Occupation Health requirement. Management of hazardous substances.	During construction.
Operation of the drill site	Operation	25 – 64 m²	General waste need to be collected and disposed at a licensed facility. - during rainfall events the drilling sumps need to be covered with plastic. - no employee are allowed outside of the drill site barricading without permission from the site manager. - water is to be sourced from existing users. - working hours is only permitted during daytime hours. - vehicles are not permitted to exceed 30 km/h within the drill properties.	- impact mitigation.	During operations.
Decommissioning and rehabilitation of the drill site Access roads.	Rehabilitation	25 – 64 m²	- All infrastructure need to be removed from the site.	Rehabilitation standards and objectives.	Rehabilitation.

			- All waste and spillage need to be cleaned and disposed of appropriately. - drill sump water should be reused or allowed to evaporate. - plastic from drill sumps need to be removed. - Chemical toilets need to be cleaned before I can be moved to the following drill site. - The drill hole must be capped or sealed to limit water ingress and ensure safety for humans and animals. - vehicles are not permitted to exceed 30 km/h within the drill properties.		

4.e IMPACT MANAGEMENT OUTCOMES

Table 4-2: Impacts to be mitigated in their respective phases, Impact Management outcomes, Impact Management Action

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Heritage					
Topsoil and overburden removal	Destruction of possible sub-surface heritage material within the sensitive area	Sites of cultural significance	Construction and Operation	Control through management and monitoring	Preservation of Archaeological artifacts
Site establishment	Clearance of the site	Sites of cultural significance	Construction and Operation	Control through management and monitoring	Preservation of Archaeological artifacts
Palaeontological					
Subsurface activity	Destruction of subsurface palaeontological significant material	Sites of cultural significance	Construction and Operation	Control through management and monitoring	Preservation of palaeontological significant artifacts
Noise					
Invasive prospecting activities	Increased Noise levels. Bulldozers and Equipment moving around generating noise	Machinery and drilling operations. Movement of vehicles.	Construction and Operation	Control through management and monitoring	Zero noise disturbance complaints
Wetland & Ecological Impacts					
Invasive prospecting activities: Establishment of drilling sites and access routes.	Removal / damage of natural vegetation.	Natural vegetation	Construction, Operation, Decommissioning and Closure	Remedy through rehabilitation	Awareness and protection of species of conservation concern Effective rehabilitation of the post mining environment
	Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened species.	Sensitive biodiversity	Construction and Operation	Modify prospecting plan through design measures. Control through management and monitoring	Protection of protected/threatened fauna and flora species.
Geology					
Invasive prospecting activities (drilling cores)	Creation of conduits between geological strata	Removal of geological core	Operational, decommissioning and closure	Control through management and monitoring	Prevention of conduit creation.
Groundwater and Surface water					
Invasive prospecting activities (drilling cores)	Contamination of groundwater	Seepage of fuels, oils and lubricants	Construction, Operation, Decommissioning and Closure	Control through management and monitoring	Effective water management and prevention of groundwater pollution.
Invasive prospecting activities (drilling cores)	Contamination of groundwater	Cross contamination of aquifers due to borehole construction.	Construction, Operation, Decommissioning and Closure	Control through management and monitoring	Effective water management and prevention of groundwater pollution.
Hydrocarbon spills.	Contamination of groundwater	Spills from mining vehicles can infiltrate to the aquifer and cause a down gradient plume migration	Construction, Operation, Decommissioning and Closure	Control through management and monitoring	Effective prevention of the pollution of the groundwater resource
Invasive prospecting activities (drilling cores)	Contamination of surface water	Vegetation clearance and site establishment	Construction, Operation, Decommissioning and Closure	Remedy through control measures	Prevention of erosion and release of acceptable quality water to the downstream environment
Invasive prospecting activities (drilling cores)	Contamination of surface water	Hydrocarbon spills, Dirty Water release and Sediment runoff.	Construction, Operation, Decommissioning and Closure	Control through management and monitoring	Effective prevention of the pollution of the surface water resource
Usage of ablution facility	Contamination of surface water	General and Human Waste	Construction, Operation, Decommissioning and Closure	Control through management and monitoring	Effective prevention of the pollution of the surface water resource
Air Quality					
Vehicles travelling on gravel roads	Negative impact on social health and wellbeing	Dust fallout and fine matter emissions	Operational, Decommissioning and Closure	Control through management and monitoring	Minimal vegetation clearance and concurrent rehabilitation as prospecting progresses
Exhaust fumes from vehicles and machinery related to prospecting activities.	Negative impact on social health and wellbeing	Release of gaseous emissions	Operational, Decommissioning and Closure	Control through management and monitoring	Minimal vegetation clearance and concurrent rehabilitation as prospecting progresses
Soils, Land Use, and Land Capability					
Invasive prospecting activities	Land use conflict	Intrusion due to drilling and prospecting activities in an area where agricultural land uses are prominent.	Construction, Operation and Closure	Remedy through rehabilitation	Harmonious interaction with the communities and landowners.
Invasive prospecting activities	Reduction in land capability	Land clearing and transformation.	Construction, Operation and Closure	Remedy through rehabilitation	Minimal disturbance to the area. Effective erosion management control
Social Economic					
Prospecting activities	Contribution to the economy.	Employment and use of contractors and purchasing goods.	Construction and Operational Phase	Remedy through Social and Labour Plan	Maximise local employment opportunities and develop skills during operations
Prospecting activities	Creation of nuisance and disturbance to surrounding industries (agricultural and agro processing)	Dust and noise from prospecting activities	Construction and Operational Phase	Remedy through Social and Labour Plan	Limit nuisance factors relate to noise and dust Limit potential negative impacts on noise and infrastructure damage related to blasting activities
Prospecting activities	Increase safety and security risk	Movement of drilling contractors	Construction and Operational Phase	Remedy through Social and Labour Plan	Limit any safety and health risks during operations

Prospecting activities	Increase safety and security risk	Overnight accommodation of drilling contractors	Construction and Operational Phase	Remedy through Social and Labour Plan	Limit any safety and health risks during operations
Prospecting activities	Prospecting on private property.	Prospecting activities is a predecessor to mining.	Construction and Operational Phase	Remedy through Social and Labour Plan	Minimise any potential negative impacts associated with the inflow of workers and jobseekers
Prospecting activities	Prospecting seen as a predecessor to mining and this raises a risk to various environmental impacts.	Prospecting activities is a predecessor to mining.	Construction and Operational Phase	Remedy through Social and Labour Plan	Promote awareness of prospecting and its use. Educate on prospecting.

4.f IMPACT MANAGEMENT ACTIONS

Table 4-3: Monitoring of Impact Management Action

ACTIVITIES	POTENTIAL IMAPCT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Prospecting (drill) site clearance	Clearance of the site Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened species.	Control through management and monitoring. Modify prospecting plan through design measures.	Before and during construction.	NEM: BA SANBI Resources Act Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate. Compliance to GN704 of the National Water Act
Establish water recycling sumps	Contamination of groundwater	Control through management and monitoring.	During construction.	To meet rehabilitation standards. To limit groundwater contamination.
Clearance of access roads	Clearance of the site	Control through management and monitoring.	During construction.	Implementation of the Impact management hierarchy to avoid, minimise, mitigate and rehabilitate.
Establish prospecting site	Clearance of the site Degradation and destruction of sensitive biodiversity- Suitable habitat for the globally threatened species.	Control through management and monitoring.	During construction.	Occupation Health requirement. Management of hazardous substances.
Operation of the drill site	Hydrocarbon spillages. Dirty Water release and Sediment runoff.	Control through management and monitoring.	During operations.	Impact mitigation through implementation of EMP.
Decommissioning and rehabilitation of the drill site Access roads.	Rehabilitation	Remedy through rehabilitation.	Rehabilitation.	Rehabilitation standards and objectives.

4.g FINANCIAL PROVISION

4.g.i.1 Determination of the amount of Financial Provision.

4.g.i.1.a Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

Rates were provided by the DMR for calculation of the financial provision. A bill of quantity was determined for each of the units and applied to the rates to determine a closure cost per unit. The unit costs determined the category costs and the category costs resulted in a preliminary closure cost also called Sub-Total 1. A contingency of 10% was included on Subtotal 2 to obtain a Financial Liability Cost in Subtotal 3. Finally, a 15% VAT was added to Subtotal 3 to obtain a subtotal 4. Subtotal 3 is regarded as the Final closure liability of the mine.

The quantum has been aligned with the rehabilitation and allows for the site to be rehabilitated back to the original status of the site. This will include:

- Ensuring all pollution-generating activities are eliminated.
- Ensuring all infrastructure is removed from the site.
- Ensuring that the existing land use can continue.
- Ensuring that the site is safe for humans and animals.

The rehabilitation sites will have a footprint of 64 m^2 for 15 sites as this is the area determined that needs to be cleared for drilling from previous experience. The maps and illustrations attached therefore indicate the site layout and sizes associated in order to do prospecting drilling.

Application for PR in respect of Portion 1 and 3 of the farm Witkraal 878 and the farm Standard Salt Pan 1959, situated in the Xhariep District Municipality within the Letsemeng Local Municipality, Free State Province, South Africa with a maximum of 15 drill boreholes are required to determine the available resource. Only one prospecting site will be active at a time as there is only one drill rig that will be used. This therefore allows minimum exposure and impact as concurrent rehabilitation can be carried out. Once drilling is complete at one site (usually within one day) the rehabilitation can be done immediately and soils and vegetation replaced.

Existing roads will be used as far as possible and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. Vegetation establishment is monitored after the first rain to ensure sustainability in the rehabilitation efforts.

4.g.i.1.b Confirm specifically that the environmental objectives in relation to closure have been consulted with the landowner and interested and affected parties.

The basic assessment report and environmental management programme will be provided to I&APs for review and comment for a 30-day period. The objective is to communicate to IAPs during the public consultation process.

4.g.i.1.c Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

Vegetation and topsoil excavated during the drilling process will be stockpiled next to sumps where it will serve as a stormwater diversion berm. On completion of the drilling process, the rehabilitated sumps will be backfilled with the stockpiled material.

4.g.i.1.d Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The rehabilitation of drilling boreholes will provide a project site backfilled, capping of boreholes, and vegetating of disturbed areas (where not within cultivated lands).

4.g.i.1.e Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The total provision amounts to the number of holes requiring rehabilitation at any given moment. This ensures that should the project application become insolvent prematurely the costs of rehabilitation can be recovered. Existing roads will be used as far as possible and it is not possible to identify any new access roads at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. No other infrastructure, offices or housing, will be present within the prospecting area and all employees will be housed in nearby towns. The quantum as calculated using the Department's guideline is provided in the Table below.

Table 4-4: Closure Quantum

CALCULATION OF THE CLOSURE QUANTUM - PROSPECTING RIGHT								Version 1.0: Annual Closure Quantum Update for 2023
Operation: FS 30/5/1/1/2/10679 PR - 23-2387-AUTH (Limestone PR Resubmission)				Province: Free State				
Evaluators: Eco Elementum (Pty) Ltd				Date: September 2023				
General Information	Risk Class	High (A)	PROPOSED PROSPECTING APPLICATION AREA					
	Environmental Senaitivity	Medium						
	WF 1: Nature of Terrain Weighting Factor	Flat 1.00						
	WF 2: Proximity to Urban Area Weighting Factor	Peri-Urban 1.05						
Component No	Main Activities Itemized Descriptions	[B] CPI Adjusted Master Rate STEP 4.3	[A] Quantity STEP 4.5	Units	[C] Multiplication Factor STEP 4.3	[D] Weighting Factor 1: Nature of Terrain STEP 4.4	Sub Totals [E = A*B*C*D]	NOTES & SUPPORTING EXPLANATIONS
1	Dismantling of processing plant and structures	R 17,91	0,00	m³	1,00	1,00	R 0,00	No processing plant and structures.
2(A)	Demolition of steel buildings and structures	R 249,45	0,00	m²	1,00	1,00	R 0,00	No steel buildings and structures. Temporary camp site.
2(B)	Demolition of reinforced concrete buildings and structures	R 367,62	0,00	m²	1,00	1,00	R 0,00	No reinforced concrete buildings and structures. Temporary camp site.
3	Rehabilitation of access roads	R 44,64	850,00	m²	1,00	1,00	R 37 943,34	Existing roads will be used as far as possible. Where this is not possible, new access roads will be identified at this stage as its route will be determined in conjunction with the landowner and activities on the property at that time. **A budget of 850m² for new access roads are included.** The drill operators can allocate this to access drill sites accordingly. For example: If all 10 drill sites require a new access road of 30m x 2.83m from an existing road, then there is budget for it. (30m x 2.83m = 85m²) (85m² x 10 drill sites = 850m²). Distances are subject to change but should remain within the allocated budget.
4(A)	Demolition and rehabilitation of electrified railway lines	R 433,26	0,00	m	1,00	1,00	R 0,00	n/a
4(B)	Demolition and rehabilitation of non-electrified railway lines	R 236,33	0,00	m	1,00	1,00	R 0,00	n/a
5	Demolition of housing and facilities	R 498,91	0,00	m²	1,00	1,00	R 0,00	No other infrastructure, offices, or housing will be present within the prospecting site areas
6	Opencast rehabilitation including final voids and ramps	R 253 918,43	0,00	ha	0,52	1,00	R 0,00	n/a
7	Sealing of shafts, adits, and inclines	R 133,92	0,00	m³	1,00	1,00	R 0,00	n/a
8(A)	Rehabilitation of overburden and spoils	R 174 355,57	0,00	ha	1,00	1,00	R 0,00	n/a
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	R 217 156,72	0,00	ha	1,00	1,00	R 0,00	n/a
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	R 630 726,04	0,00	ha	0,80	1,00	R 0,00	n/a
9	Rehabilitation of subsided areas	R 145 996,53	0,00	ha	1,00	1,00	R 0,00	n/a
10	General surface rehabilitation, including grassing of denuded areas	R 138 119,02	0,040	ha	1,00	1,00	R 5 524,76	Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays. 64m² drill site = 8m x 10m. 5 sites = 400m²
11	River diversions	R 138 119,02	0,00	ha	1,00	1,00	R 0,00	n/a
12	Fencing	R 157,55	0,00	m	1,00	1,00	R 0,00	n/a
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater, including treatment, when required)	R 52 516,74	0,040	ha	0,67	1,00	R 1 407,45	Drill site clearing and establishment, mobile chemical ablution facility, drill rig equipment, return water lined sump, and sample storage trays. 64m² drill site = 8m x 10m. 5 sites = 400m² Water abstraction for drilling purposes.
14	2 to 3 years of maintenance and after care	R 18 380,86	0,000	ha	1,00	1,00	R 0,00	Entire disturbed footprint
15	Specialist study	n/a	1,00	report	1,00	1,00	R 0,00	n/a
						Subtotal (1 to 15 above)	R 44 875,55	
	Subtotal 1		Weighting Factor 2			1,05	R 47 119,33	
1	Preliminary and General		12% of Subtotal 1 if less than R100mil 6% of Sub Total 1 if more than R100mil				R 5 654,32	
2	Contingency		10% of Sub Total 1				R 4 711,93	
			Subtotal 2 (Subtotal 1 plus sum of management and contingency)				R 10 366,25	
			Subtotal 3				R 57 485,58	
			GRAND TOTAL (Subtotal 3 plus 15% VAT)				R 66 108,42	

4.g.i.1.f Confirm that the financial provision will be provided as determined.

The provision forms part of the capital expense of the project and is not included in the operational budget allocated in the PWP. Allowance has been made for environmental reporting in the operational budget.

4.h MECHANISMS FOR MONITORING COMPLIANCE WITH THE IMPACT MANAGEMENT ACTIONS RECOMMENDED –

- Monitoring of Impact Management Actions (Table 4-3).
- Monitoring and reporting frequency (Table 4-5).
- Responsible persons (Table 4-5).
- Time period for implementing impact management actions (Table 4-5).
- Mechanism for monitoring compliance (Table 4-5).

Table 4-5: Monitoring compliance

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
Drill site establishment, moving and rehabilitation	- Disturbance of vegetation, - Degradation and destruction of sensitive biodiversity - Suitable habitat for the globally threatened red data avifaunal species. - Contamination of ground and surface water. - Disturbance of heritage Resources. - Land use conflicts - Noise and dust generation. - Rehabilitation sustainability.	- Pre-site establishment, with no go areas and approval by EO and avifaunal specialist. - Pre-site establishment risk Assessment. - Pre-site establishment risk assessment. - Complaint register. - Rehabilitation closure report.	- Project environmental officer. - Site manager. - Project environmental officer. - Project environmental officer.	- Prior to site establishment. - (once off). - During operations and closure. - (bi-monthly). - Prior to site establishment. - Prior to site establishment - (once off). - During operations and closure. - (continuous) - Post closure.
Entire operational site	All activities and impacts identified.	Auditing all site activities in compliance with the management commitments.	Project environmental officer.	During life of project. (monthly)

4.i INDICATE THE FREQUENCY OF MONITORING THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS RECOMMENDED

A performance assessment / Environmental audit will be undertaken as stipulated in the Environmental Authorisation OR once in Phase 2 and in rehabilitation, which should include the assessment of the financial provision. The performance assessment will be conducted by an external consultant throughout the life of prospecting as required under NEMA. This is conducted to assess the adequacy and compliance to the EMP, EA and the relevant legislation. The reports should be submitted to the DMR.

4.j ENVIRONMENTAL AWARENESS PLAN

4.j.i Manner in which applicant intends to inform his / her employees of any environmental risk which may result from their work.

An environmental awareness training manual will be developed for the prospecting project. All employees must be provided with environmental awareness training to inform them of any environmental risks that may result from their work and of the manner in which the risks must be dealt with to avoid pollution or the degradation of the environment.

Employees should be provided with environmental awareness training before operations start. All new employees should be provided with environmental awareness training. Environmental awareness and training is an important aspect of the implementation of the EMP. The onus is on the different parties involved in the various stages of the life cycle of the project to be environmentally conscious. Hence, it is suggested that all members of the project team are familiar with the findings of the site-specific EA report and the EMPr. For instance, the contractor is responsible for the lack of environmental knowledge of his/her crew members. The contractor could forward internal environmental awareness and training procedures to the project manager and environmental officer for comment prior to the commencement of the project. Likewise, the above is applicable to the programming, design, operations and maintenance, and decommissioning teams. Environmental awareness ensures that environmental accidents are minimized and environmental compliance maximized.

All staff and contractors will be submitted to an annual training / awareness course to inform the staff of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment.

Section 39 (3) (c) requires that an applicant who prepares an Environmental Management Programme or Environmental Management Plan must "develop an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from the work and the manner in which the risks must be dealt with in order to avoid pollution and degradation of the environment". Environmental Awareness is required not only for management and employees (as described in Section 39 (3) (c) but also for visitors to the site. the following strategies and plans will be put into place for each of the parties.

Visitor Environmental Awareness

Visitor / sub-contractor environmental awareness will be generated through the provision of a signboard describing very briefly the environmental considerations applicable to them. The signboard should contain the following information:

- Statement of the applicant's commitment to environmental principles;
- List of the "rules" by which the visitor must abide. This will include:
    - No littering. Dispose of all waste in the bins provided;
    - No fires;
    - Stay on demarcated roadways and paths only;
    - Kindly report any environmental infringements they may notice; and
    - Check your vehicle/equipment for diesel/oil leaks.

Senior and Middle Management Environmental Awareness:

Achieving environmental awareness at the upper levels of management is slightly different from the process at the operational level. There is often a fair level of the general value of environmental awareness but site-specific issues will most often need to be communicated. This will be achieved by:

- Management must make themselves fully familiar with the EMPr;
- Ensuring that there is a spare copy of the approved EMPr at his/her disposal; management is encouraged to make notes in the document regarding the difficulty / ease of implementing the environmental management measures. These notes should be sent to the consultants to assist in future revisions of the EMPr;
- The manager must ensure that the operators perform regular monitoring of their workstations / areas.

During the management's execution of their activities/being at the site, the management must constantly be aware of and observant of especially the following:

- Dust levels - movement outside of demarcated areas;
- Litter management - general housekeeping;
- Erosion during rainy season.
- Topsoil management – fuel / oil management/leaks/changes;
- Success of operational re-vegetation; and
- Alien vegetation.

Operator / Workforce Environmental Awareness:

Achieving environmental awareness amongst the operators and labour is probably the most important because they are usually present at the place where most environmental transgressions take place or in fact cause them. It is the aim of increased environmental awareness to reduce any such environmental transgressions.

Increasing environmental awareness at these levels can be achieved through the following strategies:

- Induction environmental training must take place prior to any contract period.
- Training: Each and every employee (contractor or not) must go through an environmental training process where at least the following items are covered:
    - The oil/fuel management policy must be explained to the employees. The reason for the policy must also be explained (i.e. to not impact on groundwater, surface water, soil quality etc.);
    - The domestic and industrial waste management policy & method must also form part of the training;
    - The topsoil handling method and the reasons for preserving topsoil (i.e. post prospecting revegetation, erosion prevention etc.);
    - Alien vegetation management: How to recognize and remove such species;
    - Protection of the natural veld by not driving/maneuvering or walking through the demarcated protection areas. Reporting that demarcation posts/tape is broken or removed;

Emergency management procedures such as dealing with oil spills or fires must also be drilled; and

- Such training will, in this case, be carried out by the site manager/resident engineer.

4.j.ii MANNER IN WHICH RISKS WILL BE DEALT WITH IN ORDER TO AVOID POLLUTION OR THE DEGRADATION OF THE ENVIRONMENT.

Training, as detailed above, will address the specific measures and actions as listed in the EMPr and also conditions of the EA. In this way, the team will be provided the knowledge required to conduct the mining activities without resulting in environmental non-compliance, the liability of which would lie with the applicant. Secondly, informing the team of the EMPr will also assist the team in identifying if an impact is likely to occur / has occurred and communicated this appropriately to the Environmental Manager.

In order for appropriate action to be taken, proper communications network and reporting protocol must be established, with the team and the site manager reporting all environmental issues to the Environmental Manager and then all social issues to the General Manager.

4.k SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The following specific information will be required by the competent authority:

- The financial provision will be reviewed annually.

UNDERTAKING

The EAP herewith confirms

a. the correctness of the information provided in the reports ☒

b. the inclusion of comments and inputs from stakeholders and I&APs ; ☒

c. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and

d. that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein. ☒

Signature of the Environmental Assessment Practitioner:

Eco Elementum (Pty) Ltd

Name of Company:

30/10/2023

Date:

-END-

APPENDIX A: EAP CV

APPENDIX B: PUBLIC PARTICIPATION REPORT

APPENDIX C: CONCEPTUAL LAYOUT MAPS

APPENDIX D: SPECIALIST STUDIES

APPENDIX E: SCREENING TOOL REPORT