National Treasure Minerals (Pty) Limited

Roodepoort Prospecting Project

DRAFT

Basic Assessment Report (BAR) and Environmental Management Programme (EMPr)

Compiled in terms of Appendix 1 and Appendix 4 of the amended Environmental Impact Assessment Regulations, 2014 (Government Notice No. 982) (EIA Regulations, 2014) and submitted as contemplated in Regulation 19 of Chapter 4 of the EIA Regulations, 2014

For

The application for an Environmental Authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Amended Environmental Impact Assessment Regulations 2014, Government Notice R983 - Listing Notice 1 of 2014

DMRE Reference No.: MP 30/5/1/1/2/16885 PR

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Project Title: Roodepoort Prospecting Project

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Version: Draft

Date: February 2022

Disclaimer:

The results and conclusions of this report are limited to the Scope of Work agreed between Geovicon Environmental (Pty) Limited and National Treasure Minerals (Pty) Limited for whom this report/ investigation has been conducted. All assumptions made and all information contained within this report and its attachments depend on the accessibility to and reliability of relevant information, including maps, previous reports and laboratory results, from the Client and Contractors. All work conducted by Geovicon Environmental (Pty) Limited is done in accordance with the Geovicon Standard Operating Procedures.

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Declaration:

I hereby declare:

1. I have no vested interest (present or prospective) in the project that is the subject of this report as well as its attachments. I have no personal interest with respect to the parties involved in this project.

2. I have no bias with regard to this project or towards the various stakeholders involved in this project.

3. I have not received, nor have I been offered, any significant form of inappropriate reward for

Compiling this report.

R.Maseko

(Signature)

R.Maseko, B.Sc. Hons

This report was reviewed by:

(Electronic signature)

T. Shakwane, B.Sc. Hons. (Professional Natural Scientist no: 117080)

EXECUTIVE SUMMARY

National Treasure Minerals (Pty) Limited has lodged an application for a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2004 (Act 28 of 2004). National Treasure Minerals (Pty) Limited proposes to prospect for coal and pseudocoal on Portions 3, 8, 11, and 12 of the farm Roodepoort 6 IT, situated within Carolina Magisterial District.

Roodepoort prospecting project will be undertaken in different phases i.e., literature review (available data interpretation and deciding whether to commence with drilling), field mapping and geophysical survey, positioning of drilling sites, diamond core drilling, logging/sampling of borehole cores and rehabilitation of the drilling site.

The commencement of the proposed Roodepoort prospecting project will result in the undertaking of activities that are considered as listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) as amended (NEMA). In terms of the above-mentioned legislation, an application for an environmental authorisation must be submitted to the competent authority which application must be granted before the commencement of the proposed listed activities. In addition to the above, an environmental impact assessment must be undertaken in support of the environmental authorisation application for the proposed listed activities. In view of the above, National Treasure Minerals (Pty) Limited appointed Geovicon Environmental (Pty) Limited, an independent environmental consulting company, to undertake and manage the environmental authorisation application and the environmental impact assessment for the proposed Roodepoort prospecting project. An application for an environmental authorisation for the proposed Roodepoort prospecting project was submitted to the Department of Mineral Resources and Energy, Mpumalanga Regional Office (Competent Authority) for their consideration. The application has ever since been accepted by the Department and a Basic Assessment Report (BAR) together with an EMPr must be compiled and submitted in terms of the requirements of the EIA Regulations, 2014.

This document (BAR and EMPr), which concerns assessment of environmental impacts and a programme for management of the impacts for the proposed activities at the Roodepoort prospecting area, was compiled in terms of the amended EIA Regulations, 2014 for review by interested and affected parties including the competent authority.

Environmental baseline data used in this report has been obtained through desktops assessments for surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions and the socio-economic aspects. Weather data was acquired from the World weather online. Historic land use was determined through available data. The data accumulated and analysed is; therefore, deemed sufficient to gain a baseline indication of the present state of the environment. The use of this baseline data for impact assessments is thus justified, and reliable conclusions could be made. The impacts that could arise during and after the proposed activities at the Roodepoort prospecting area were determined and ranked according to their significance. Based on the impact assessment, recommendations were made for the mitigation of significant negative environmental impacts that will result from the proposed area.

PART A

BASIC ASSESSMENT REPORT

SECTION ONE

Introduction

1. INTRODUCTION

1.1. WHO IS DEVELOPING THE BAR AND EMPR?

1.1.1. Name and contact details of the EAP who prepared the BAR and EMPR

EAP: Mr. Ornassis Tshepo Shakwane

Professional registration:

SACNASP: 117080

EAPASA: 2019/1763

IAIA Membership No.: 3847

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1.1.2. Expertise of the EAP who prepared the BAR and EMPR

Geovicon Environmental (Pty) Limited is a geological and environmental consulting company. The company was formed during 1996, and currently has more than 20 years' experience in the geological and environmental consulting field. Geovicon Environmental (Pty) Limited has successfully completed consulting areas in the Mining sector (coal, gold, base metal and diamond), Quarrying sector (sand, aggregate and dimension stone), Industrial sector and housing sector. Geovicon Environmental (Pty) Limited has undertaken contracts within all the provinces of South Africa, Swaziland, Botswana and Zambia. During 2001 Geovicon Environmental (Pty) Limited entered the field of mine environmental management and water monitoring.

Geovicon Environmental (Pty) Limited is a Black Economically Empowered Company with the BEE component owning 60% of the company. Geovicon Environmental (Pty) Limited has three directors i.e., O.T Shakwane, J.M. Bate and T.G Tefu.

Mr. O.T Shakwane obtained his BSc (Microbiology and Biochemistry) from the University of Durban Westville in 1994, and completed his honours degree in Microbiology in 1995. Mr O.T Shakwane has also completed short courses on environmental law and environmental impact assessment with the University of Mpumalanga's Centre for Environmental Management. He has worked with the three state departments tasked with mining and environmental management i.e., Department of Water and Sanitation (Gauteng and Mpumalanga Region), Department of Mineral Resources and Energy (Mpumalanga Region) and Department of Agriculture, Conservation and Environment (Gauteng Region). Mr. Shakwane has been in the consulting field since 2004 and has completed various areas similar to the proposed Roodepoort prospecting project as an environmental assessment practitioner. Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Roodepoort prospecting project.

Over the past years Geovicon Environmental (Pty) Limited has formalised working relationships with companies that offer expertise in the following fields i.e., Geohydrology, Civil and Geotechnical Engineering, Geotechnical Consultancy, Survey and Mine Planning and Soil & Land Use Consultancy. Geovicon Environmental (Pty) Limited is an independent consulting company, which has no interest in the outcome of the decision regarding the Roodepoort prospecting project basic assessment process.

1.2. WHO WILL EVALUATE AND APPROVE THE BAR AND EMPR?

Before the proposed project can proceed, an Environmental Assessment Practitioner (EAP) must compile an application for an environmental authorisation for the proposed project. An impact assessment (basic assessment process) must be undertaken in support of the application for an environmental authorisation. The basic assessment process will determine the potential environmental impacts that may result from the proposed project and an environmental management programme will be compiled to provide measures for mitigation against the identified impacts. The above-mentioned application must be made to the competent authority and in terms of section 24D (1) of NEMA, the Minister responsible for mineral resources is the responsible competent authority for this application. In view of the above, the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources and Energy (DMRE), Mpumalanga Regional Office for their consideration and decision making.

In the spirit of co-operative governance and in compliance with the requirements of NEMA and the MPRDA, the competent authority may, during the processing for the environmental authorisation application, consult with other organs of state that administers laws that relate to matters affecting the environment relevant to this application. Note that during the public participation process for the proposed project, the EAP will also consult with the below listed state authorities.

The organs of state that are to be consulted may include the following:

- Department of Mineral Resources and Energy, Mpumalanga Regional Office (Competent Authority).
- National Department of Agriculture, Forestry and Fisheries, Mpumalanga Regional Office (Commenting Authority).
- Department of Water and Sanitation (DWS).
- South African Heritage Resources Agency (Commenting Authority).

Note; however, that this list is not exhaustive as more organs of state may be identified by the competent authority and EAP during the public participation process.

1.3. DETAILS OF THE APPLICANT

1.3.1. Name of the Applicant

National Treasure Minerals (Pty) Limited.

1.3.2. Name of the Project

Roodepoort prospecting project

1.3.3. Postal Address of Applicant

National Treasure Minerals (Pty) Limited

P.O. Box 213

Waterkloof

Pretoria

0181

1.3.4. Responsible Person

Mongwe Mojalefa

1.3.5. Contact Person

Mongwe Mojalefa

Cell No: 074 548 9726

Fax: (086) 575 1718

E-mail: douglas@xakwa.com

1.4. DESCRIPTION OF THE PROPERTY (LOCATION OF THE PROJECT)

1.4.1. Regional Setting

The Roodepoort prospecting project is situated within the Carolina Magisterial District approximately 3 km north of Carolina and approximately 27 km north west of Chrissiesmeer, access to the area is via the R33 Provincial Road which connects to a network of roads that passes right through the prospecting area. See Figure 1, for the location of Roodepoort prospecting area and Table 1 for the distance and directions of towns around the Roodepoort prospecting area.

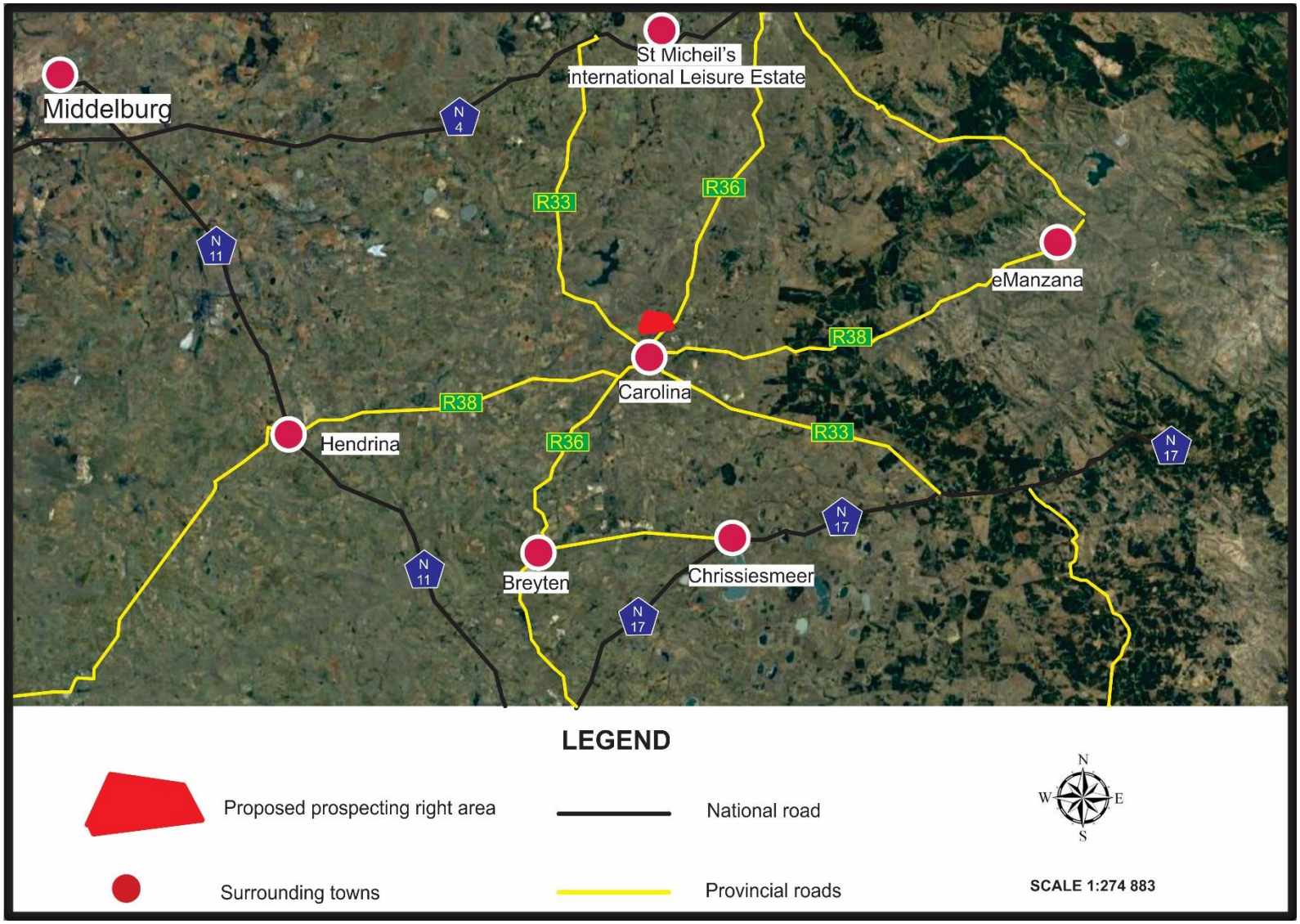


Figure 1:Regional setting

1.4.2. Physical Address and Farm Name of the prospecting Area

Roodepoort prospecting project is situated on Portions 3, 8, 11, and 12 of the farm Roodepoort 6 IT, Mpumalanga province.

1.4.3. Magisterial District & Regional Services Council

- Magisterial District: Elukwatini (Carolina) Magisterial District, Mpumalanga
- District Municipality: Gert Sibande District Municipality
- Local Municipality: Chief Albert Luthuli Local Municipality

1.4.4. Direction and Distance to Nearest Towns

Table 1: Direction and Distance from Nearest Towns.

TOWN	DIRECTION	DISTANCE (KM)
Carolina	North	3km
Chrissiesmeer	North west	27km

1.4.5. Locality Plan

Refer to Figure 2 for the locality plan of the Roodepoort prospecting area.

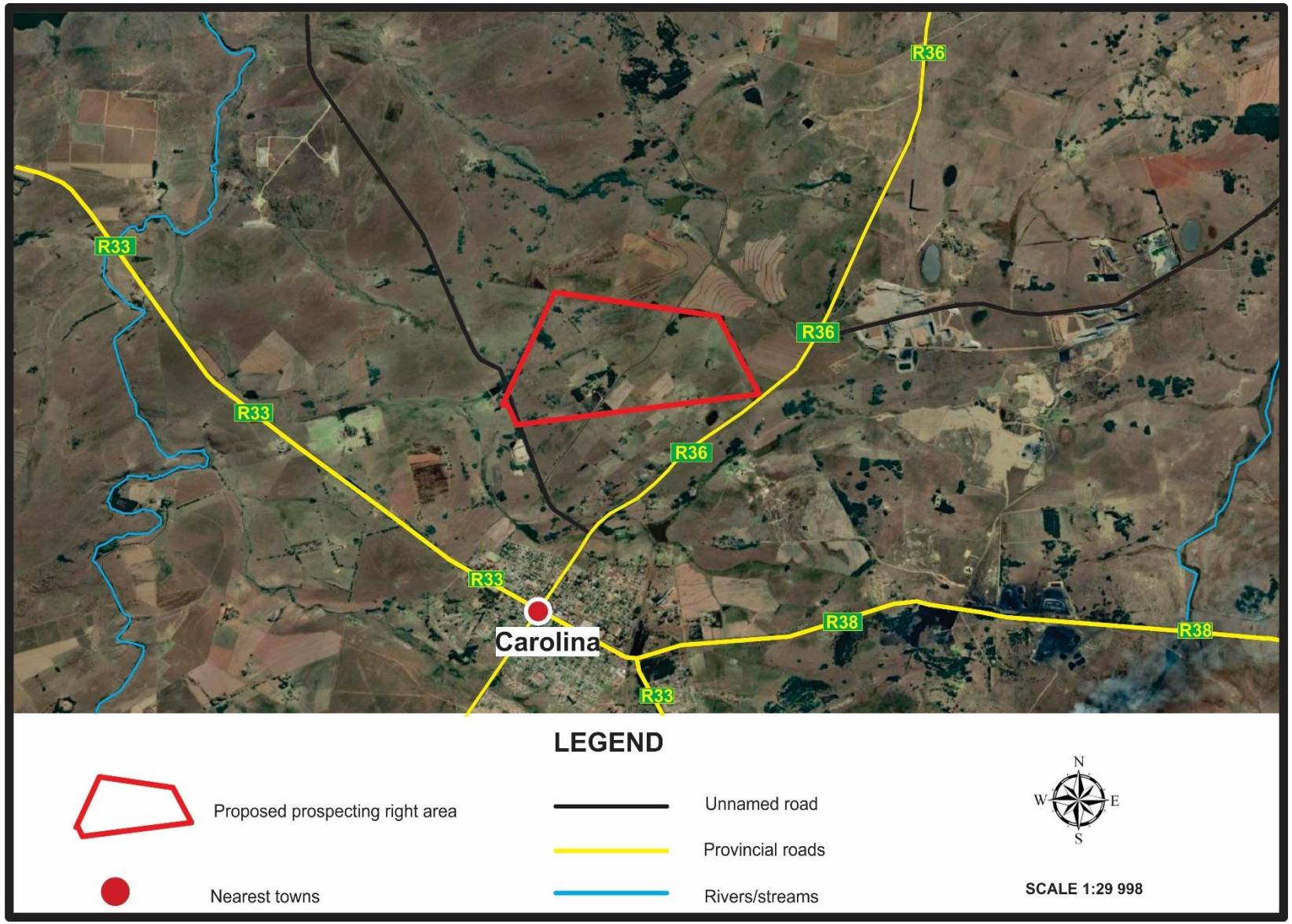


Figure 2: Locality Plan.

1.4.6. Land Tenure and Use of Immediate and Adjacent Land

Land tenure for the properties within and immediately around the proposed Roodepoort prospecting area is indicated on Figure 3 and described in Table 2.

Table 2: Schedule of properties listing surface ownership within and surrounding Roodepoort prospecting area.

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
Direct farm			
Roodepoort 6 IT	T0IT00000000000600002	Portion 2	Basson Gideon Jacobus
	T0IT00000000000600003	Portion 3*	Beer Pieter Hendrik De
	T0IT00000000000600006	Portion 6	Joubert Fransisca
	T0IT00000000000600008	Portion 8*	Fischer Don
	T0IT00000000000600011	Portion 11*	Beer Pieter Hendrik De
	T0IT00000000000600012	Portion 12*	Beer Pieter Hendrik De
Adjacent farm			
Haverfontein 7 IT	T0IT00000000000700008	Portion 8	F J Van Rensburg Trust
	T0IT00000000000700010	Portion 10	Khulamnotfo Cooperative Ltd
Carolina town and townlands 43 IT	T0IT00000000004300001	Portion 1	Albert Luthuli Local Municipality
	T0IT00000000004300030	Portion 30	Fischer Don
	T0IT00000000004300031	Portion 31	Schoeman Willem Jacobus
	T0IT00000000004300032	Portion 32	Beer Pieter Hendrik De
Zandvoort 10 IT	T0IT00000000001000000	Remaining Extent	Ilima Coal Co Pty Ltd

*Portions on which the prospecting area is applied for, also refer to **Appendix A** regulation 2(2) plan and **Appendix B** Windeed list for the direct farm.

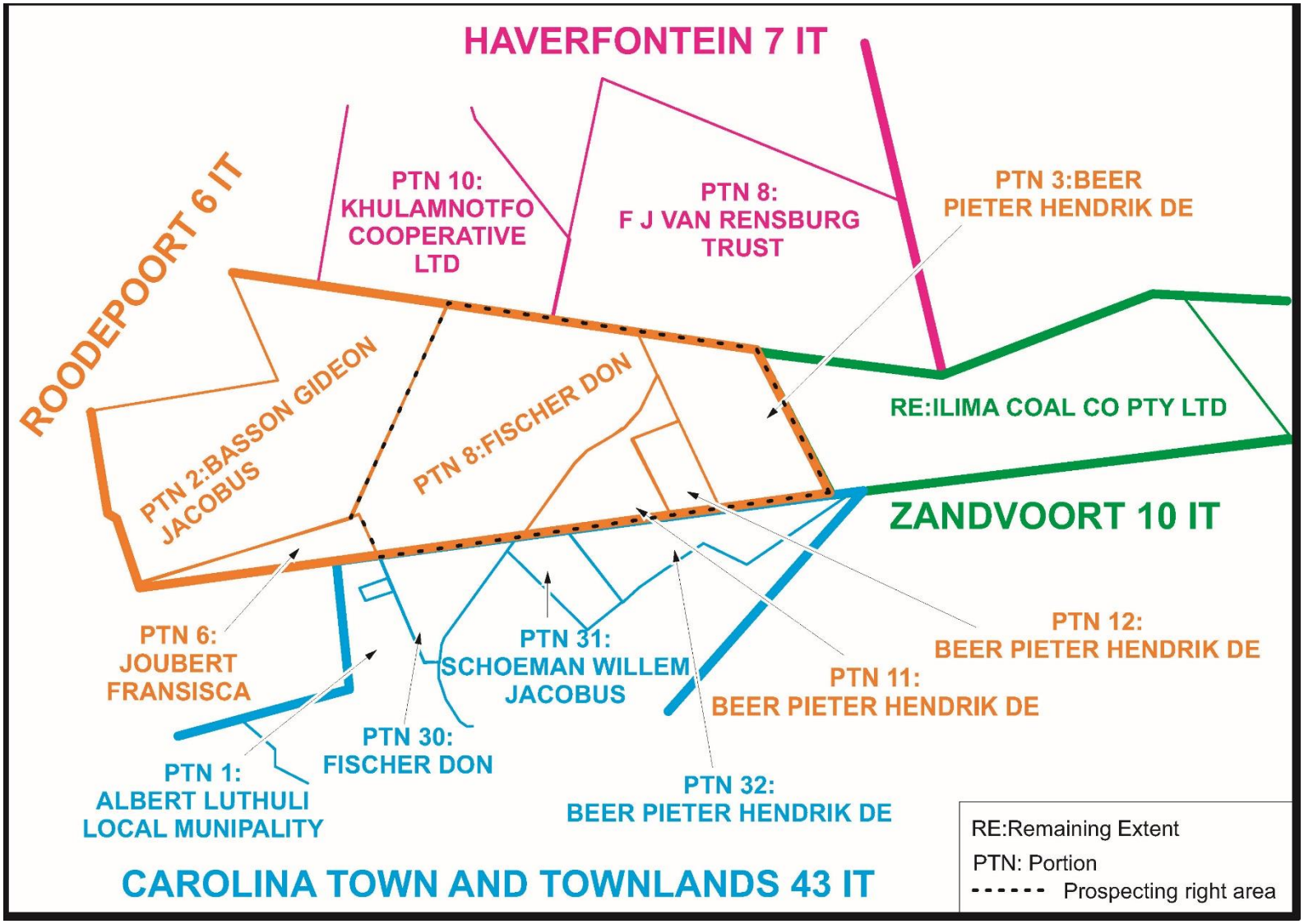


Figure 3: Land Tenure Plan for the Roodepoort prospecting area.

SECTION TWO

Description of the Scope of the proposed Project

2. DESCRIPTION OF THE SCOPE OF THE PROPOSED PROJECT

2.1. LISTED ACTIVITIES AND SPECIFIED ACTIVITIES

In terms of the NEMA, the proposed Roodepoort prospecting project will result in activities that are considered as listed activities. In terms of the above-mentioned legislation, none of the above-mentioned listed activities can be conducted without an environmental authorisation. In view of the above, National Treasure Minerals (Pty) Limited has submitted an application for an environmental authorisation for all listed activities to be conducted at the proposed Roodepoort prospecting area to the competent authority (DMRE). This section will give a description of the listed activities that will be included in the application for an environmental authorisation. Table 3 is compiled as prescribed by the DMRE, EIR and EMPr template and reflects all project activities applied for.

2.2. DESCRIPTION OF THE PROPOSED PROJECT

National Treasure Minerals (Pty) Limited proposes to prospect for coal and Pseudocoal on the Roodepoort prospecting area. This will include the usage of diamond core drilling methods. The activities will be undertaken on Portions 3, 8, 11, and 12 of the farm Roodepoort 6 IT.

Table 3: Proposed Roodepoort prospecting area Listed Activities.

LISTED ACTIVITY	NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	APPLICABLE LISTING NOTICE
PROPOSED ROODEPOORT PROSPECTING AREA LISTED AND SPECIFIC ACTIVITIES			
NATIONAL ENVIRONMENTAL MANAGEMENT ACT			
Activity 20 of Listing Notice 1: 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 associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Conducting prospecting activities within the Roodepoort prospecting area for the exploration of minerals applied for using a diamond core drilling prospecting method together with all associated infrastructure and activities. These include site establishment (access to site and a campsite), pegging of drilling sites, drilling of exploration boreholes with associated sumps, logging and sampling of drilled cores and site rehabilitation.	0.08 hectares.	NO. 983

2.2.1. Target Mineral

Coal and Pseudocoal.

2.2.2. Prospecting method to be used at the Roodepoort prospecting area.

The proposed Roodepoort prospecting area will be explored in three phases i.e., literature review/ field mapping phase and two drilling phases. Only the field mapping and drilling phases have potential for environmental impacts, thus only these two last phases will be described in this section of the report.

The field mapping phase will include the establishment of access to the site (tracks and/or existing roads), establishment of a campsite (a caravan and chemical toilet), field surveying (to determine sensitive areas), geophysical surveys (if necessary) and pegging of the drilling sites.

Drilling phase will involve the drilling of the sited drilling boreholes by drill rig, using a diamond core drilling technique. A sump will be constructed in each drilling borehole for the collection and recycling of water from the drilling operation. The sump will be constructed to be one square meter in size and have a maximum depth of 1 meter. Any soils removed from the sump (approximately one cubic meters) will be placed adjacent the drilling site and used for rehabilitation of the site.

Boreholes will be drilled at pre-planned sites. The boreholes will be drilled to intersect all the expected reserves and will be logged by a geologist. The samples will be sent to a laboratory for quality determination. This data will form the basis for the geological modelling and financial evaluation.

National Treasure Minerals (Pty) Limited proposes to drill 10 boreholes in total throughout the life of the prospecting project.

2.2.3. Planned Life of Project

The current estimated life of the proposed Roodepoort prospecting project is five years.

2.3. ROODEPOORT PROSPECTING AREA SURFACE INFRASTRUCTURE DESCRIPTION

2.3.1. Access

There is a good network of both tarred and gravel roads connecting the prospecting area with surrounding towns. Existing roads to be used for the proposed area include the R33 provincial road, a secondary road and a number of private farm roads. Where no roads exist, tracks will be used to access the drilling sites. No clearing of natural vegetation will be undertaken.

2.3.2. Power Supply

Power supply will be required for the running of vehicles and drilling machinery. Power will also be required for the drilling of boreholes and for the illumination (drill site) of the project site. Diesel powered vehicles and machinery will be used for the proposed project.

Power required for the drilling of boreholes, boreholes pumping and for the illumination of the project site be generated by a diesel-powered generator.

2.3.3. Water Supply

Water at the drilling operations will be required for the following purposes i.e., drilling, potable supply and for sanitation.

Water for the operation of machines and for domestic use (portable and sanitation) will be obtained from a landowner's borehole. Alternatively, water will be sourced from the local municipality or farm dams/streams. Should water be sourced from the streams, an authorisation (if triggered) from the DWS will be obtained before such abstraction. Irrespective of the source, water will be trucked to the sites with water carts or tanks loaded on site vehicles.

2.3.4. Workshops and Buildings

No workshops and office buildings will be required for this project. All machinery will be maintained at an offsite workshop. Should emergency repairs be required the repairs will be conducted on site on areas covered with tarpaulins.

2.3.5. Waste Management

2.3.5.1. Waste Identification and Management

Hazardous Waste

Hazardous waste to be generated includes hydrocarbon wastes and sewage waste. Oil waste and liquid fuels waste include used oils from machinery and vehicles and diesel/petrol waste.

General Waste

General waste to be generated from the proposed area is domestic waste. Domestic waste will include papers, containers, food waste, stationary and discarded PPE generated from the drilling and campsites.

2.3.5.2. Waste Management Facilities

Hazardous Waste

Hydrocarbon waste will be collected in 210 litre drums for storage. The removal of the drums or any other appropriate receptacle will be undertaken by a waste disposal company, for disposal at a registered licensed waste disposal site. The drums will be placed on protected ground.

Chemical toilets will be used for the management of sewage waste generated on site.

General Waste

General waste will be collected in wheeled bins or refuse bags. The removal of this waste will be undertaken by the municipality or disposed at a registered landfill site.

2.4. ROODEPOORT PROSPECTING PROJECT- METHOD STATEMENT

In terms of the DMRE BAR and EMPr template, National Treasure Minerals (Pty) Limited must describe the methods and technology to be employed for the proposed project. In view of the above, a method statement for each phase of the proposed project has been provided. This identifies all actions, activities or processes associated with the proposed prospecting operation.

2.4.1. Pre-Construction Phase

2.4.1.1. Data gathering

Relevant information regarding the potential of the identified prospecting area will be sourced from institutions like the Council for Geoscience. This information will be analysed and interpreted through computer modelling of existing data.

The interpretation of the said data will result in compilation of a literature review report. The said report will give indication as to what processes (in order of priority) to follow to complete the prospecting activities.

2.4.1.2. Field Mapping

The field mapping will include field surveying (to determine sensitive areas), geophysical surveys and pegging of the drilling sites.

2.4.1.3. Detailed site survey and investigation

Demarcation of sensitive and protected areas will be conducted by physical survey of the proposed area by a suitability qualified person. This should be done before establishment of access to the site, campsites and drilling of exploration boreholes.

2.4.1.4. Geophysical surveys and data interpretation

A Handheld proton Magnetometer will be used to perform the magnetic survey over the proposed prospecting site. Please refer to Figure 4.

Figure 4: GSM-19T Proton Precession system in action.

2.4.1.5 Pegging of drill sites

All exploration borehole sites will be staked by a suitably qualified person. The sites will; thereafter, be plotted on a plan drawn to an appropriate scale.

2.4.1.6 Decision to commence with prospecting activities

Once all factors are gathered, a physical inspection of the terrain will be conducted to verify certain aspects, such as, type of the terrain involved, type of methods to be used, etc. The important point to note is that a decision on whether or not to proceed with prospecting depends not only on the scientific and reliability of the methods under consideration, but also upon many fewer tangible factors, such as restrictions that might be imposed by the relevant Department when granting a prospecting right.

2.4.2. Construction Phase

Construction phase will involve the establishment of access to the drilling sites (tracks and/or existing roads) and establishment of campsite (a caravan/tents and chemical toilet).

2.4.2.1. Establishment of access

The R33 provincial route runs west of the proposed area. A secondary road and a number of private farm roads and tracks lie in close proximity to the proposed prospecting area, hence access to the site will be through these roads. Where necessity arise for access to the drilling sites, tracks will be established and used as access to the drilling sites. These, tracks will be established to be more than hundred meters away from any sensitive landscapes. The tracks will also be sited away from protected areas. Vegetation clearance will be avoided during the establishment of the access tracks.

2.4.2.2. Establishment of campsite

Tents and/or caravans, ablution facilities (chemical toilets) and waste storage facilities will be provided for employees. Clearing of vegetation will be avoided during the establishment of the campsite.

2.4.3. Operational Phase

2.4.3.1. Diamond core drilling and sump construction

Geological boreholes will be drilled on a predetermined grid. During drilling of each borehole, a sump of approximately 1.0 x 1.0 x 1.0 m will be excavated for collecting excess muds (water) from the drilling operation and the water will be used for the operation of the drilling machine. Refer to Figure 5 where the drill rig is represented.

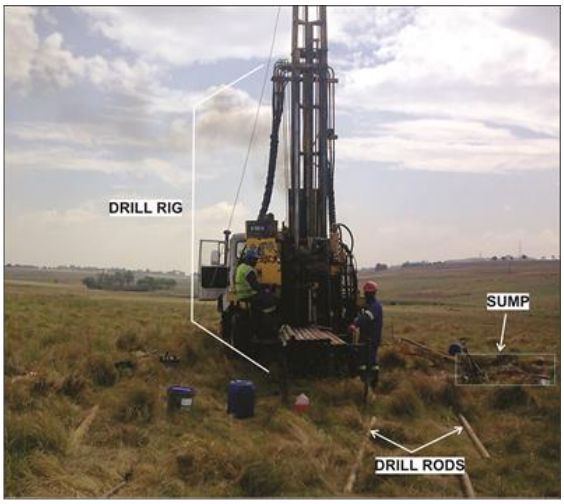


Figure 5: Drill rig operation

2.4.3.2. Topsoil storage site

The top and sub soils removed from the sump and drilling boreholes will be stockpiled in close proximity to the sump. The sumps will be backfilled manually by spade, once drilling and sampling of boreholes is completed.

2.4.3.3. Logging and sampling of the Core

This involves the physical description of the rocks intersected by the drilling process. The interpretation of these rock descriptions will assist in establishing the general stratigraphy of the area. Sampling will be taken at the desired horizons and sent to the laboratory for analyses.

2.4.3.4. Site Rehabilitation

Concurrent rehabilitation (Plugging and reseeding) of disturbed areas will be undertaken as drilling continues.

Please note that the final borehole layout can only be determined once the Prospecting Right is granted; thereafter, it will be sent in to the Department of Mineral Resources and Energy (DMRE).

2.4.4. Decommissioning phase

2.4.4.1. Final Rehabilitation

Except for farm roads, no tracks and infrastructure related to the prospecting operation will remain in place after the decommissioning phase. Where tracks have resulted in more damage, such tracks will be ripped and allowed to return to the natural state, and seeding is not done as experience has shown that the natural process returns the site to its former state within a seasonal cycle. The sumps will be rehabilitated in such a manner to return the area to as close as possible to its pre-drilling environment.

Post closure, the prospecting area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. No prospecting related infrastructure will remain on the prospecting site. The area will conform to the pre-prospecting topography. The areas affected by prospecting will be stable and erosion free.

2.4.5. Pre-feasibility study

This involves the compilation of a final geological report, reserve determination and pre-feasibility studies.

2.4.6. Mining feasibility study

This involves the conducting of a mining feasibility study, market research, sales agreements etc.

2.4.7. After Closure Phase

The rehabilitated area will be monitored on a quarterly basis to ensure that the site returns to an acceptable state, in the event that is not happening naturally, the area will be seeded. After the decommissioning of the site and if it can be determined that the site is stable, an environmental authorisation for the decommissioning of the site and a closure certificate will be applied for in terms of the relevant laws.

SECTION THREE

Policy and legislative context

3. POLICY AND LEGISLATIVE CONTEXT

3.1. CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT NO. 108 OF 1996)

Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) states that everyone has the right:

a) to an environment that is not harmful to their health or well-being; and

b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that;

(i) prevent pollution and ecological degradation;

(ii) promote conservation; and

(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

In terms of Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being. In addition, people have the right to have the environment protected, for the benefit of present and future generations, through applicable legislations and other measures that prevent pollution, ecological degradation and promote conservation and secure ecological sustainable development through the use of natural resources while prompting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into the overall project in order to fulfil the requirements of Section 24 of the Constitution. In view of the above, a number of laws pertaining to environmental management were promulgated to give guidance on how the principles set out in section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) would be met. Below are laws applicable to the proposed project that were promulgated to ensure that section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) is complied with.

3.2. NATIONAL ENVIRONMENTAL MANAGEMENT ACT

Section 24(1) of the NEMA states:

“In order to give effect to the general objectives of integrated environmental management laid down in this Chapter [Chapter 5], the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of the Department of Mineral Resources and Energy, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act.”

In order to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto, Regulations (EIA Regulations, 2014) were promulgated. These Regulations took effect from the 4th of December 2014.

In addition to the above, Section 28 of the NEMA includes a general “Duty of Care” whereby care must be taken to prevent, control and remedy the effect of significant pollution and environmental degradation. This section stipulates the importance to protect the environment from degradation and pollution irrespective of the operations taking places or activities triggered / not triggered under No. 983, No. 984 and No. 985.

In view of the above, an environmental impact assessment is being undertaken to comply with the requirements of the NEMA and the NEMA EIA Regulations, 2014. The NEMA EIA Regulations of December 2014 determines requirements to be met in order to obtain an environmental authorisation. This report has; therefore, been compiled in compliance with the above regulations.

3.3. NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT

The National Environmental Management: Air Quality Act (Act No.39 of 2004) (NEM:AQA) focuses on reforming the law regulating air quality in South Africa in order to protect the environment through the provision of reasonable measures protecting the environment against air pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social developments. This Act provides national norms and standards regulating air quality management and control by all spheres of government. These include the National Ambient Air Quality Standards (NAAQS) and the National Dust Control Regulations (NDCR). The standards are defined for different air pollutants with different limits based on the toxicity of the pollutants to the environment and humans, number of allowable exceedances and the date of compliance of the specific standard.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN R893 in Governmental Gazette No 37054, in terms of Section 21(1)(b) of the NEM: AQA.

The proposed project will not trigger any of the activities listed under the above-mentioned Regulations; however, National Treasure Minerals (Pty) Limited must ensure that emissions from their activities complies with the standards as set in the above-mentioned regulations.

3.4. THE NATIONAL HERITAGE RESOURCES ACT

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) focuses on the protection and management of South Africa's heritage resources. The governing authority for this act is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features such as graves, trees, archaeology and fossil beds are protected as well as culturally significant symbols, spaces and landscapes. Section 38 of the NHRA stipulates the requirements a developer must undertake prior to development. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed.

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required. An assessment of the proposed area will be done during the drilling programme to determine if there are any sites that require protection. Any sites identified will be marked and no drilling will be undertaken in close proximity of such a site.

3.5. NATIONAL ENVIRONMENTAL MANAGEMENT BIODIVERSITY ACT (ACT 10 OF 2004) (NEMBA)

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and protection of South Africa's biodiversity within the framework established by NEMA. The Act aims to legally provide for biodiversity conservation, sustainable, equitable access and benefit sharing and provides for the management and control of alien and invasive species to prevent or minimize harm to the environment and indigenous biodiversity. The Act imposes obligations on landowners (state or private)

governing alien invasive species as well as regulates the introduction of genetically modified organisms. The Act encourages the eradication of alien species that may harm indigenous ecosystems or habitats. The NEMBA ensures that provision is made by the site developer to remove any aliens which have been introduced to the site or are present on the site.

The NEMBA also provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.

The Act supports South Africa's obligations under sanctioned international agreements regulating international trade in specimens of endangered species, and ensures that the utilization of biodiversity is managed in an ecological sustainable way.

The BAR and EMPr has been complied to ensure that all applicable requirements prescribed in the NEMBA are complied with.

3.6. MPUMALANGA NATURE CONSERVATION ACT (ACT 10 OF 1998)

The Mpumalanga Nature Conservation Act, No. 10 of 1998, aims to consolidate and amend the laws relating to nature conservation within the province and to provide for matters connected therewith. Provincial legislation relevant to biodiversity conservation comprises of two Provincial Acts, the Mpumalanga Nature Conservation Act (Act 10 of 1998) and the Mpumalanga Tourism and Parks Agency Act (Act 5 of 2005). In relation to nature conservation, the province has developed the Mpumalanga Biodiversity Sector Plan (MBSP). This plan has been jointly developed by the Mpumalanga Tourism and Parks Agency (MTPA) and the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA). The MBSP takes its mandate from the South African Constitution, the National Biodiversity Act (10 of 2004) and the Mpumalanga Nature Conservation Act 10 of 1998. Areas identified under the MBSP as sensitive were identified and where applicable measures will be proposed for ensuring that the areas are not degrade by the proposed project activities.

The BAR and EMPr has been compiled to ensure that all applicable requirements prescribed in the Act are complied with.

3.7. MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (MPRDA): ACT 28 OF 2002

The Department of Mineral Resources and Energy (DMRE) is responsible for regulating the mining and minerals industry to achieve equitable access to the country's resources and contribute to sustainable development. The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) requires that an EIA be conducted and that the EMP be drafted for the mitigation of impacts identified during the environmental impact assessment for a prospecting project. During December 2014, the "One Environmental System" was implemented by Government which initiated the streamlining of the licensing processes for mining, environmental authorisations and water use. Under the One Environmental System, The Minister of Mineral Resources, will issue environmental authorisations and waste management licences in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA), respectively, for mining and related activities. The Minister of Environmental Affairs will be the appeal authority for these authorisations. In view of the above the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources and Energy as the competent authority.

3.8. NATIONAL WATER ACT (NWA): ACT NO. 36 OF 1998

The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof in South Africa. The NWA recognises

that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. The National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Further, an industry can only be entitled to use water if the use is permissible under the NWA. The enforcing authority on water users is the Department of Water and Sanitation (DWS).

Further, Regulation 704 of the NWA deals with the control and use of water for prospecting and related activities aimed at the protection of water resources.

No water use licence application was submitted to the Department of Water and Sanitation for their consideration. However, should the drilling activities be undertaken within 500 meters from the edge of any wetlands and should abstraction be conducted from the dams or streams, an application (general authorisation or water use licence) will be submitted and obtained before commencement of such water use activities. In addition to the above, measures will be undertaken to ensure that requirements in terms of the NWA and the GN 704 are complied with where necessary.

3.9. NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT NO. 59 OF 2008)

The National Environmental Management: Waste Act (NEMWA) requires that all waste management activities must be licensed. According to Section 44 of the NEMWA, the licensing procedure must be integrated with an EIA process in terms of the NEMA.

The objectives of NEMWA involve the protection of health, wellbeing and the environment. The NEMWA provides measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste.

Waste management activities are not triggered by the proposed project, hence no application in terms of the NEMWA was submitted to the Department of Mineral Resources and Energy.

3.10. EIA GUIDELINES

A number of national and provincial EIA guidelines were published by different departments. These guidelines are mainly aimed at assisting relevant stakeholders by providing information and guidance and giving recommendations on a number of aspects relating to the environmental impact assessment process. The guidelines can be used by the competent authority, applicant and the EAP during the EIA process. It is therefore important that the EAP and the person compiling a specialist report must have relevant expertise when conducting the environmental impact assessments.

A number of guidelines were consulted during the compilation of this report and these include amongst them the following i.e. Guidelines on the Need and Desirability, Department of Environmental Affairs and Tourism Integrated Environmental Management Guidelines, Department of Water and Sanitation's Best Practice Guidelines and the Western Cape Provincial Department of Environmental Affairs and Development Planning Guidelines on Public Participation.

SECTION FOUR

Need and desirability of the proposed activities

4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

4.1. MOTIVATION FOR THE NEED AND DESIRABILITY OF THE PROJECT

In terms of the EIA Regulations the need and desirability of any development must be considered by the relevant competent authority when reviewing an application. The need and desirability must be included in the reports to be submitted during the environmental authorisation application processes.

The section of the BAR and EMPr will indicate the need and desirability for the approval of the Roodepoort prospecting project.

Assessment of the geological information available has determined that the area in question may have coal reserves. In order to ascertain the above and determine the nature, location and extent of the above-mentioned mineral within the proposed prospecting area, it will be necessary for prospecting to be undertaken. The prospecting will also determine if there are any features that may have an impact on the economic extraction of the above-mentioned mineral.

The information that will be obtained from the proposed prospecting project will be necessary to determine where the mineral is located, how it can be viably extracted and the economic value of the total reserve within the prospecting area.

National Treasure Minerals (Pty) Limited predicts that substantial benefits from the area (should a viable reserve be found) will accrue to the immediate area, the sub-region and the province of Mpumalanga. These benefits must be offset against the costs of the area, including the impacts to land owners.

The potential benefits of the proposed project are:

- Potential reduction in crime because of short-term job creation during construction (providing farm safety and security measures), and also in the long-run as a result of job creation.
- Local growth in the economy of the host community and surrounding areas, and for local businesses including those that supply accommodation, transport etc.
- Economic benefits for contractors and other suppliers of goods and services.
- Economic opportunities and other potential benefits for land owners from compensation for impacts.
- Based on the environmental assessment conducted as described in this report, there are no environmental impacts associated with the proposed area that cannot be mitigated.

SECTION FIVE

Motivation for the preferred development footprint

5. MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

5.1. CONSIDERATION OF ALTERNATIVES

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires a BAR and EMPr to identify alternatives for areas applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity;(d) the technology to be used in the activity;(e) the operational aspects of the activity; and (f) the option of not implementing the activity.

National Treasure Minerals (Pty) Limited intends to undertake prospecting on Portions 3, 8, 11, and 12 of the farm Roodepoort 6 IT to determine whether or not the area consist of coal and pseudocoal, and to also determine if the available reserves have economic value.

Therefore, a number of alternatives were considered for the proposed prospecting project. This section of the report will highlight the alternatives considered for the proposed prospecting activities.

5.1.1. Location Alternatives

The location alternative considered for the proposed project include the prospecting sites and associated campsite location and access routes. The location alternatives were selected based on a number of criteria, which include the environmental considerations (how sensitive is the area in terms of soils, wetlands, groundwater etc.), sensitive receptors (proximity to communities and farmsteads) and the dependency of the area to the required infrastructure.

5.1.2. Prospecting Sites

The prospecting sites were selected based on published relevant literature; therefore, no alternatives were considered since the anticipated minerals could be located on Portions 3, 8, 11, and 12 of Roodepoort 6 IT.

5.1.3. Access Routes/Transport alternatives

Two alternatives were considered i.e., existing road and a new road. Since the proponent would like to limit their pollution footprint, the existing access road was decided upon. The R33 provincial route passes in close proximity to the farm, and connects to a network of unnamed roads that passes right across the farm.

5.1.4. Campsite Location

Regarding the location of the campsite, three alternatives were considered. These locations included a static location close to the entrance of the site, a mobile campsite and an offsite campsite.

Since the site closer to the farm property may result in undesirable impacts on the residents of the farm property and the offsite alternative may results in unforeseen impacts due to the unavailability of other necessary services that comes with having a local campsite these two alternatives were discarded.

The static campsite would be used during the construction phase (site establishment) of the area and the mobile alternative would be used during the operational phase of the area. Note that the mobile alternatives will move with the drilling team from site to site during the execution of the drilling programme.

5.1.5. Design/ Layout Alternatives

Since no complicated surface infrastructure will be required for this area no design and layout alternatives for the proposed area were determined. The plan depicting all possible drilling sites will be compiled in consultation with the landowner and submitted with the progress to the DMRE.

5.1.6. Technology Alternatives

The minerals applied for are less cumbersome; hence, the normal exploration technologies will be used. In view of the above, no technology alternatives were considered for this project.

5.1.7. Input Material Alternatives

No in-put material alternatives were considered for this area.

5.1.8. Operational Alternatives

5.1.8.1. Exploration Drilling Methods

Drilling is used to determine the depth, thickness and quality of the minerals in question at any point across a prospecting area. Drilling is also used to determine the actual local geology of the area.

Non-Core Drilling Methods

Non-core drilling techniques mostly uses the rotary drilling methods. In this technique, a string of metal rods is rotated axially and a bit at the base of the string is forced downward, under controlled pressure, breaking up the ground and advancing the depth of the hole. Cuttings are swept away from the bit and lifted to the surface either by means of pumped circulating water or by jets of compressed air.

Logging of the hole drilled by non-core drilling methods is mainly based on the cuttings obtained as the drill progresses. In view for the difficulty and error bound logging, this method of drilling was discarded and may be used only for infill drilling wherever necessary.

Core-Drilling Methods

Core drilling techniques uses diamond drilling methods. In this technique, a hollow cylindrical drill bit impregnated with industrial diamonds is attached to a series of metal drill rods and rotated under controlled downward pressure. A circle of rock is ground away, the cutting removed by water flushing and a cylindrical core remains in the hollow centre of the drill string.

Core drilling is the only satisfactory means of obtaining representative samples of seams at depth for quality determination. In view of the above and the fact that geophysical surveys will not be done, the preferred drilling methods is the core drilling technique using the diamond drill.

5.1.9. Transportation

Two alternatives were considered i.e., existing road and a new road. Since the proponent would like to limit their pollution footprint, the existing access road was decided upon. The R33 provincial route passes in close proximity to the farm, and connects to a network of unnamed roads that passes right across the farm.

5.1.10. No Go Option

National Treasure Minerals (Pty) Limited intends to prospect for the above-mentioned minerals. Should the project not commence, the following will result i.e.:

The reserve's economic value will not be known thus no mine will commence, which will result in the potential labour force losing their employment opportunity and all support that the mine would have provided to the local businesses which will boost the economy of the country.

Potential mining operations will also assist with the establishment of small and medium businesses and infrastructure development, community development and poverty eradication as well boost the local economy in the surrounding previously disadvantaged communities. Since the proposed prospecting process itself will have very low environmental impacts, as detailed in the EMPr, investigating the feasibility of future mining operations should be considered.

5.1.11. Concluding Statement

Based on the above, the proposed Roodepoort prospecting project, situated on Portions 3, 8, 11, and 12 of the farm Roodepoort 6 IT; accessed via the R33 provincial road which connects to an unnamed farm access road is preferred for the proposed prospecting project.

5.2. Details Of The Public Participation Process Followed and Results Thereof

Public participation is the cornerstone of any EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. The general objectives of integrated environmental management laid down in the NEMA include to "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment". The National Environmental Management Principles include the principle that "The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured", which basically means that the person responsible for the application (EAP) must ensure that provision of sufficient and transparent information on an ongoing basis to stakeholders are made to allow them to comment, and to ensure that the participation of previously disadvantaged people like women and the youth are undertaken.

In terms of the EIA Regulations, 2014, when applying for environmental authorisation, the Environmental Assessment Practitioner managing the application must conduct at least a public participation process where all potential and registered interested and affected parties, including the competent authority, are given a period of at least 30 days to submit comments on each of the basic assessment reports, environmental management programme, scoping report and environmental impact assessment report, and where applicable the closure plan. In this case a Basic Assessment Report (BAR) is considered.

This section of the BAR and EMPr will give an explanation of the public participation process taken in order to comply with the above-mentioned requirements. A number of public participation guidelines were published in a bid to assist persons responsible for the environmental authorisation applications. As much of the available guidelines were used in determining the public participation process, in guiding the public participation process of the proposed project.

Geovicon Environmental (Pty) Limited on behalf of National Treasure Minerals (Pty) Limited is applying for an environmental authorisation for the proposed Roodepoort prospecting project. The application for the environmental authorisation is undertaken in terms of the process as laid out in part 2 of Chapter 4 under the NEMA EIA Regulations, 2014. The above-mentioned regulations require that an applicant for an environmental authorisation submit a BAR and EMPr to the competent authority after having subjected the reports to a public participation process.

In view of the above, a public participation process was initiated for the proposed Roodepoort prospecting project. The public participation process for the proposed project was designed to provide sufficient and accessible information to interested and affected parties (I&APs) in an objective manner to assist them to:

- raise issues of concern and make suggestions for enhanced benefits;
- contribute local knowledge and experience;

- verify that their issues have been captured;
- verify that their issues have been considered in the technical investigations; and
- comment on the findings of the EIA.

The following will be conducted in the undertaking of the public participation process for the proposed project.

5.2.1. Registration and BAR Phase

The public participation process commenced with the provision of potential Interested and affected parties (I&AP's) 30 days to register as interested and affected parties and to comment on the draft BAR and EMPr. The registration and commenting process starts on the 18th of February 2022 and ends on the 22th of March 2022.

5.2.1.1. Notification of potential interested and affected parties

The following methods of notification were used to notify the potential interested and affected parties of the opportunity to register during the public participation process for the proposed project:

- On the 18th of February 2022, notices were posted in the Highvelder Newspaper which is distributed in host and surrounding town of the proposed prospecting area, informing the public that the BAR is in the Carolina public library. The notices were compiled in compliance with the requirements of Regulation 41(3) of the EIA Regulations, 2014.
- Written notices were sent to all surface owners and lawful occupiers of the land on which the proposed prospecting project will be undertaken.
- Site notices inviting the public to register as interested and affected parties were also used to invite comments on the BAR and EMPr from the public.
- The draft BAR and EMPr is also submitted to all the commenting authorities for their comments.
- A copy of the draft BAR and EMPr was placed in the Carolina Public Library.

5.2.1.2. Registered Interested and Affected Parties

The following are currently registered as interested and affected parties for the Roodepoort prospecting project:

- Department of Mineral Resources and Energy, Mpumalanga Regional Office (Competent Authority).
- National Department of Agriculture, Forestry and Fisheries, Mpumalanga Regional Office (Commenting Authority).
- South African Heritage Resources Agency (Commenting Authority).
- Department of Public Works, Roads and Transport – Mpumalanga.
- Department Of Rural Development and Land Reform.
- Department of Water and Sanitation.
- Ward Councillor (Chief Albert Luthuli Local Municipality).
- Chief Albert Luthuli Local Municipality.
- Land owners and lawful occupiers within the Roodepoort project's area.

- Land owners and lawful occupiers immediately adjacent to the project's area.

5.2.1.3. Proof of Consultation

Proof of the above-mentioned consultation and results; thereof, will be included in the final BAR and EMPr.

5.2.1.4. Finalisation of Interested and Affected Party Database

On expiry of registration period, the database of interested and affected parties will be finalised. All parties who indicated the interest of being registered as interested and affected parties will be added to the list of interested and affected parties.

Note: All organs of state, which have jurisdiction in respect of any aspect of the proposed project and the competent authority are automatically registered as interested and affected parties.

5.2.2. Draft Basic Assessment Report

The draft BAR and EMPr is made available for comment to all relevant stakeholders during the above-mentioned registration phase of the proposed project's public participation process.

5.2.2.1. Comments, Issues and Responses on the Draft Basic Assessment Report

The comments and issues that will be raised by the interested and affected parties will be addressed and included in the final BAR and EMPr.

5.2. ENVIRONMENTAL ATTRIBUTES (BASELINE INFORMATION)

5.2.1. Geology

5.2.1.1. Regional Geology

South Africa's coal occurs in the Ecca group. These rocks were deposited in a vast inland lake or sea, when Africa was part of Gondwana. It was only along the northern and north-eastern shores of this body of water where marshes formed peat, and eventually turned into coal.

The largest coal deposits in South Africa are to be found in the Ecca deposits, a stratum of the Karoo Supergroup, dating from the Permian period, between 280 and 250 Ma. The Ecca Group is extensive, covering around two-thirds of South Africa (much of it covered by slightly younger rocks -). Only the northern and north-eastern portion of these Ecca deposits is coal-bearing, but it nevertheless contains more than a third of all coal reserves in the Southern Hemisphere (Schlüter & Trauth, 2006).

Notable coalfields are:

- Waterberg Coalfield
- Highveld Coalfield
- Witbank Coalfield
- Ermelo Coalfield
- Utrecht Coalfield
- Klip River Coalfield

The proposed prospecting right area falls within the Ermelo coalfield, see Figure 6

Ecca group

As Gondwana drifted away from the South Pole, the glaciers melted, leaving a vast inland sea, extending across South Africa, and neighboring regions of Gondwana. It might have had an opening to the ocean (similar to the Black Sea) but tidal effects were small. Rivers draining mountains to the north of the Karoo Sea formed large swampy deltas in which plants belonging to the Glossopteris flora flourished. This dense vegetation accumulated as peat, which eventually turned into coal. The coal deposits are confined to the northern shores of the early Permian Karoo Sea, and is mined today in the Highveld and KwaZulu-Natal (McCarthy et al., 2005).

These sedimentary deposits are termed the Ecca Group of the Karoo Supergroup. They consist largely of shales and sandstones and extend over the entire former Karoo Sea, but the southerly deposits do not contain coal, even though rivers from the Cape Fold Mountains formed small deltas. Although the vegetation in the south was not as dense as on the northern shores of the inland sea, several early reptiles such as Mesosaurus are found in these Ecca deposits. This is a fossil reptile found only in Southern Africa and Brazil providing important paleontological evidence of the existence of the Gondwana supercontinent (McCarthy et al., 2005).

The northern shores contain mainly fossil plants, pollens and spores. Fossils of a cephalopod and some echinoids are also found in the north

During the Ecca period the Falklands Plateau collided and then fused with Southern Africa, forming a vast range of mountains to the south of the Cape Fold Belt. This new mountain range was comparable in size to the Himalayas. The northern slopes of these mountains generally dipped steeply into the Karoo Sea which was at its deepest at this point. The earthquakes that accompanied the formation of the Cape Mountains therefore initiated frequent underwater mud- and rock-slides, forming fan-shaped accumulations of turbidites, which can be seen in the south west corner of the Karoo today. Turbidites have for some time been recognized

as petroleum producing rocks, because the underwater avalanches that cause these deposits often carry organic matter from close to the coastline, especially near river estuaries and deltas, into the anoxic depths of adjoining troughs. Here it is buried in the turbidite and turns into hydrocarbons, particularly petroleum and gas. The turbidites in the Ecca formation of the Tanqua and Laingsburg Karoo regions have thus, recently, come under scrutiny by the petroleum industry and geologists, who have found them to have rich and readily accessible deposits of oil and gas. Thus, the north-eastern Ecca basin is rich in coal, while its south-western corner is becoming renowned for its oils reserves (Norman, 2013).

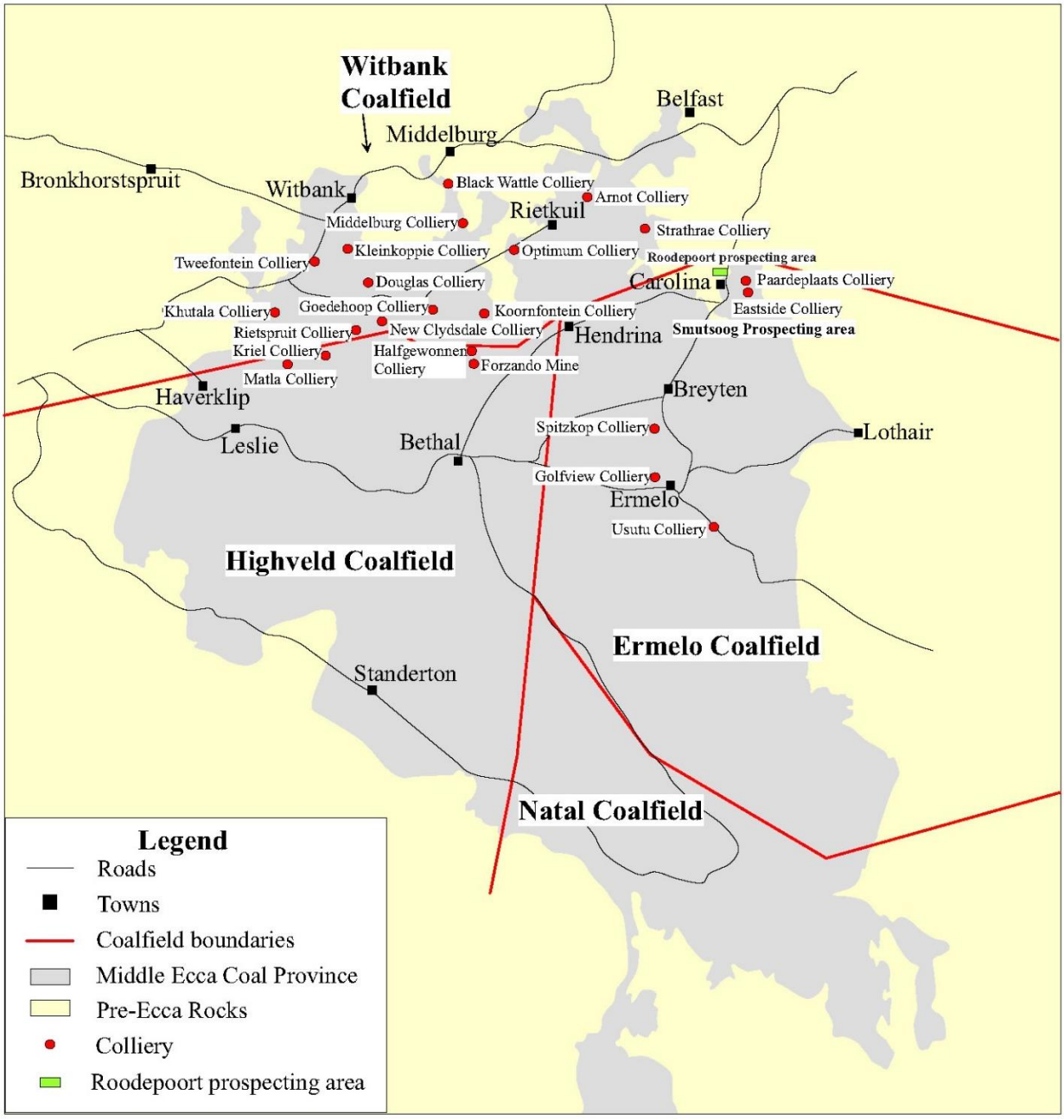


Figure 6: Coalfield of the proposed prospecting right area

5.2.2. Climate

5.2.2.1. Regional Climate

Roodepoort prospecting right area falls within the summer rainfall region of South Africa, in which more than 80% of the annual rainfall occurs from October to March. Eighty five percent of the rain falls during summer thunderstorms occurring every 3 - 4 days in summer. They occur in the form of conventional thunderstorms, are usually of short duration and high intensity and accompanied by lightning, strong winds, and sometimes hail. 68.5.

5.2.2.2. Mean Monthly Rainfall and Precipitation

The mean annual precipitation of the area is shown in the graph below, (Figure 7).

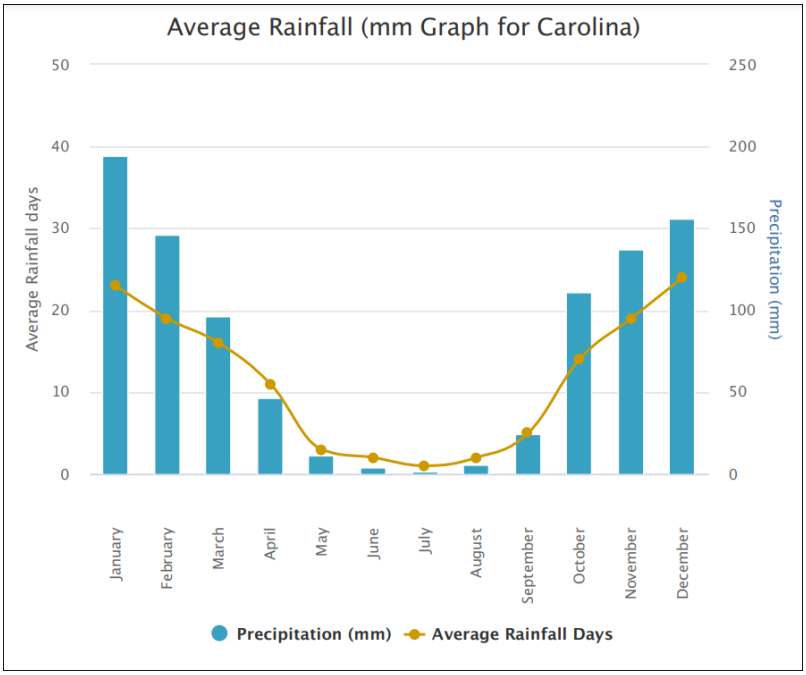


Figure 7: Average rainfall

5.2.2.3. Mean monthly temperature

The mean maximum and minimum temperatures, obtained from the World weather online are presented in Table 4.

Table 4: Mean monthly temperature data for Carolina.

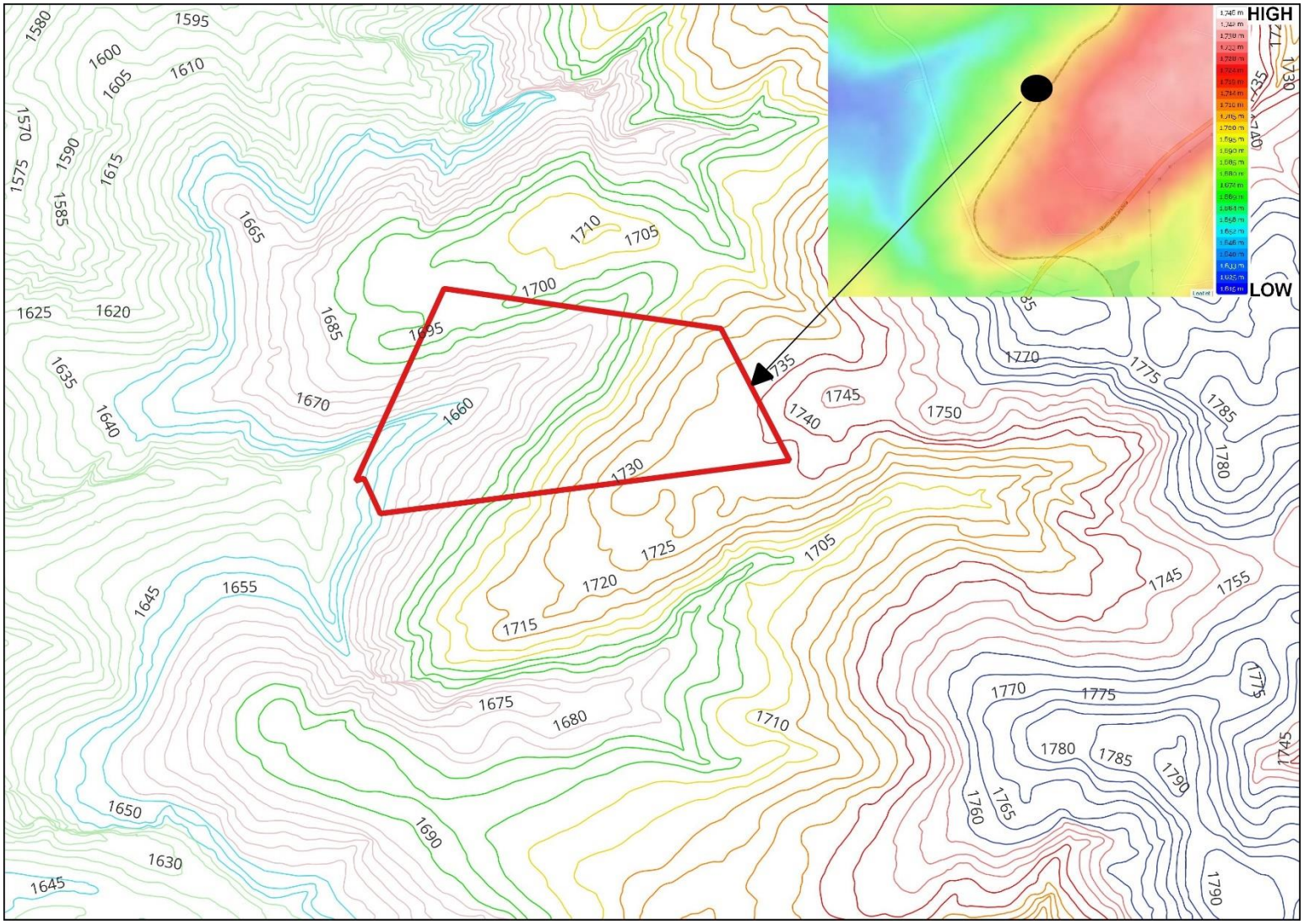
Month	Day	Night	Rain days
January	27°C	15°C	23°C
February	26°C	14°C	19°C
March	26°C	13°C	16°C
April	23°C	11°C	11°C
May	21°C	9°C	3°C
June	18°C	6°C	3°C
July	18°C	5°C	1°C
August	21°C	8°C	2°C
September	26°C	12°C	5°C
October	26°C	14°C	14°C
November	27°C	15°C	19°C
December	27°C	15°C	24°C

The area is prone to host extreme events on a regular basis. These events include the following:

- The area is prone to drought conditions.
- Regular frost occurs during the winter months.
- Rainfall occurs as scattered thunderstorms.

5.2.3. Topography

The elevation of the surrounding area ranges from 1645 m above sea level to 1736 m above sea level (Figure: 8). The surrounding area is considered undulating and consists of hills and valleys, often with streams in the valleys and pans in the hills.



**the black dot indicates the centre of the proposed prospecting area. Map extracted from topographic-map.com.

Figure: 8 Elevation figure.

5.2.4. Land Use

The land in the area is used for grazing, crop production, farm properties and a railway line running through the prospecting boundary. Adjacent land is also used for similar purposes (Figure 8).

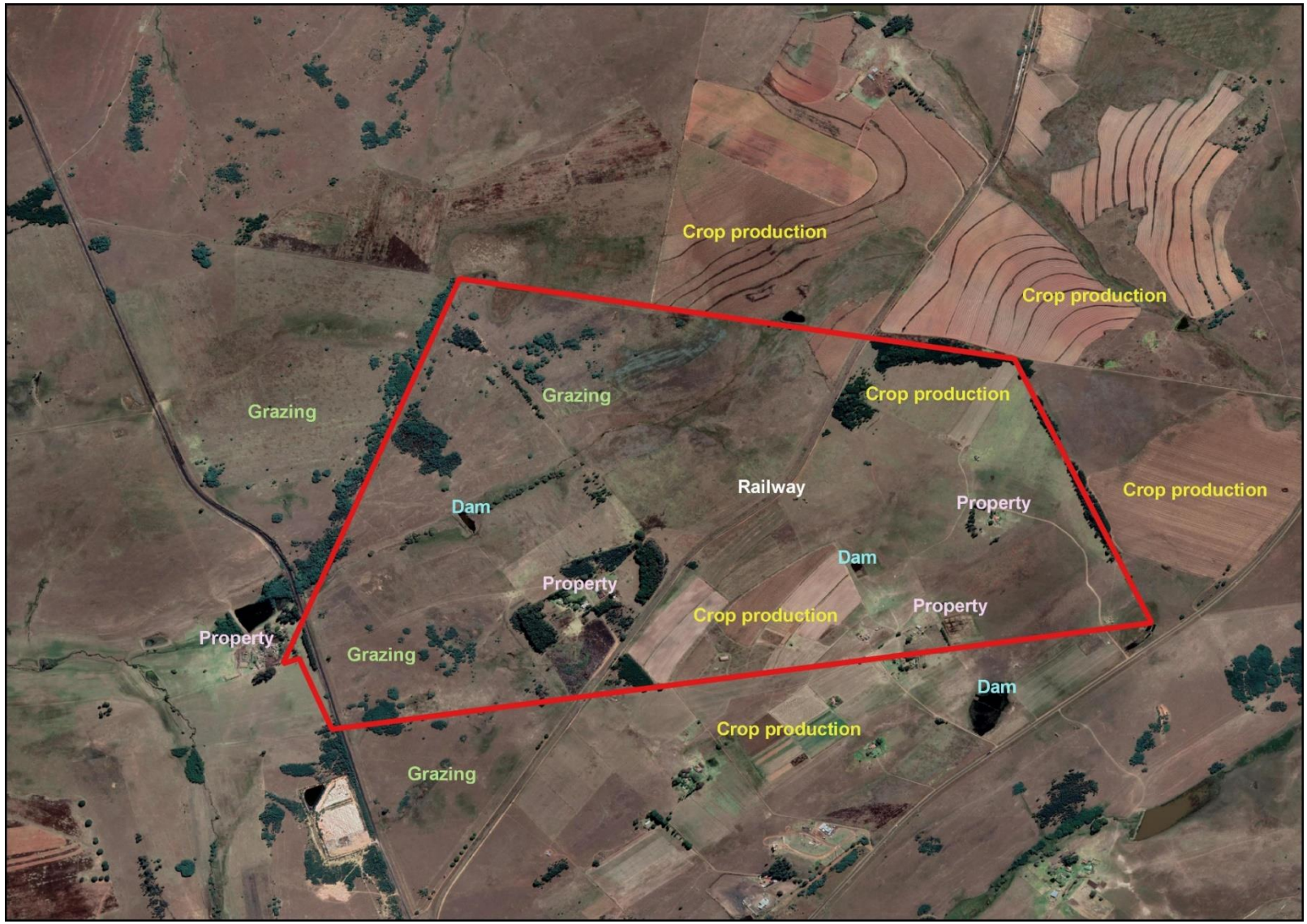


Figure 9: Current land-use map.

5.2.5. Animal life

The prospecting right area falls within the 2630AA topo grid and the tables below are the animals that were spotted in this quarter degree grid.

Table 5: List of Mammal species that occur in the 2630AA quarter degree grid (Mammal Map, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	105001		CLASS Mammalia	Unidentified Mammalia	
2	151470	Bathyergidae	*Cryptomys hottentotus*	Southern African Mole-rat	Least Concern (2016)
3	211920	Bovidae	*Alcelaphus buselaphus*	Hartebeest	
4	211990	Bovidae	*Alcelaphus buselaphus caama*	Red Hartebeest	Least Concern (2008)
5	212190	Bovidae	*Antidorcas marsupialis*	Springbok	Least Concern (2016)
6	212020	Bovidae	*Connochaetes gnou*	Black Wildebeest	Least Concern (2016)
7	212160	Bovidae	*Damaliscus pygargus phillipsi*	Blesbok	Least Concern (2016)
8	216020	Bovidae	*Oryx gazella*	Gemsbok	Least Concern (2016)
9	213180	Bovidae	*Ourebia ourebi*	Oribi	Endangered
10	216360	Bovidae	*Pelea capreolus*	Vaal Rhebok	Near Threatened (2016)
11	213320	Bovidae	*Raphicerus campestris*	Steenbok	Least Concern (2016)
12	216370	Bovidae	*Redunca arundinum*	Southern Reedbuck	Least Concern (2016)
13	216380	Bovidae	*Redunca fulvorufula*	Mountain Reedbuck	Least Concern
14	215700	Bovidae	*Sylvicapra grimmia*	Bush Duiker	Least Concern (2016)
15	213760	Bovidae	*Syncerus caffer*	African Buffalo	Least Concern (2008)
16	197809	Canidae	*Canis sp.*	Jackals and Wolves	
17	198600	Canidae	*Canis mesomelas*	Black-backed Jackal	Least Concern (2016)
18	199080	Canidae	*Otocyon megalotis*	Bat-eared Fox	Least Concern (2016)
19	211020	Cervidae	*Dama dama*	Fallow Deer	Introduced

20	106250	Chrysochloridae	*Amblysomus septentrionalis*	Highveld Golden Mole	Near Threatened (2016)
21	207010	Equidae	*Equus quagga*	Plains Zebra	Least Concern (2016)
22	159760	Erinaceidae	*Atelerix frontalis*	Southern African Hedgehog	Near Threatened (2016)
23	191660	Felidae	*Caracal caracal*	Caracal	Least Concern (2016)
24	192800	Felidae	*Leptailurus serval*	Serval	Near Threatened (2016)
25	196100	Herpestidae	*Cynictis penicillata*	Yellow Mongoose	Least Concern (2016)
26	196340	Herpestidae	*Herpestes sanguineus*	Slender Mongoose	Least Concern (2016)
27	197700	Herpestidae	*Suricata suricatta*	Meerkat	Least Concern (2016)
28	197750	Hyaenidae	*Hyaena brunnea*	Brown Hyena	Near Threatened (2015)
29	197770	Hyaenidae	*Proteles cristata*	Aardwolf	Least Concern (2016)
30	151730	Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	Least Concern
31	158240	Leporidae	*Lepus saxatilis*	Scrub Hare	Least Concern
32	106360	Macroscelididae	*Elephantulus brachyrhynchus*	Short-snouted Elephant Shrew	Least Concern (2016)
33	106410	Macroscelididae	*Elephantulus myurus*	Eastern Rock Elephant Shrew	Least Concern (2016)
34	217970	Muridae	*Aethomys namaquensis*	Namaqua Rock Mouse	Least Concern
35	218020	Muridae	*Gerbilliscus brantsii*	Highveld Gerbil	Least Concern (2016)
36	147530	Muridae	*Mastomys natalensis*	Natal Mastomys	Least Concern (2016)
37	150360	Muridae	*Rhabdomys pumilio*	Xeric Four-striped Grass Rat	Least Concern (2016)
38	202070	Mustelidae	*Ictonyx striatus*	Striped Polecat	Least Concern (2016)
39	107300	Procaviidae	*Procavia capensis*	Cape Rock Hyrax	Least Concern (2016)
40	163350	Soricidae	*Myosorex varius*	Forest Shrew	Least Concern (2016)
41	207740	Suidae	*Potamochoerus larvatus*	Bush-pig	Least Concern (2016)

42	187040	Vespertilionidae	*Neoromicia capensis*	Cape Serotine	Least Concern (2016)

Table 6: List of Reptile species that occur in the 2630AA quarter degree grid (Reptile Map, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	1460	Agamidae	*Agama aculeata distanti*	Distant's Ground Agama	Least Concern (SARCA 2014)
2	1490	Agamidae	*Agama atra*	Southern Rock Agama	Least Concern (SARCA 2014)
3	1410	Chamaeleonidae	*Chamaeleo dilepis*	Common Flap-neck Chameleon	Least Concern (SARCA 2014)
4	4750	Colubridae	*Dasypeltis scabra*	Rhombic Egg-eater	Least Concern (SARCA 2014)
5	4640	Colubridae	*Philothamnus semivariegatus*	Spotted Bush Snake	Least Concern (SARCA 2014)
6	3120	Cordylidae	*Cordylus vittifer*	Common Girdled Lizard	Least Concern (SARCA 2014)
7	3190	Cordylidae	*Pseudocordylus melanotus melanotus*	Common Crag Lizard	Least Concern (SARCA 2014)
8	5210	Elapidae	*Elapsoidea sundevallii sundevallii*	Sundevall's Garter Snake	
9	5260	Elapidae	*Hemachatus haemachatus*	Rinkhals	Least Concern (SARCA 2014)
10	400	Gekkonidae	*Lygodactylus ocellatus*	Spotted Dwarf Gecko	Least Concern (SARCA 2014)
11	3490	Gerrhosauridae	*Gerrhosaurus flavigularis*	Yellow-throated Plated Lizard	Least Concern (SARCA 2014)
12	4130	Lamprophiidae	*Aparallactus capensis*	Black-headed Centipede-eater	Least Concern (SARCA 2014)
13	4360	Lamprophiidae	*Lycodonomorphus laevissimus*	Dusky-bellied Water Snake	Least Concern (SARCA 2014)
14	4840	Lamprophiidae	*Psammophis crucifer*	Cross-marked Grass Snake	Least Concern (SARCA 2014)
15	4960	Lamprophiidae	*Psammophylax rhombeatus*	Spotted Grass Snake	Least Concern (SARCA 2014)
16	4540	Lamprophiidae	*Pseudaspis cana*	Mole Snake	Least Concern (SARCA 2014)
17	2000	Scincidae	*Acontias gracilicauda*	Thin-tailed Legless Skink	Least Concern (SARCA 2014)
18	2450	Scincidae	*Trachylepis punctatissima*	Speckled Rock Skink	Least Concern (SARCA 2014)

19	2480	Scincidae	*Trachylepis varia sensu lato*	Common Variable Skink Complex	Least Concern (SARCA 2014)
20	3910	Typhlopidae	*Afrotyphlops bibronii*	Bibron's Blind Snake	Least Concern (SARCA 2014)
21	3850	Typhlopidae	*Rhinotyphlops lalandei*	Delalande's Beaked Blind Snake	Least Concern (SARCA 2014)
22	5410	Viperidae	*Bitis arietans arietans*	Puff Adder	Least Concern (SARCA 2014)

Table 7: List of fish species that occur in the 2630AA quarter degree grid (Fish Map ADU).

	Species Code	Family	Scientific name	Red list category
1	752390	Cichlidae	*Pseudocrenilabrus philander*	
2	730086	Cyprinidae	*Cyprinus carpio*	

Table 8:List of frog species that occur in the 2731CD quarter degree grid (Frog Map, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	370	Bufonidae	*Sclerophrys capensis*	Raucous Toad	Least Concern
2	330	Bufonidae	*Sclerophrys gutturalis*	Guttural Toad	Least Concern (IUCN, 2016)
3	660	Hyperoliidae	*Kassina senegalensis*	Bubbling Kassina	Least Concern
4	920	Hyperoliidae	*Semnodactylus wealii*	Rattling Frog	Least Concern
5	1050	Pipidae	*Xenopus laevis*	Common Platanna	Least Concern
6	820	Ptychadenidae	*Ptychadena porosissima*	Striped Grass Frog	Least Concern
7	880	Pyxicephalidae	*Amietia delalandii*	Delalande's River Frog	Least Concern (2017)
8	890	Pyxicephalidae	*Amietia fuscigula*	Cape River Frog	Least Concern (2017)
9	400	Pyxicephalidae	*Cacosternum boettgeri*	Common Caco	Least Concern (2013)
10	940	Pyxicephalidae	*Strongylopus fasciatus*	Striped Stream Frog	Least Concern
11	950	Pyxicephalidae	*Strongylopus grayii*	Clicking Stream Frog	Least Concern
12	990	Pyxicephalidae	*Tomopterna cryptotis*	Tremelo Sand Frog	Least Concern

Table 9:List of Lepidoptera species that occur in the 2630AA quarter degree grid (LepiMap, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	459170	LYCAENIDAE	*Aloeides henningi*	Hillside russet	Least Concern (SABCA 2013)

2	463680	LYCAENIDAE	*Cacyreus marshalli*	Common geranium bronze	Least Concern (SABCA 2013)
3	466640	LYCAENIDAE	*Lepidochrysops ignota*	Zulu giant cupid	Least Concern (SABCA 2013)
4	415130	NYMPHALIDAE	*Melanitis leda*	Common evening brown	Least Concern (SABCA 2013)
5	438050	NYMPHALIDAE	*Vanessa cardui*	Painted lady	Least Concern (SABCA 2013)
6	403160	PIERIDAE	*Colias electo electo*	African clouded yellow	Least Concern (SABCA 2013)

Table 10:List of dung beetle species that occur in the 2630AA quarter degree grid (Dungbeetle Map, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	7701060	Scarabaeidae	*Chalconotus convexus*		
2	7701230	Scarabaeidae	*Copris amyntor*		
3	7701250	Scarabaeidae	*Copris antares*		
4	7701780	Scarabaeidae	*Copris obesus*		
5	7702070	Scarabaeidae	*Cyptochirus ambiguus*		
6	7702670	Scarabaeidae	*Euoniticellus africanus*		
7	7702750	Scarabaeidae	*Euoniticellus triangulatus*		
8	7702990	Scarabaeidae	*Garreta unicolor*		
9	7703480	Scarabaeidae	*Heliocopris hamadryas*		
10	7703750	Scarabaeidae	*Latodrepanus laticollis*		
11	7703780	Scarabaeidae	*Liatongus militaris*		
12	7704680	Scarabaeidae	*Neosisyphus rubrus*		
13	7704690	Scarabaeidae	*Neosisyphus spinipes*		
14	7704880	Scarabaeidae	*Oniticellus formosus*		
15	7704940	Scarabaeidae	*Onitis alexis*		
16	7704990	Scarabaeidae	*Onitis caffer*		
17	7705600	Scarabaeidae	*Onitis viridulus*		
18	7705790	Scarabaeidae	*Onthophagus asperulus*		
19	7705930	Scarabaeidae	*Onthophagus binodis*		
20	7706370	Scarabaeidae	*Onthophagus deterrens*		
21	7710160	Scarabaeidae	*Scarabaeus natalensis*		
22	7710660	Scarabaeidae	*Sisyphus caffer*		

Table 11: List of odonata (dragonfly) species that occur in the 2731CD quarter degree grid (Odonata Map, Animal Demography Unit).

#	Species code	Family	Scientific name	Common name	Red list category
1	661180	Chlorocyphidae	*Platycypha caligata*	Dancing Jewel	LC
2	661210	Chlorocyphidae	*Platycypha fitzsimonsi*	Boulder Jewel	LC
3	663170	Coenagrionidae	*Proischnura rotundipennis*	Round-winged Bluet	LC
4	663195	Coenagrionidae	*Pseudagrion sp.*		
5	663260	Coenagrionidae	*Pseudagrion citricola*	Yellow-faced Sprite	LC
6	663360	Coenagrionidae	*Pseudagrion gamblesi*	Great Sprite	LC
7	663560	Coenagrionidae	*Pseudagrion salisburyense*	Slate Sprite	LC
8	663880	Coenagrionidae	*Pseudagrion sublacteum*	Cherry-eye Sprite	LC
9	664550	Gomphidae	*Ceratogomphus pictus*	Common Thorntail	LC
10	660360	Lestidae	*Lestes plagiatus*	Highland Spreadwing	LC
11	667130	Libellulidae	*Crocothemis erythraea*	Broad Scarlet	LC
12	667690	Libellulidae	*Nesciothemis farinosa*	Eastern Blacktail	LC
13	668190	Libellulidae	*Palpopleura jucunda*	Yellow-veined Widow	LC
14	668670	Libellulidae	*Trithemis arteriosa*	Red-veined Dropwing	LC
15	668870	Libellulidae	*Trithemis dorsalis*	Highland Dropwing	LC
16	668890	Libellulidae	*Trithemis furva*	Navy Dropwing	LC
17	669080	Libellulidae	*Trithemis stictica*	Jaunty Dropwing	LC
18	669390	Libellulidae	*Zygonyx natalensis*	Blue Cascader	LC
19	661810	Platycnemididae	*Elattoneura glauca*	Common Threadtail	LC

Table 12:Bird species that occur in the ADU pentad 2600_3005 (SABAP2).

Ref	Common group	Common species	Genus	Species
722		Bokmakierie	*Telophorus*	*zeylonus*
72		Hamerkop	*Scopus*	*umbretta*
637		Neddicky	*Cisticola*	*fulvicapilla*
844		Quailfinch	*Ortygospiza*	*atricollis*
105		Secretarybird	*Sagittarius*	*serpentarius*
431	Barbet	Black-collared	*Lybius*	*torquatus*
439	Barbet	Crested	*Trachyphonus*	*vaillantii*
404	Bee-eater	European	*Merops*	*apiaster*

Ref	Common group	Common species	Genus	Species
808	Bishop	Southern Red	*Euplectes*	*orix*
812	Bishop	Yellow-crowned	*Euplectes*	*afer*
67	Bittern	Little	*Ixobrychus*	*minutus*
709	Boubou	Southern	*Laniarius*	*ferrugineus*
545	Bulbul	Dark-capped	*Pycnonotus*	*tricolor*
874	Bunting	Golden-breasted	*Emberiza*	*flaviventris*
154	Buzzard	Common	*Buteo*	*buteo*
860	Canary	Black-throated	*Crithagra*	*atrogularis*
857	Canary	Cape	*Serinus*	*canicollis*
859	Canary	Yellow-fronted	*Crithagra*	*mozambica*
575	Chat	Ant-eating	*Myrmecocichla*	*formicivora*
631	Cisticola	Cloud	*Cisticola*	*textrix*
648	Cisticola	Lazy	*Cisticola*	*aberrans*
646	Cisticola	Levaillant's	*Cisticola*	*tinniens*
639	Cisticola	Wailing	*Cisticola*	*lais*
634	Cisticola	Wing-snapping	*Cisticola*	*ayresii*
629	Cisticola	Zitting	*Cisticola*	*juncidis*
212	Coot	Red-knobbed	*Fulica*	*cristata*
50	Cormorant	Reed	*Microcarbo*	*africanus*
47	Cormorant	White-breasted	*Phalacrocorax*	*lucidus*
203	Crake	Black	*Zapornia*	*flavirostra*
522	Crow	Pied	*Corvus*	*albus*
352	Cuckoo	Diederik	*Chrysococcyx*	*caprius*
343	Cuckoo	Red-chested	*Cuculus*	*solitarius*
316	Dove	Cape Turtle	*Streptopelia*	*capicola*

Ref	Common group	Common species	Genus	Species
317	Dove	Laughing	*Spilopelia*	*senegalensis*
314	Dove	Red-eyed	*Streptopelia*	*semitorquata*
940	Dove	Rock	*Columba*	*livia*
517	Drongo	Fork-tailed	*Dicrurus*	*adsimilis*
95	Duck	African Black	*Anas*	*sparsa*
103	Duck	Maccoa	*Oxyura*	*maccoa* (NT)
104	Duck	White-backed	*Thalassornis*	*leuconotus*
100	Duck	White-faced Whistling	*Dendrocygna*	*viduata*
96	Duck	Yellow-billed	*Anas*	*undulata*
138	Eagle	Long-crested	*Lophaetus*	*occipitalis*
368	Eagle-Owl	Spotted	*Bubo*	*africanus*
60	Egret	Intermediate	*Ardea*	*intermedia*
59	Egret	Little	*Egretta*	*garzetta*
61	Egret	Western Cattle	*Bubulcus*	*ibis*
119	Falcon	Amur	*Falco*	*amurensis*
113	Falcon	Peregrine	*Falco*	*peregrinus*
707	Fiscal	Southern	*Lanius*	*collaris*
682	Flycatcher	African Paradise	*Terpsiphone*	*viridis*
665	Flycatcher	Fiscal	*Melaenornis*	*silens*
654	Flycatcher	Spotted	*Muscicapa*	*striata*
89	Goose	Egyptian	*Alopochen*	*aegyptiaca*
88	Goose	Spur-winged	*Plectropterus*	*gambensis*
618	Grassbird	Cape	*Sphenoeacus*	*afer*
6	Grebe	Little	*Tachybaptus*	*ruficollis*
192	Guineafowl	Helmeted	*Numida*	*meleagris*

Ref	Common group	Common species	Genus	Species
288	Gull	Grey-headed	*Chroicocephalus*	*cirrocephalus*
171	Harrier-Hawk	African	*Polyboroides*	*typus*
69	Heron	Black-crowned Night	*Nycticorax*	*nycticorax*
55	Heron	Black-headed	*Ardea*	*melanocephala*
54	Heron	Grey	*Ardea*	*cinerea*
57	Heron	Purple	*Ardea*	*purpurea*
62	Heron	Squacco	*Ardeola*	*ralloides*
443	Honeybird	Brown-backed	*Prodotiscus*	*regulus*
440	Honeyguide	Greater	*Indicator*	*indicator*
418	Hoopoe	African	*Upupa*	*africana*
81	Ibis	African Sacred	*Threskiornis*	*aethiopicus*
83	Ibis	Glossy	*Plegadis*	*falcinellus*
84	Ibis	Hadada	*Bostrychia*	*hagedash*
82	Ibis	Southern Bald	*Geronticus*	*calvus* (VU)
228	Jacana	African	*Actophilornis*	*africanus*
395	Kingfisher	Giant	*Megaceryle*	*maxima*
397	Kingfisher	Malachite	*Corythornis*	*cristatus*
394	Kingfisher	Pied	*Ceryle*	*rudis*
130	Kite	Black-winged	*Elanus*	*caeruleus*
129	Kite	Yellow-billed	*Milvus*	*aegyptius*
247	Lapwing	African Wattled	*Vanellus*	*senegallus*
245	Lapwing	Blacksmith	*Vanellus*	*armatus*
242	Lapwing	Crowned	*Vanellus*	*coronatus*
1183	Lark	Eastern Clapper	*Mirafra*	*fasciolata*
458	Lark	Rufous-naped	*Mirafra*	*africana*

Ref	Common group	Common species	Genus	Species
703	Longclaw	Cape	*Macronyx*	*capensis*
510	Martin	Banded	*Riparia*	*cincta*
509	Martin	Brown-throated	*Riparia*	*paludicola*
506	Martin	Rock	*Ptyonoprogne*	*fuligula*
210	Moorhen	Common	*Gallinula*	*chloropus*
392	Mousebird	Red-faced	*Urocolius*	*indicus*
390	Mousebird	Speckled	*Colius*	*striatus*
734	Myna	Common	*Acridotheres*	*tristis*
521	Oriole	Black-headed	*Oriolus*	*larvatus*
172	Osprey	Western	*Pandion*	*haliaetus*
359	Owl	Western Barn	*Tyto*	*alba*
311	Pigeon	Speckled	*Columba*	*guinea*
692	Pipit	African	*Anthus*	*cinnamomeus*
238	Plover	Three-banded	*Charadrius*	*tricollaris*
102	Pochard	Southern	*Netta*	*erythrophthalma*
650	Prinia	Black-chested	*Prinia*	*flavicans*
712	Puffback	Black-backed	*Dryoscopus*	*cubla*
189	Quail	Common	*Coturnix*	*coturnix*
805	Quelea	Red-billed	*Quelea*	*quelea*
581	Robin-Chat	Cape	*Cossypha*	*caffra*
264	Sandpiper	Wood	*Tringa*	*glareola*
90	Shelduck	South African	*Tadorna*	*cana*
94	Shoveler	Cape	*Spatula*	*smithii*
708	Shrike	Red-backed	*Lanius*	*collurio*
250	Snipe	African	*Gallinago*	*nigripennis*

Ref	Common group	Common species	Genus	Species
786	Sparrow	Cape	*Passer*	*melanurus*
784	Sparrow	House	*Passer*	*domesticus*
4142	Sparrow	Southern Grey-headed	*Passer*	*diffusus*
185	Spurfowl	Swainson's	*Pternistis*	*swainsonii*
746	Starling	Pied	*Lamprotornis*	*bicolor*
745	Starling	Red-winged	*Onychognathus*	*morio*
576	Stonechat	African	*Saxicola*	*torquatus*
772	Sunbird	Amethyst	*Chalcomitra*	*amethystina*
751	Sunbird	Malachite	*Nectarinia*	*famosa*
493	Swallow	Barn	*Hirundo*	*rustica*
502	Swallow	Greater Striped	*Cecropis*	*cucullata*
495	Swallow	White-throated	*Hirundo*	*albigularis*
208	Swamphen	African	*Porphyrio*	*madagascariensis*
380	Swift	African Black	*Apus*	*barbatus*
387	Swift	African Palm	*Cypsiurus*	*parvus*
378	Swift	Common	*Apus*	*apus*
385	Swift	Little	*Apus*	*affinis*
383	Swift	White-rumped	*Apus*	*caffer*
97	Teal	Red-billed	*Anas*	*erythrorhyncha*
305	Tern	Whiskered	*Chlidonias*	*hybrida*
304	Tern	White-winged	*Chlidonias*	*leucopterus*
275	Thick-knee	Spotted	*Burhinus*	*capensis*
557	Thrush	Groundscraper	*Turdus*	*litsitsirupa*
1104	Thrush	Karoo	*Turdus*	*smithi*
552	Thrush	Kurrichane	*Turdus*	*libonyana*

Ref	Common group	Common species	Genus	Species
686	Wagtail	Cape	*Motacilla*	*capensis*
606	Warbler	African Reed	*Acrocephalus*	*baeticatus*
604	Warbler	Lesser Swamp	*Acrocephalus*	*gracilirostris*
609	Warbler	Little Rush	*Bradypterus*	*baboecala*
599	Warbler	Willow	*Phylloscopus*	*trochilus*
843	Waxbill	Common	*Estrilda*	*astrild*
799	Weaver	Cape	*Ploceus*	*capensis*
803	Weaver	Southern Masked	*Ploceus*	*velatus*
804	Weaver	Thick-billed	*Amblyospiza*	*albifrons*
797	Weaver	Village	*Ploceus*	*cucullatus*
564	Wheatear	Mountain	*Myrmecocichla*	*monticola*
1172	White-eye	Cape	*Zosterops*	*virens*
846	Whydah	Pin-tailed	*Vidua*	*macroura*
816	Widowbird	Fan-tailed	*Euplectes*	*axillaris*
818	Widowbird	Long-tailed	*Euplectes*	*progne*
813	Widowbird	Red-collared	*Euplectes*	*ardens*
814	Widowbird	White-winged	*Euplectes*	*albonotatus*
419	Wood Hoopoe	Green	*Phoeniculus*	*purpureus*
453	Wryneck	Red-throated	*Jynx*	*ruficollis*

5.2.6. Natural Vegetation/Plant Life

The list of the dominant taxa in the Eastern Highveld Grassland vegetation unit / ecosystem is shown in Table 13 below.

Table 13: List of vegetation

SCIENTIFIC NAME	COMMON NAME
Graminoids (Grass like plants)	
Aristida aequiglumis	Three-awn

Aristida congesta	Tassel three-awn
Aristida junciformis	Gongoni three-awn
Brachiaria serrata	Velvet signal grass
Cynodon dactylon	Couch grass
Digitaria monodactyla	One finger grass
Digitaria tricholaenoides	Purple finger grass
Elionurus muticus	Wire grass
Eragrostis chloromelas	Narrow curly leaf
Eragrostis curvula	Weeping love grass
Eragrostis plana	Tough love grass
Eragrostis racemosa	Narrow heart love grass
Eragrostis sclerantha	Love grass
Heteropogon contortus	Spear grass
Loudetia simplex	Common russet grass
Microchloa caffra	Pincushion grass
Monocymbium ceresiiforme	Boat grass
Setaria sphacelata	Bristle grass
Sporobolus africanus	Ratstail dropseed
Sporobolus pectinatus	Dropseed
Themeda triandra	Red grass
Trachypogon spicatus	Giant spear grass
Tristachya leucothrix	Trident grass
Tristachya rehmannii	Trident grass
Herbs (Forbs, plants)	
Berkheya setifera	Rasperdissedoring
Haplocarpa scaposa	Tonteldoosbossie

Justicia anagalloides	-
Pelargonium luridum	-
Acalypha angustata	Copper leaf
Chamaecrista mimosoides	Fishbone cassia
Dicoma anomala	Maagbitterwortel
Euryops gilfillanii	-
Euryops transvaalensis	-
Helichrysum aureonitens	-
Helichrysum caespititium	Speelwonderboom
Helichrysum calicomum	-
Helichrysum oreophilum	-
Helichrysum rugulosum	-
Ipomoea crassipes	-
Geophytic herbs	
Gladiolus crassifolius	-
Haemanthus humilis	-
Hypoxis rigidula	Kaffertulp
Ledebouria ovatifolia	-
Succulent herbs	
Aloe ecklonis	Ecklone's aloe
Low shrubs	
Anthospermum rigidum	-
Stoebe plumose	-

5.2.7. Surface Water

The Roodepoort prospecting area falls within the Inkomati Water Management Area Figure 10. The site is located in the quaternary catchment X11B (Figure 11). The area also has an unnamed tributary that runs across the area.

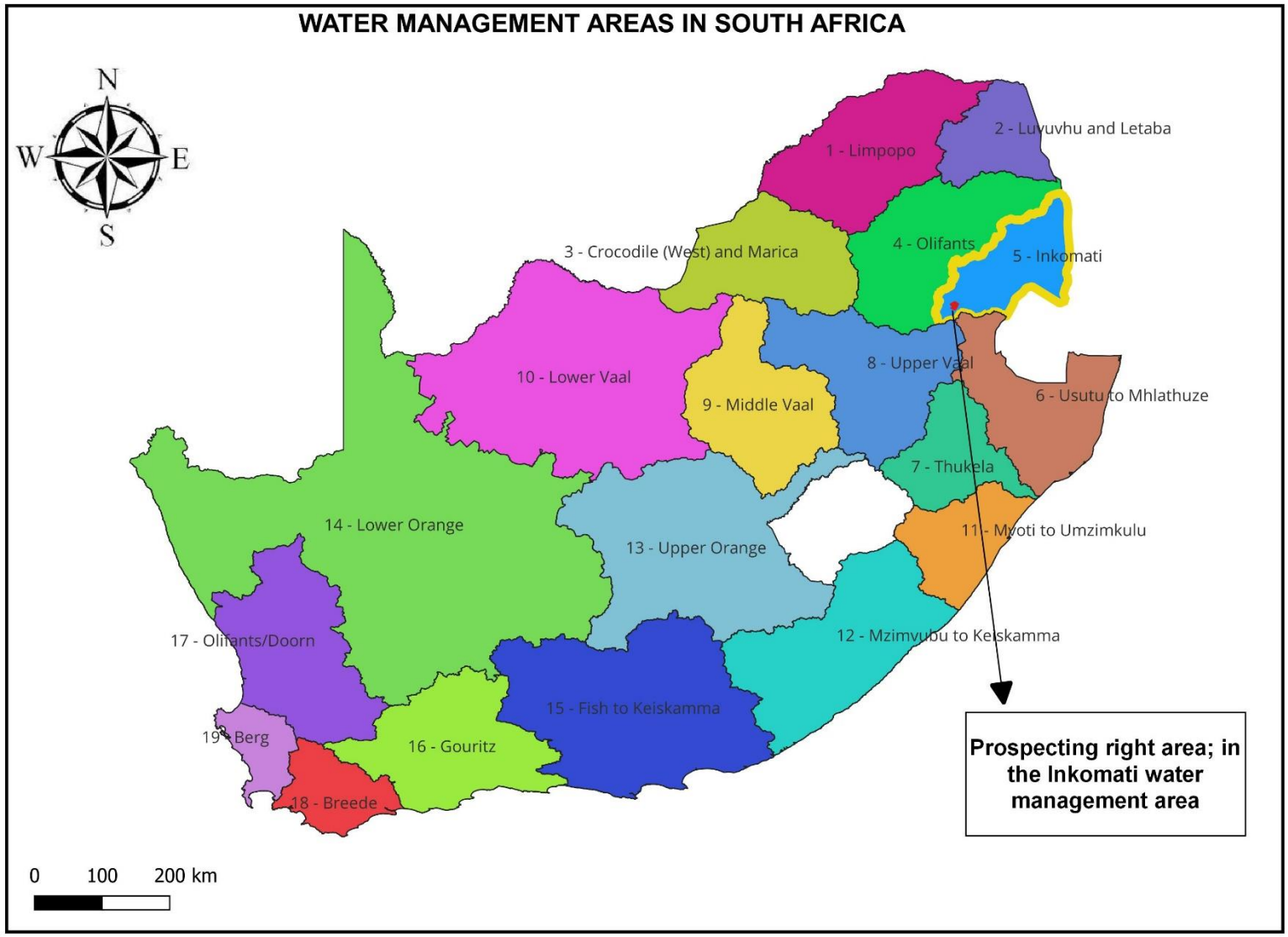


Figure 10: Water management areas

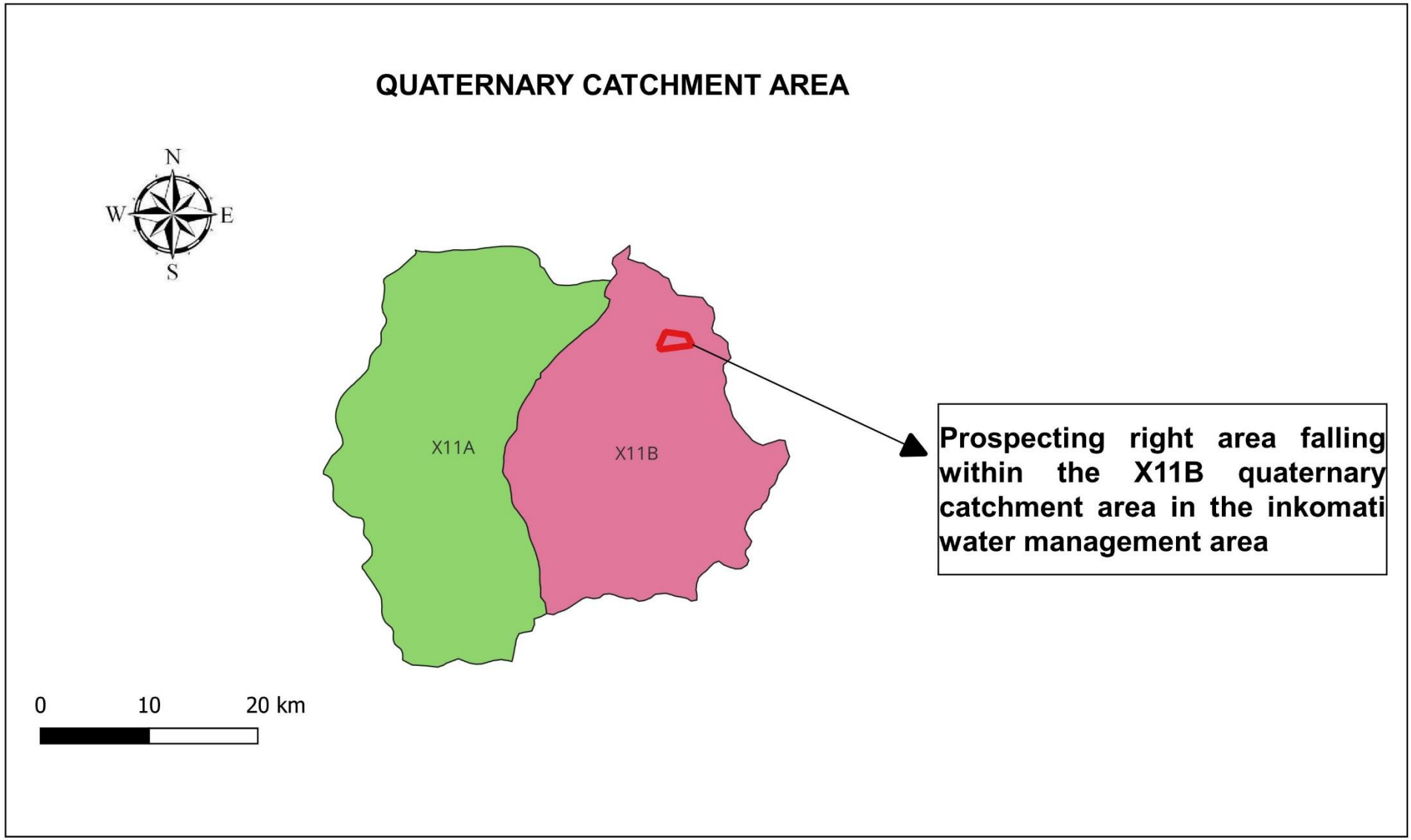


Figure 11: Quaternary catchment areas of the proposed prospecting area.

River diversions

No river diversions are planned for the prospecting activities covered by this report.

Water Use

The likely downstream users were determined by examining aerial photography and literature surveys.

The downstream users were therefore considered in the stream. The downstream usage classes are evaluated below:

- Domestic users –local inhabitants may consume this river water and will likely also use the water for laundry.
- Recreational users – it is likely that local inhabitants will swim in the streams.
- Aquatic users – fishing.
- Irrigation users – the river water is might to be used for small-scale or informal irrigation.
- Livestock – the river water is likely to be used for drinking by livestock.

Water Authority

The catchment area is government water-controlled catchment. The authority in charge is the Department of Water and Sanitation (Mpumalanga Regional Office).

5.2.8. Groundwater

5.2.8.1. Aquifer classification.

According to literature the Karoo Supergroup sediments typically act as secondary aquifers (intergranular and fractured rock aquifers). However, the multi-layered weathering system present on these rocks could prove to have up to two aquifer systems present in the form of a shallow, regolith aquifer with a weathered, intergranular soft rock base associated with the contact of fresh bedrock and the weathering zone; and a fractured bedrock aquifer. These aquifer systems are discussed below.

Saturated Zone

In the saturated zone, at least four aquifer types may be inferred from knowledge of the geology of the area:

- A shallow aquifer formed in the weathered zone, perched on the fresh bedrock.
- An intermediate aquifer formed by fracturing of the Karoo sediments.
- Aquifers formed within the more permeable coal seams and sandstone layers.
- Aquifers associated with the contact zones of the dolerite intrusives.

Although these aquifers vary considerably regarding geohydrological characteristics, they are seldom observed as isolated units. Usually, they would be highly interconnected by means of fractures and intrusions. Groundwater will thus flow through the system by means of the path of least resistance in a complicated manner that might include any of these components.

Shallow perched aquifer

A near surface weathered zone is comprised of transported colluvium and *in-situ* weathered sediments and is underlain by consolidated sedimentary rocks (sandstone, shale and coal). Groundwater flow patterns usually follow the topography, often coming very close to surface in topographic lows, sometimes even forming natural springs. Experience of Karoo geohydrology indicates that recharge to the perched groundwater aquifer is relatively high, up to 3% of the Mean Annual Precipitation (MAP).

Fractured Karoo rock aquifers

The host geology of the area consists of consolidated sediments of the Karoo Supergroup and consists mainly of sandstone, shale and coal beds of the Vryheid Formation of the Ecca Group. Most of the groundwater flow will be along the fracture zones that occur in the relatively competent host rock. The geology map does not indicate any major fractures zones in this area, but from experience it can be assumed that numerous major and minor fractures do exist in the host rock. These conductive zones effectively interconnect the strata of the Karoo sediments, both vertically and horizontally into a single, but highly heterogeneous and anisotropic unit.

Aquifers associated with coal seams

The coal seam forms a layered sequence within the hard rock sedimentary units. The margins of coal seams or plastic partings within coal seams are often associated with groundwater. The coal itself tends to act as an aquitard allowing the flow of groundwater at the margins.

Aquifers associated with dolerite intrusives

Dolerite intrusions in the form of dykes and sills are common in the Karoo Supergroup, and are often encountered in this area. These intrusions can serve both as aquifers and aquifuges. Thick, unbroken dykes inhibit the flow of water, while the baked and cracked contact zones can be highly conductive. These conductive zones effectively interconnect the strata of the Ecca sediments both vertically and horizontally into a single, but highly heterogeneous and anisotropic unit on the scale of mining. These structures thus tend to dominate the flow of groundwater. Unfortunately, their location and properties are rather unpredictable. Their influence on the flow of groundwater is incorporated by using higher than usual flow parameters for the sedimentary rocks of the aquifer.

Unsaturated zone

Although a detailed characterization of the unsaturated zone is beyond the scope of this study, a brief description thereof is supplied.

The unsaturated zone in the proposed mining area is in the order of between 1 and 20 meters thick and consists of colluvial sediments at the top, underlain by residual sandstone/siltstone/mudstone of the Ecca Group that becomes less weathered with depth.

According to the Parsons Classification system, the aquifer could be regarded as a minor aquifer system, but also a sole aquifer system in some cases where groundwater is the only source of domestic water

5.2.9. Sensitive Landscapes

5.2.9.1. Sensitive Landscapes

National Treasure Minerals (Pty) Limited recognises that all streams and wetlands should be treated as sensitive landscapes. To this extent, Geovicon Environmental (Pty) Limited an independent consultant, undertook a desktop study over the Roodepoort prospecting right area to determine the presence of any sensitive areas. According to the study there are sites that resembles sensitive landscapes which were identified in close proximity to the site. In addition, a screening tool report was generated from the Department of Environment, Forestry & Fisheries, see **Appendix C** for the National web based environmental screening tool report.

The proposed Roodepoort prospecting right area is situated in the Eastern Highveld Grassland vegetation type/ ecosystem in the Grassland Biome See Figure 12 for a visual indication (South African National Biodiversity Institute – SANBI; VEGMAP 2018).

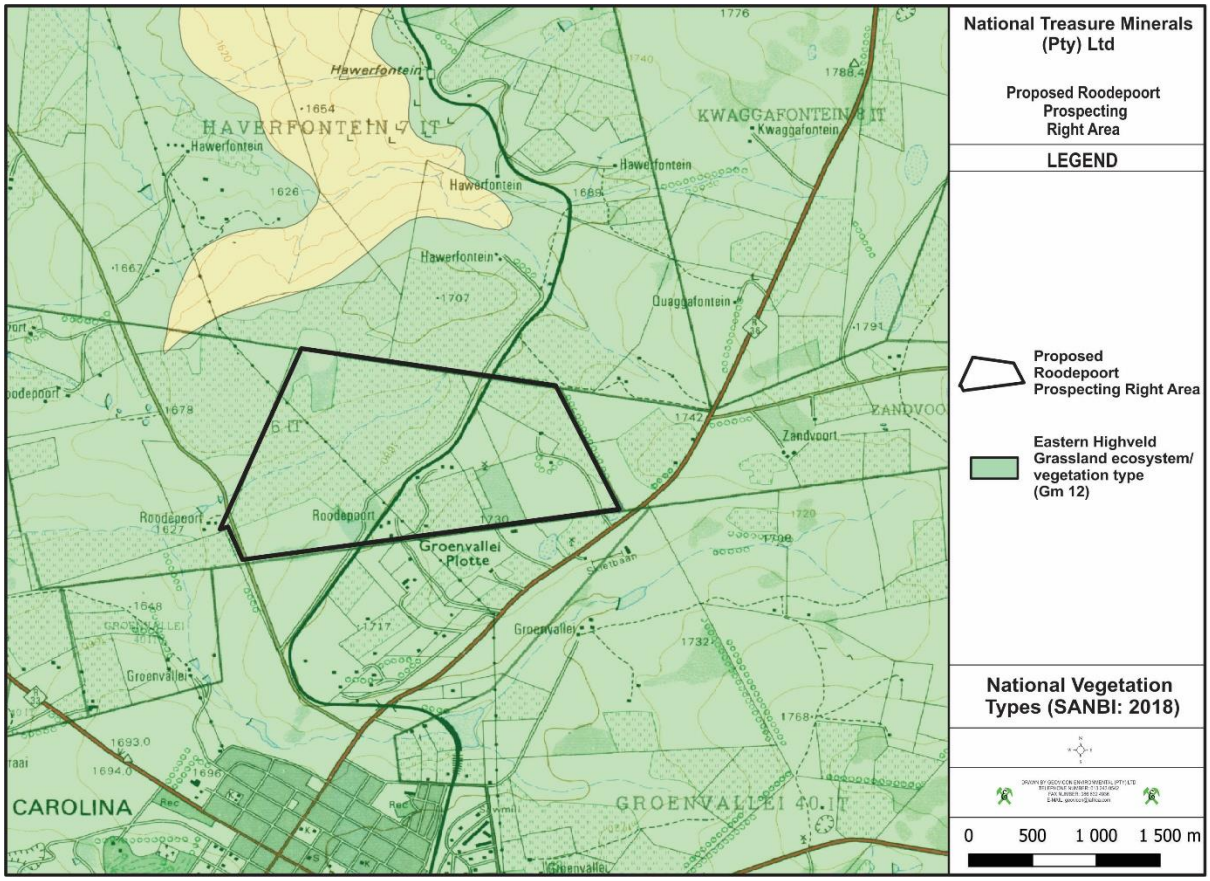


Figure 12: National Vegetation Types in the vicinity of the proposed Roodepoort prospecting area

According to Government Notice 1002, (Government Gazette No. 34809 9 December 2011), vulnerable ecosystems are considered threatened ecosystems since it is ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems Figure 13 below indicates the ecosystem threat status of the proposed Roodepoort prospecting project area.

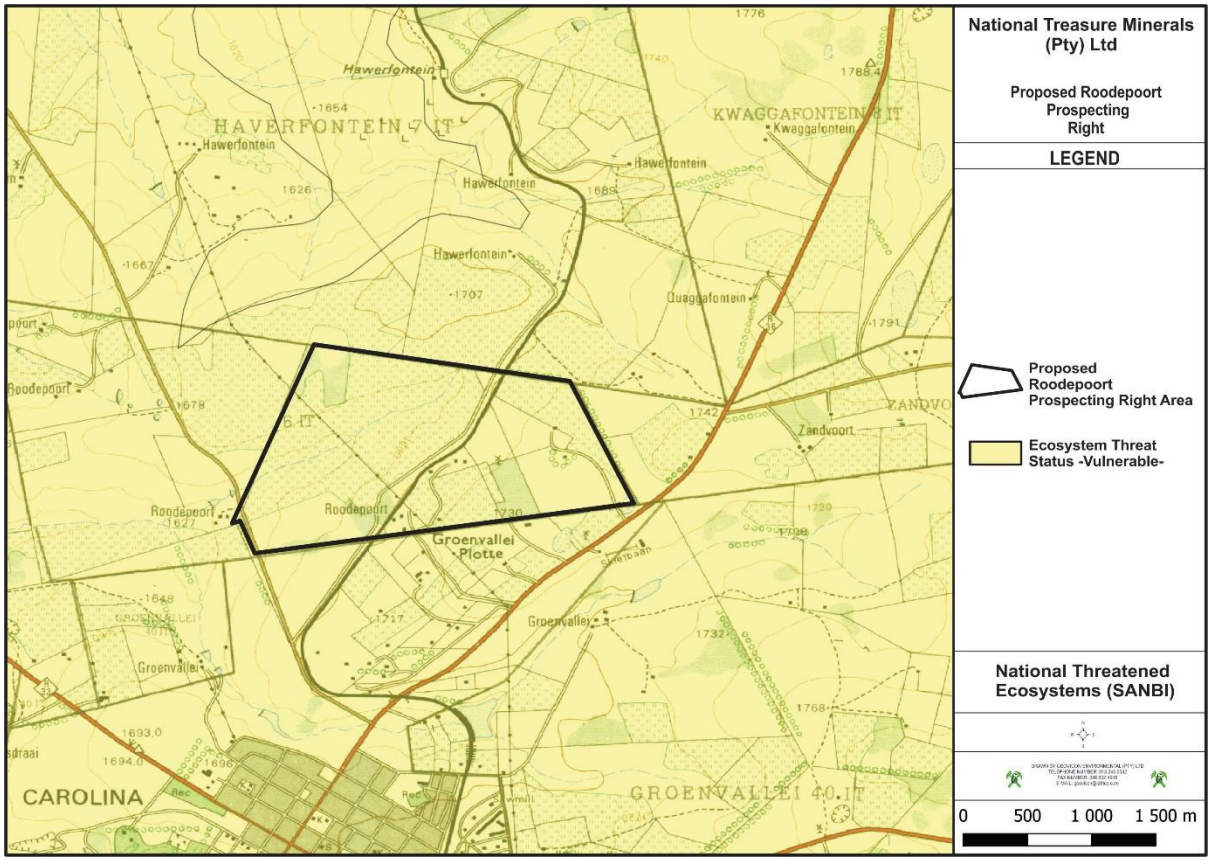


Figure 13:Ecosystem threat status for the proposed Roodepoort prospecting area

The proposed Roodepoort prospecting right area is situated in the vicinity of fish freshwater support area National River Freshwater Ecosystem Priority Areas (Figure 14). According to the Mpumalanga Biodiversity Sector Plan Fish sanctuaries are sub-quaternary catchments that are required to meet biodiversity targets for threatened and near threatened fish species indigenous to South Africa. Fish sanctuaries in sub-quaternary catchments associated with a river reach in good condition (A or B ecological category) were selected as FEPAs; the remaining fish sanctuaries became Fish Support Areas. Fish Support Areas also include sub-quaternary catchments that are important for migration of threatened and near threatened fish species. River reaches in Fish Support Areas need to be maintained in a condition that supports the associated populations of threatened fish species, which need not necessarily be an A or B ecological category.

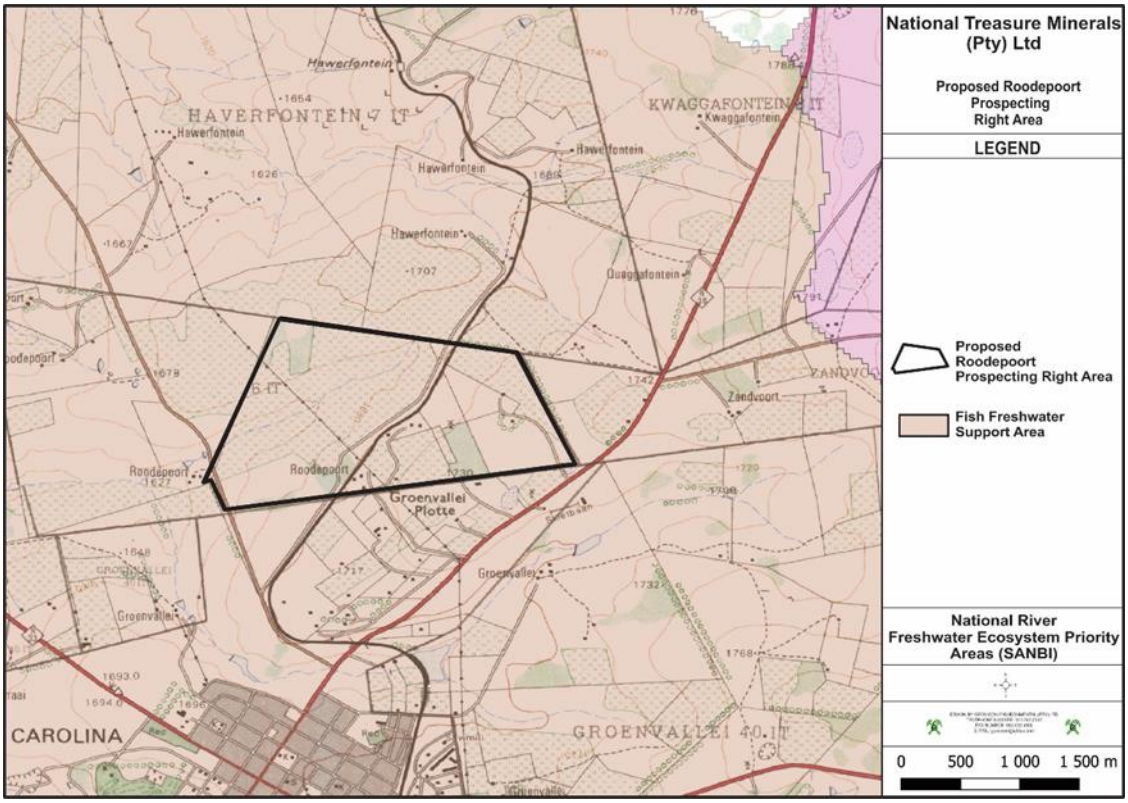


Figure 14: National Freshwater Ecosystem Priority Areas in the vicinity of the proposed Roodepoort prospecting area.

The proposed Roodepoort prospecting right area is not situated in the vicinity of any strategic water source areas.

According to the South African National Biodiversity Institute, GIS-based electronic application, 2018: National Biodiversity Assessment - National Wetlands Map 5, the identified wetland areas are situated in the vicinity of the following wetland types viz. depressions / pans, seepage wetlands and channelled valley bottom wetlands (Figure 15) falling into the Mesic Highveld Grassland, Group 4, wetland ecosystem types (Figure 16).

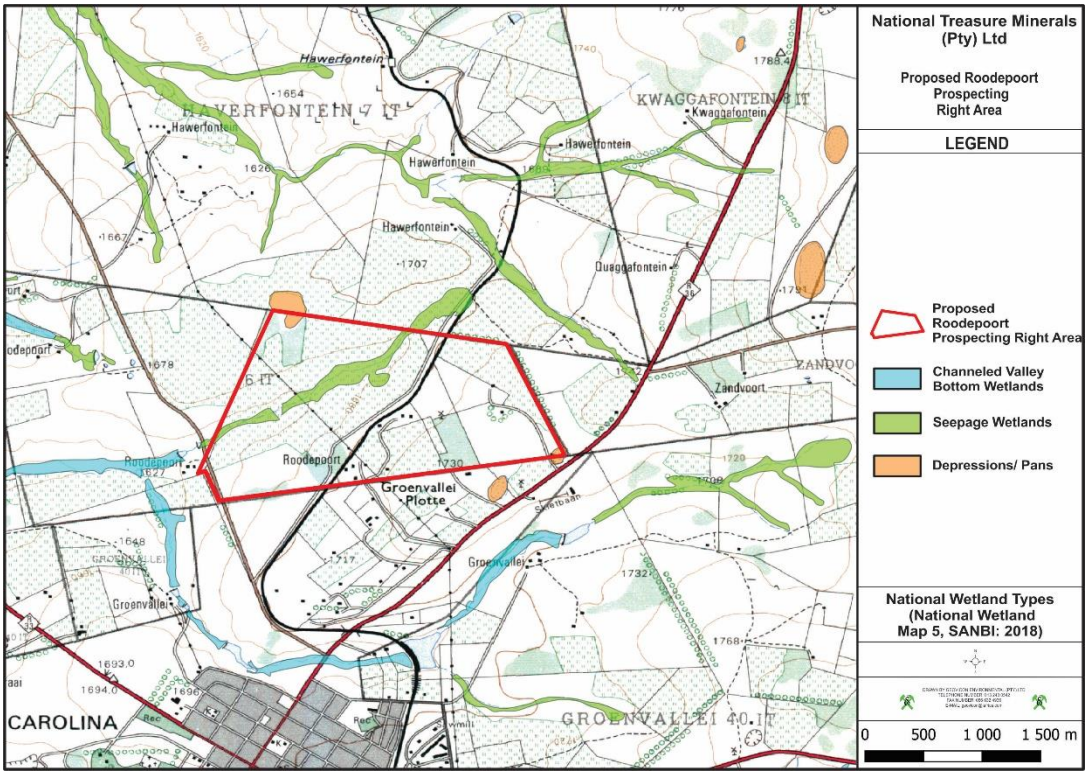


Figure 15: Figure: National Wetland types in the vicinity of the proposed Roodepoort prospecting area.

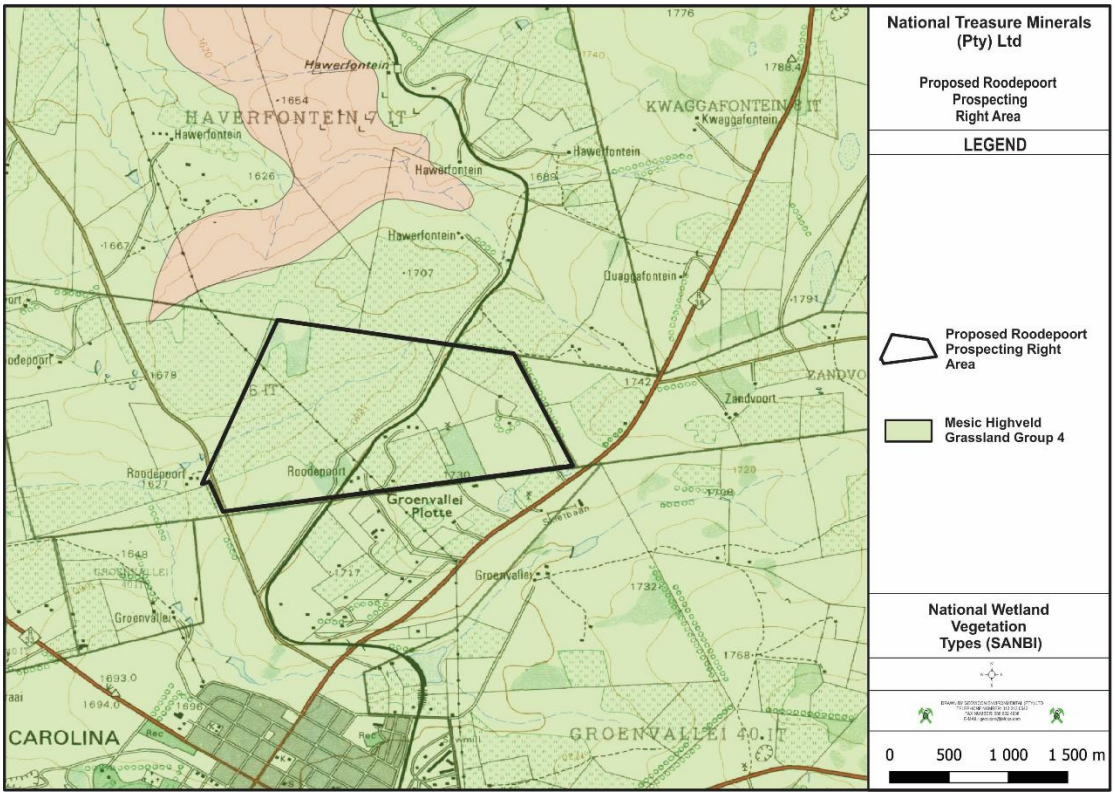


Figure 16: National Wetland vegetation types in the vicinity of the proposed Roodepoort prospecting area.

According to the Mpumlanga Biodiversity Sector Plan GIS based electronic application (MTPA, 2019), the proposed Roodepoort prospecting right area is situated over terrestrial assessment categories of predominantly critical biodiversity areas that are irreplaceable. According to the MBSP Handbook (2015) Critical Biodiversity Areas (CBAs) are described as all areas required to meet biodiversity pattern and process targets; Critically Endangered ecosystems, critical linkages (corridor pinch-points) to maintain connectivity; CBAs are areas of high biodiversity value that must be maintained in a natural state. The category of CBA Irreplaceable includes: (1) Areas required to meet targets and with irreplaceability values of more than 80%; (2) Critical linkages or pinch-points in the landscape that must remain natural; (3) Critically Endangered Ecosystems. See Figure 17 for a visual illustration.

The proposed Roodepoort prospecting right area is situated within the ecological support area protected environment buffer zone, according to the MBSP Handbook (2015), Ecological Support Areas: Protected Environment Buffer Zones are described as areas surrounding protected areas that moderate the impacts of undesirable land-uses that may affect the ecological functioning or tourism potential of Protected Areas. The nature reserve that is in close proximity to the project is called the Nooitgedacht Dam Nature Reserve.

The proposed Roodepoort prospecting area is also situated over Heavily Modified Areas described as areas that are currently transformed and where biodiversity and ecological function has been lost to the point that it is not worth considering for conservation at all. Moderately Modified – Old lands are areas which were modified within the last 80 years but were at some point abandoned, including old mines and old cultivated lands, collectively termed “old lands”; and “Heavily Modified”, meaning areas that are currently transformed and where biodiversity and ecological function has been lost to the point that it is not worth considering for conservation at all.

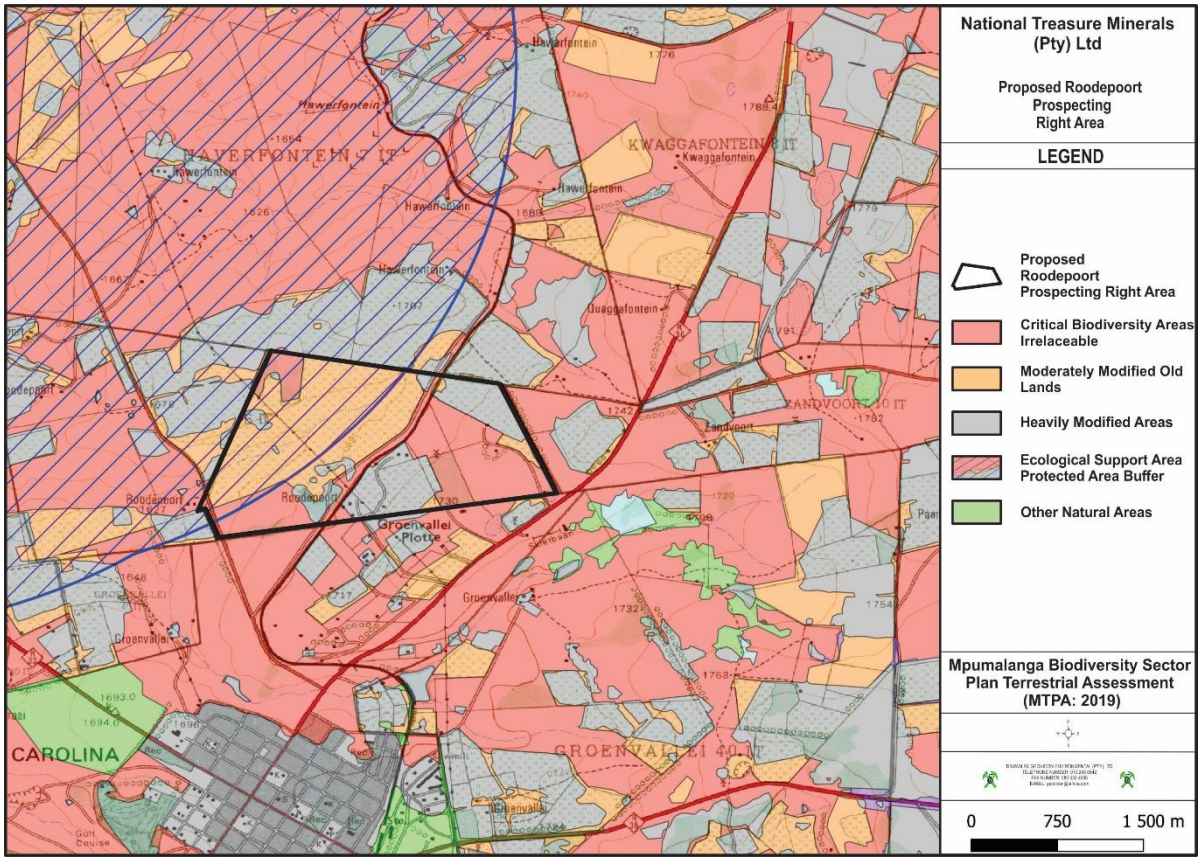


Figure 17: Mpumalanga Biodiversity Sector Plan terrestrial assessment map for the proposed Roodepoort prospecting area (MTPA, 2019).

According to the Mpumalanga Biodiversity Sector Plan GIS -based electronic application the proposed Roodepoort prospecting area is situated over the following freshwater assessment categories:

The proposed Roodepoort prospecting area is primarily situated over freshwater assessment categories of ecological support area wetlands. Ecological support area wetland clusters, ecological support areas: important sub catchments and heavily modified areas (Figure 18).

Ecological support areas are defined as Areas that are not essential for meeting targets, but that play an important role in supporting the functioning of CBAs and that deliver important ecosystem services

Ecological Support area Wetland clusters: Clusters of wetlands embedded within a largely natural landscape to allow for the migration of fauna and flora between wetlands

Ecological Support Areas Important sub -catchments are described as sub-catchments that either contain river FEPAs and/or Fish Support Areas.

Ecological support area wetlands are all non-FEPA wetlands. Although not classed as FEPAs, these wetlands support the hydrological functioning of rivers, water tables and freshwater biodiversity, as well as providing a host of ecosystem services through the ecological infrastructure that they provide.

Heavily modified areas are described as areas in which significant or complete loss of natural habitat and ecological function has taken place due to activities such as ploughing, building of dams, hardening of surfaces, open-cast mining, cultivation, and so on.

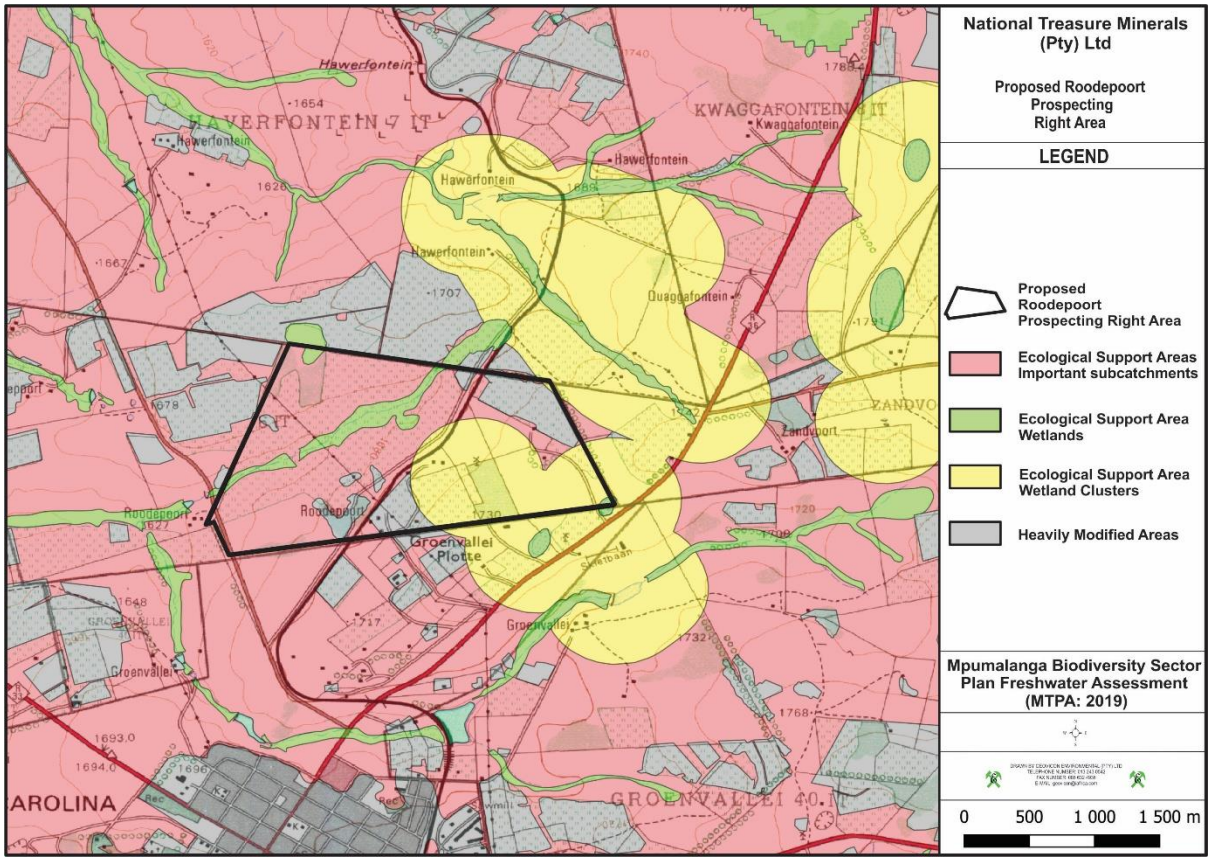


Figure 18: Mpumalanga Biodiversity Sector Plan freshwater assessment map for the proposed Roodepoort prospecting area (MTPA, 2019).

5.2.10. Air Quality

Potentially air pollution from human activities may arise as a result of particulates entering the atmosphere. The sources of air pollution from human activities comprise of three broad categories i.e., ***stationary sources*** (agriculture, mining, quarrying, manufacturing, mineral products, industries and power generation), ***community sources*** (homes or buildings, municipal waste and sewage sludge incinerators, fireplaces, cooking facilities, laundry services and cleaning plants) and ***mobile sources*** (combustion-engine vehicles and fugitive emissions from vehicle traffic). Air pollutants are generally classified into suspended particulate matter (dust, fumes, mists and smokes), gaseous pollutants (gases and vapours) and odours.

Assessment of the proposed prospecting right area has determined that all three sources of air pollution sources are found at the proposed area.

5.2.11. Noise

The proposed project area is predominantly associated with agricultural activities. Noise from the area is mainly from these activities with use of associated infrastructure and land use activities. Potential noise sources from the area may; therefore, be emanating from the following sources i.e.: roads and surrounding land uses.

5.2.12. Socio-Economic Status

Chief Albert Luthuli Local Municipality is located within the Gert Sibande district, Mpumalanga. The municipality boasts both mining and agricultural sectors that contribute significantly to the local, provincial and national GDP.

5.2.12.1. Population density, growth and location

The mid-year population estimates for 2015 for Mpumalanga Province is estimated at 4 283 900 (7.8% of the total national population) and has remained steady in the period between 2002 and 2015 (Stats SA, Statistics release P0 302, 2016). The population figure for Gert Sibande District was 1 308 129 (Census 2011) and new statistics released by Statistics SA (www.localgovernment.co.za) for 2016 estimate the district's population at 1 445 624.

The Chief Albert Luthuli Local Municipality population was 395 466 in 2011 and increased to 455 228 in 2016 (Stats SA, www.localgovernment.co.za), thus comprising 30.5% of the district. The number of households also increased from 119 874 to 150 420 during this same period. However, the average household size decreased from 3.2% to 3%.

5.2.12.2. Major economic activities and sources of employment

Mining in the Chief Albert Luthuli Local Municipality is the highest contributor to both economic growth and job creation. Given the abundance of coal reserves in Mpumalanga (and being the key mineral within Chief Albert Luthuli Local Municipality); the local space is likely to benefit from the resources abundantly found within the locality; at the expense of agriculture.

The Economy of the municipality is driven by the Mining sector which contributed 50% in 2009 followed by electricity at 12.1% and Finance at 10.8%. Agriculture and manufacturing don't seem to be performing well within the local space.

SECTION SIX

Environmental impact assessment

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOLLOWED

6.1.1. Approach to Environmental Impact Assessment

The term 'environment' is used in the broadest sense in an EIA. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.

An Environmental Impact Assessment is a good planning tool. It identifies the environmental consequences of a proposed project from the beginning and helps to ensure that the project, over its life cycle, will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

6.1.2. Environmental Impact Assessment Process Followed

Under Section 24 of the National Environmental Management Act (NEMA), the Minister promulgated the regulations pertaining to environmental impact assessments (EIA Regulations, 2014) under Government Notice No. 982 in Government Gazette 38282 of 4 December 2014. These EIA regulations repealed the 2010 EIA regulations and therefore any process relating to environmental authorisations must be undertaken under the EIA Regulations, 2014.

Chapter 4 of the EIA Regulations, 2014 deals with the provisions for application for environmental authorisation. In view of the above, National Treasure Minerals (Pty) Limited is obliged to comply with provisions of Chapter 4 for the intended environmental authorisation application for the activities (listed activities) within the proposed project.

Part 2 of chapter 4 of the EIA Regulations, 2014 contemplate process to be undertaken for the application for environmental authorisation for the proposed project, which is the BAR process. The process to be followed is describe below.

6.1.2.1. Pre-application consultation with the Competent Authority

In terms of section 24D (1) of the National Environmental Management Act, 1998 (Act 107 of 1998), the Minister responsible for mineral resources is the competent authority for environmental matters relating to mining and associated activities. In view of the above, the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources and Energy (DMRE), Mpumalanga Regional Office for their consideration and decision making.

6.1.2.2. BAR Phase

In compliance with Regulation 19 of the EIA Regulations, 2014, the BAR and EMPr will be submitted to the competent authority within 90 days after the acknowledgement of the environmental authorisation application.

As part of the public participation, the draft BAR and EMPr is made available to the competent authority, potential and registered interested and affected parties for their comment for a period of 30 days during the EIA phase.

6.1.2.3. Information Gathering

Environmental baseline data has been obtained via desktop studies, pertaining to surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions. The data accumulated and analysed is sufficient to gain a baseline indication of the

present state of the environment. The use of this baseline study for impact assessments is thus justified and reliable conclusions could be made.

6.1.2.4. Decision on the BAR application

In compliance with Regulation 20 of the EIA Regulations, 2014, the competent authority will within 107 days of receipt of the final BAR and EMPr grant or refuse the environmental authorisation.

6.2. ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

The following prediction and evaluation of impacts is based on the proposed Roodepoort prospecting area and associated activities.

The evaluation distinguishes between significantly adverse and beneficial impacts and allocates significance against national regulations, standards and quality objectives governing:

- Health & Safety;
- Protection of Environmentally Sensitive Areas;
- Land use; and,
- Pollution levels.

Irreversible impacts are also identified. See Table 15 for the results.

Table 14: The above criteria are expressed for each impact in tabular form according to the following definitions:

The significance of the impacts is determined through the consideration of the following criteria:

Probability	:	likelihood of the impact occurring
Area (Extent)	:	the extent over which the impact will be experienced.
Duration	:	the period over which the impact will be experienced.
Intensity	:	the degree to which the impact affects the health and welfare of humans and the environment (includes the consideration of unknown risks, reversibility of the impact, violation of laws, precedents for future actions and cumulative effects).

Probability	Definition
Low	There is a slight possibility (0 – 30%) that the impact will occur.
Medium	There is a 30 –70% possibility that the impact will occur.
High	The impact is definitely expected to occur (70% +) or is already occurring.
Area (Extent)	**Definition**
Small	0 – 40 ha
Medium	40 – 200 ha
Large	200 + ha
Duration	**Definition**
Short	0 – 5 years
Medium	5 – 50 years
Long	51 – 200 years
Permanent	200 + years

Intensity	Definition
Low	Does not contravene any laws. Is within environmental standards or objectives. Will not constitute a precedent for future actions. Is reversible. Will have a slight impact on the health and welfare of humans or the environment.
Medium	Does not contravene any laws. Will not constitute a precedent for future actions. Is not within environmental standards or objectives. Is not irreversible. Will have a moderate impact on the health and welfare of humans or the environment.
High	Contravene laws. May constitute a precedent for future actions. Is not within environmental standards or objectives. Is irreversible. Will have a significant impact on the health and welfare of humans or the environment.

Significance and Risk Category	Definition
Negligible	The impact/risk is insubstantial and does not require management
Low	The impact/risk is of little importance, but requires management
Medium	The impact/risk is important; management is required to reduce negative impacts to acceptable levels
High	The impact/risk is of great importance, negative impacts could render options or the entire project unacceptable if they cannot be reduced or counteracted by significantly positive impacts, and management of these impacts is essential
Positive (No risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical health

6.3. RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

6.3.1. Assessment of the Roodepoort prospecting area impacts/risks

Table 15: Results of the Environmental Impact Assessment for Roodepoort prospecting area.

6.3.1.1. Construction Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
Site Establishment: Establishment of the access (tracks) to the prospecting site, Establishment of the campsite, Site physical surveying and pegging of drilling sites							
The establishment of access, campsite and the surveying with pegging of the drilling sites may result in the stripping of soils if the site establishment of not properly conducted. This may result in the loss of soils and erosion that may render the area unusable. During site establishment, machinery and vehicles used for the prospecting operation may result in hydrocarbon leakages, which may result in the contamination of the soils within the access tracks, campsite and drilling sites.	Soil/Land capability	Without mitigation					Establishment of the site will be undertaken according to the prospecting method statement. No soil stripping will be allowed during site establishment. Ensure minimal disturbance of soil when conducting geophysical surveys and geological mapping (if necessary). Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	
	Land use	Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
Current land use over the area to be used for site establishment will cease completely. This may have an impact on the land owners' livelihood should they not be able to use the land. Drilling activities may infringe the livelihood and operations of activities occurring within and immediately adjacent the prospecting right area.		S	M	S	M	M	Use sites that are unused and that are in the degraded state for the proposed development. This will be done in agreement with the land owner. The sitting of the boreholes will be conducted to ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, sites of geological importance and farmlands actively used for crop farming are avoided. No-go zones will be instituted around existing infrastructure/facilities and operations occurring within and immediately adjacent to the prospecting right area. No prospecting activities will be undertaken within the instituted no-go zones.
		With mitigation					
		S	L	S	L	L	
The establishment of access and the surveying with pegging of the drilling sites may result in wetland destruction and loss of habitat if the site establishment is not properly conducted.	Sensitive landscape	Without mitigation					Construction activities will be limited to be more than hundred meters from the edge of streams and wetlands. Construction activities will, as far as possible, not be undertaken within the sensitive areas. Should prospecting activities be planned within sensitive areas, the relevant environmental investigations will be conducted in order to define already disturbed areas, for drilling activities.
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	
	Natural vegetation	Without mitigation					Use sites with most disturbed vegetation cover for the development.
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
The establishment of the site (access, campsite and drilling sites) may result in the removal of vegetation cover if the establishment is not done correctly. This may render the land unusable to the land owners after completion of the area.		With mitigation					No strip of topsoil and vegetation will be allowed during site establishment. Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping. Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery. Pictures of possible plant species of conservation concern that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance.
		S	L	S	L	N	
Animal burrows and habitats remaining within the proposed development site may be destroyed during construction. This may result in the migration of remaining animal life away from the affected areas. Poaching of wild animals and livestock by the labourers will result in the loss of wild live and loss of livestock to the land owner.	Animal Life	Without mitigation					Establishment of the site will be undertaken according to the prospecting method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Use sites with most degraded environment for the site development. Poaching will be prohibited at the prospecting site. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
							habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed.
Exposure of soils during construction by the stripping of vegetation and soils may cause erosion, which may lead to increased silt loads in surface water runoff. This may result in the contamination of the clean water environment. Waste generated from the site may result in the contamination of surface and ground water should not management of such waste be undertaken.	Surface and Ground Water	Without mitigation					Site establishment will not be undertaken within sensitive landscapes. These areas will be avoided. A distance of 100 meters will be created between the sites and the sensitive landscapes. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands. Avoid stripping of areas within the construction sites. Rehabilitate areas that may have been mistakenly stripped. Storm water upslope of the campsite and drill sites should be diverted around these areas. Proper waste management facilities will be put in place at the campsite and drilling site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	
Construction activities during the establishment of the site will include material loading and hauling. These activities will result in the mobilisation of particulates that will migrate away from the	Air Quality	Without mitigation					Ensure that source specific management measures for Roodepoort prospecting area are complied with.
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
site to the nearby local residents. This will be a nuisance to the communities and will result in aesthetic impacts associated with fugitive dust emissions. On-site dust fall may have health and nuisance implications to employees at the existing offices.		With mitigation					
		S	L	S	L	N	
The noise level generated from the construction activities may exceed the SANS 10103 Levels for Residential areas and may exceed the maximum rating levels for ambient noise indoors. This may have an impact in the surrounding residents and employees using/delivering the machinery.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment is used, that equipment is kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on roads.
		S	L	S	L	L	
		Without mitigation					
		S	L	S	L	N	
The activities undertaken during construction and associated infrastructure will be visible from the nearby roads and properties. However, due to the undulating topography, visibility for the most part will most probably be restricted to short distances.	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the prospecting site. Ensure that lighting is conducted in manner that will reduce the impacts on visual aspects at night times.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The site may be located in close proximity to a heritage site and may result in the destruction of the identified heritage site.		Without mitigation					The establishment of the construction infrastructure complex will be such that the development is always away from the any heritage sites.
		S	M	S	H	H	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
	Sites of Archaeological and Cultural Importance	With mitigation					A buffer of more than fifty meters will be created between the grave yards and the proposed site development. A management plan will be drafted for the sustainable preservation of the grave yard should graveyards be identified on site. Any grave site must have access for descendants.
		S	L	S	L	L	
The commencement of the proposed area may result in an influx of 'outsiders' seeking jobs, which may be caused by increase in local unemployment levels. This may result in the have potential increase in crime. It must however be noted that prospecting activities would unlikely attract job seeker due to its small nature of its scale.	Socio economic aspects	Without mitigation					Recruitment will not be undertaken on site.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

6.3.1.2. Operational Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
Drilling and rehabilitation of the exploration boreholes							
Topsoil removal, storage and replacement during the excavation of the sumps will result. This will result in the disruption of the soils profile.	Soils	Without mitigation					Ensure that topsoil is properly stored, away from the streams and drainage areas. The soils must be used for the backfilling and rehabilitation of the sumps. The rehabilitated sump must be seeded with recommended seed mix.
		S	M	S	L	L	
		With mitigation					
		S	L	S	L	N	
The use of vehicles during the siting, pegging and drilling of the exploration boreholes may result in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination of the vegetation cover and soils. The material removed from the drilling exercises will contain carbonaceous material, which has a potential for pollution should it be allowed stay for a prolonged period at the drilling site. The above material, if not properly managed, may result in the contamination of the surrounding soils and vegetation cover, which may render the land not usable after the backfilling operation.	Natural Vegetation and Soils	Without mitigation					Ensure that the drilling of the exploration boreholes is done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material. All boreholes and sumps will be rehabilitated to pre-drilling conditions. Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility.
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
During drilling activities, veld fires can manifest especially during the winter months from the drilling sites and their campsite. If not controlled, the fires can destroy large areas of veld and could result in the loss of vegetation to landowners and surrounding land owners.							Pictures of possible plant species of conservation concern that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance. All waste generated from the drilling sires and the campsite will be collected in proper receptacles and removed top registered disposal facilities e.g., sewage treatment plant, solid waste disposal site or hydrocarbon recycling or treatment facilities. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no protected and/or critical natural vegetation. If any protected and/or critical natural vegetation occurs, the location of the proposed boreholes must be changed. No trees or shrubs will be felled or damaged for the purpose of obtaining firewood. The outbreak of any uncontrolled fire shall be reported to the site manager immediately and the necessary steps shall be taken to control and extinguish the fire. Smoking shall be prohibited in the vicinity of flammable substances.
	Animal Life	Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
Animal burrows and habitats will be destroyed by the preparation of the backfilling sites. This will further result in the migration of animals away from these areas of disturbance. It must however be noted that no significant amount of animal life exists due to the agricultural activities currently undertaken at the proposed prospecting sites.		S	L	S	L	L	The rehabilitation of the disturbed areas must be conducted such that the rehabilitated areas will encourage the migration of animals back into the rehabilitated areas. Poaching of wild animals and livestock will be prohibited. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed.
		Without mitigation					
		S	L	S	L	N	
Current land use activities over the area to be used for drilling and rehabilitation of the exploration boreholes activities may need to cease during the undertaking of the prospecting activities. This may have an impact on the land owners' livelihood should they not be able to use the land for the current land uses. Drilling activities may infringe the livelihood and operations of activities occurring within and immediately adjacent the prospecting right area.	Land use	With mitigation					Use sites that are unused and that are in the degraded state for the proposed development. This will be done in agreement with the land owner. The siting of the boreholes will be conducted to ensure that rocky ridges, sensitive grasslands, indigenous trees and shrubs, and sites of geological importance are avoided. No-go zones will be instituted around existing infrastructure/facilities and operations occurring within and immediately adjacent to the prospecting right area. No prospecting activities will be undertaken within the instituted no-go zones.
		S	M	S	M	M	
		Without mitigation					
		S	L	S	L	L	
	Sensitive landscape	Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
Drilling activities may result in wetland destruction and loss of habitat if the site establishment is not properly conducted.		S	M	S	M	M	Operation of the drilling site will be limited to be more than hundred meters from the edge of streams and wetlands. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands. Drilling activities will be limited to be more than hundred meters from the edge of streams and wetlands. Drilling activities will, as far as possible, not be undertaken within the sensitive areas. Should prospecting activities be planned within sensitive areas, the relevant environmental investigations will be conducted in order to define already disturbed areas, for drilling activities.
		With mitigation					
		S	L	S	L	L	
The drilling operations may result in the generation of surface water runoff contaminated with drilling muds and cuttings should spillages occur. The sedimentation and possible contamination with carbonaceous material will have negative impacts on the surrounding clean water environment. These will cause an increase in the turbidity and will decrease acidity of the water in the streams, which will affect the aquatic habitat of the wetland, hence important habitats may be lost.	Surface Water	Without mitigation					No prospecting operations will be undertaken within 100 metres from the nearby steams and wetland areas. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands. The sumps will be excavated for the collection mud and excess water from the drilling sites. The sump will be sized such that it will be able to contain the water and mud that will be generated during the prospecting operation. Storm water generated around the drilling site will be diverted away to the clean water environment. No concrete mixing and vehicle maintenance will
		S	L	S	M	L	
		With mitigation					
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
							be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.
The prospecting operations will require the drilling of boreholes. The boreholes may result in the drawdown, which may affect the yield to the surrounding groundwater users. Material used for backfilling may leach pollutants that will result in the pollution of the surrounding groundwater regime. This may even spread beyond the backfilling site via plume migration.	Groundwater	Without mitigation					Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The prospecting operation will require vehicular movement. This will result in the generation of dust by movement of vehicles and due to blowing winds. Vehicles and machinery will also generate diesel or petrol fumes. Generated dust will migrate towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.	Air Quality	Without mitigation					Dust suppression must be conducted during the operational phase of the area. Correct speed will be maintained at the proposed area site. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
	Noise	Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
Noise generated from prospecting operations activities may add to the current noise levels. This may have impacts on surrounding property owners and occupiers.		S	L	S	M	L	Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment is use, that equipment is kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on roads. Correct speed will be maintained at the proposed area site. Limit operation of machinery and vehicle movement between sunrise and sunset.
		With mitigation					
		S	L	S	L	L	
The drill rigs and towers used during the drilling operations will be visible from the nearby residents and properties.	Visual Aspects	Without mitigation					Ensure that the period used for the drill rigs is optimised to ensure that the drill rigs are moved from one site to another over short periods.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
Operation may affect the day-to-day operation of the land owners hence result in direct impact on their livelihood.	Socio economic aspects	Without Mitigation					Ensure that all safety measures (EMPR) are implemented to prevent the impacts on the property owners. Ensure that negotiations on compensation are undertaken before the drilling programme can commence. This will include any other
		S	L	S	L	L	
		With Mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
		S	L	S	L	N	conditions that the landowner may deem necessary for the prospecting operation.
Operation will result in the employment of locals and support on local businesses.	Socio economic aspects	Positive					The applicant will ensure that as far as possible locals will be used during the operation of the prospecting area.
The drilling operation may result in the destruction of graves and any other heritage sites during operational phase of the area.	Sites of archaeological and cultural importance	Without Mitigation					Locate exploration borehole more than one hundred meters from the identified heritage sites. Should any cultural or heritage materials be identified, these areas will be demarcated and treated as no-go areas during the prospecting activities. Detailed heritage studies would then be undertaken if it is deemed that these sites would be affected by the prospecting activities. Any finds will be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA. Local museums as well as the South African Heritage Resource Agency (SAHRA) will be informed if any artefacts are uncovered in the affected area. The prospecting workforce will be made aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from the South African Heritage
		S	M	S	H	H	
		With Mitigation					
		S	S	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
							Resources Association (SAHRA) should the proposed site affect any world heritage sites or if any heritage sites are to be destroyed or altered.

6.3.1.3. Decommissioning and Closure Phases

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
Decommissioning of prospecting site (Site Rehabilitation)							
The removal of the campsite equipment and the rehabilitation of the drilling sites and associated access infrastructure will result in the affected soil and land use being restored. This will also result in the resumption of the use of the land since the infrastructure would have been removed.	Soils, Land Capability and Land Use	Positive impact					Ensure that rehabilitation is conducted in accordance with a rehabilitation method statement approved by the mine management. See description of the rehabilitation plan and management actions in the EMPr. Ensure that contamination of the rehabilitate area by carbonaceous material and hydrocarbon liquids are prevented.
Positive impacts will result due to the reduction in areas of disturbance and the return of land use of the affected areas and making available an area that was covered by the campsite and drilling sites.	Land Use	Positive impact					
The use of vehicles/machinery during the rehabilitation of the exploration sites may result compaction of soils and in the spillages of	Soils and Natural Vegetation	Without mitigation					
		S	M	S	M	M	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
hydrocarbon liquids from the vehicles and machinery. This will result in the contamination and destruction of the vegetation cover and soils.		With mitigation					Ensure that the rehabilitation work is done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material. All boreholes and sumps will be rehabilitated to pre-drilling conditions. Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility. All waste generated from the rehabilitation sites will be collected in proper receptacles and removed to registered disposal facilities e.g., sewage treatment plant, sold waste disposal site or hydrocarbon recycling or treatment facilities. Ensure that there is no infestation of alien invasive plants.
		S	L	S	L	L	
During the decommissioning and closure phases equipment will be removed, stockpiled soils will be used for rehabilitation, remaining sumps will be backfilled, levelled, topsoiled and the area re-seeded. During the process of rehabilitation surface water runoff from the rehabilitation site may have	Surface Water	Without mitigation					Ensure that water leaving the site do not have elevated silt load. Ensure that the rehabilitated areas are free draining and that water from these areas is clean.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
elevated silt load, which may cause pollution of the nearby water environment.							
Rehabilitation and removal of the prospecting sites and equipment will require vehicular movement. This will result in the generation of dust by movement of vehicles and due to blowing winds. Vehicles and machinery will also be generated diesel or petrol fumes. Generated dust will migrate towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.	Air Quality	Without mitigation					Dust suppression must be conducted during the decommissioning phase of the area whenever excessive dust is generated. Correct speed will be maintained at the proposed area rehabilitation sites. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
Noise will be generated during the removal of equipment and rehabilitation of the sites. This noise is not expected to exceed occupational noise limits and will be short lived.	Noise	Without mitigation					Where necessary, provide employees with ear plugs and employees must be instructed to use the ear plugs. Ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

6.4. SUMMARY OF SPECIALIST REPORTS

For this basic assessment draft report, only the desktop study was conducted hence no specialist reports are summarized.

6.5. ENVIRONMENTAL IMPACT STATEMENT

National Treasure Minerals (Pty) Limited has applied for a prospecting right over the Roodepoort prospecting area. The prospecting operation will involve the systematic removal of coal. The prospecting operation will involve the exploration for the above-mentioned minerals within the prospecting right area. Diamond core drilling will be used or the exploration and a campsite will be established on site. Each drilling site will have an access route in the form of a track and a sump for the collection of waste water generated during the drilling operation.

6.5.1. Description of affected environment

The proposed project is situated within the Chief Albert Luthuli Local Municipality situated in an area characterised by elevated undulating plateau with rivers such as Boesmanspruit and Swartspruit. A variety of soil types were identified within the project area, which include recharge, interflow and responsive soils. The land uses over the project area correspond to the soils found in the area and include mainly agriculture and grazing.

6.5.2. Summary of key findings of the environmental impact assessment

During the proposed prospecting operation impacts may occur on soils, natural vegetation, surface water, groundwater, sensitive landscapes, air quality, noise, visual aspects, and sites of archaeological and cultural importance should the prospecting method statement not be adhered to. Alternatives considered for the location campsite and drilling sites has shown that the selected locations would be the most favourable. National Treasure Minerals (Pty) Limited will undertake measures to ensure that the identified impacts are minimised. Assessment of the impacts with the proposed mitigation measures has shown the significance of the impacts on all affected environmental aspects to be reduced to low and negligible significance.

Land use will not change. Several landowners and land occupiers within the proposed area may be affected although on a temporary basis due to the need to access the sites and establishment and use of the campsite. Measures such as safety along the roads and dust suppression will be undertaken to ensure that the impacts on the land owners and land occupiers are minimised.

Assessment of the vegetation within the footprint (proposed boreholes) of the development area has shown limited presence of natural vegetation.

Storm water runoff from the dirty water areas of the drilling sites, its associated surface infrastructure (campsite) may have a detrimental impact on the surrounding water environment should this water be released to the environment. In order to prevent the occurrence of the above-mentioned impacts, dirty water collection sump will be used to collect all dirty water from the drilling site. The water collected from the sump will re-used, evaporated and the sump will be rehabilitated once the drilling is finished. Sediments will be created from the site during the construction, operational and decommissioning phase, which may impact negatively on the surrounding water environment, will be treated should they contain hydrocarbon waste.

All workers will be housed in the campsite to be established on site. The employees will be given stick instruction not to undertaken activities that will affect the environment and that may have an impact on the landowner. Waste generated from the site will be collected in proper receptacle and disposed of in registered waste disposal sites.

6.5.3. Final Master Layout Plan

The final maps showing the layouts of the proposed area will be submitted to the DMRE on granting of the prospecting right. The map will be developed to superimpose the proposed prospecting area together and associated infrastructure with the environmental sensitivities within the proposed area site; however, a proposed draft layout plan is attached as **Appendix D** where boreholes are placed on disturbed areas such as gravel roads and tracks on site.

6.6. Aspects for Inclusion as conditions of the Environmental Authorisation

In authorising the proposed Roodepoort prospecting project; the following conditions should form part of the environmental authorisation:

- National Treasure Minerals (Pty) Limited may not alter the location of any of the project activities included in this environmental impact assessment without obtaining the required environmental authorisation to do so under NEMA.
- National Treasure Minerals (Pty) Limited will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation.
- The EMPr must be implemented fully at all stages of the proposed project
- National Treasure Minerals (Pty) Limited must limit night-time operations. This would be relevant for all work taking place at night within 150 m from the closest receptors in this community. If night work is conducted, such must be conducted in agreement with the land owners and affected parties (lawful land occupier and labours).

6.7. Description of Assumptions, Uncertainties and Gaps in Knowledge

The EIA Regulations, 2014 outline specific requirements that a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures must be provided in the BAR.

The assessments undertaken are based on conservative methodologies and these methods attempts to determine potential negative impacts that could occur on the affected environmental aspects. These impacts may however be of smaller magnitude than predicted, while benefits could be of a larger extent than predicted.

This section outlines various limitations to the specialist studies that have been undertaken and indicates, where appropriate, the adequacy of predictive methods used for the assessment. This has been done to provide the authorities and interested and affected parties with an understanding of how much confidence can be placed in this impact assessment.

The impact assessment has investigated the potential impact on key environmental media relating to the specific environmental setting for the site. A number of desktop assessment were undertaken and result thereof and are presented in this report.

The information provided in this BAR and EMPr is; therefore, considered sufficient for decision-making purposes.

6.8. REASONED OPINION AS TO WHETHER THE PROPOSED PROJECT SHOULD OR SHOULD NOT CONTINUE

6.8.1. Reason why the activity should be authorised or not

According to the impact assessment undertaken for the proposed area, the key impacts of the area are on soils, natural vegetation and land owners/occupiers.

The area will also have positive impacts due to the employment to be created although for a short term.

The public will also be requested for their comments. All comments to be received during Public Participation Process will be included in the final BAR and EMPr. These comments will be addressed as far as possible to the satisfaction of the interested and affected parties.

The management of the impacts identified in the impact assessment for all phases of the proposed area will be undertaken through a range of programmes and plans contained in the EMPr. In consideration of the programmes and plans contained within the EMPr, layouts and method statements compiled for the area, which is assumed will be effectively implemented, there will be significant reduction in the significance of potential impacts.

Based on the above, it is; therefore, the opinion of the EAP that the activity should be authorised.

6.8.2. Conditions that must be included in the authorisation

In authorising the proposed Roodepoort prospecting project; the following conditions should form part of the environmental authorisation:

- National Treasure Minerals (Pty) Limited may not alter the location of any of the project activities included in this environmental impact assessment without obtaining the required environmental authorisation to do so under NEMA.
- National Treasure Minerals (Pty) Limited will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation.
- The EMPr must be implemented fully at all stages of the proposed project
- National Treasure Minerals (Pty) Limited must limit night-time operations. This would be relevant for all work taking place at night within 150 m from the closest receptors in this community. If night work is conducted, such must be conducted in agreement with the land owners and affected parties (lawful land occupier and labours).

6.9. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION

Based on the prospecting method statement, the environmental authorisation should be given for five years.

6.10. UNDERTAKING

The signed undertaking will be presented to the DMRE on execution of the Roodepoort prospecting project.

6.11. FINANCIAL PROVISION

According to Appendix 3 of the EIA Regulations, 2014, where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts must be provided in the BAR and EMPr. In order to avoid duplication, the financial provision for the proposed area has only been provided under the relevant section of the EMPr.

6.12. OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Aside from the BAR and EMPr no other information has been requested by the competent authority.

6.13. OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT

Any matter required in terms of the above section of the Act will be complied together with National Treasure Minerals (Pty) Limited.

PART B

Environmental Management Programme

1. DETAILS OF THE EAP

EAP: Mr. Ornassis Tshepo Shakwane

Professional registration:

SACNASP: 117080

EAPASA: 2019/1763

IAIA Membership No.: 3847

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1.1. EXPERTISE OF THE EAP WHO PREPARED THE BAR AND EMPR

Geovicon Environmental (Pty) Limited is a geological and environmental consulting company. The company was formed during 1996, and currently has more than 20 years' experience in the geological and environmental consulting field. Geovicon Environmental (Pty) Limited has successfully completed consulting areas in the Mining sector (coal, coal, gold, base metal and diamond), Quarrying sector (sand, aggregate and dimension stone), Industrial sector and housing sector. Geovicon Environmental (Pty) Limited has undertaken contracts within all the provinces of South Africa, Swaziland, Botswana and Zambia. During 2001 Geovicon Environmental (Pty) Limited entered the field of mine environmental management and water monitoring.

Geovicon Environmental (Pty) Limited is a Black Economically Empowered Company with the BEE component owning 60% of the company. Geovicon Environmental (Pty) Limited has three directors i.e., O.T Shakwane, J.M. Bate and T.G Tefu.

Mr. O.T Shakwane obtained his BSc (Microbiology and Biochemistry) from the University of Durban Westville in 1994, and completed his honours degree in Microbiology in 1995. Mr O.T Shakwane has also completed short courses on environmental law and environmental impact assessment with the University of Mpumalanga's Centre for Environmental Management. He has worked with the three state departments tasked with mining and environmental management i.e. Department of Water and Sanitation (Gauteng and Mpumalanga Region), Department of Mineral Resources and Energy (Mpumalanga Region) and Department of Agriculture, Conservation and Environment (Gauteng Region). Mr. Shakwane has been in the consulting field since 2004 and has completed various areas similar to the proposed Roodepoort prospecting project as an environmental assessment practitioner. Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Roodepoort prospecting project.

Over the past years Geovicon Environmental (Pty) Limited has formalised working relationships with companies that offer expertise in the following fields i.e., Geohydrology, Civil and Geotechnical Engineering, Geotechnical Consultancy, Survey and Mine Planning and Soil & Land Use Consultancy. Geovicon

Environmental (Pty) Limited is an independent consulting company, which has no interest in the outcome of the decision regarding the Roodepoort prospecting project basic assessment process.

The curriculum vitae of the EAP is attached as **Appendix E.**

2. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

2.1. DATA GATHERING

Relevant information regarding the potential of the identified Prospecting Right area will be sourced from institutions like the Council for Geoscience. This information will be analysed and interpreted through computer modelling of existing data.

The interpretation of the said data will result in compiling a literature review report. The said report will give indication as to what processes (in order of priority) to follow to complete the prospecting activities.

2.2. FIELD MAPPING

The field mapping will include field surveying (to determine sensitive areas), geophysical or geomagnetic surveys and pegging of the drilling sites.

2.3. DETAILED SITE SURVEY AND INVESTIGATION

Demarcation of sensitive and protected areas will be conducted by a physical survey of the proposed area by a suitability qualified person. This should be done before establishment of access to the site, caravan structure and drilling of exploration boreholes.

2.4. GEOPHYSICAL SURVEYS AND DATA INTERPRETATION

Geophysical surveys will be used over the proposed prospecting site.

2.5. PEGGING OF DRILL SITES

All exploration borehole sites will be staked by a suitably qualified person. The sites will thereafter be plotted on a plan drawn to an appropriate scale.

2.6. ESTABLISHMENT OF ACCESS

There is a good network of both tarred and gravel roads connecting the prospecting area with surrounding towns. Existing roads to be used for the proposed area include the R33, R36, a secondary road and a number of private farm roads. Where necessity, arise for access to the drilling sites, tracks will be established as access to the drilling site. These, tracks will be established to be more than a hundred meters away from any sensitive landscapes. The tracks will also be sited away from protected areas. Vegetation clearance will be avoided during the establishment of the access roads

2.7. ESTABLISHMENT OF CARAVAN SITE

Caravans, ablution facilities (chemical toilets) and waste storage facilities will be provided for employees. Clearing of vegetation will be avoided during the establishment of the caravan site.

2.8. DIAMOND DRILLING FOR BOREHOLES AND SUMP CONSTRUCTION

Geological boreholes will be drilled on a predetermined grid. During drilling of each borehole, a sump of approximately 1.0 x 1.0 x 1.0 m will be excavated for collecting of excess muds (water) from the drilling operation and for recycling of the water used for the operation of the drilling machine.

2.9. TOPSOIL STORAGE SITE

The top and sub soils removed from the sump and drilling boreholes will be stockpiled in close proximity to the sump. The sumps will be backfilled manually by spade, once drilling and sampling of boreholes is completed.

2.10. LOGGING AND SAMPLING OF THE CORE

This involves the physical description of the rocks intersected by the drilling process. The interpretation of these rock descriptions will assist in establishing the general stratigraphy of the area. Sampling will be taken at the desired horizons and sent to the laboratory for analyses.

2.11. SITE REHABILITATION

Concurrent rehabilitation (Plugging and reseeding) of disturbed areas will be undertaken as drilling continues.

2.12. FINAL REHABILITATION

Except for farm roads, no tracks and infrastructure related to the prospecting operation will remain in place after the decommissioning phase. Where tracks have resulted in more damage, such tracks will be ripped and allowed to return to the natural state, and seeding is not done as experience has shown that the natural process returns the site to its former state within a seasonal cycle. The sumps will be rehabilitated in such a manner to return the area to as close as possible to its pre-drilling environment.

Post closure, the Prospecting Right area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. This will be unaffected by the prospecting activities. No prospecting related infrastructure will remain on the prospecting site. The area will conform to the pre-prospecting topography. The areas affected by prospecting will be stable and erosion free.

2.13. AFTER CLOSURE PHASE

The rehabilitated area will be monitored on a quarterly basis to ensure that the site returns to an acceptable state, in the event that is not happening naturally, the area will be seeded. After the decommissioning of the site and if it can be determined that the site is stable, an Environmental Authorisation for the decommissioning of the site and a closure certificate will be applied for in terms of the relevant laws.

Please note that the borehole layout can only be determined once the Prospecting Right is granted; thereafter it will be sent to the Department of Mineral Resources and Energy (DMRE), however a proposed draft layout plan is attached as **Appendix D** where boreholes are placed on disturbed areas such as gravel roads and tracks on site.

3. COMPOSITE MAP

The map superimposing the proposed project, its associated structures and infrastructure on the environmental sensitivities of the preferred site will be provided on approval of the EMPr. Note that all areas that must be avoided due to their environmental sensitivity will be indicated in the Layout Plan.

4. DESCRIPTION OF THE MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT

STATEMENTS

4.1. GENERAL CLOSURE PRINCIPLES AND OBJECTIVES

The following are the closure objectives, general principles and objectives guiding closure of the Roodepoort prospecting area closure planning:

- Rehabilitation of areas disturbed as a consequence of prospecting to a land capability that will support and sustain a predetermined post-closure land use;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
- Establishment and implementation of measures that meet specific closure related performance objectives;
- Monitoring and maintenance of rehabilitated areas forming part of site closure to ensure the long-term effectiveness and sustainability of measures implemented.

4.2. MANAGEMENT OF ENVIRONMENTAL DAMAGE, ENVIRONMENTAL POLLUTION AND ECOLOGICAL DEGRADATION CAUSED BY THE ROODEPOORT PROSPECTING AREA ACTIVITIES

The following actions will be undertaken by National Treasure Minerals (Pty) Limited to ensure that the closure objectives are attained.

4.2.1. Infrastructure Areas

- All infrastructure and equipment used during the prospecting operation will be removed from the site.
- All haul roads that were used for access during prospecting will be allowed to re-establish to its pre-prospecting condition. Should unsatisfactory results be noted, the area will be physically rehabilitated.
- All rehabilitated areas will be maintained for a period of 2 years, where after the frequency will be reassessed. Where necessary, vegetation cover will be maintained by annual application of fertiliser.
- Maintenance with respect to erosion will be conducted on a minimum three-monthly basis if and where required.

4.2.1.1. Buildings (Offices, Workshops and Stores)

Mobile structures will be used and such structures will be removed from the sites during decommissioning of the site.

4.3. POTENTIAL RISK OF ACID MINE DRAINAGE

No potential risk of acid mine drainage.

4.4. STEPS TAKEN TO INVESTIGATE, ASSESS AND EVALUATE THE IMPACTS OF THE ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for steps to be taken to investigate, assess and evaluate the impacts of acid mine drainage.

4.5. ENGINEERING AND DESIGNS SOLUTIONS TO BE IMPLEMENTED TO AVOID OR REMEDY ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for measures to remedy residual or cumulative impacts from acid mine drainage.

4.6. MEASURES TO REMEDY RESIDUAL OR CUMULATIVE IMPACTS FROM ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for measures to remedy residual or cumulative impacts from acid mine drainage.

4.7. VOLUMES AND RATES OF WATER USE REQUIRED FOR THE PROPOSED PROJECT

Since there is no risk of acid mine drainage, this section will not applicable.

4.8 WATER USE LICENCE APPLICATION

No water use activities will be undertaken during the proposed prospecting operation; hence, no water use licence will be applied for.

5. ENVIRONMENTAL MANAGEMENT PROGRAMME

Table 16: Environmental Management Programme for the proposed Roodepoort prospecting project.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
CONSTRUCTION PHASE								
Establishment of access, to prospecting sites, establishment of the campsite, physical surveying of the site and pegging of drilling boreholes								
		To ensure that the activities in the development of the prospecting sites and associated infrastructure do not have detrimental impacts on the soils, land use and land capability.	Ensure that the establishment of the prospecting sites is undertaken in accordance with the approved EMPR.	Establishment of the site will be undertaken according to the prospecting method statement.	Appointed contractor and site manager.	Visual monitoring through inspections.	Environmental Control Officer (ECO) during construction.	During construction phase.
			Buffer zones will be instituted around farm dwellers immediately and adjacent to the prospecting areas. No prospecting activities will be undertaken within the instituted buffer zones.	No soil stripping will be allowed during site establishment.	Appointed contractor.	Visual monitoring and inspections	ECO monthly.	During construction phase.
				Should it be necessary to conduct geophysical surveys and geological mapping, ensure minimal disturbance of soil.	Appointed contractor.			
				Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery.	Appointed contractor and the applicant site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
Loss of soils, erosion of the soils and impacts on land owner's livelihood.	Soils, Land Use and Land Capability.			Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.	Appointed contractor.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
				Use sites that are unused and that are in the degraded state for the proposed development. This must be done in agreement with the land owner. The sitting of the boreholes must be conducted such that ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, sites of geological importance and farmlands actively used for crop farming are avoided.	Appointed contractor.	Visual monitoring and inspections	ECO monthly.	During construction phase.
				No-go zones will be instituted around farm dwellers, existing infrastructure and any operation immediately and adjacent to the prospecting areas. No prospecting activities will be undertaken within the instituted no-go zones.	Appointed contractor	Undertake regular inspections.	ECO monthly.	During construction phase.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
Loss of natural vegetation in the affected areas.	Natural vegetation	To ensure that the establishment of the prospecting site and associated infrastructure/equipment do not have detrimental impact on the area's flora.	The management of the impact will comply with the company's biodiversity management plan. Ensure that protected species should they be identified are not destroyed.	Use sites with most disturbed vegetation cover for the development. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no protected and/or critical natural vegetation. If any protected and/or critical natural vegetation occurs, the location of the proposed boreholes must be changed. Pictures of possible plant species of conservation concern that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance. No strip of topsoil and vegetation will be allowed during site establishment. Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping. Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery. No trees or shrubs will be felled or damaged for the purpose of obtaining firewood. The outbreak of any uncontrolled fire shall be reported to the site manager immediately and the necessary steps shall be taken to control and extinguish the fire. Smoking shall be prohibited in the vicinity of flammable substances.	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager.	Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections.	ECO monthly. ECO monthly. ECO monthly. ECO monthly ECO monthly	During construction phase. During construction phase. During construction phase. During construction phase. During construction phase
Migration of animal life due to disturbance caused proposed area	Animal Life	Ensure that the animal life within in the area is not affected by the proposed area	Maintenance of the current status on animal life within the area	Establishment of the site will be undertaken according to the prospecting method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils	Appointed contractor and site manager. Appointed contractor and site manager.	Visual monitoring and inspections. Visual monitoring and inspections.	ECO monthly. ECO monthly.	During construction phase. During construction phase.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				must be rehabilitated immediately on discovery.				
				Use sites with most degraded environment for the site development.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
				Poaching will be prohibited at the prospecting site. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
Deterioration of water quality in in the nearby steams and within the groundwater regime.	Surface and Ground Water.	Ensure that the establishment of the area and its associated infrastructure does not have detrimental impact on nearby stream and the groundwater regime.	The quality of streams and groundwater within the site will comply with the target DWS target water quality objectives. Construction will be in compliance with the regulations under the GN704.	Site establishment will not be undertaken within sensitive landscapes. These areas will be avoided. A distance of 100 meters will be created between the sites and the sensitive landscapes. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During construction phase.
				Avoid stripping of areas within the construction sites.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During construction phase
				Rehabilitate areas that may have been mistakenly stripped.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During construction phase
				Storm water upslope of the campsite and drill sites should be diverted around these areas.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During construction phase
				Proper waste management facilities will be put in place at the campsite and drilling site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During construction phase.
Wetland destruction and loss of habitat.	Sensitive Landscapes.	Ensure that the construction activities do not have detrimental impacts on the sensitive landscapes.	Maintain the current state of the sensitive landscapes within the area (farm dams and seepage zone).	Construction activities will be limited to be more than hundred meters from the edge of the dams and seepage zone. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands Should prospecting activities be planned within sensitive areas, relevant environmental investigations will be	Appointed contractor and site manager.	Inspection to ensure compliance with the action plan will be conducted at the construction site.	ECO will conduct the inspections monthly.	Whenever construction is undertaken near the sensitive landscapes.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				conducted in order to define already disturbed areas, for drilling activities.				
Air pollution through air pollutants' emissions, from the construction site.	Air quality.	Ensure that all operations during the construction phase do not result in detrimental air quality impacts.	The construction will be undertaken such that the ambient air quality does not exceed the National Air Quality Standards.	Wet suppression using will be conducted at areas with excessive dust emissions. Traffic will be restricted to demarcated areas and traffic volumes and speeds within the construction site will be controlled.	Appointed contractor and site manager. Appointed contractor and site manager.	Visual inspections of areas with possible dust emissions. Regular inspections.	ECO monthly. ECO monthly.	Throughout the construction phase. Throughout the construction phase.
Increased noise levels.	Noise aspects.	Ensure that the noise levels emanating from the construction sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the construction sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures. This will reduce the impact of noise to the surrounding community Ensure that the employees are issued with earplugs and that they are instructed to use them. Educate employees on the dangers of hearing loss due to mine machinery noise.	Appointed contractor and site manager. Site manager. Site manager.	Undertake site checks on speeds used. Speed checking will be conducted. Use of earplugs will be checked and reported.	Site manager. Site manager checking as regularly as possible. Site manager will check the use of the earplugs as regularly as possible.	Throughout the construction phase. Throughout the duration of the construction phase Throughout the duration of the construction phase.
Visual impacts on the surrounding communities and road users from the construction.	Visual aspects.	Ensure that all operations during the construction phase do not result in detrimental visual impacts on surrounding properties, communities and road users.	Measures will be undertaken by the mine to ensure that the visual aspects from the site are complying with the relevant visual standards and objectives.	The land owner will be informed on the type of machinery and equipment to be used at the prospecting sites. Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Applicant and site manager. Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications. Night time inspection of the site will be undertaken.	Mine Engineer on a monthly basis. The site manager once	Throughout the construction phase. During construction phase.
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the construction activities do not have detrimental impacts on the heritage sites.	The construction will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act	The establishment of the sites will be away from any identified grave site or heritage sites. A buffer of hundred meters will be created between the sites	Appointed contractor and site manager.	The site will be monitored for any damages on a regular basis.	ECO monthly	Throughout the construction phase when activities are in close proximity to the heritage sites.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
			25 of 1999) and recommendations from the specialist.	and the proposed camp and drilling sites.				
Impact from the influx of job seekers and employment of farm labourers.	Socio-economic aspects.	Ensure that measures are taken to discourage influx of job seekers and employment of farm labourers.	Measures taken will be in line with the company's recruitment policies.	Recruitment will not be undertaken on site.	Appointed contractor and site manager.	Visual monitoring.	Site manager	Throughout the pre-construction and construction phase.
OPERATIONAL PHASE								
Diamond Core drilling of the exploration boreholes, use of campsite and rehabilitation of the drilling sites								
Soil profile disruption, contamination of soils, destruction of natural vegetation and loss of land use.	Soils, Natural Vegetation, Land Use and Land Capability.	Ensure that the operation of the drilling sites and use of campsite and rehabilitation of drilling site do not have detrimental impacts on the soils, natural vegetation and current land use.	The land use and capability of the sites where the operations will be undertaken will continue after the proposed area.	Ensure that the drilling of the exploration boreholes is done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material. Before the drilling activities can commence in areas where vegetation will be affected, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no protected and/or critical natural vegetation. If any protected and/or critical natural vegetation occurs, the location of the proposed boreholes must be changed.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During the operational phase of the area.
				Pictures of possible plant species of conservation concern that may be present in the prospecting right area will be made available to the drilling crew for easy identification and avoidance.	Appointed contractor.	Regular inspections	ECO monthly.	During the operational phase of the area.
				All boreholes and sumps will be rehabilitated to pre-drilling conditions.	Appointed contractor.	Regular inspections.	ECO monthly.	During the operational phase of the area.
				Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility.	Appointed contractor.	Inspection of the site will be conducted.	ECO monthly.	During the operational phase of the area.
				All waste generated from the drilling sires and the campsite will be collected				

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				in proper receptacles and removed top registered disposal facilities e.g., sewage treatment plant, sold waste disposal site or hydrocarbon recycling or treatment facilities. No trees or shrubs will be felled or damaged for the purpose of obtaining firewood. The outbreak of any uncontrolled fire shall be reported to the site manager immediately and the necessary steps shall be taken to control and extinguish the fire. Smoking shall be prohibited in the vicinity of flammable substances. Use sites that are unused and that are in the degraded state for the proposed development. This must be done in agreement with the land owner. The sitting of the boreholes must be conducted such that rocky ridges, sensitive grass lands, indigenous trees and shrubs and sites of geological importance are avoided. No-go zones will be instituted around farm dwellers, existing infrastructure and any operation immediately and adjacent to the prospecting areas. No prospecting activities will be undertaken within the instituted no-go zones.	Appointed contractor. Appointed contractor.	Inspection of the site will be conducted. Inspection of the site will be conducted.	ECO monthly. ECO monthly.	During the operational phase of the area. During the operational phase of the area.
Migration of animal life due to disturbance caused proposed area	Animal Life	Ensure that the animal life within in the area is not affected by the proposed area	Maintenance of the current status on animal life within the area	Sites will be operated according to the prospecting method statement. As much as possible sites with degraded environment will be used or the drilling purposes. Poaching will be prohibited at the prospecting site. Before the drilling activities can commence, a biodiversity specialist must do a site inspection on the proposed marked drilling sites (proposed boreholes) to assess if there are no animal burrows and habitats. If any burrows or habitat exist, the location of the proposed boreholes must be changed	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager.	Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections.	ECO monthly. ECO monthly. ECO monthly.	During operational phase. During operational phase. During operational phase.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
The drilling operation and use of campsite may result in the generation of surface water runoff contaminated with silt (sedimentation) and possibly hydrocarbon fluids should spillages occur.	Surface and Ground Water.	Ensure that the drilling operation does not have detrimental impacts on the surface and ground water environment.	Clean surface and ground water environment/regime will not be affected.	No prospecting operations will be undertaken within 100 metres from the nearby steams and 100 meters from the nearby wetland areas. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During operational phase.
				The sumps will be excavated for the collection mud and excess water from the drilling sites. The sump will be sized such that it will be able to contain the water and mud that will be generated during the prospecting operation.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During operational phase.
				Storm water generated around the drilling site will be diverted away to the clean water environment. No concrete mixing and vehicle maintenance will be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During operational phase.
		Ensure that drilling operation does not have a detrimental impact on the number of aquifers underlain by the site.	Aquifers will not be affected.	Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated.	Appointed contractor and site manager.	Regular meetings with landowners.	Site manager.	During operational phase.
				Ensure minimum distance as per legislation is kept from the waste disposal site. Ensure that an experienced geologist must oversee the drilling process.	Appointed contractor and site manager	Visual monitoring and inspections.	ECO monthly.	During operational phase.
Generation of dust and fuel fumes by vehicular movement.	Air quality.	Ensure that the air quality in the vicinity of the prospecting sites and sites' access routes are not detrimentally altered.	The air quality in the vicinity of the drilling sites and sites' access routes will be maintained to stay within the national air quality standards.	Dust suppression must be conducted during the operational phase of the area.	Appointed contractor and site manager.	Visual inspections of areas with possible dust emissions.	ECO monthly.	Throughout the operational phase.
				Correct speed will be maintained at the proposed area site.	Appointed contractor and site manager.	Regular speed checks.	Site manager monthly.	Throughout the operational phase.
					Appointed contractor and site manager.	Regular inspections.	ECO monthly.	During operational phase.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.				
Wetland destruction and loss of habitat.	Sensitive Landscapes.	Ensure that the drilling operation does not have detrimental impacts on the farms dams and identified seepage zone.	Maintain the current state of the wetlands within the area.	Operation of the drilling site will be limited to be more than hundred meters from the edge of the sensitive landscapes. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands Drilling activities will, as far as possible, not be undertaken within the sensitive areas. Should prospecting activities be planned within sensitive areas, relevant environmental investigations will be conducted in order to define already disturbed areas, for drilling activities.	Appointed contractor. Appointed contractor.	Inspection to ensure compliance with the action plan. Inspection to ensure compliance with the action plan	ECO monthly. ECO monthly.	During operational phase. During operational phase.
Increased noise levels.	Noise aspects.	Ensure that the noise levels emanating from the operational sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures. This will ensure that the surrounding community is not affected by noise. Ensure that the employees are issued with earplugs and that they are instructed to use them. Educate employees on the dangers of hearing loss due to mine machinery noise.	Appointed contractor and site manager. Site manager. Appointed contractor.	Site checks regularly. Regular monitoring and site check. Use of earplugs will be checked and reported.	Site manager. Site manager. Site manager.	During operational phase. During operational phase. During operational phase.
Visual impacts on the surrounding communities and road users from the construction.	Visual aspects.	Ensure that the drilling operations do not result in detrimental visual impacts on surrounding properties, communities and road users.	Measures will be undertaken by the mine to ensure that the visual aspects from the site are complying with the relevant visual standards and objectives.	The land owner will be informed on the type of machinery and equipment to be used at the prospecting sites.	Applicant and site manager. Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications.	Mine Engineer on a monthly basis.	During operational phase. During operational phase.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.		Night time inspection of the site will be undertaken.	The site manager once	
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the operational activities does not have detrimental impacts on the heritage sites.	The drilling operations will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and recommendations from the specialist.	The drilling sites will be away from any identified grave site or heritage sites. A hundred-meter buffer will be created between the sites and the proposed camp and drilling sites.	Appointed contractor.	The site will be monitored for any prospecting related damages on a regular basis.	ECO monthly.	Throughout the operational phase.
Safety, intrusion and livelihood impacts on the landowners and occupiers.	Socio-economic aspects.	Ensure that the drilling operation does not significantly disrupt the daily living and movements of the land owners and occupiers.	The mine will ensure that all safety standards are met and that access to landowners and occupiers are not detrimentally affected.	Announce any road closures and other disruptions and maintain roads used for the operation in good order. Keep communication with land owners and land occupiers open during the operational phase of the area. Ensure that negotiations on compensation are undertaken before the drilling programme can commence. This will include any other conditions that the landowner may deem necessary for the prospecting operation. Ensure that safety measures are implemented to prevent impacts on land owners and occupiers.	Appointed contractor and site manager. Applicant and site manager. Site manager.	Liaison with affected parties. Meetings with the landowners. Minutes of any meeting held with landowners and agreements will be recorded and filed. Regular checks and inspections.	Site manager as and when necessary. Site manager as and when meetings are held. Site manager.	Throughout the operational phase. Throughout the operational phase. Throughout the operational phase.
DECOMMISSIONING AND CLOSURE PHASE								
Removal of infrastructure and final rehabilitation of disturbed areas								
Compaction and contamination of soils within the rehabilitation site.	Soils.	Ensure that the soils in the vicinity of the rehabilitation site is not detrimentally impacted.	Rehabilitated areas will be maintained to comply with the closure objectives.	All vehicles and machinery used at the rehabilitation site will be kept in good working order. No repairs of vehicles or machinery will be conducted at the rehabilitation site unless it is emergency repairs, which will be conducted on protected ground.	Appointed contractor. Appointed contractor. Appointed contractor.	Vehicles and machinery will be inspected regularly and any oil incidences will be reported. All incidents of emergency repairs will be inspected and occurrence recorded.	Site manager will conduct the inspections monthly. Site manager.	Throughout the decommissioning and closure phases. Throughout the decommissioning and closure phases.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				Movement of mine vehicles and machinery will be limited to demarcated routes, which will be rehabilitated when no longer in use.		Rehabilitation site will be inspected to monitor areas with compaction or hydrocarbon contamination.	ECO will conduct the inspections monthly.	Throughout the decommissioning and closure phases.
Re-instatement of soil productivity, land capability, land use and topographical patterns.	Soils, Land Capability, Land Use and Topography.	Ensure that the rehabilitation of the sites re-instate the soil productivity, land capability, land use and topographical patterns	Rehabilitated areas will be maintained to comply with the closure objectives.	All infrastructure will be removed from the site in accordance to the rehabilitation plan. Ensure that there is no infestation of alien invasive plant species.	Appointed contractor.	Removal of the infrastructure will be inspected.	Site manager will conduct the inspections.	During decommissioning phase.
Pollution of surface water environment.	Surface Water.	Ensure that the rehabilitation of the site does not have detrimental impacts on the surface water environment.	The surface water leaving the rehabilitation site will comply with the DWS target water quality parameters.	The site area will be rehabilitated to be free draining. Erosion protection measures such as the use of contour berms and repair of gullies will be undertaken until such time that the rehabilitated surfaces can be shown to be sustainable. Existing roads should be used where possible and new disturbed areas should be minimised.	Appointed contractor. Appointed contractor. Rehabilitation officer.	Progress of rehabilitation will be monitored. Areas where grass has not yet been established will be monitored for excessive erosion. Rehabilitation site will be inspected for misuse.	ECO will conduct monitoring of the rehabilitation annually.	Throughout the decommissioning and closure phases.
Air pollution from rehabilitation site.	Air quality.	Ensure that rehabilitation do not have detrimental impacts on air quality.	Decommissioning and rehabilitation of the site will be conducted in such a manner that the ambient air quality does not exceed the air quality standards.	Where necessary, wet suppression will be conducted at areas with excessive dust emissions. Vehicles and machinery will be well maintained. The traffic volumes and speed within the rehabilitation site will be controlled.	Appointed contractor. Site manager and appointed contractor.	Visual inspections of areas with possible dust emissions will be conducted Site inspections will be conducted.	ECO will conduct inspections monthly. Site manager will conduct inspections monthly.	Throughout the decommissioning phase. Throughout the decommissioning phase.
Generated noise from the rehabilitation site.	Noise.	Ensure that the rehabilitation activities do not have detrimental impacts on people.	Ensure that the noise from the rehabilitation activities do not exceed the SANS 10103 Rating Level.	Smaller or less noisy equipment should where possible be used when working near receptors. Equipment will be well maintained and fitted with the correct and appropriate noise abatement measures.	Appointed contractor and site manager. Site manager and appointed contractor.	Regular site check. Regular site check.	Site manager. Site manager.	Throughout the decommissioning phase. Throughout the decommissioning phase.
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the rehabilitation does not have detrimental impacts on heritage sites.	Should heritage sites be identified, rehabilitation in close proximity to the sites will not be damaged or destroyed by the rehabilitation activities.	A hundred-meter buffer will be maintained between any site and the rehabilitation site.	Appointed contractor and the site manager.	The sites will be monitored for any rehabilitation related damages.	ECO will monitor the site monthly.	Throughout the decommissioning phase.

6. FINANCIAL PROVISION

Section 24 P of NEMA requires an applicant applying for an environmental authorisation related to mining to comply with the prescribed financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts before the Minister responsible for mineral resources issues the environmental authorisation. The above-mentioned financial provision may be in the form of an insurance, bank guarantee, trust fund or cash.

Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147) were promulgated on the 20th of November 2015. National Treasure Minerals (Pty) Limited has undertaken the financial provision determination in line with the requirements of section 11 of the Regulations pertaining to the Financial Provision for prospecting, Exploration, Mining or Production Operations (GNR 1147). The financial provision determination for the proposed area is submitted to the Department of Mineral Resources and Energy (DMRE) for their consideration.

6.1 Description of Closure Objectives and Extent to which they have been aligned to the described Baseline Environment

The closure objectives for the proposed project as detailed under section 4.1 of the EMPr, were determined in consideration of physical (infrastructure), biophysical (environmental) and socio-economic measures as well as alignment to the closure components provided by the Department of Mineral Resources and Energy (DMRE). See section 4.1 for the closure objectives.

6.2 Confirmation that the Environmental Objectives in relation to Closure have been Consulted with Landowners and Interested and Affected Parties

The draft BAR and EMPr is made available to the interested and affected parties during the public participation process for the proposed project. Note that the consultation of interested and affected parties included the owners of the properties directly affected by the proposed project and owners of land immediately adjacent the proposed project area.

The above confirms that the land owners and interested and affected parties will be consulted regarding the environmental objectives in relation to the closure of the proposed project.

6.3 Rehabilitation Plan for the Proposed Project

In terms of NEMA EIA Regulations, 2014, a Basic Assessment Report and EMPr must indicate the impact management measures. One of the impact management measures for the proposed prospecting activity is the rehabilitation of the disturbance caused by the prospecting activities. For the purpose of this report the rehabilitation measures for the proposed prospecting project will be provided in the form of a rehabilitation plan, described below.

The rehabilitation plan for the proposed projects describes the physical activities that will be undertaken to implement the closure plan during the course of the prospecting activities. The plan will include the following that are discussed below i.e.:

- Prospecting borehole layout
- Detail rehabilitation standards; and
- Detail the rehabilitation schedule.

6.3.1 Prospecting Borehole Layout

The prospecting layout for the proposed prospecting project will developed to minimise negative impacts on the environment such that after land use is achieved. This layout will be developed to be in line with the closure objectives provided in this report.

The development of the prospecting layout for the proposed prospecting project will take into consideration all identified no-go areas within the prospecting right area.

In view of the above the layout plan has been developed such that the following is achieved i.e.:

- Minimise the disturbed area;
- Avoid impacts on identified sensitive areas; and
- Views of affected communities and interested and affected parties to be considered

6.3.2 Rehabilitation Standards

The following rehabilitation standards have been developed for the proposed prospecting project. These have been developed to ensure that rehabilitation will achieve the following at the project area i.e., preserve the environment, protect against environmental damage and repair any disturbance caused during the prospecting activities.

- Rehabilitation plans will be developed before commencement of the prospecting project
- All legal requirements will be met before commencement of the prospecting project
- All disturbed areas will be rehabilitated to restore affected environment
- Disturbed areas will be maintained for the duration of the prospecting activities such that no secondary impacts results
- All possible source of contaminants will be identified and measures taken to prevent and manage spillages
- Adequate monitoring programme must be developed and implemented
- Ensure communication with affected communities and interested and affected parties

6.3.3 Decommissioning of The Prospecting Operation

6.3.3.1 Contractor Campsite

No permanent structures will be constructed at the campsite, rather mobile structures will be used. Since these are mobile, all structures (tents or caravans, solid waste receptacles, water tanks, chemical toilet, additional storage area etc.) will be removed (mobile). Waste stored on site will be disposed of in an appropriate manner. Any industrial waste from the site will be recycled (sold) or disposed of properly. In view of the above no demolishing and dismantling will be undertaken.

6.3.3.2 Roads

All constructed roads that will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.

Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre prospecting situation.

6.3.3.3 Drilling site

Drilling Sump

The sumps will be backfilled and covered with topsoil.

Borehole

The borehole logs will be removed from site and the borehole plugged and covered with topsoil.

Drill Rig, Drill Rod Stand and Drill Rig stockpile

The rods and stand will be placed in the drill rig that will be driven away from site.

Geologist sampling area

This area will have a tent/gazebo, sampling equipment and waste collection receptacles that will be placed at the LDV and taken away from the site.

6.3.3.4 Post Closure Land Use

Post closure, the prospecting area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. No prospecting related infrastructure will remain on the prospecting site. The land use after prospecting will conform to the pre-prospecting topography. After rehabilitation, the areas affected by prospecting will be stable and erosion free.

6.3.3.5 Rehabilitation Schedule

Table 17 below provides the schedule of actions for rehabilitation, decommissioning and closure of the prospecting project, which will ensure avoidance, minimisation and management of residual or latent impacts from the proposed prospecting activities linked to the prospecting works programme including assumptions and schedule drivers.

A campsite will only be used if the applicant cannot find a suitable accommodation nearby the prospecting area.

Roads will not ideally be constructed however should the existing roads not provide the required access, tracks or road will be used.

Concurrent rehabilitation of disturbed areas will be undertaken as drilling continues. In view of the above, the schedule provides rehabilitation of a campsites and roads.

Table 17: Rehabilitation Schedule

Rehabilitation Actions	**Assumptions and Schedule drivers**
Rehabilitation, Decommissioning and Closure	
Activity/Area: Contractor Campsite	
Areas within the camp sites where vegetation has been removed and where the site has been compacted must be scarified and ripped.	All spills and waste material from the site would have been removed before rehabilitation. Monitoring of the rehabilitated area will be conducted to ensure that the area maintains a sustainable environment.
Before and during the prospecting operation and after rehabilitation photographs of the camp sites will be taken and kept on record.	
Activity/Area: Roads	

Rehabilitation Actions	Assumptions and Schedule drivers
Any foreign material (used to construct roads) will be removed and disposed of in an approved manner prior to rehabilitation.	All spills and waste material from the site would have been removed before rehabilitation. Monitoring of the rehabilitated area will be conducted to ensure that the area maintains a sustainable environment. Except for farm roads, no tracks and infrastructure related to the prospecting operation will remain in place after the decommissioning phase. Ripping shall be at 90° to the inherent slope
Roads and tracks with significant damage will be ripped or ploughed. Where necessary, fertilizer will be applied over the area.	
Should the revegetation show to be slow, soil analyses will be conducted and the seeding be done in accordance top the results of the analyses.	
Activity/Area: Drill Site	
Drill site sumps	
Sumps will either be emptied of the water or allowed water to evaporate.	Rehabilitation of the drilling site will commence immediately after completion of the drilling. The area disturbed is small – approximately 1 m x 1 m x1 m per sump per drill site. All spills and waste material from the site would have been removed before rehabilitation. Monitoring of the rehabilitated area will be conducted to ensure that the area maintains a sustainable environment. The sumps will be rehabilitated in such a manner to return the area to as close as possible to its pre-drilling environment.
The sumps will be backfilled with subsoils and thereafter topsoil removed from the sump.	
Where necessary, fertilizer will be applied over the area.	
The area will be allowed to seed naturally. Should the revegetation show to be slow, soil analyses will be conducted and the seeding be done in accordance top the results of the analyses.	
Drill site boreholes	
All unused borehole logs will be removed from site and disposed of in an appropriate manner.	Rehabilitation of the drilling site will commence immediately after completion of the drilling. All spills and waste material from the site would have been removed before rehabilitation. Monitoring of the rehabilitated area will be conducted to ensure that the area maintains a sustainable environment.
The borehole plug must be placed at least 0.5 m below surface.	
The borehole will then be covered and levelled with topsoil.	
Where necessary, fertilizer will be applied over the area.	
Post Site Closure	

Rehabilitation Actions	Assumptions and Schedule drivers
Activity/Area: Entire Prospecting Right Area (Care, Maintenance and Monitoring)	
Visual inspection of all rehabilitated areas will be conducted (ad hoc inspections will be conducted).	A dedicated manager will be employed for ensuring that the area is inspected and all areas requiring attention will be identified and issues addressed. Post closure, the prospecting area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. The area will conform to the pre-prospecting topography. The areas affected by prospecting will be stable and erosion free.
Follow up erosion control and seeding over areas showing erosion gullies and significantly slow revegetation will be conducted.	

6.4 COMPATIBILITY OF THE REHABILITATION PLAN WITH THE CLOSURE OBJECTIVES

The rehabilitation plan was drafted to be compatible with the closure objectives.

6.5 DETERMINATION OF THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT

The financial pecuniary provision for Roodepoort prospecting area will be determined based on the requirements of Chapter 2.4.1 of the Guideline document for the evaluation of the quantum of closure-related financial provision provided by a Mine, revision 1.6, September 2004, DMRE. The financial provision for the first year was determined and with its associated reports are submitted to the competent authority.

6.6 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION

According to Regulation 8 of the Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147), an applicant or holder of a right or permit must make financial provision by one or a combination of the following:

- financial guarantee from a bank registered in terms of the Banks Act, 1990 (Act No. 94 of 1990) or from a financial institution registered by the Financial Services Board as an insurer or underwriter;
- deposit into an account administered by the Minister responsible for mineral resources; *or*;
- contribution to a trust fund established in terms of applicable legislation.

National Treasure Minerals (Pty) Limited has opted to use a financial guarantee to provide for the determined quantum for financial provision.

Table 18: Financial provision for Roodepoort Prospecting Right

"Rules-based" assessment of the quantum for financial provision							
CALCULATION OF THE QUANTUM							
Mine:	Roodepoort Prospecting Project - National Treasure Mineral (Pty) Lim	**Location:**	Roodepoort Prospecting Project				
Evaluators:	O.T Shakwane of Geovicon Environmental (Pty) Limited	**Date:**	08-Feb-22				
No.:	**Description:**	**Unit:**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A*B*C*D Amount (Rands)**
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
1	Dismantling of processing plant & related structures	m^3	0.00	R 18.36	1.00	1.10	R 0.00
2 (A)	Demolition of steel buildings & Structures	m^2	0.00	R 255.82	1.00	1.10	R 0.00
2 (B)	Demolition of reinforced concrete buildings & structures	m^2	0.00	R 376.99	1.00	1.10	R 0.00
3	Rehabilitation of access roads	m^2	0.00	R 45.78	1.00	1.10	R 0.00
4 (A)	Demolition & rehabilitation of electrified railway lines	m	0.00	R 444.30	1.00	1.10	R 0.00
4 (B)	Demolition & rehabilitation of non electrified railway lines	m	0.00	R 242.34	1.00	1.10	R 0.00
5	Demolition of housing &/or administration facilities	m^2	0.00	R 511.63	1.00	1.10	R 0.00
6	Opencast rehabilitation including final voids & ramps	ha	0.00	R 268 200.17	1.00	1.10	R 0.00
7	Sealing of shafts, adits & inclines	m^3	0.00	R 137.33	1.00	1.10	R 0.00
8 (A)	Rehabilitation of overburden & spoils	ha	0.08	R 178 800.11	1.00	1.10	R 16 127.77
8 (B)	Rehabilitation of processing waste deposits & evaporation ponds (basic)	ha	0.00	R 222 692.31	0.80	1.10	R 0.00
8 (C)	Rehabilitation of processing waste deposits & evaporation ponds (acidic)	ha	0.00	R 646 804.03	0.80	1.10	R 0.00
9	Rehabilitation of subsidised areas	ha	0.00	R 149 733.48	1.00	1.10	R 0.00
10	General surface rehabilitation (Plugging of 10 boreholes)	ha	0.08	R 141 639.86	1.00	1.10	R 12 775.92
11	River diversions	ha	0.00	R 141 639.86	1.00	1.10	R 0.00
12	Fencing	ha	0.00	R 161.56	1.00	1.10	R 0.00
13	Water management	ha	0.00	R 53 855.46	1.00	1.10	R 0.00
14	2 to 3 years of maintenance & aftercare	ha	0.08	R 18 849.42	1.00	1.10	R 1 700.22
15 (A)	Specialist study	SUM	0.00	R 200 000.00	1.00	1.00	R 0.00
15 (B)	Specialist study	SUM	0.00	R 0.00	1.00	1.00	R 0.00
						Sub Total 1	
						(Sum of items 1 to 15 Above)	**R 30 603.90**
	Multiply by Weighting factor 2	1.1		R 3 060.39			R 3 060.39
1	Preliminary and general	Add 12% if subtotal 1 is less than R100,000,000.00					R 3 672.47
2	Contingencies	Add 10% of subtotal 1					R 3 060.39
						Sub Total 2	
						(Subtotal 1 plus sum of management & contingencies)	**R 40 397.15**
						VAT (15%)	R 6 059.57
		(Subtotal 2 plus VAT)			**GRAND TOTAL**		**R 46 456.72**

7. MECHANISM FOR MONITORING COMPLIANCE WITH AND PERFOMAMCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

7.1 INSPECTIONS AND MONITORING

During the impact assessment, potential impacts on the environment were identified. Mitigation measures were also specified for prevention and management of the impact so as to minimise their effect on the environment. This section will describe how the mine intends to ensure that the mitigation measures are being undertaken and that their effectiveness is proven.

A monitoring programme has been developed for the identified impacts and their mitigation measures. This monitoring programme will be undertaken and results thereof used to determine the effectiveness of the mitigation measures. The ECO will have an overall responsibility for ensuring that all monitoring is conducted according to the approved EMPr.

7.2 MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

As part of the general terms and conditions for a prospecting right, and in order to ensure compliance with the environmental management programme and to assess the continued appropriateness and adequacy of the environmental management programme, National Treasure Minerals (Pty) Limited will:

- Conduct monitoring on a continuous basis (see EMPr)
- Conduct performance assessments of the environmental management programme annually
- Compile and submit a performance assessment report to the minister in which compliance with the approved environmental management programme is demonstrated

The performance assessment report will as a minimum contain the following:

- Information regarding the period applicable to the performance assessment
- The scope of the assessment
- The procedure used for the assessment
- The interpreted information gained from monitoring the approved environmental management programme
- The evaluation criteria used during the assessment
- The results of the assessment

Recommendations on how and when non-compliance and deficiencies will be rectified

7.3 PROCEDURE FOR ENVIRONMENTAL RELATED EMERGENCIES AND REMEDIATION

National Treasure Minerals (Pty) Limited has developed procedures for environmental related emergencies for Roodepoort prospecting area which is explained in more detail below. Note that these procedures will be revised by the responsible person. The date of commencement of the revised procedures will always be indicated to prevent confusion

7.3.1 Introduction

An effective, comprehensive, well considered and tested environmental emergency preparedness and response plan has the potential to save lives, prevent unnecessary damage to the company and other property and to manage environmental risk. The aim is to identify potential for and respond to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them. However, the emergency preparedness and response should be reviewed and revised where necessary.

7.3.2 What is an Environmental Emergency?

An environmental emergency is an unplanned event, which has the potential to result in a significant adverse environmental impact and/or could result in legal liability to National Treasure Minerals (Pty) Limited in terms of environmental legislation requirements. The following define most likely potential environmental emergencies:

- Hydrocarbon spills or leaks
- Surface fires, including veld fires
- A chemical spill
- Transportation accidents
- Other environmental emergencies requiring special services

7.3.3 Purpose of the procedure

To provide guidance to all mine employees and contractors in the event of an environmental emergency at Roodepoort prospecting area and related to its activities.

This procedure is developed so as to provide guidance to ensure that:

Danger to the environment, personnel, contractors and the non-employee is minimised.

- Legal liability is managed and minimised.
- Public relations are effectively managed during and following emergencies.
- Reporting is effective and corrective/follow-up actions are implemented.

7.3.4 Who should use these procedures?

This procedure contains information relevant to all employees and contractors of the mine. It is the responsibility of all employees to familiarise themselves with the contents of this procedure. Furthermore, mine management should ensure that all contractors have access to this procedure and the requirements contained herein (See Table 19).

7.3.5 Responsibilities

Table 19: Responsibilities

Mine Management	National Treasure Minerals (Pty) Limited is responsible for the safety and well-being of employees working at Roodepoort prospecting area as well as the protection of the environment from unnecessary negative impacts. The management of the prospecting area has a responsibility to initiate a warning process should an emergency occur or should something at the prospecting area deteriorate in an uncontrolled manner presenting a risk to employees, the public or the environment.

Local Government(s)	Local governments have the responsibility to warn residents of a hazardous situation, these warnings must be based on information provided by the prospecting area.
All employees, contractors and other relevant parties	All employees, contractors and other relevant parties should ensure that they are familiar with this procedure.

7.3.6 Notification process

There are six main steps in managing an emergency, from the identification of the situation to final close off. They are as follows:

- Find and identify
- Ensure human safety
- Reporting
- Containment and clean-up
- Corrective action
- Monitoring

7.3.7 Emergency equipment and supplies

There is a directory of emergency equipment and other supplies on site as well as person/s responsible for the equipment.

7.3.8 Communication systems

Communication is critical during an emergency on site so that efforts to manage the situation are coordinated to produce the desired results. The communication channels that are available on site include:

- Internal phone line system
- Hand held radios
- Cellular phones

7.3.9 Training

The mine management ensures that employees are trained regarding potential emergencies that may occur at Roodepoort prospecting area

7.3.10 Review of procedure

To ensure that the procedure is adequate, management will review the procedure at any time deemed necessary and change the emergency procedures at Roodepoort prospecting area.

7.3.11 Emergency Response flowchart for National Treasure Minerals (Pty) Limited

The emergency response at Roodepoort prospecting area is undertaken, as shown in Figure 19

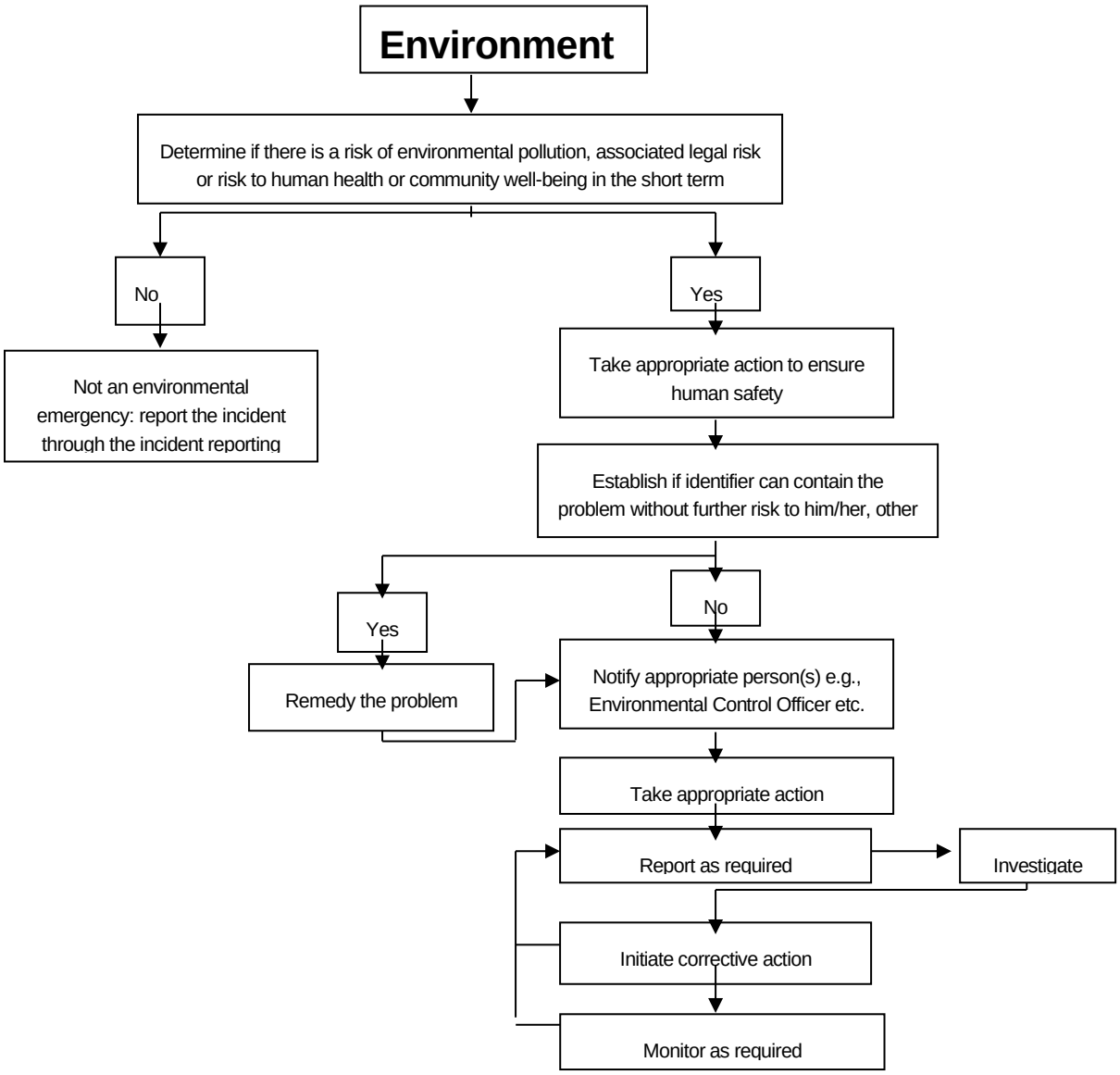


Figure 19: Emergency response

7.4 ENVIRONMENTAL AWARENESS PLAN

In terms of section 39(3)(c) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), Roodepoort prospecting area must compile and implement an environmental awareness plan. The above-mentioned environmental awareness plan must describe the manner in which the site manager (in this case Roodepoort prospecting area) will inform their employees of any environmental risk which may result from their work and the manner in which the environmental risks will be addressed to avoid pollution or/and degradation of the environment. This document, therefore concerns the details of the environmental awareness plan for Roodepoort prospecting area as required by the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

7.4.1 Objectives and Legal Requirements

The following are the objectives of the environmental awareness plan

- To identify the necessary training needs for different categories of employees in the mine

- To train all employees on environmental issues on the mine

The following legislation apply to this environmental awareness plan

- Employment Equity Act, 1998 (Act 55 of 1998)
- National Environmental Management Act, 198 (Act 77 of 1998)
- Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

7.4.2 Manner of informing employees of risks to avoid pollution and degradation of the environment

The identification of environmental training and environmental awareness needs are derived from an analysis of the type of role different categories of employees play at Roodepoort prospecting area. The following categories are considered, *viz*:

- Senior Management
- Middle management (Environmental Officers)
- Supervisors
- Operators
- Visitors and contractors

Each of these categories have different responsibilities and therefore have different knowledge requirements and environmental awareness training needs, to obtain that knowledge.
The different categories and environmental awareness and training needs are summarised below in Table 20:

Table 20: Environmental Awareness Matrix.

Occupation Category	EMP Responsibility	Required knowledge and output	Training required	Interval
Senior management	Managing	Understand the EMP objectives	Induction and post-leave awareness/training	Annually
		Knowledge of the prospecting area's significant impacts and risks.	EMP Workshops	Once off
		Review the EMP actions	EMP objectives and actions /Management reviews	Annually
		Knowledge of EMP Procedures (awareness and emergency)	Specific training program on EMP	Once off, refresh annually
Middle and Junior management	Implementing and daily management	Knowledge of prospecting area's significant environmental impacts	EMP Review workshops	Annually
		Setting of EMP objectives for environmental improvement	EMP Review workshops	Annually
		Knowledge of EMP procedures (awareness and emergencies)	Specific training programmes on EMP	Once off, refresh annually
	Adhering to procedures to control impacts	Understand EMP objectives	Induction and post-leave training	Annually
		Knowledge of significant impacts	Induction and post-leave training	Annually
		Knowledge of procedures (awareness and emergency)	EMP Review workshop	Annually
Plant and machine operators, assemblers and elementary occupations	Executing assigned EMP actions Controlling work activities to prevent impacts.	General awareness of EMP impacts and objectives.	Induction and post-leave training	Continuously
		Understand environmental requirements relating to work	Induction and post-leave training	Annually

Occupation Category	EMP Responsibility	Required knowledge and output	Training required	Interval
		activities and consequences of not following requirements		
		Knowledge of procedures	Training and information sharing	Continuously
Visitors and contractor	Managing and controlling daily actions to prevent or control impacts	Basic awareness of EMP	Induction or specific modules/ awareness programme	Once off, annual review if applicable
		Environmental requirements of work activities	Induction or specific awareness programme	Once off, annual review if applicable
		Knowledge of procedures	Training and information sharing	Continuously
		Understanding environmental consequences of personal actions and performance.	Induction or specific modules/ awareness programme	Once off, annual review if applicable
		Compliance to procedures	Induction or specific awareness programmes.	
Personnel requiring specific training and awareness identified on site by management, Environmental Officer, training department, etc.	Managing and controlling daily actions to prevent impacts	Examples include but are not limited to: Waste management Hazardous chemical handling	Specific training programme on EMP procedures.	As required

7.4.3 Induction for all employees, including contractors

All employees (including contractor employees) undergo induction. Roodepoort prospecting area's induction includes training and awareness on environmental issues on the prospecting area and is compulsory for all new employees. The induction programme as mentioned above, have an environmental management component. On an annual basis the environmental section of the induction gets updated. Consideration is given to the following:

- Significant environmental impacts as identified in the EMP
- Procedures: environmental awareness and emergency procedures
- Trends in incidents
- Trends in audit findings

7.4.4 General environmental awareness training

General awareness training is offered to operators, processors and the other various sections of the mine during the safety toolbox talks. This is conducted on rotational basis. New environmental awareness topics are determined and new topics are introduced after all the shifts have received training/awareness on the current topic. The following is undertaken to ensure that the above awareness training is conducted.

- A monthly environmental awareness topic for discussion is distributed to all mine sections. These topics are discussed at the safety toolbox talks, by SHE (Safety, Health and Environmental) representative and environmental officers if available.
- The topics are displayed on the notice boards of all mine sections.
- Ad hoc environmental awareness sessions to various departments/sections are conducted on request. The presentations focus on the environmental issues relevant to individual tasks.

7.4.5 Provision for job specific environmental awareness training

Job specific training is developed to address urgent training needs as identified /required. The training material focus on the following:

- Waste prevention and control (implementation of the waste management procedure).
- Water management (Leaking pipes and taps)
- Hydrocarbon and chemical spill reporting and clean-up
- Storing and handling of chemicals
- Rehabilitation
- Dust management on the mine

Supervisory staff within specific mine sections are equipped with the necessary knowledge and information to guide their employees on environmental aspects applicable in performing a specific task.

7.4.6 Competency training

Management (training official/environmental officer) is responsible for the environmental awareness training of middle management and supervisors. This training is conducted through workshops. If required, external organisations may be requested to provide training to selected employees (e.g., EMP auditing).

Competence and the effectiveness of training and development initiatives as described in the matrix, are determined through the following:

- Trend analysis and reporting
- Analysis of work areas during visits and audits
- Trend analysis of monthly incidents (or zero tolerance if available) as recorded per mine section.

7.4.7 Review of awareness and training material

The content of all awareness and training material will be updated at least once a year.

7.4.8 Roles and responsibilities

In the case where there is no training department on site, a responsible person should be identified (Mine manager, Environmental Officer or Consultant) to ensure that the objective of this procedure is met.

7.5 UNDERTAKING TO COMPLY

I, ..., the undersigned and duly authorised thereto by **National Treasure Minerals (Pty) Limited** have studied and understand the contents of this document in its entirety and hereby duly undertake to adhere to the conditions as set out therein including the amendment(s) agreed to by the Regional Manager.

Signed at .....……..... this.....day of…….....20.....

..... **.....**

Signature of applicant **Designation**

APPROVAL

Approved in terms of Section 39(4) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

Signed at…….this.....day of…….....20.....

.....……..

REGIONAL MANAGER

REGION:……

Appendix A

Regulation 2 (2) plan

NATIONAL TREASURE (PTY) LTD
REG NO. 2016/265134/07

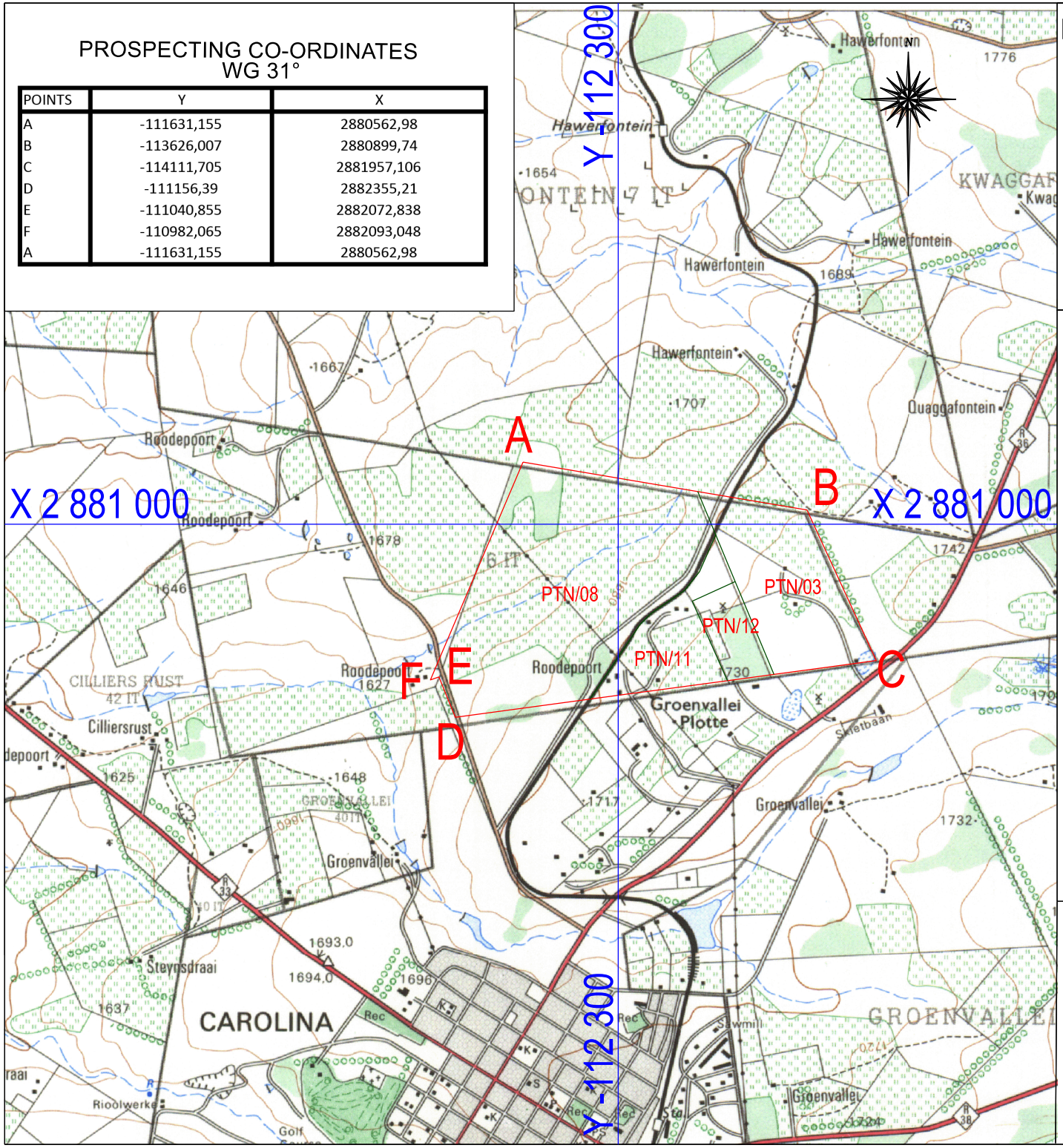
APPLICATION FOR PROSPECTING RIGHTS

Plan compiled in accordance with
Regulation 2(2) of the Mineral & Petroleum
Resources Development Act 2002
(ACT 28 of 2002)

Scale 1 : 1 000

PROSPECTING CO-ORDINATES
WG 31°

POINTS	Y	X
A	-111631,155	2880562,98
B	-113626,007	2880899,74
C	-114111,705	2881957,106
D	-111156,39	2882355,21
E	-111040,855	2882072,838
F	-110982,065	2882093,048
A	-111631,155	2880562,98



LEGEND

PROSPECTING AREA

National Freeway; National Route
Arterial Route
Main Road
Secondary Road; Bench Mark
Other Road; Bridge
Track and Hiking Trail
Railway; Station or Siding
Other Railway; Tunnel
Embankment; Cutting
Power Line
Built-up Area
Buildings; Ruin
Post Office; Police Station; Store
Place of Worship; School; Hotel
Fence; Wall
Windpump;Monument
Communication Tower
Mine Dump; Excavation
Trigonometrical Station; Marine Beacon
Lighthouse and Marine Light
Cemetery; Grave
International Boundary and Beacon
Provincial Boundary
Game, Nature Reserve & State Forest Boundary
Perennial River
Perennial Water
Non-perennial River
Non-perennial Water
Dry Water Course
Dry Pan
Marsh and Vlei
Pipeline (above ground)
Water Tower; Reservoir; Water Point
Coastal Rocks
Prominent Rock Outcrop
Erosion; Sand
Woodland
Cultivated Land
Orchard or Vineyard
Recreation Ground
Row of Trees

The figure lettered A,B,C,D,E,F AND A represent a
Prospecting Rights area in extent
of approximately 373.68 ha, comprising of the farm
ROODEPOORT 6 IT, in the Magisterial district of CAROLINA for
which NATIONAL TREASURE (PTY) LTD REG NO. 2016/265134/07
has applied for a prospecting right in
terms of Section 16 of the
Mineral and Petroleum Resources
Development Act, 2002, (Act 28 of 2002),
but subject to Regulation 17 of the Mine Health and Safety Act, 1996
(Act 29 of1996), excluding any area within 100 meters
of any public road, railway, cemetery, residential area or public area.

SIGNED: .....
REGIONAL MANAGER
MPUMALANGA PROVINCE

SIGNED: .....
NATIONAL TREASURE (PTY) LTD
REG NO. 2016/265134/07

Appendix B

Windeed list

WinDeed Database D/O Property - List

IT, 6, MPUMALANGA

Lexis® WinDeed

Any personal information obtained from this search will only be used as per the Terms and Conditions agreed to and in accordance with applicable data protection laws including the Protection of Personal Information Act, 2013 (POPI), and shall not be used for marketing purposes.

SEARCH CRITERIA			
Search Date	2022/02/15 08:12	Farm Number	6
Reference	-	Registration Division	IT
Report Print Date	2022/02/15 08:13	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Mpumalanga	Search Source	WinDeed Database

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
0	** FOR INFO REFER TO REGISTRAR OF DEEDS **	REPLACED	-	-
1	** FOR INFO REFER TO REGISTRAR OF DEEDS **	REPLACED	-	-
2	BASSON GIDEON JACOBUS	T272/2010	2010/01/07	1 270 000
3	BEER PIETER HENDRIK DE	T13170/2008	2008/08/22	550 000
6	JOUBERT FRANSISCA	T161602/2005	2005/12/08	33 000
7	C M J PAPENFUS TRUST	T12388/2016	2016/08/29	12 000 000
8	FISCHER DON	T55737/1991	1991/08/26	-
9	JOHAN UYS TRUST	T985/2019	2019/02/01	-
11	BEER PIETER HENDRIK DE	T12711/2000	2000/02/09	140 000
12	BEER PIETER HENDRIK DE	T46193/1984	1984/09/27	-
15	U B TRUST	T124759/1996	1996/12/23	420 000
16	MAGIYA COMMUNAL PROP ASSOC	T62337/1988	1988/09/15	300 000
17	STURGESS CHARLES ALFRED	T32650/1982	1982/09/13	-

Appendix C

Screening tool

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: DMRE Ref: MP 30/5/1/1/2/16885 PR

Project name: Roodepoort

Project title: Roodepoort Prospecting Project

Date screening report generated: 21/01/2022 09:21:55

Applicant: National Treasure Minerals (Pty) Limited

Compiler: Geovicon Environmental (Pty) Limited

Compiler signature:

.....

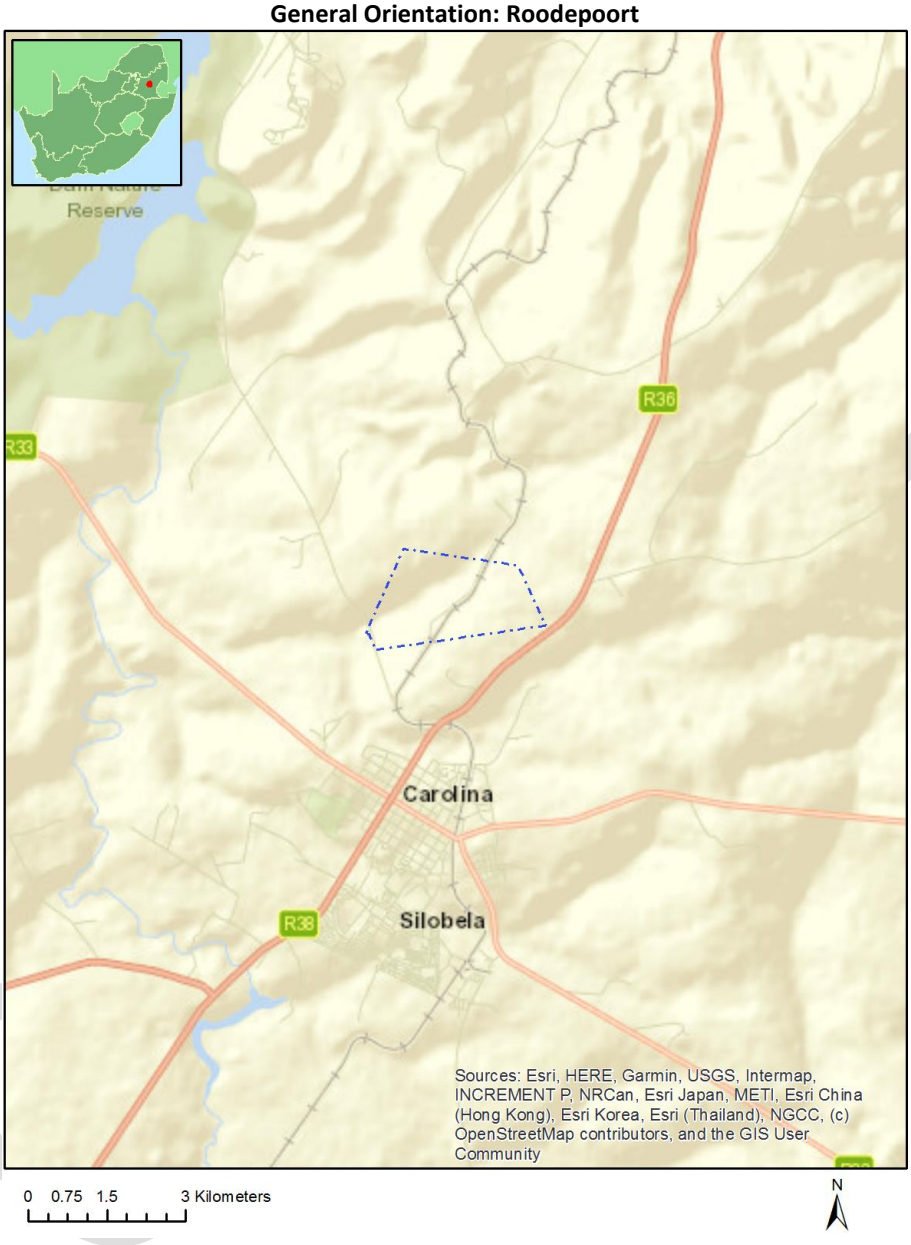
Application Category: Mining|Prospecting rights

Table of Contents

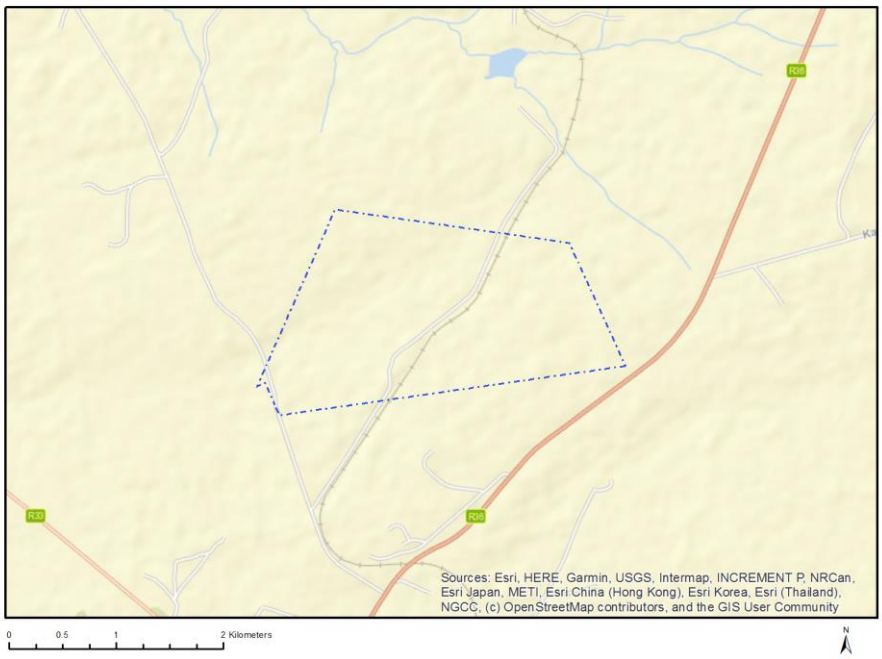
Proposed Project Location

Orientation map 1: General location

General Orientation: Roodepoort



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	ROODEPOORT	6	0	26°2'12.63S	30°4'33.26E	Farm
2	ROODEPOORT	6	12	26°2'24.48S	30°7'48.16E	Farm Portion
3	ROODEPOORT	6	8	26°2'14.01S	30°7'6.5E	Farm Portion
4	ROODEPOORT	6	11	26°2'26.2S	30°7'32.9E	Farm Portion
5	ROODEPOORT	6	3	26°2'13.2S	30°8'1.89E	Farm Portion

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

Environmental Management Frameworks relevant to the application

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

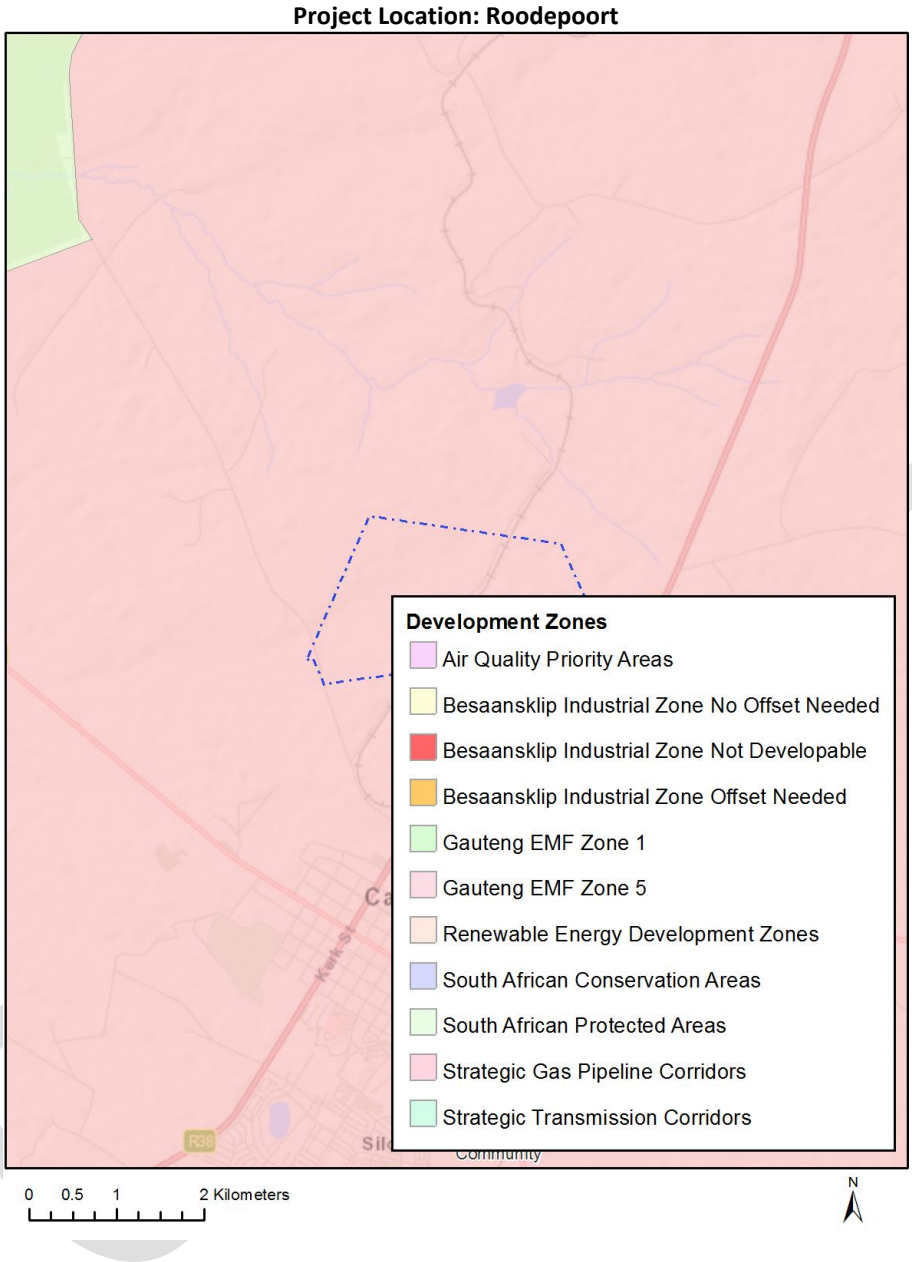
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining|Prospecting rights**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Gas Pipeline Corridors-Phase 8: Rompco Pipeline Corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme		X		
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

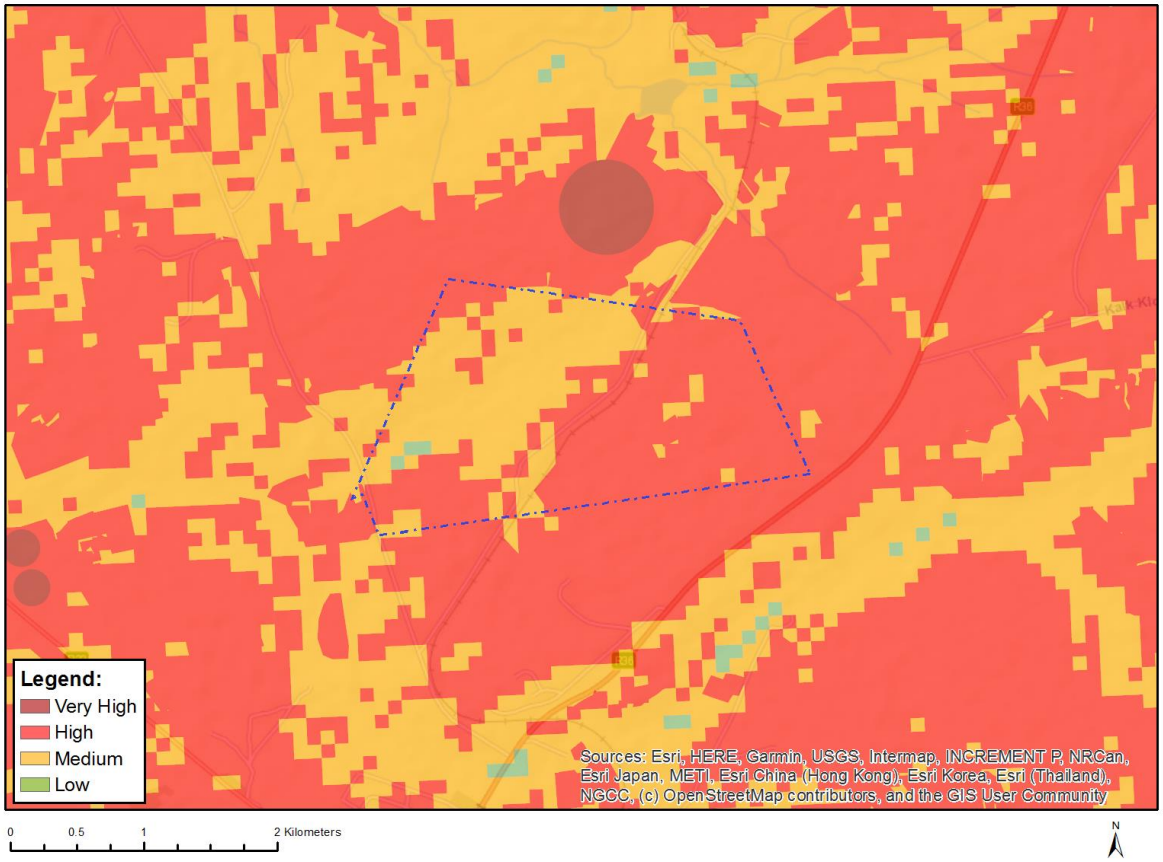
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Noise Impact Assess	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf

	ment	
7	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

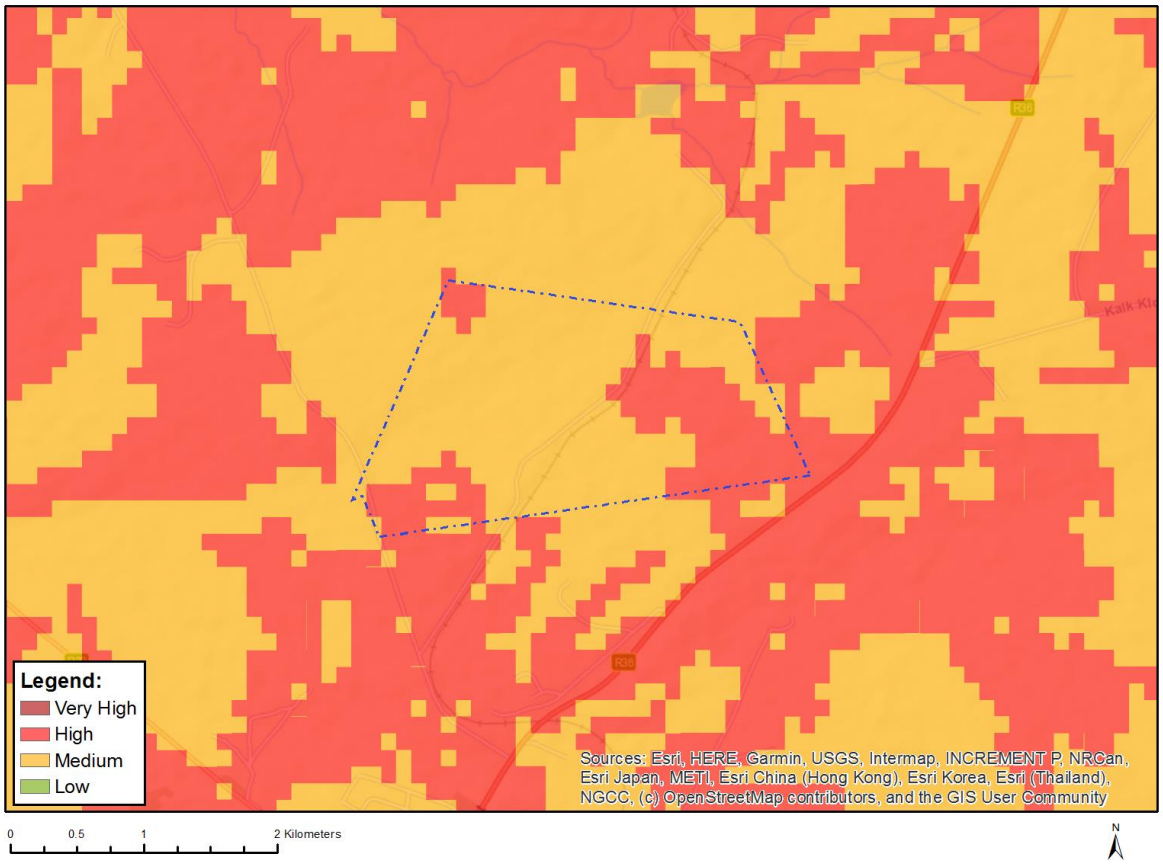


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Sagittarius serpentarius
High	Aves-Geronticus calvus
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

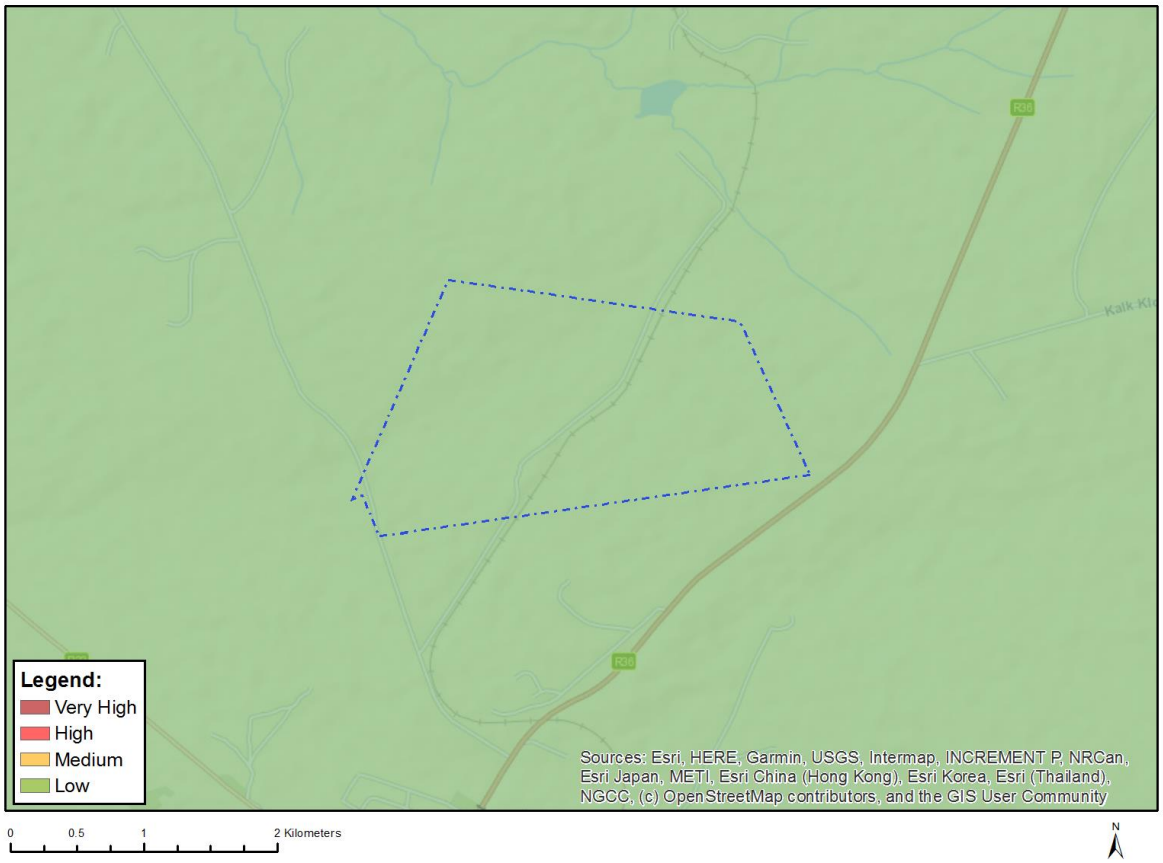
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Aquatic CBAs
Very High	Wetlands and Estuaries

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

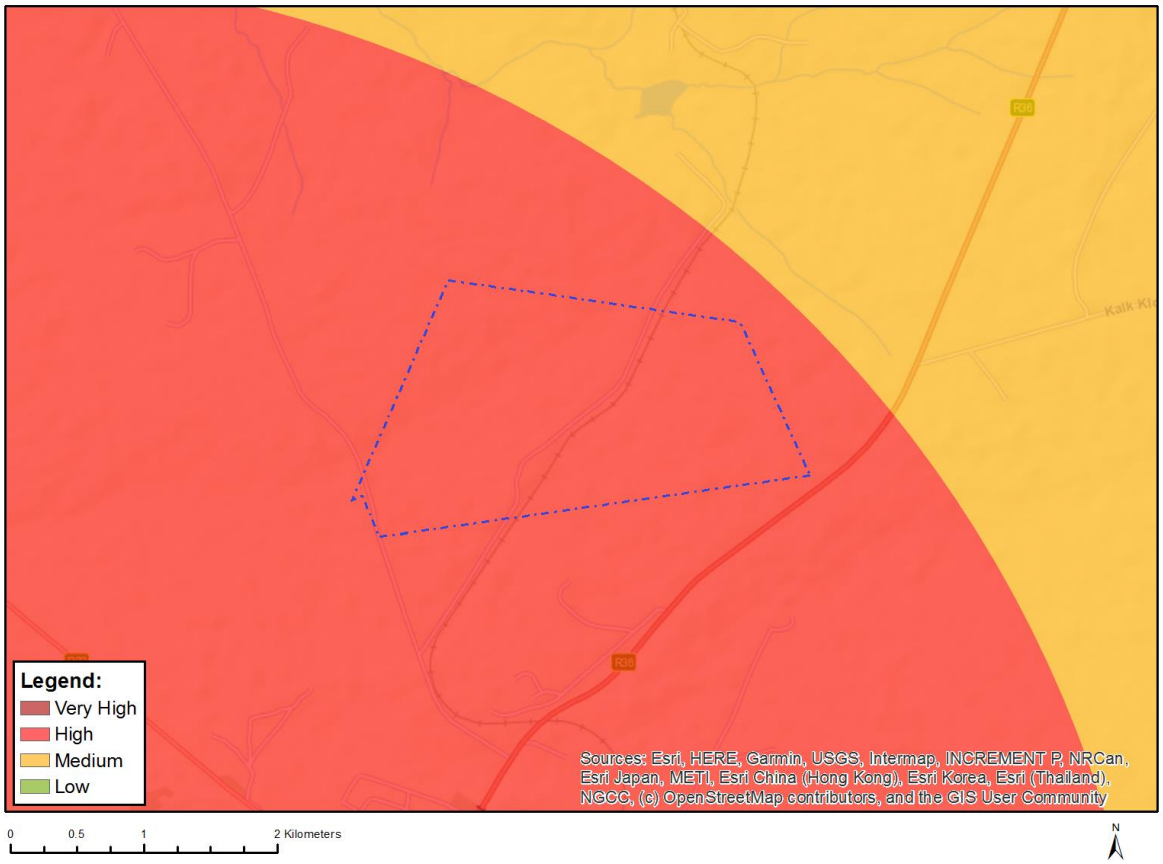


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

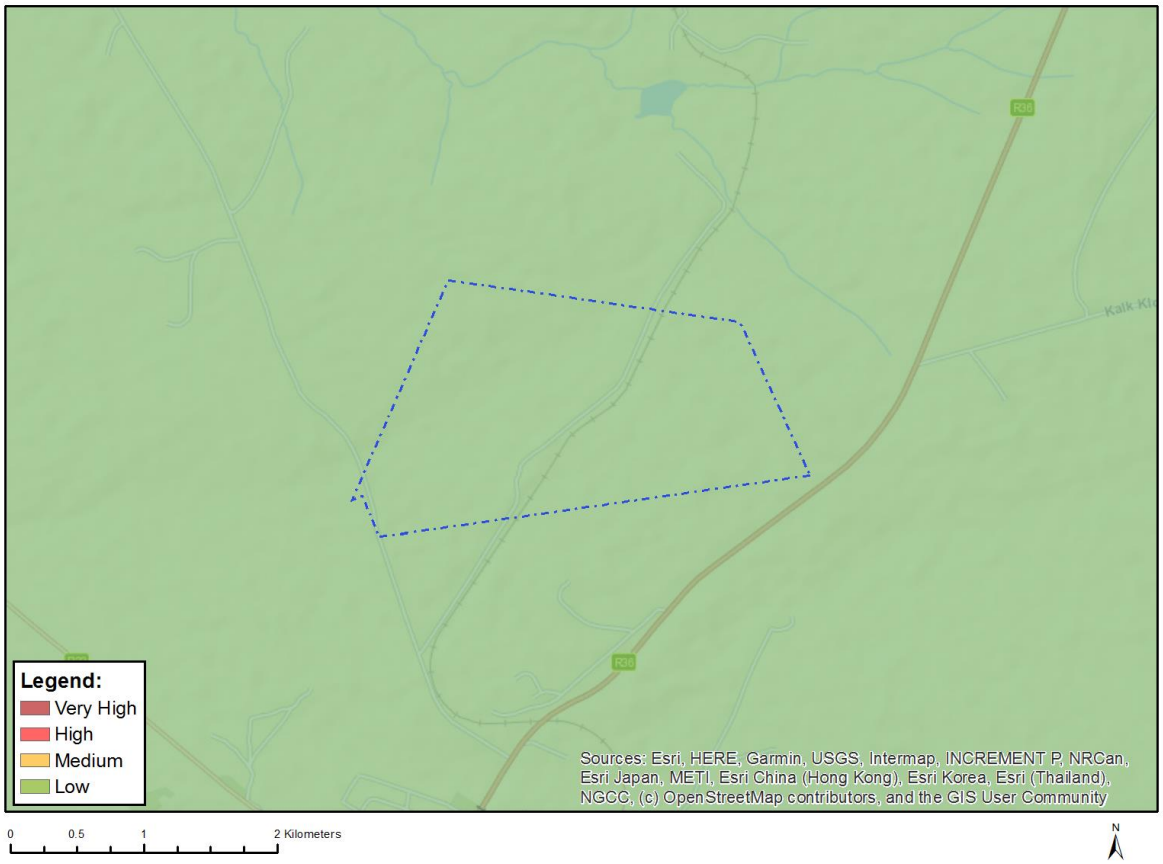


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

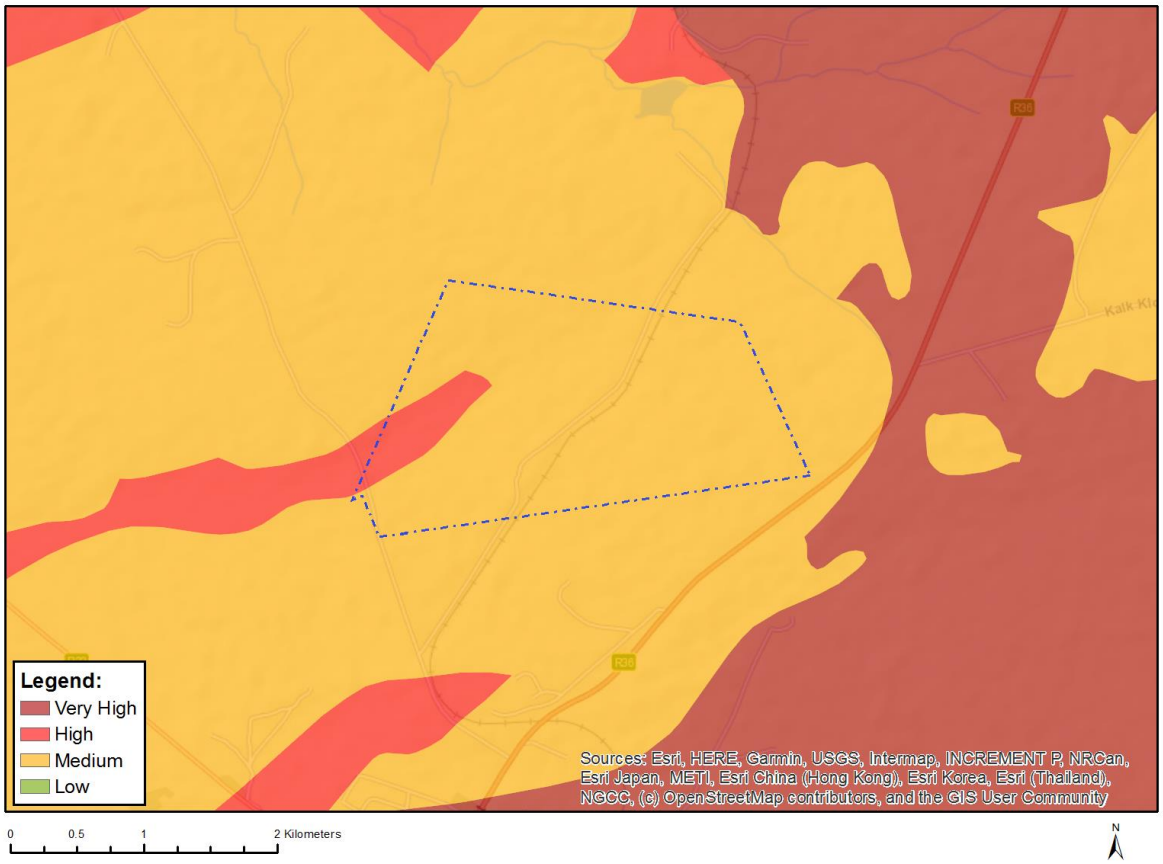


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

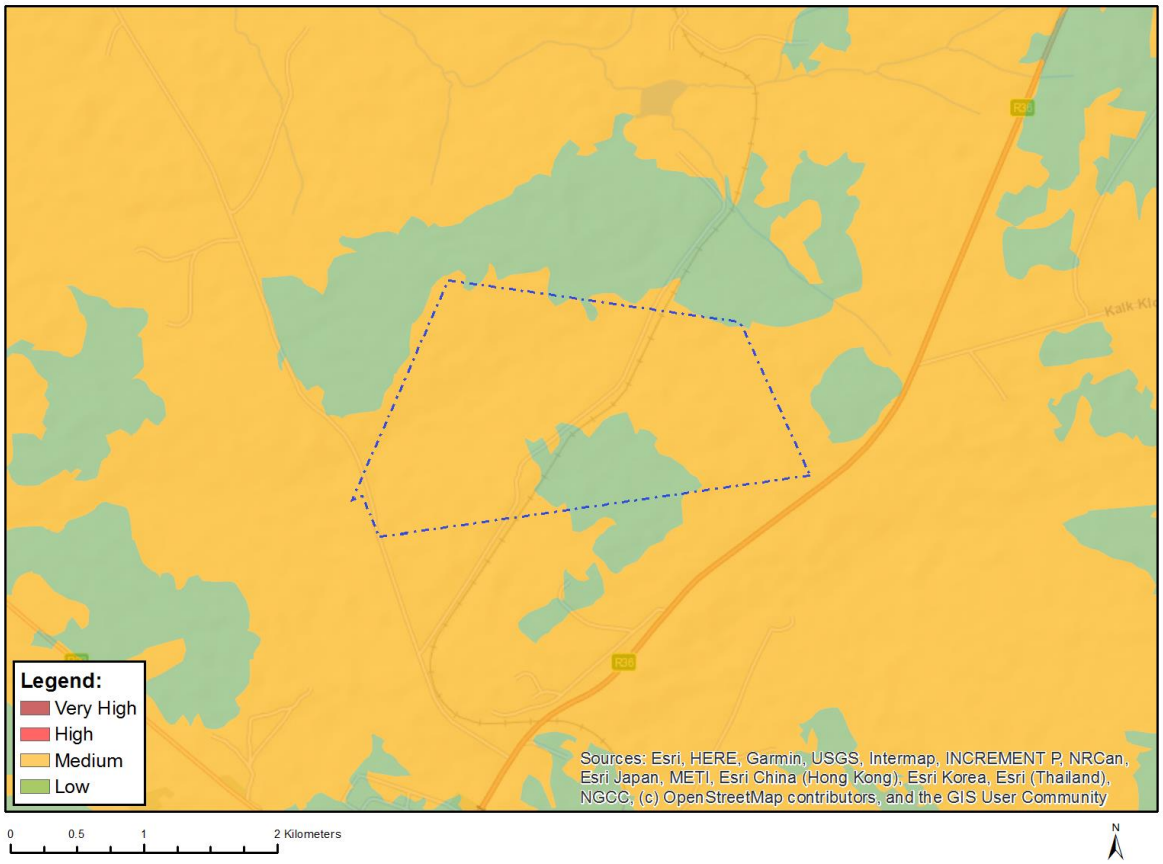


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Features with a High paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



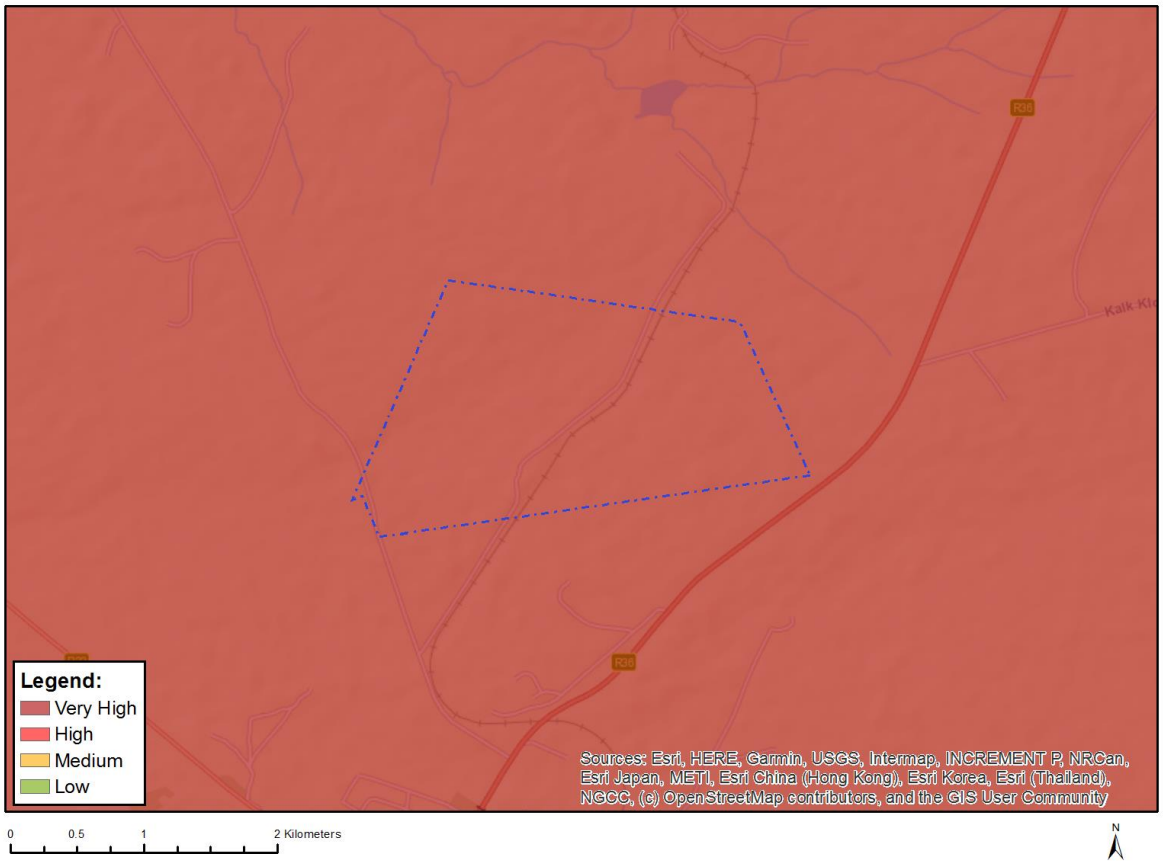
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Khadia carolinensis
Medium	Sensitive species 1201
Medium	Asclepias dissona
Medium	Miraglossum davyi
Medium	Sensitive species 41
Medium	Sensitive species 691
Medium	Pachycarpus suaveolens

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



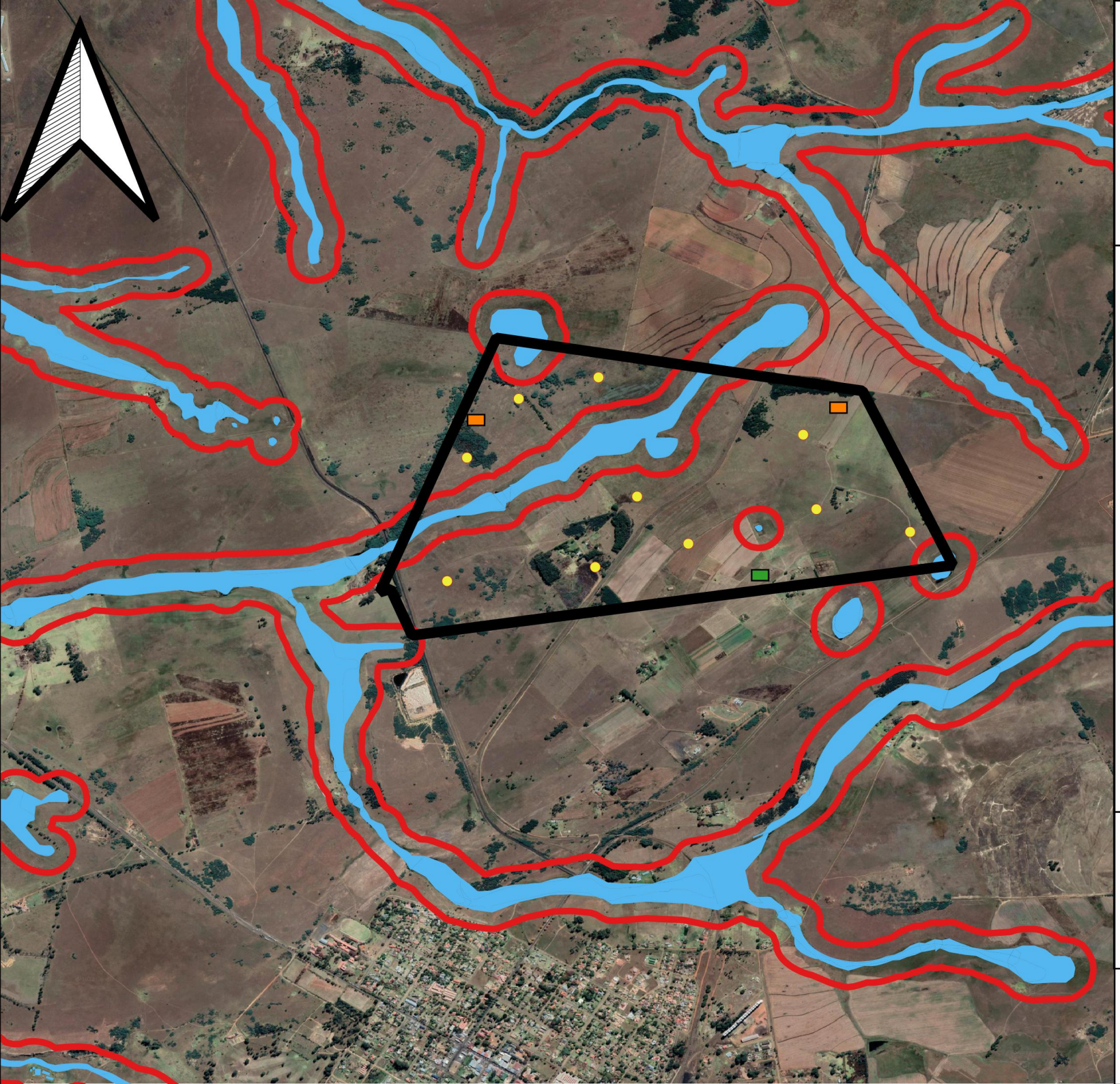
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Critical biodiveristy area 1
Very High	Vulnerable ecosystem
Very High	Protected Areas Expansion Strategy

Appendix D

Layout Plan



NATIONAL TREASURE MINERALS (PTY) LIMITED

Roodepoort prospecting right project

LEGEND

- Prospecting right boundary
- Proposed boreholes (10)
- Alternative camping site
- Preferred camping site
- Watercourses
- 100m buffer from

Nearest towns

3km North of Carolina

27km North West of Chrissiesmeer

0 750 1 500 m

Appendix E

EAP's Curriculum Vitae

CURRICULUM VITAE

ORNASSIS TSHEPO SHAKWANE (TSHEPO)

PERSONAL DETAIL

ID: 7207085407082

ADDRESS: **68 Pongola Drive**
Aerorand West, Middelburg
Mpumalanga

CONTACT: 013 243 0542 / 082 498 1847

E-MAIL: tshepo@geovicon.co.za

CAREER SUMMERY

2004 TO CURRENT: Geovicon Environmental (Pty) Ltd previously Geovicon (Pty) Ltd – Environmental Assessment Practitioner, Owner and Managing Director

As an environmental assessment practitioner I assist my clients to ensure that their operations complies with the external (international, national and local government) and internal environmental requirements. The following are the responsibilities of an environmental manager: developing and implementing environmental strategies and action plans that ensure compliance with the environmental laws; coordinating all aspects of pollution control, waste management, recycling, environmental management, conservation and renewable energy; ensuring the implementation of environmental policies and practices; ensuring compliance with environmental legislation and keeping up to date with new regulations and legislation; liaising with relevant bodies such as state authorities and the public; auditing, analysing and reporting environmental performance to internal personnel and regulatory bodies; development of applications for enviroenntal authorisations, water use licences, waste management licences and atmospheric air emissions licences; carrying out impact assessments to identify, assess and reduce the mine's environmental risks and financial cost; promoting and raising awareness of the impact of environmental issues; developing and implementing environmental management systems to continually improve the impact of the organisation on the environment; coordinating public meetings and consultations on environmental matters; managing relations with clients (board of directors, senior management and internal staff); training staff at all levels in environmental issues and responsibilities; writing environmental reports.

2004: Department of Minerals and Energy, eMalahleni Regional Office - Assistant Director

Evaluate Environmental Impact Assessment reports, Basic Assessment reports, Scoping reports, Environmental Management Programmes/Plans, Closure plans and other technical and Environmental documents. Recommend approval of the Environmental Management Programmes Conduct comprehensive environmental Inspection and environmental audits in line with Minerals Act, 1991 and related regulations. Identify environmental liabilities for mining operations and ensure evaluation of adequacy of financial provision. Investigate and resolve mine environmental related issues, attend to environmental related queries and complaints in mines. Assist public clients through promotion of administrative justice, Environmental, enforcement and investigate illegal mining. Participate in Environmental related forums and meetings. Supervision and management of the subordinates

2002 – 2003: Department of Water Affairs and Forestry (Gauteng Regional Office), Pretoria - Senior Water Pollution Control Officer

Managing Water Quality issue in the Vaal River catchment area; Managing both industrial and mining impacts; reviewing Environmental Impact Assessments, Environmental Management Programmes and Integrated Water Use Licence Applications. Managing junior officers and being involved in policy making processes. Establishment of water quality monitoring network, water quality sampling, environmental compliance inspections, drafting of Water Use License Reports, Making recommendations on decisions to be taken on Environmental Impact Assessments, Environmental Management Programmes and Integrated Water Use Licence Applications and other technical reports.

2001 – 2002: Department of Agriculture, Conservation, Environment and Land Administration (Gauteng Provincial Office), Johannesburg - Environmental Control Officer

Managing the Environmental Impact Assessment authorization processes for industrial and urban development in the Gauteng province; conducting compliance monitoring in accordance with the environmental laws, attending to pollution incidents and investigating public complaints; providing technical support to the directorate during Policy formulation.

2000 – 2001: Department of Water Affairs and Forestry (Mpumalanga Regional Office), Nelspruit - Water Pollution Control Officer

Managing Water Quality issue in the Olifants River catchment area; Managing both industrial and mining impacts; reviewing Environmental Impact Assessments, Environmental Management Programmes and Integrated Water Use Licence Applications.

EDUCATION AND QUALIFICATIONS

B. Sc. (Hons): 1995

University of Durban-Westville

B. Sc.: 1994

University of Durban-Westville

MATRIC: 1991

Imemeza High school, Waterval Boven

PROFESSIONAL DEVELOPMENT

- Environmental Law for Environmental Management
- Environmental Impact Assessment for Practitioners
- Environmental Risk Assessment for Practitioners

PROFESSIONAL REGISTRATIONS

SOUTH AFRICAN COUNCIL FOR NATURAL SCIENTIFIC PROFESSIONS (SACNASP)

(117080)

INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSORS SOUTH AFRICA (IAIASA)

(IAIASA 3847)

SKILLS

- Compilation of Integrated Water Use Licence Application
- Compilation of Integrated Water and Waste Management Plan
- Determination of Financial Provisions for Mines
- Compilation of Basic Assessment Reports
- Compilation of Scoping Reports
- Compilation of Environmental Impact/Risk Assessment Reports
- Compilation of Environmental Management Programme
- Compilation of Mine Closure Plans
- Compilation of Waste Management Plans and Procedures
- Compilation of Water Quality Reports
- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint
- Internet
- Email

University of Durban-Westville

This is to certify that

ORNASSIS TSHEPO SHAKWANE

was this day at a congregation of the University admitted to the

degree of

Honoris Baccalaureus Scientiae

having complied with the requirements of the Act, Statute and regulations

Vice-Chancellor

Registrar

Westville, 3 AUG 1996

HJP DBN.

348

University of Durban-Westville

This is to certify that

ORNASSIS TSHEPO SHAKWANE

was this day at a congregation of the University admitted to the

degree of

Baccalaureus Scientiae

having complied with the requirements of the Art, Statute and regulations

Vice-Chancellor

Registrar

Westville, 26 MAY 1995

HJP DBN.